

California Environmental Protection Agency



ARB Approved

Installation, Operation, and Maintenance Manual

For the OPW Phase I Vapor Recovery System

Approved: September 26, 2002
Amended: September 15, 2003

Summary of Guidelines for Maintenance Activities Required of the OPW Phase I Vapor Recovery System

¹Not For Use by Maintenance Contractors

Component	Interval	Maintenance To Be Performed
Pressure/Vacuum Vent Valve OPW 623V	Annual	Upper Screen 1. Remove vent top by depressing tabs on side of valve. Screen will slip up and out of valve. 2. Clean or replace filter screen as necessary and reinstall. 3. Reinstall vent top by reinserting into the body. Be sure the tabs are inside the valve body, and then rotate top until the tabs snap into place. Lower Screen 1. Remove valve assembly from pipe adaptor 2. Lift the filter screen out and clean or replace as necessary. 3. Reinstall filter screen in the pipe adaptor. 4. Reinstall valve assembly on pipe adaptor and tighten until it stops.
Husky 4885	Annual	1. Remove screws that hold top cover on. 2. Remove any debris that might be sitting inside the lower cover. 3. Check the drain holes in the lower cover for blockage. 4. Do not remove the two (2) screens. 5. Reinstall the top cover and retaining screws. 6. Tighten the screws firmly.
Spill Containers and Drain Valves OPW/POMECO "All Models"	Annual and after each delivery	After each delivery, the operator must remove any standing fuel from the container. Annually, clean the interior of the container and drain valve. Annually, remove accumulated dirt and grit. If the drain valve becomes clogged, remove the valve, soak in water and use high-pressure air to clean. If valve is removed, reinstall to its proper position and perform CARB TP-201.1C or TP-201.1D
Dust Caps OPW "All Models"	Annual	Visually inspect the seal in cap and replace if damaged or missing.
Product Adaptor OPW 61SALP	Annual	Visually inspect the adaptor for large dents, cracks or deformations.

¹ These maintenance requirements shall not circumvent use of the manufacturer's installation and maintenance instructions. Maintenance contractors or owner/operators shall refer to the manufacturers complete installation and maintenance instructions found in the ARB-Approved Installation, Operation, and Maintenance Manual for the OPW Phase I System to ensure that all maintenance and torque requirements are met.

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<p>Vapor Adaptor OPW 61VSA</p>	<p>Annual</p>	<p>Visually inspect the adaptor for large dents, cracks or deformations. Check the vapor poppet for damage and ensure that the poppet seats evenly with the adaptor. Clean out any foreign objects from the vapor poppet's seal and seal surface if necessary. Test the poppet seal by applying a soap solution to the poppet while the underground storage tank is under a positive gauge pressure of at least 2.00 inches W.C and inspect for the presence of bubbles. If the facility continuously operates under vacuum, a bag test may be used by sealing a clear plastic bag to the adaptor's sides. If no bubbles appear at the poppet under positive pressure or the bag test shows no signs of the bag collapsing, no further maintenance is required. If bubbles appeared around the poppet seal or the bag collapsed, replace the poppet components and re-test.</p>
<p>Extractor Assembly OPW 233</p>	<p>None</p>	<p>No maintenance is required for this product.</p>
<p>Ball Floats OPW "All Models"</p>	<p>3 years</p>	<p>Visually inspect the valve for damage, contamination, corrosion, freedom of movement of the ball float and check the bleeder orifice for proper airflow. Replace if damaged or corroded.</p>
<p>Jack Screw Kit OPW 61JSK</p>	<p>Annual</p>	<p>Visually inspect the Jack Screw for proper alignment and installation.</p>
<p>Face Seal Adaptor OPW FSA-400</p>	<p>None</p>	<p>No maintenance is required for this product.</p>
<p>Drop Tubes OPW 61T</p>	<p>Annual</p>	<p>Visually inspect Drop Tube to see if it is installed and ensure that the bottom of tube is within 6 inches of the bottom of tank. Test the drop tube seal with ARB procedure TP-201.1C or TP-201.1D as applicable. If the drop tube seal passes testing, no further maintenance is required. If the drop tube seal fails testing, replace the drop tube seal with OPW P/N: H11931M for 4" Tubes. Re-test the drop tube seal with ARB procedure TP-201.1C or TP-201.1D as applicable.</p>

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<p>Drop Tube Overfill Prevention Device OPW 61SO</p>	<p>Annual</p>	<p>Annually, inspect the flapper in the 61SO to see that it is open by looking down the drop tube opening. Test the 61SO seals with ARB procedure TP-201.1D. If the drop tube passes testing, no further maintenance is required. If the drop tube fails testing, replace the drop tube seal with OPW P/N: H11931M. Re-test the 61SO with ARB procedure TP-201.1D. If this does not correct the leak the 61SO needs to be replaced.</p>
<p>Tank Bottom Protector OPW/POMECO 6111-1400</p>	<p>None</p>	<p>No maintenance is required for this product.</p>
<p>Tank Gauge Port Components Morrison Brothers 305 Ever-Tite 4097 Veeder-Root 312020-952</p>	<p>Annual</p>	<p>Visually inspect cap to see that it is not missing any seals and is properly installed.</p>

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² The 53VML includes both the 2" and 3" models.

Figure A-1

Typical Product Installation Using OPW System

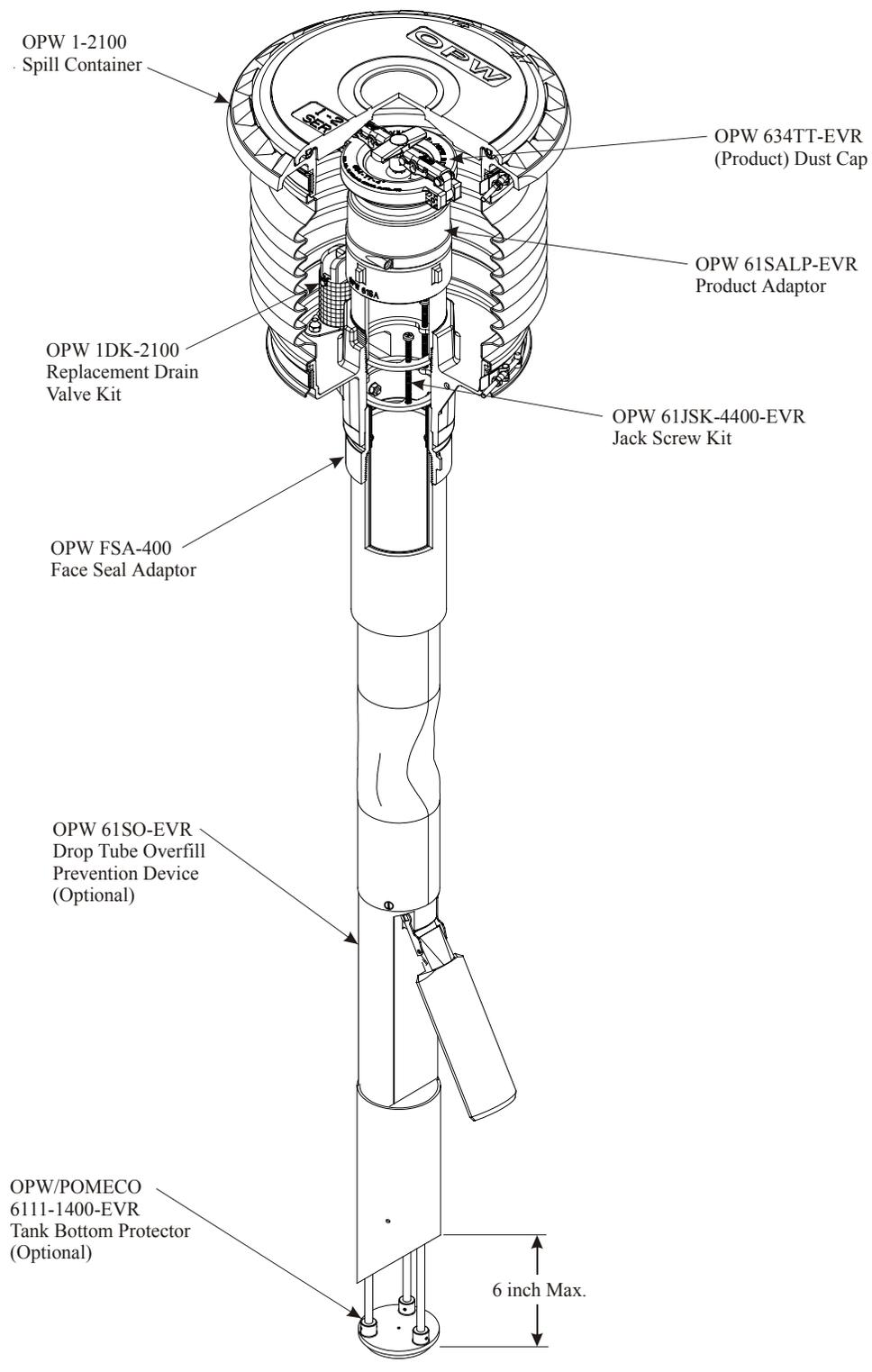


Figure A-2

Typical Vapor Installation Using OPW System

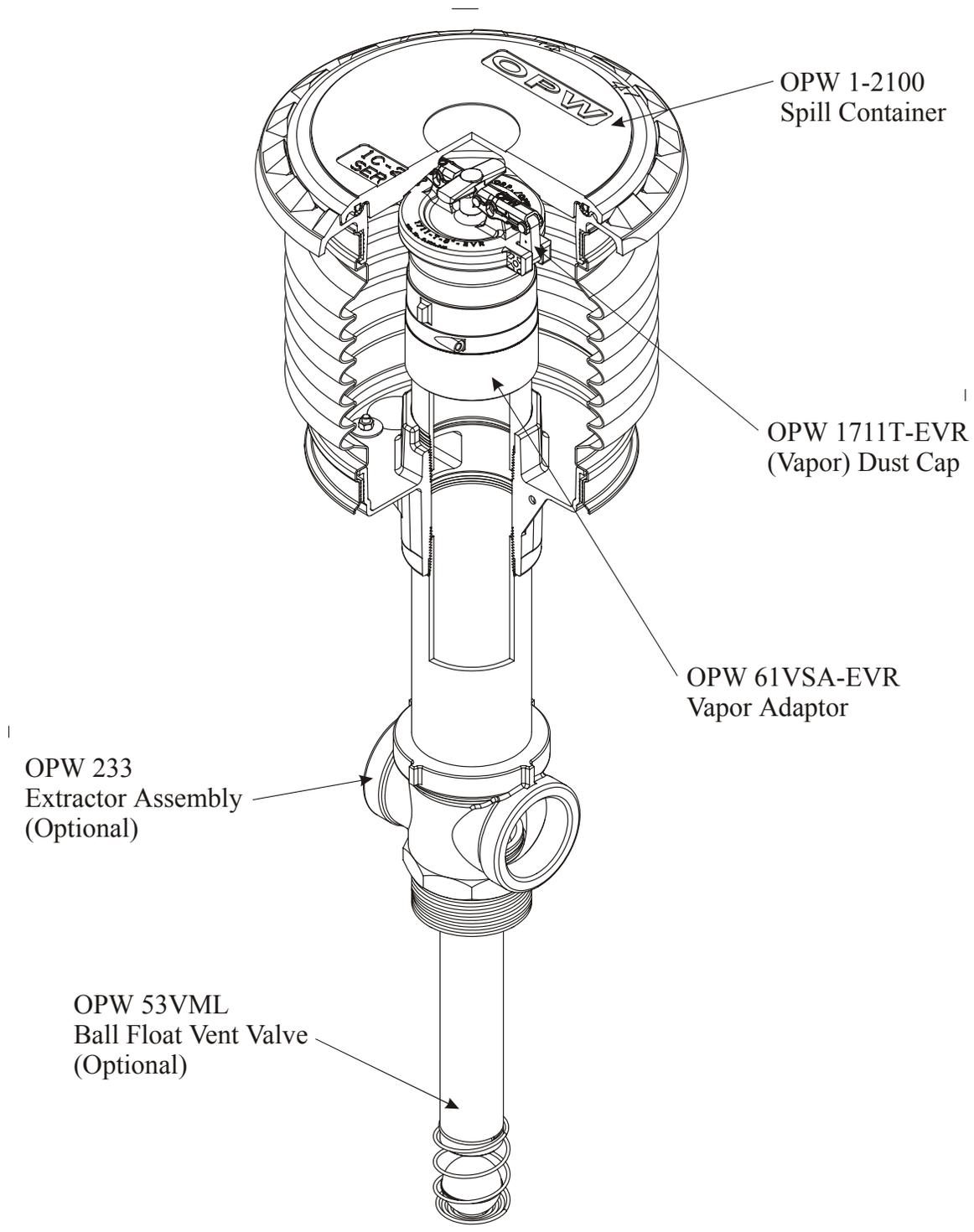


Figure B-1



OPW Installation and Maintenance Instructions

OPW 1-2100 Series Thread-On Grade Level Spill Containers

IMPORTANT: Please read these warnings and use the assembly instructions completely and carefully before starting. Failure to do so may cause product failure, or result in environmental contamination due to liquid leakage into the soil, creating hazardous spill conditions.

IMPORTANT: The OPW 1-2100 Spill Container is pre-assembled for your convenience and ease of installation. Check to make sure the unit is intact and undamaged and all parts have been supplied. Never substitute parts for those supplied. Doing so may cause product failure.

WARNING-DANGER: Using electrically operated equipment near gasoline or gasoline vapors may result in a fire or explosion, causing personal injury and property damage. Be sure that the working area is free from such hazards, and always use proper precautions.

NOTE: At all times when product is in the storage tank keep the riser pipe capped, so the vapors cannot escape into the environment.

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.

In California it is prohibit to use spill container drain valves on spill containers that are exclusively used for vapor return risers. Install only 1-2100 Series Thread-On spill containers models equipped with a drain plug.

1-2100 Series Performance Specifications:

This Spill Container drain valve has been manufactured and tested to the following California specifications: Leak Rate to be less than or equal to 0.17 CFH @ 2.0 " W.C.

Torques Specification:

Spill Container 4" NPT, 125 ft-lbs minimum to 250 ft-lbs maximum.

4" Nipple, 4" NPT, 125 ft-lbs minimum to 250 ft-lbs maximum.

Drain Valve clamps, 5/16-18 UN thread, 11.5 ft-lbs minimum to 13.5 ft-lbs maximum.

OPW NO. 1-2100 SERIES GRADE LEVEL SPILL CONTAINER INSTALLATION INSTRUCTIONS:

Step 1.

Per California SB-989, all metal must be protected from direct contact with the elements. Coat stainless steel band clamps with the following approved coatings. OPW SL-1100, 3M Underseal 08883 or Polyguard Mastic CA-9. Only the threaded hardware needs to be coated in the field.

Step 2: (See Figure 1 & 2)

Set riser pipe. "L" is the distance between the top of the riser pipe and finish grade.

Model Series	"L" Dimension
1-2100, 5 Gallon	L=15" (38cm)
1-2100E, 7.5 Gallon (Deep Bellows Model)	L=21" (53cm)
1-2115, 15 Gallon	L=20" (51cm)

Note:

For Cast Iron base, subtract 1-1/2" from Dimension "L".

If using OPW FSA-400, add 3-1/4" to Dimension "L".

If using OPW FSA-400-S, add 1-3/4" to Dimension "L".

NOTE: FSA-400-S will only work with Cast Iron Base.

Step 3:

Deburr and thoroughly clean riser pipe. Apply pipe dope to riser threads. Pipe dope to be a non-hardening, gasoline resistant pipe thread seal compound.

Step 4:

Install OPW FSA-400 Face Seal Adapter onto riser using the OPW 61SA-TOOL. Torque to 125 ft-lbs min. to 250 ft-lbs max. (4" NPT). Apply pipe dope to FSA-400. Pipe dope to be a non-hardening, gasoline resistant pipe thread seal compound.

Step 5:

Install spill container by rotating the mounting ring until hand tight.

NOTE: Do not attempt to completely tighten the container by using the mounting ring

Step 6:

Finish tightening the spill container with the OPW 61SA-TOOL. Torque to 125 ft-lbs min. to 250 ft. Lbs. max. (4" NPT)

Step 7: (See Figure 2)

Apply pipe dope to nipple and install. Pipe dope to be a non-hardening, gasoline resistant pipe thread seal compound. Use only factory made nipples. Nipples must be cut square and deburred. Torque to 125 ft-lbs min. to 250 ft-lbs max. (4" NPT). Torque value is

based on rotation at the center of pipe. For standard cover models install adaptor and dust cap. For sealable cover (1SC) models, install a standard 4" pipe cap to support adjustment system. (Adaptor and dust cap must be installed in sealable cover (SC) models after concrete has dried.

Note: Nipple length is determined by measuring from the bottom of the threaded portion of the base to the bottom of the cover. Then subtract 2" for clearance, height of adaptor and height of cap. Range of nipple lengths that can be used in all of the OPW spill containers: 4" minimum to 14" maximum.

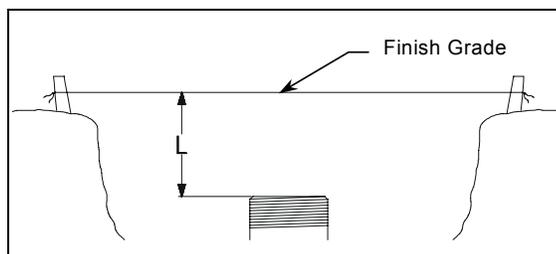


Figure 1

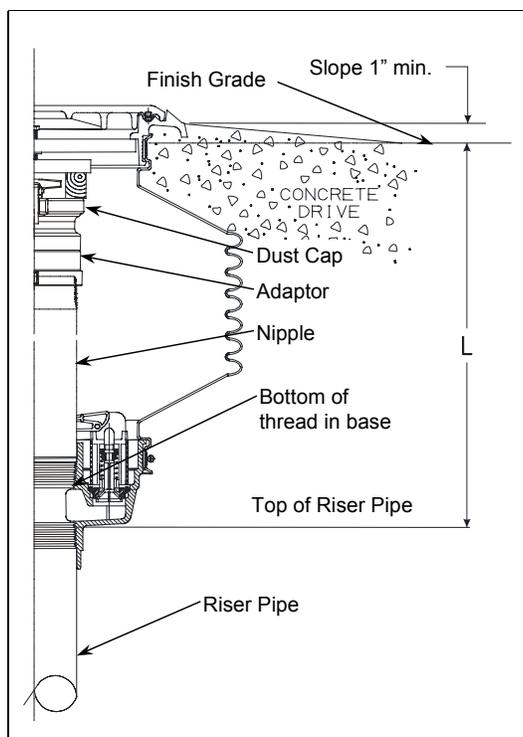


Figure 2

Step 8: (See Figure 3 & 4)

Install adjusting system beneath tabs on mounting ring. See Figure 3 for standard cover models. See Figure 4 for sealable cover models. Add shims as needed and adjust with screw. (Shims must be cut to size for sealable cover models.) The height can be increased up to 1" (2.5cm).

Note: The adjustment should not be more than 1" from the initial length of the unit.

Step 9:

Upon preliminary installation perform the California Test Procedures TP-201.1C or equivalent. Their Test Procedures will check the seals between the drain valve, nipple and rotatable adapter. To test the spill containers base and bellows fill the container with water. A drop in the water level of 1/16" or greater after one hour means that a leak exists. To determine where the leak is, look for a steady stream of bubbles coming from one of the joints or water leaking on the outside of the bucket. **NOTE:** Do not drain the water into the UST after the test is complete. Water must be disposed of per local requirements for hazardous waste. If the leak cannot be corrected the spill container should be replaced with another.

Step 10: (See Figure 2)

Before pouring concrete, place plastic over the cover and mounting ring protecting them from concrete splash. Double check that the unit is level and at proper grade height. Pour concrete per figure 2. Ramp or dome the concrete away from the mounting ring. There should be a minimum of 1" slope to finish grade. The concrete surface should start at the bottom edge of the watershed slots and tapered down to grade level.

NOTE: Do not stand on spill container before concrete sets up.

Remove plastic from cover after concrete has dried. Remove adjustment system. Adaptor and tight fill cap can now be installed in sealable cover models. Re-test the spill containers for leaks as described in step 9, after the concrete has set up.

Operation and Maintenance:

After each fuel delivery, the operator must remove any standing fuel from the container. Fuel can be removed by actuating the drain valve or with a gasoline absorbing disposable towel.

Annually: Inspect and clean the interior of the spill container and drain valve screen. Remove accumulated dirt and grit. If the drain valve screen becomes clogged, remove the valve, soak in water and use high-pressure air to clean. Reinstall the drain valve to its proper position and test the valve per California Test Procedure TP-201.1C or equivalent. If problems persist, replace the drain valve with P/N 1DK-2100-EVR (specified torque 11.5 ft-lbs min to

13.5 ft-lbs max, 5/16-18 UN thread). The sealable cover (1SC) adjustment nut is set at the factory, but due to environmental conditions it may be necessary to adjust it to either improve sealing or ease cover removal.

Important: Leave these instructions with Station Operator.

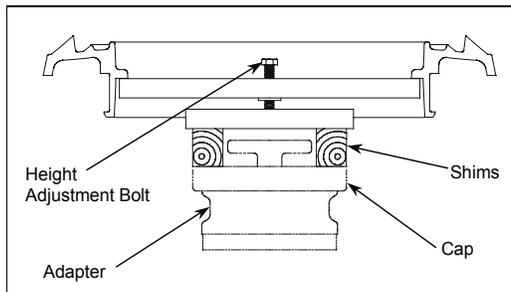


Figure 3 – Standard Cover Model Height Adjustment

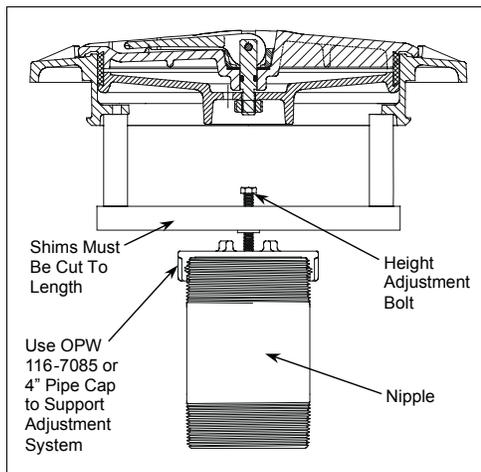


Figure 4 – Sealable Cover Model Height Adjustment



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Figure C-1

 **OPW Installation and Maintenance Instructions**
OPW 1DK-2100 EVR Replacement Drain Valve

IMPORTANT: Please read these warnings and use the assembly instructions completely and carefully before starting. Failure to do so may cause product failure, or result in environmental contamination due to liquid leakage into the soil, creating hazardous spill conditions.

IMPORTANT: Check to make sure the unit is intact and undamaged and all parts have been supplied. Never substitute parts for those supplied. Doing so may cause product failure and void warranty.

WARNING-DANGER: Using electrically operated equipment near gasoline or gasoline vapors may result in a fire or explosion, causing personal injury and property damage. Be sure that the working area is free from such hazards, and always use proper precautions.

NOTE: At all times when product is in the storage tank keep the riser pipe capped, so the vapors cannot escape into the environment.

The OPW 1DK is an optional drain valve replacement kit for the OPW 1 Spill containers series. It is designed to return incidental spillage of liquid back to the underground storage tank.

HOW TO INSTALL

1. Remove and discard existing drain valve and O-ring.
2. Clean any dirt or debris from the sealing surface where the new drain valve will be installed.
3. Apply any common grease or light oil to the new supplied O-ring. Assemble the O-ring into the spill container base.
4. Insert the 1DK into the spill container O-ring. Be sure that the drain valve seats flush with the floor of the spill container base.
5. The pull lever of the 1DK **MUST** be positioned halfway between the riser pipe nipple and the spill container bellows. Rotate the drain valve until that position is attained.
6. Secure the 1DK by installing the provided retaining clips and nuts. Tighten the nuts to a torque of 11.5 ft-lbs min. to 13.5 ft-lbs max.
7. The drain valve is now installed and ready for testing.

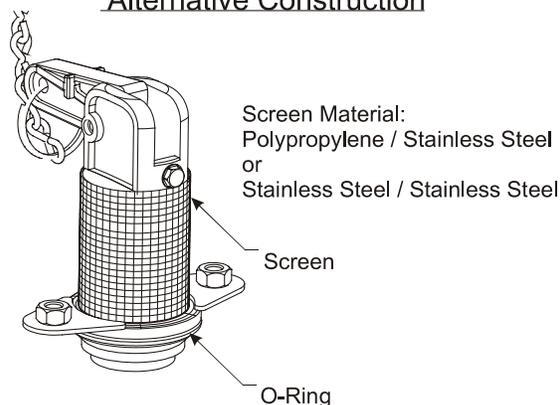
HOW TO TEST

Upon preliminary installation perform the California Test Procedures TP-201.1C or equivalent. Their Test Procedures will check the seals between the drain valve, nipple and rotatable adapter. To test the spill containers base and bellows fill the container with water. A drop in the water level of 1/16" or more after one hour means that a leak exists. To determine where the leak is, look for a steady stream of bubbles coming from one of the joints. **NOTE:** Do not drain the water into the UST after the test is complete. Water must be disposed of per local requirements for hazardous waste.

If a leak is observed in the Test Procedure, check to see that the drain valve poppet is sealing properly. To do this, lift up the drain valve pull chain several times to actuate the poppet. This will ensure that the drain valve poppet is seating properly. If this doesn't correct the leak remove the 1DK valve and inspect the O-ring for nicks or tears, replace if needed, also clean the sealing surfaces of the spill container base that the 1DK valve and O-ring are installed into. Reinstall 1DK valve and repeat test.

If spill container passes the Test Procedure but does not hold water then there is a leak in the bucket and will need to be replaced.

Alternative Construction



1DK-2100 EVR Replacement Drain Valve Performance Specifications:

This Spill Container drain valve has been manufactured and tested to the following California specifications: Leak Rate to be less than or equal to 0.17 CFH @ 2.0 " W.C.

Operation and Maintenance:

To open, pull drain valve chain up and hold open until liquid is drained. To close, release chain.

Annually: Inspect and clean the interior of the spill container and drain valve screen. Remove accumulated dirt and grit. Test the drain valve using CARB procedure TP-201.1C or TP-201.1D. If the drain valve passes testing no further maintenances required. If the drain valve fail testing, remove the valve, soak in water and use high-pressure air, if needed, to clean. Reinstall the drain valve to its proper position and test the valve with CARB procedure TP-201.1C or TP-201.1D.

Important: Leave these instructions with 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. OPW makes no warranty of fitness for a particular use. 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

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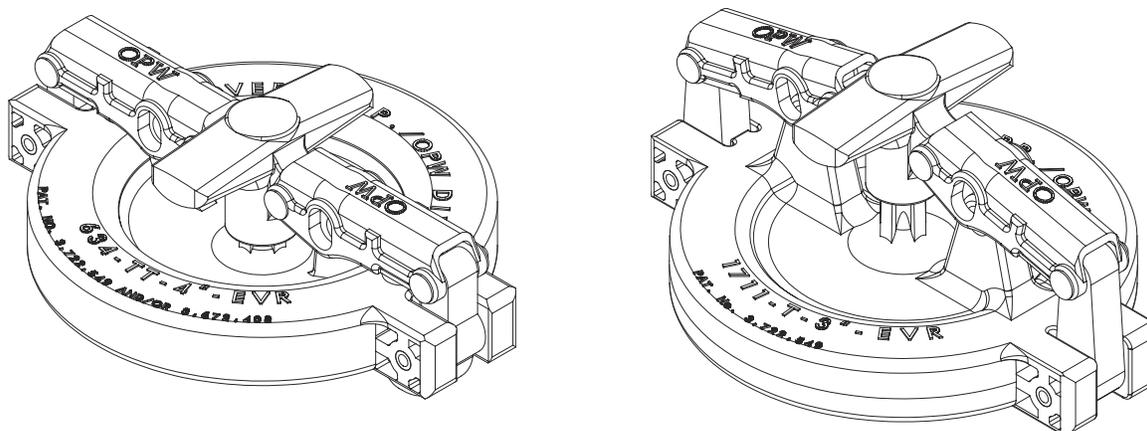


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Figure D-1

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

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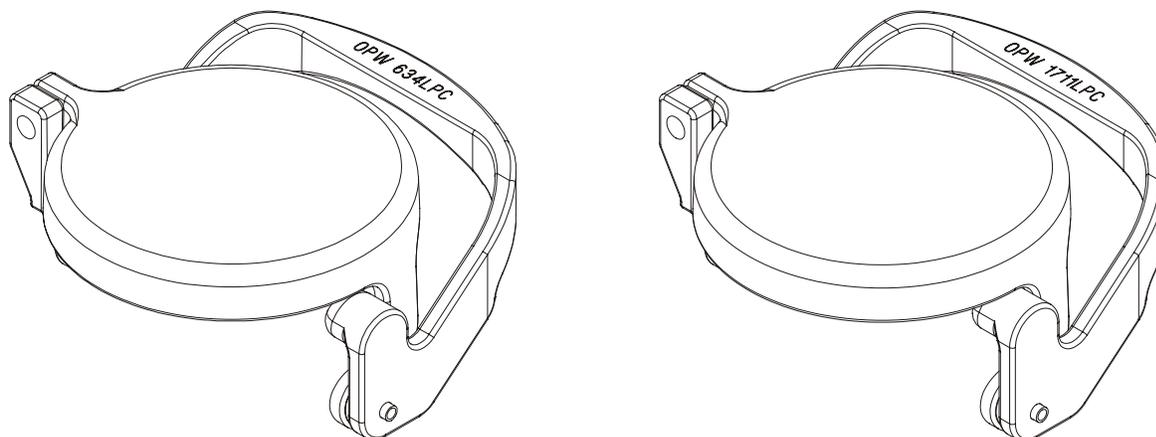
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Figure D-2

OPW 634LPC and 1711LPC Dust Caps



Operation and Maintenance:

Annually inspect seal for nicks, tears or deformations. If required replace with OPW P/N: H15005M.

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.

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Figure E-1



OPW Installation and Maintenance Instructions **OPW 61VSA EVR Poppeted Rotatable Vapor Recovery Adaptor**

IMPORTANT: Please read these warnings and use the assembly instructions completely and carefully before starting. Failure to do so may cause product failure, or result in environmental contamination due to liquid leakage into the soil, creating hazardous spill conditions.

IMPORTANT: Check to make sure the unit is intact and undamaged and all parts have been supplied. Never substitute parts for those supplied. Doing so may cause product failure.

WARNING-DANGER: Using electrically operated equipment near gasoline or gasoline vapors may result in a fire or explosion, causing personal injury and property damage. Be sure that the working area is free from such hazards, and always use proper precautions.

NOTE: At all times when product is in the storage tank keep the riser pipe capped, so the vapors cannot escape into the environment.

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.

61VSA Performance Specifications:

This Rotatable Adaptor has been manufactured and tested to the following California specifications: Rotatable 360°, Static torque of 108 inch-lbs.

Preventative Maintenance:

Annually, inspect the adaptor for large dents, cracks or deformation. Replace if necessary. The rotation mechanism is not field serviceable.

Check the vapor poppet for damage and ensure that the poppet seats evenly with the adaptor. Clean out any foreign objects from the vapor poppet's seal and seal surface if necessary. Test the poppet seal by applying a soap solution to the poppet while the underground storage tank is under a positive gauge pressure of at least 2.00 inches W.C and inspect for the presence of bubbles. If the facility continuously operates under vacuum, a bag test may be used by sealing a clear plastic bag to the adaptor's sides. If no bubbles appear at the poppet under positive pressure or the bag test shows no signs of the bag collapsing, no further maintenance is required. If bubbles appeared around the poppet seal or the bag collapsed, replace the poppet components and re-test

Replacement Parts:

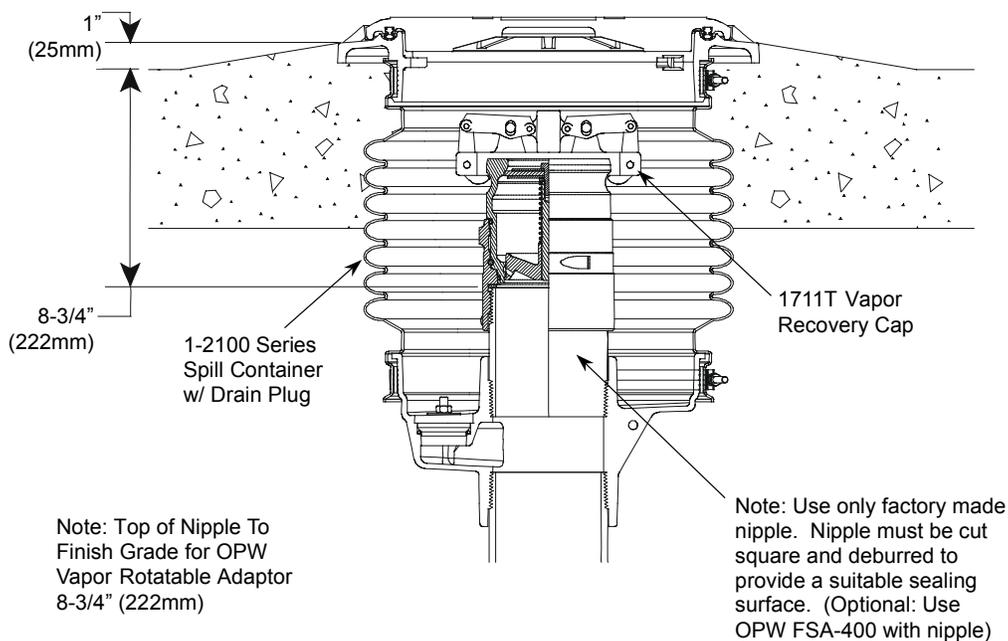
Nipple sealing gasket OPW P/N: H09039M.
Vapor Poppet Kit OPW P/N: 61VSA-Kit

Torque Specification:

Adaptor, 4" NPSM, 90 ft-lbs minimum to 110 ft-lbs maximum.

Important: Leave these Installation Instructions with the Station Operator.

OPW 61VSA EVR Series Poppeted Rotatable Vapor Adaptor INSTALLATION INSTRUCTIONS



Step 1

The riser nipple in the spill container must be cut square and deburred. See drawing note for the correct distance between the top of the nipple and finished grade. (Optional: Use an OPW FSA-400 Face Seal Adaptor with nipple. Add 3-1/4" to distance from top of nipple to finish grade).

Step 2 (Optional)

Apply pipe dope to the nipple. Pipe dope to be non-hardening, gasoline resistant pipe thread seal compound.

Step 3

Tighten the Rotatable Adaptor onto the nipple with a torque of 90 ft-lbs min. to 110 ft-lbs max, this will be enough torque to seat and seal the gasket. Use a 61SA-TOOL to install rotatable adaptor.



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Figure F-1



OPW Installation and Maintenance Instructions **OPW 61VSA EVR Poppeted Rotatable Vapor Recovery Adaptor**

IMPORTANT: Please read these warnings and use the assembly instructions completely and carefully before starting. Failure to do so may cause product failure, or result in environmental contamination due to liquid leakage into the soil, creating hazardous spill conditions.

IMPORTANT: Check to make sure the unit is intact and undamaged and all parts have been supplied. Never substitute parts for those supplied. Doing so may cause product failure.

WARNING-DANGER: Using electrically operated equipment near gasoline or gasoline vapors may result in a fire or explosion, causing personal injury and property damage. Be sure that the working area is free from such hazards, and always use proper precautions.

NOTE: At all times when product is in the storage tank keep the riser pipe capped, so the vapors cannot escape into the environment.

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.

61VSA Performance Specifications:

This Rotatable Adaptor has been manufactured and tested to the following California specifications: Rotatable 360°, Static torque of 108 inch-lbs.

Preventative Maintenance:

Annually, inspect the adaptor for large dents, cracks or deformation. Replace if necessary. The rotation mechanism is not field serviceable.

Check the vapor poppet for damage and ensure that the poppet seats evenly with the adaptor. Remove any foreign objects from the vapor poppet's seal. The vapor poppet seal is not field serviceable.

Replacement Parts:

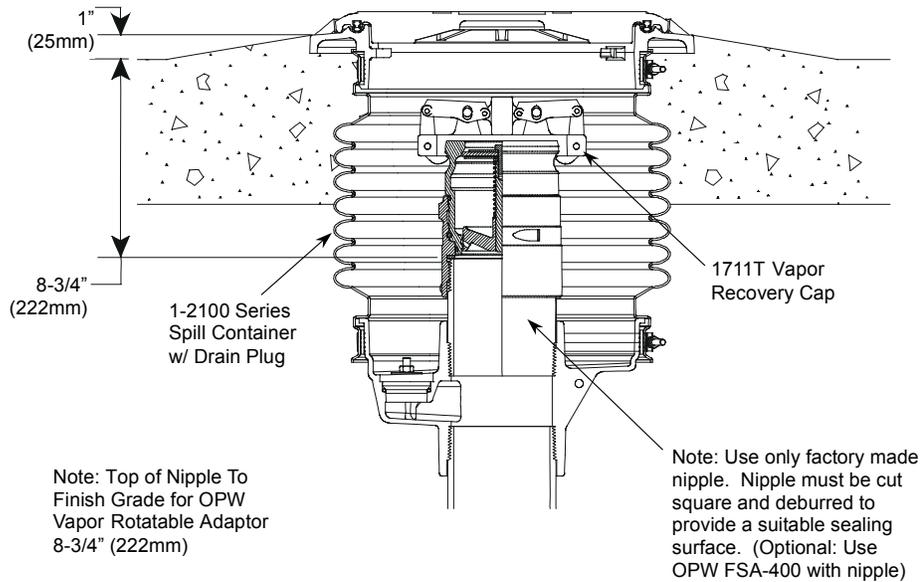
Nipple sealing gasket OPW P/N: H09039M.

Torque Specification:

Adaptor, 4" NPSM, 90 ft-lbs minimum to 110 ft-lbs maximum.

Important: Leave these Installation Instructions with the Station Operator.

OPW 61VSA EVR Series Poppeted Rotatable Vapor Adaptor INSTALLATION INSTRUCTIONS



Step 1

The riser nipple in the spill container must be cut square and deburred. See drawing note for the correct distance between the top of the nipple and finished grade. (Optional: Use an OPW FSA-400 Face Seal Adaptor with nipple. Add 3-1/4" to distance from top of nipple to finish grade).

Step 2 (Optional)

Apply pipe dope to the nipple. Pipe dope to be non-hardening, gasoline resistant pipe thread seal compound.

Step 3

Tighten the Rotatable Adaptor onto the nipple with a torque of 90 ft-lbs min. to 110 ft-lbs max, this will be enough torque to seat and seal the gasket. Use a 61SA-TOOL to install rotatable adaptor.



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Figure G-1



OPW Installation and Maintenance Instructions **53VML / 30MV SERIES BALL FLOATS AND 233 SERIES EXTRACTOR ASSEMBLIES**

IMPORTANT: Please read these warnings and use the assembly instructions completely and carefully before starting. Failure to do so may cause product failure, or result in environmental contamination due to liquid leakage into the soil, creating hazardous spill conditions.

IMPORTANT: Check to make sure the unit is intact and undamaged and all parts have been supplied. Never substitute parts for those supplied. Doing so may cause product failure and void warranty.

WARNING-DANGER: Using electrically operated equipment near gasoline or gasoline vapors may result in a fire or explosion, causing personal injury and property damage. Be sure that the working area is free from such hazards, and always use proper precautions.

NOTE: At all times when product is in the storage tank keep the riser pipe capped, so the vapors cannot escape into the environment.

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.

WARNING: OPW Overfill Warning Systems should only be used on submerged pumping systems, and not with suction pump systems. OPW Overfill Warning Systems should only be used on gravity drop systems. DO NOT use where Pump Off Unloading is used

IMPORTANT: Installing the incorrect length OPW 53VML or 30MV Ball Float Vent Valve for your specific application may result in delivery flow restriction at tank levels exceeding requirements established by the U.S. EPA. Always consult the appropriate tank charts and determine the specifics of your tank installation to determine the appropriate length OPW 53VML or 30MV to be installed. The illustration and instructions on the back of this sheet are intended to serve as a guide in this determination.

Field Installation Instructions

1. Apply a non-hardening, gasoline resistant pipe compound on the ball float nipple threads. Install the extractor cage-assembly onto the ball float nipple. Torques for, 3"NPT thread, 125 ft-lbs min. to 200 ft-lbs max, 2"NPT thread, 100 ft-lbs min. to 150 ft-lbs max. **DO NOT USE TEFLON TAPE**
2. Thread the 233 Series OPW Extractor Fitting into the tank bung fitting. Torque for, 4"NPT thread, 125" ft-lbs min. to 250 ft-lbs max. Thread the Ball Float and cage assembly into the 233 extractor fitting using the OPW 89 Extractor Wrench. Torque for, 3 3/4-8 thread, 75 ft-lbs min. to 150 ft-lbs max.
3. Make sure Ball Float moves freely, full stroke, without binding.
4. **Preventative Maintenance** - Every three years, remove and inspect the valve for damage, contamination, corrosion, freedom of movement of the ball float, and check the bleeder orifice for proper airflow. Replace if damaged or corroded.

Important: Leave these instructions with Station Operator.

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.

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IMPORTANT: The figures in this installation and maintenance instruction may contain vapor recovery equipment (including model numbers) that is not certified by the California Air Resources Board (CARB) for a specific Phase I Vapor Recovery System. Please refer to Exhibit 1 of the appropriate CARB Phase I Executive Order for a list of certified Phase I Vapor Recovery System Equipment.

Specifying OPW 53VML Ball Float Vent Valves

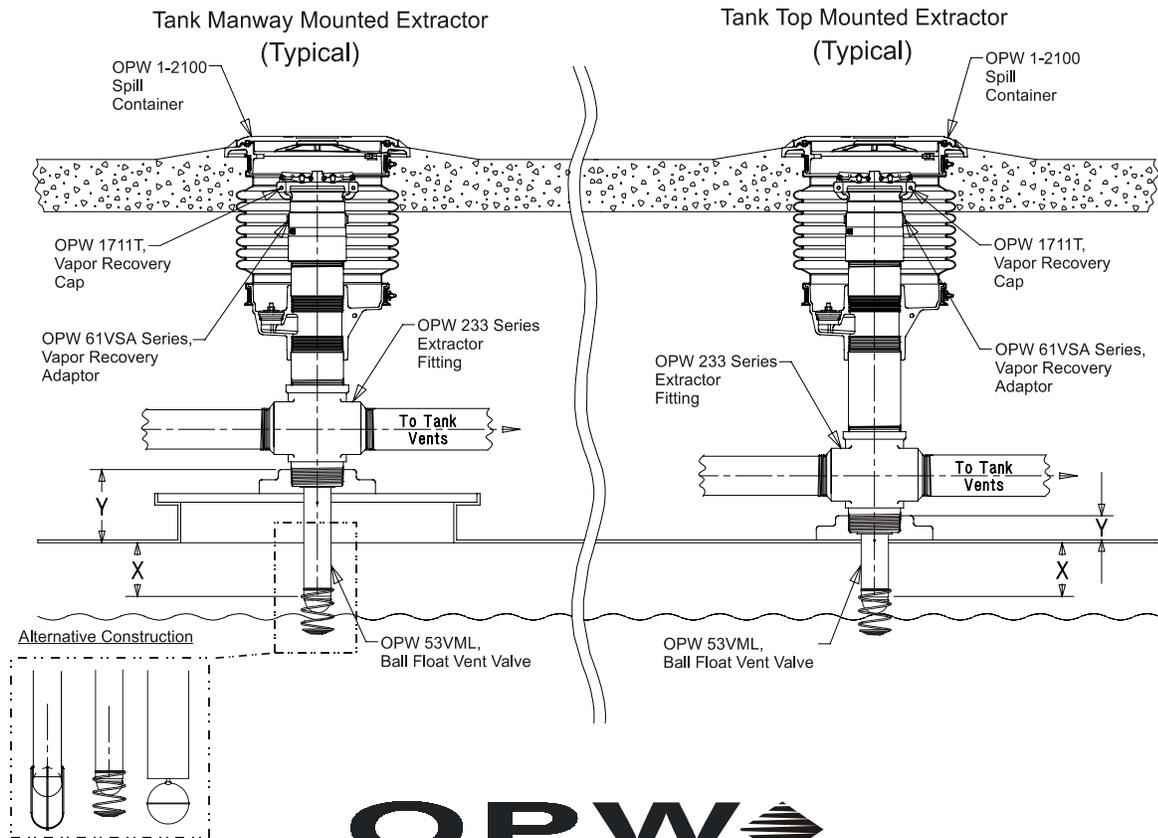
IMPORTANT: Dimensions are for installations without Overfill Prevention Drop Tubes. See Drop Tube installation for reference on those installations.

Specifying the Proper Length 53VML Series Ball Float

Step 1: Determine Dimension "X": Consult the tank chart (provided by the tank manufacturer) to determine the distance that corresponds to 10% of the total tank capacity

Step 2: Determine Dimension "Y": Measure the dimension from the inside top of the tank to the top of the 4" threaded tank "bung" fitting.

Step 3: Add measurements "X" and "Y". Then subtract 1/4" and round up to the nearest length ball float.



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Figure H-1



OPW Installation and Maintenance Instructions **OPW 61JSK-4400 Jack Screw Kit**

IMPORTANT: Please read these warnings and assembly instructions completely and carefully before starting. Failure to do so may cause product failure, or result in environmental contamination due to liquid leakage into the soil, creating hazardous spill conditions.

IMPORTANT: Check to make sure the product is intact and undamaged and all parts have been supplied. Never substitute parts for those supplied. Doing so may cause product failure.

WARNING-DANGER: Using electrically operated equipment near gasoline or gasoline vapors may result in a fire or explosion, causing personal injury and property damage. Be sure that the working area is free from such hazards, and always use proper precautions.

NOTE: At all times when product is in the storage tank keep the riser pipe capped, so the vapors cannot escape into the environment.

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.

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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.

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61JSK-4400 Performance Specifications:

This OPW Jack Screw Kit is designed to lock an OPW 61SO-EVR Series Overfill Valve or 61T Drop Tube into an OPW 1-2100-EVR Series Spill Container Base below the outlet of the drain valve.

Torque Specification:

1/4-20 Screw, 3.0 ft-lbs minimum to 4.5 ft-lbs maximum.

4" Nipple, 125 ft-lbs minimum to 250 ft-lbs maximum.

4" NPT Thread, 125 ft-lbs minimum to 250 ft-lbs maximum.

**OPW NO. 61JSK-4400 JACK SCREW KIT
INSTALLATION INSTRUCTIONS:**

Step 1

Remove any old or dried pipe dope and metal burrs from top of riser pipe. Apply a gasoline resistant pipe dope on the threads of an OPW FSA-400 Face Seal Adapter and install onto the riser pipe. Torque to 125 ft-lbs min. to 250 ft-lbs max, 4"NPT using the OPW 61SA-TOOL.

Step 2:

Install the OPW 1-2100-EVR or POMEKO 500 Series Spill Container in accordance with the OPW Installation Instructions supplied with the product.

Step 3: (See Figure 2 & 2A)

Assemble and Install the OPW Drop Tube in accordance with the OPW Installation Instructions supplied with the product.

Step 4: (See Figure 3)

Insert the Jack Screw Lower Plate (plate without threads) completely into the spill container base on top of the drop tube flange with the screw pockets facing up.

Step 5: (See Figure 5)

Assemble screws into upper plate. Adjust the screws so that the top plate will be located just below the bottom of the threads in the spill container base when the assembly is inserted into the spill container. Apply the supplied thread sealant to the threads above the top plate on all three screws on the Jack Screw Top Assembly.

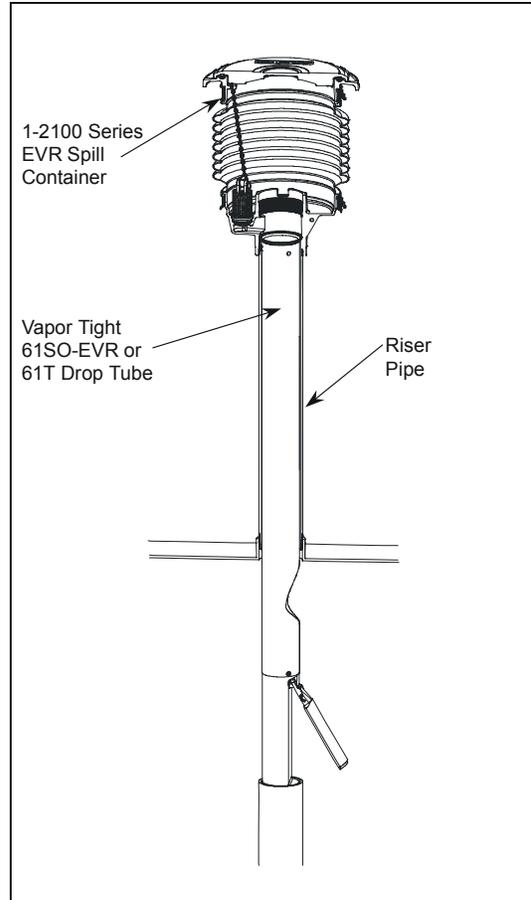


Figure 2a

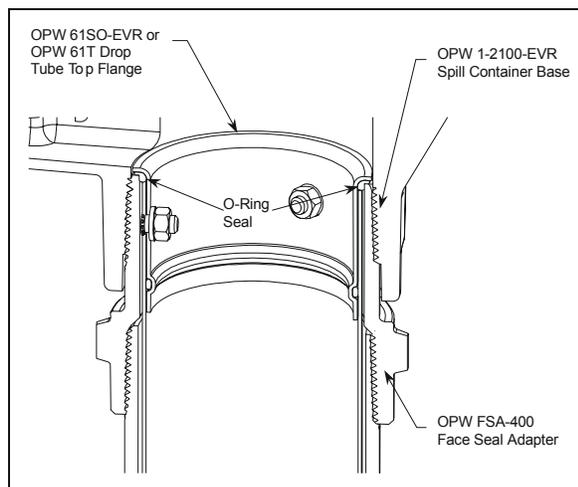


Figure 2

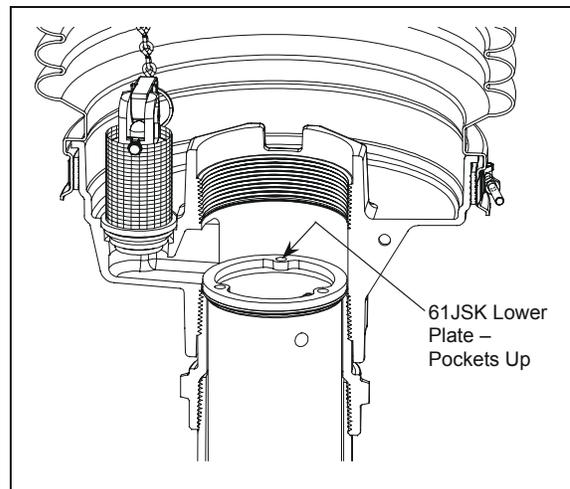


Figure 3

Step 6: (See Figure 5)

Install the Jack Screw Assembly into the spill container base. Make sure the bottoms of the three screws are seated in the pockets on the Jack Screw Lower Plate.

Step 7: (See Figure 6)

Apply a gasoline resistant pipe dope on the threads of a 4" nipple. Install the 4" nipple into the spill container and tighten securely. (Recommended torque, 4"NPT, 125 ft-lbs min. to 250 ft-lbs max.)

Note: The top plate should not be in contact with the nipple at this point. If the nipple hits the top plate while being tightened, remove the nipple, lower the top plate on the jack screw below the threads on the spill container, and then reinstall the nipple.

Step 8: (See Figure 7)

Using a long screwdriver, alternately and evenly tighten the three (3) screws on the Jack Screw Assembly until the Upper Plate contacts the bottom of the 4" nipple. Tighten the three (3) screws evenly and securely with a torque of 3.0 ft-lbs min. to 4.5 ft-lbs max to ensure that the drop tube flange is sealed securely to the riser pipe.

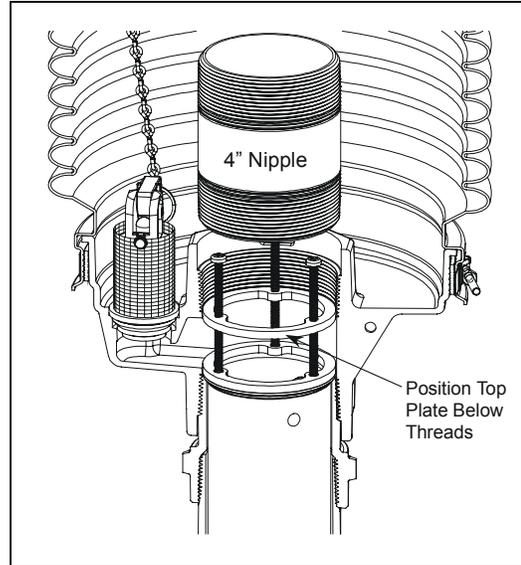


Figure 6

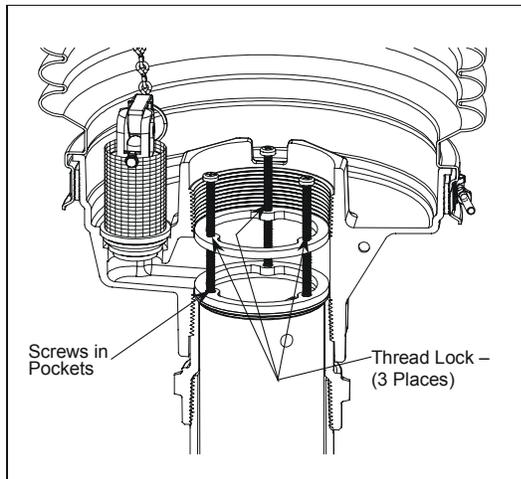


Figure 5

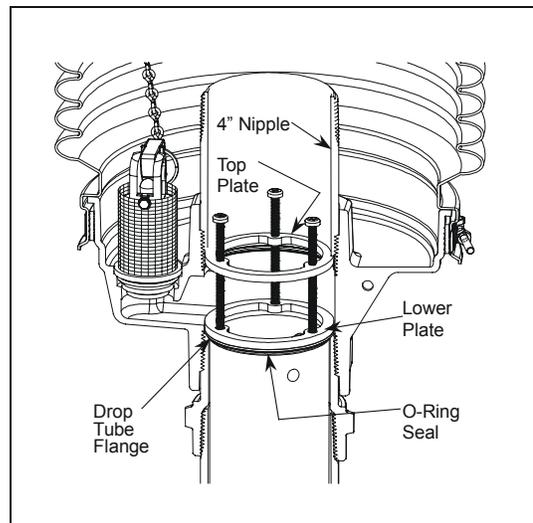


Figure 7

Step 9: (See figure 8)

Assembly of the Jack Screw Kit is now complete. Proceed to installation of the OPW 61SALP-EVR Rotatable Product Adaptor and OPW 634TT Cap in accordance with the OPW Installation Instructions supplied with the product.

Operation and Maintenance:

If a leak develops at the drop tube. Re-torque the (3) screws on the Jack Screw. (Torque value: 3.0 ft-lbs min. to 4.5 ft-lbs max.) If this does not correct the leak, check for burrs, clean the sealing surface on the FSA-400 and replace the o-ring on the drop tube.

NOTE: Loctite 242, thread locker, must be reapplied each time the screws are adjusted.

Important: Leave these instructions with Station Operator.

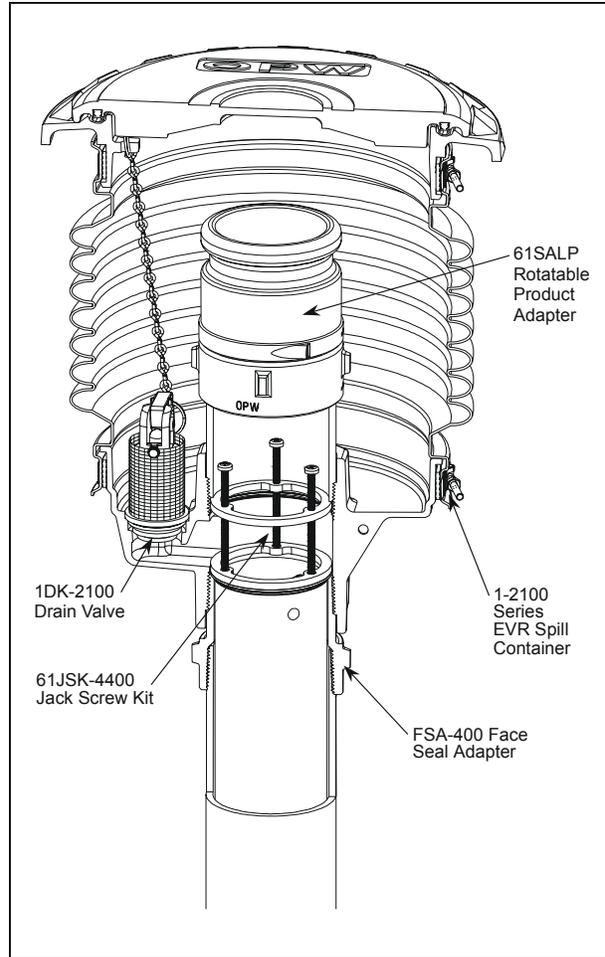


Figure 8

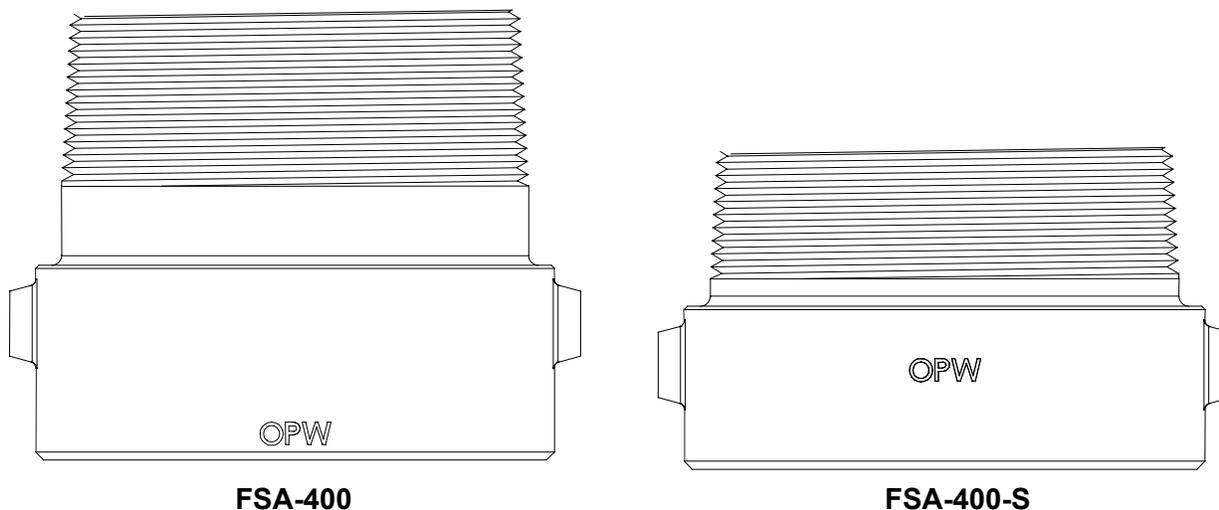


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Figure H-2

OPW FSA-400 and FSA-400-S Face Seal Adaptor



Operation and Maintenance

1. Apply non-hardening, gasoline-resistant, pipe thread seal compound to the threads.
2. Tighten the FSA-400 or FSA-400-S onto the riser with a torque of 125 ft-lbs minimum to 250 ft-lbs maximum. Use the OPW 61SA-TOOL to install.

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.

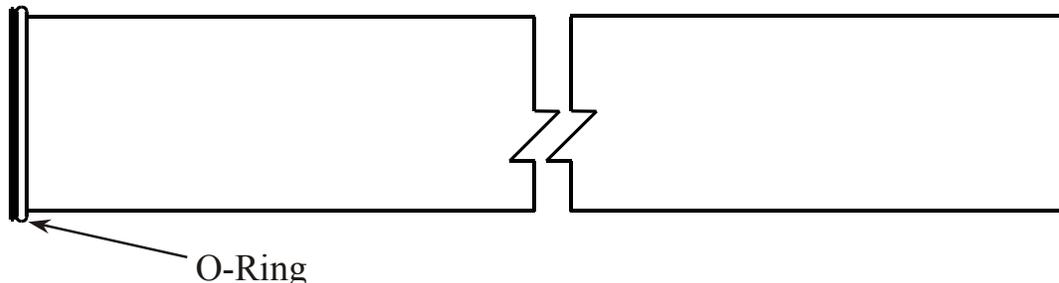
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Figure H-3
OPW 61T Drop Tube



Installation Instructions

1. Cut the tube to a length so that it is not more than 6" from the bottom of the tank or per local codes or requirements. Saw off the excess tube at a 45-degree angle and file off any sharp burrs.

Operation and Maintenance:

Annually: Test the drop tube seal with ARB procedure TP-201.1C or TP-201.1D. If the drop tube seal passes testing, no further maintenance is required. If the drop tube seal fails testing, replace the drop tube seal with OPW P/N: H11931M for 4" Tubes. Re-test the drop tube seal with ARB procedure TP-201.1C or TP-201.1D.

Standard Product Warranty

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Figure J-1

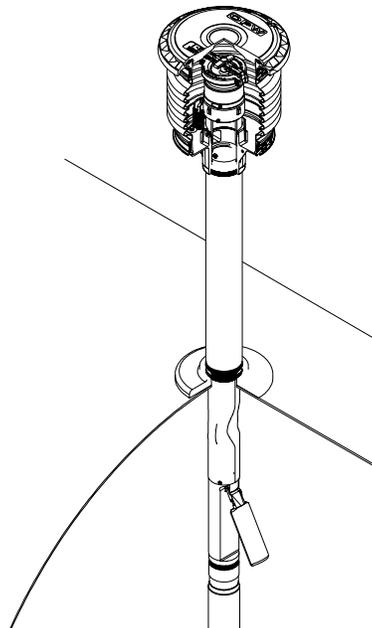
H14790PA
July 2003



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 POMEKO 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 53VML, 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 - Phillips blade
8. 1/2" Wrench or socket
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.

IMPORTANT: The figures in this installation and maintenance instruction may contain vapor recovery equipment (including model numbers) that is not certified by the California Air Resources Board (CARB) for a specific Phase I Vapor Recovery System. Please refer to Exhibit 1 of the appropriate CARB Phase I Executive Order for a list of certified Phase I Vapor Recovery System Equipment.

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"?

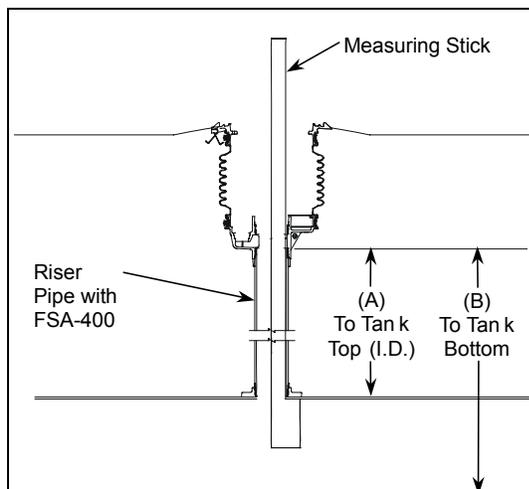
NO Upper tube length is C plus the distance from the top of the FSA-400 Face Seal Adaptor installed on the riser pipe to the inside, top lip of the storage (A).

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

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.

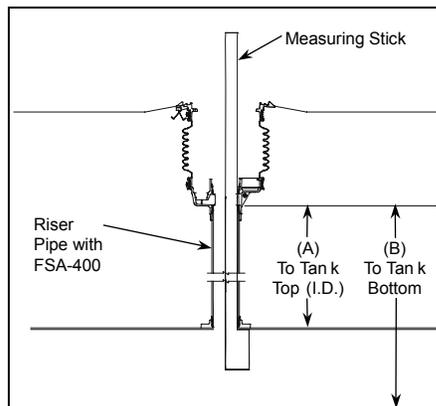


Figure 1

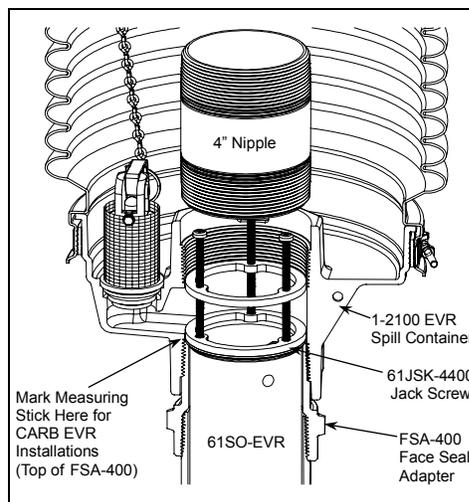


Figure 1A

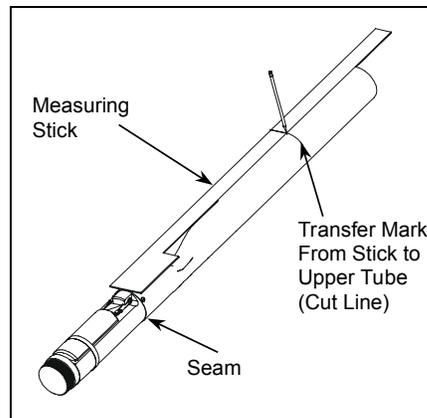


Figure 2

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.

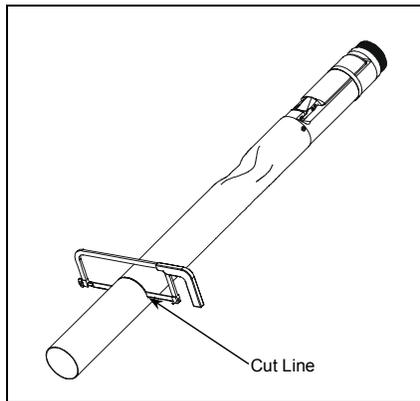


Figure 3

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.

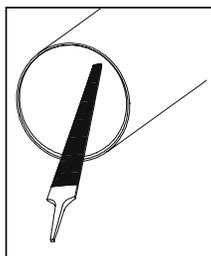


Figure 4

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

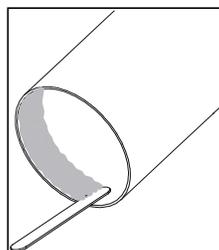


Figure 5

upper drop tube. Make 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.

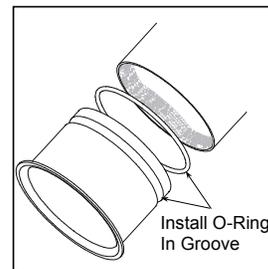


Figure 6

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.

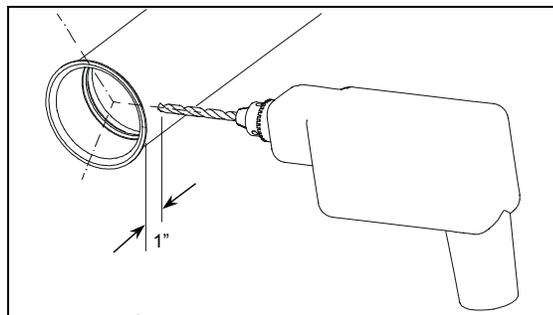


Figure 7

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.

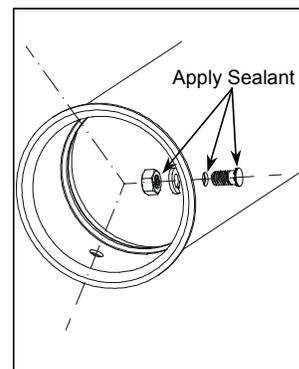


Figure 8

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.

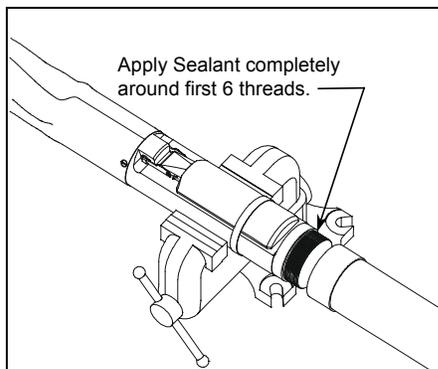


Figure 10

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/POMECA 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 overflow 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!

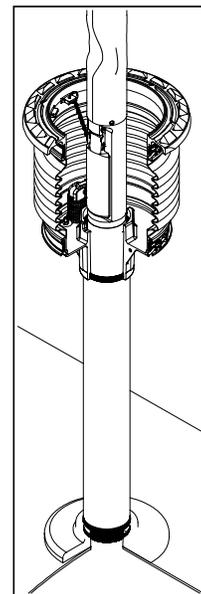


Figure 14

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 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.

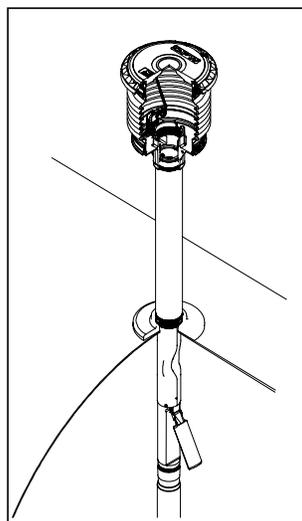


Figure 15

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.

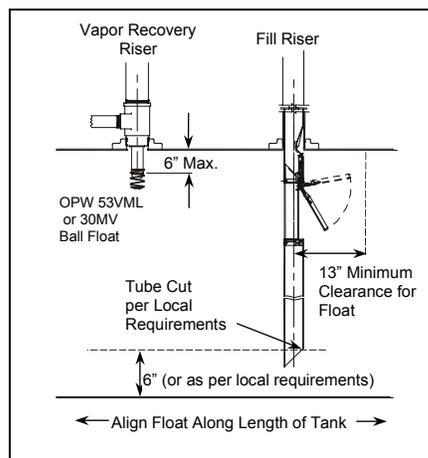


Figure 16

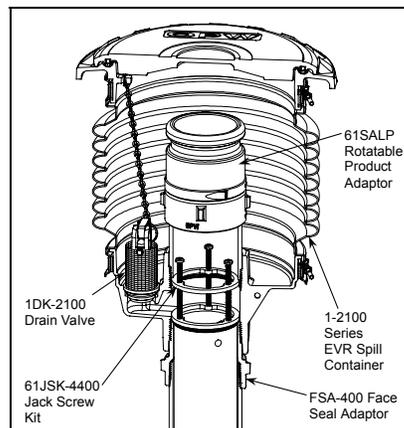


Figure 16A

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.

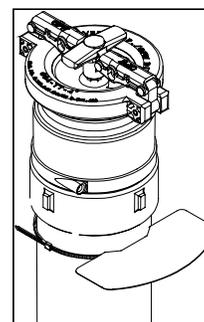


Figure 17

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. Test the 61SO drop tube seals with CARB procedure TP-201.1D. If the drop tube seal passes testing, no further maintenance is required. If the drop tube fails testing, replace the drop tube seal with OPW P/N: H11931M for 4" Tubes. Re-test the 61SO drop tube with CARB procedure TP-201.1D. If this does not correct the leak the 61SO needs to be replaced.

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 to be less than or equal to 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.



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Figure K-1



POMECO Installation and Maintenance Instructions 6111-1400 Tank Bottom Protector

IMPORTANT: Please read these warnings and use the assembly instructions completely and carefully before starting. Failure to do so may cause product failure, or result in environmental contamination due to liquid leakage into the soil, creating hazardous spill conditions.

IMPORTANT: The POMECO Tank Bottom Protector is pre-assembled for your convenience and ease of installation. Check to make sure the unit is intact and undamaged and all parts have been supplied. Never substitute parts for those supplied. Doing so may cause product failure.

WARNING-DANGER: Using electrically operated equipment near gasoline or gasoline vapors may result in a fire or explosion, causing personal injury and property damage. Be sure that the working area is free from such hazards, and always use proper precautions.

NOTE: At all times when product is in the storage tank keep the riser pipe capped, so the vapors cannot escape into the environment.

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.

Tank Bottom Protector:

The POMECO Tank Bottom Protector is designed to protect the Underground Storage Tank from damage due to the tank measuring stick being dropped into the tank to measure the fluid level.

POMECO Tank Bottom Installation Instruction

1. Check the distance from the bottom of the fill tube to the bottom of the tank. Verify that this distance is in conformance with manufacturer's recommendations and Local Codes. Remove the drop tube from the tank.
2. Using a # 11 Drill (0.191") - Drill a hole into the fill tube about 1/2" above and 1" to 1 1/16" over from point "A" (see figures 1 and 2). Keep in mind that the **POMECO Tank Bottom Protector** must rest on the bottom of the tank.
3. Insert the **POMECO Tank Bottom Protector** and line up the # 11 hole in the sliding rod guide with the corresponding hole just drilled in the drop tube. Make sure that point "A" is clear for future measurements of the drop tube's length. (See figure 2)
4. Attach the **POMECO Tank Bottom Protector** with the pop rivet supplied. Drill two more # 11 holes into the drop tube and sliding rod guide at the same time. Install supplied pop rivets into new holes.
5. Check to ensure that the **POMECO Tank Bottom Protector** slides up and down without binding.
6. Reinstall fill tube into the tank.

*Check local codes and regulation for proper dimension

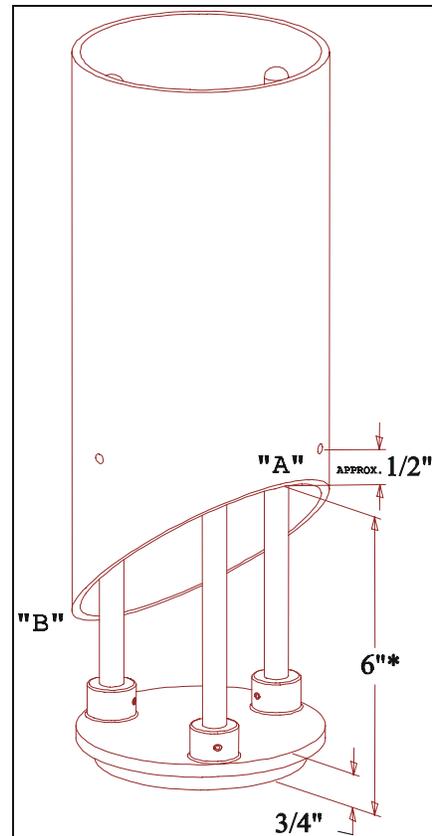


Figure 1

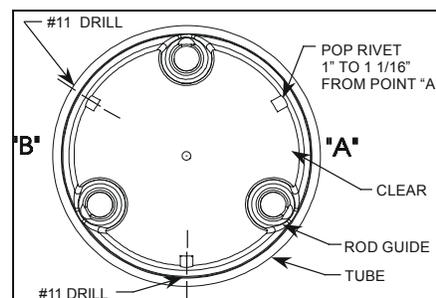


Figure 2



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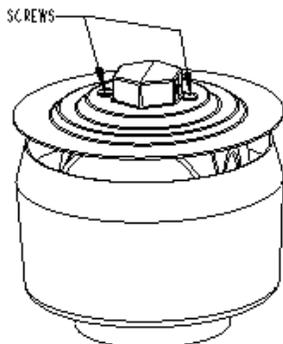
Figure L-1

Husky Model 4885 2-Inch Threaded Pressure/Vacuum Vent Valve

PRESSURE/VACUUM VENT MODEL 4885 INSTALLATION AND MAINTENANCE INSTRUCTIONS

INSTALLATION

The P/V Vent is designed to fit on top of a 2" vent pipe. Remove the P/V Vent from the carton and visually inspect for any shipping damage.



Model 4885 Thread-On P/V Vent

Apply fuel resistant pipe sealant to the threads on the 2" vent stack. Screw the P/V Vent onto the vent stack and tighten to a range of 20 to 50 ft-lbs with a suitable wrench. DO NOT OVER-TIGHTEN. Periodic maintenance is recommended (see below).

MAINTENANCE

Annually inspect the P/V Vent valve for foreign objects without removing the P/V Vent valve from the vent pipe by using the following procedure:

1. Remove the screws that hold the top cover on.
2. Remove any debris that might be sitting inside the lower cover.
3. Check the drain holes in the lower cover for blockage.
4. The two (2) screens should not be removed.
5. Reinstall the top cover and retaining screws.
6. Tighten the screws firmly.

NOTE: DO NOT ALTER OR COVER THE P/V VENT

TESTING CRITERIA

Leak rate: Pressure = .05 CFH at 2" WC, Vacuum = .21 CFH at -4" WC.

Cracking Pressure: 2 1/2" to 3 1/2" WC, Vacuum = -6" to -10" WC.

Per TP-201.1E and of applicable Phase 1 E.O.



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009041 - 6 9/19/03
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PRESSURE VACUUM VENT WARRANTY INFORMATION

Husky Corporation will, at its option, repair, replace, or credit the purchase price of any Husky manufactured Pressure Vacuum Vent which proves upon examination by Husky, to be defective in material and/or workmanship within EIGHTEEN (18) MONTHS from the date of shipment for any Husky Pressure Vacuum Vent, except as otherwise provided herein. For all other Husky manufactured product, see Husky Form No. PS2002-Term (4/15/02) at www.husky.com.

The warranty period on repaired or replacement product is only for the remainder of the warranty period. Buyer must return the products to Husky, transportation charges prepaid. This Warranty does not apply to equipment or parts which have been installed improperly, damaged by misuse, improper operation or maintenance, or which are altered or repaired in any way other than by Husky.

The Warranty provisions contained herein apply ONLY to original purchasers and subsequent commercial purchasers within the warranty period who use the equipment for commercial or industrial purposes. THERE ARE NO OTHER WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR OTHERWISE, AND ANY OTHER SUCH WARRANTIES ARE HEREBY SPECIFICALLY DISCLAIMED.

Husky assumes NO LIABILITY for labor charges or other costs incurred by Buyer incidental to the service, adjustment, repair, return, removal or replacement of products. HUSKY ASSUMES NO LIABILITY FOR ANY INCIDENTAL, CONSEQUENTIAL, OR OTHER DAMAGES UNDER ANY WARRANTY, EXPRESS OR IMPLIED, AND ALL SUCH LIABILITY IS HEREBY EXPRESSLY EXCLUDED.

Husky reserves the right to change or improve the design of any Husky fuel dispensing equipment without assuming any obligations to modify any fuel dispensing equipment previously manufactured.



HUSKY CORPORATION • 2325 HUSKY WAY •
PACIFIC, MO 63069
www.husky.com PHONE: 800-325-3558
009063-0 6/5/02

Figure L-2



OPW Installation and Maintenance Instructions **OPW 623V Pressure / Vacuum Vent Valve**

IMPORTANT: Please read these warnings and use the assembly instructions completely and carefully before starting. Failure to do so may cause product failure, or result in environmental contamination due to liquid leakage into the soil, creating hazardous spill conditions.

IMPORTANT: The OPW 623V Pressure / Vacuum vent is pre-assembled for your convenience and ease of installation. Check to make sure the unit is intact and undamaged and all parts have been supplied. Never substitute parts for those supplied. Doing so may cause product failure.

WARNING-DANGER: Using electrically operated equipment near gasoline or gasoline vapors may result in a fire or explosion, causing personal injury and property damage. Be sure that the working area is free from such hazards, and always use proper precautions.

NOTE: At all times when product is in the storage tank keep the vent pipe capped, so the vapors cannot escape into the environment.

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.

623V Series Performance Specifications:

This Pressure / Vacuum vent has been manufactured and tested to the following specifications: Pressure leak rate not to exceed 0.05 CFH at 2" W.C. Vacuum leak rate not to exceed 0.21 CFH at -4" W.C. The cracking pressure to be 3" W.C. +/- 0.5 and cracking vacuum to be -8" W.C. +/- 2.0. Tested using CARB Test Procedure TP-201.1E or applicable Phase I Executive Order.

Torque Specification:

Vent Assembly 2" NPT, 35 ft-lbs minimum to 55 ft-lbs maximum.

**OPW 623V Pressure / Vacuum Vent Valve
INSTALLATION INSTRUCTIONS:**

Step 1.

Deburr and thoroughly clean vent pipe. Apply pipe dope to vent pipe threads. Pipe dope to be a non-hardening, gasoline resistant pipe thread seal compound.

Step 2: (See Figure 1)

Screw the vent assembly onto the vent pipe and torque to 35 ft.-lbs minimum to 55 ft.-lbs maximum. Use the flats on the pipe adaptor only, **Do not wrench on the composite valve assembly.**

NOTE: NEVER PAINT OR COVER THE VENT

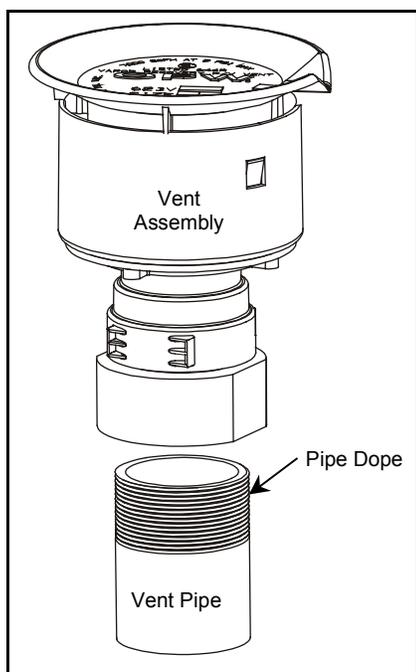


Figure 1

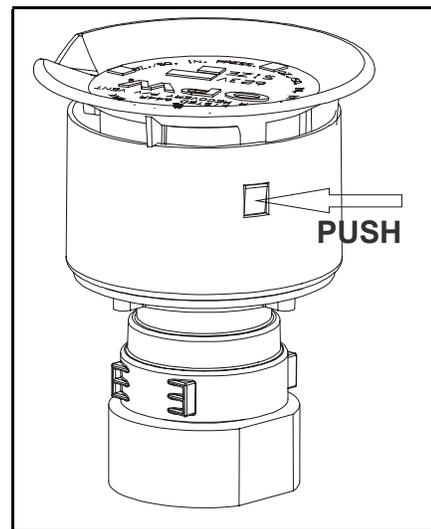


Figure 2

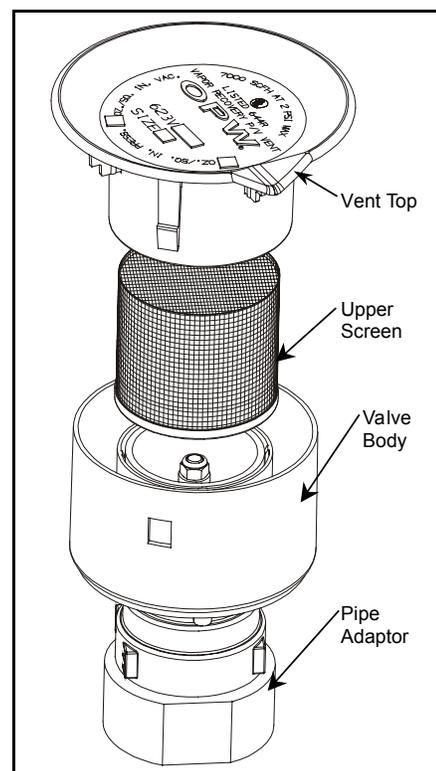


Figure 3

Operation and Maintenance:

Annual maintenance is required to keep the vent operating satisfactorily. Remove and inspect filter screens – clean or replace as necessary.

Upper Screen Maintenance

1. Remove vent top by depressing tabs as indicated in Fig. 2, and lift top upward. Screen will slip up and out of valve.
2. Clean or replace filter screen (P/N H14895M) as necessary and reinstall Fig. 3.
3. Reinstall vent top by reinserting into the body. Be sure the tabs are inside the valve body, and then rotate top until the tabs snap into place

Lower Screen Maintenance

Note: Do not remove the pipe adaptor from the vent pipe to service the lower filter screen.

1. Remove valve assembly from the pipe adaptor. Grip assembly at the flats just above the pipe adaptor and unscrew. (Fig. 4) Wrench C05102M can be used for this purpose.
2. Lift the filter screen out and clean or replace (P/N C05086M) as necessary.
3. Reinstall filter screen in the pipe adaptor (see Fig. 4 for orientation).
4. Reinstall valve assembly on pipe adaptor and tighten until it stops. Do not wrench valve assembly except with P/N C05102M

Important: Leave these instructions with Station Operator.

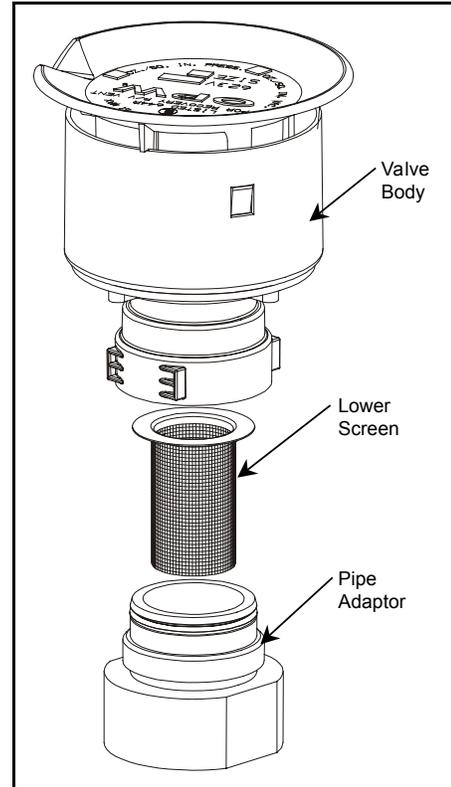


Figure 4

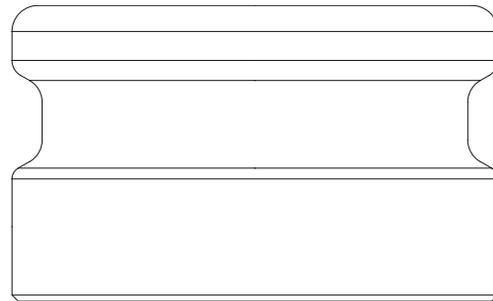
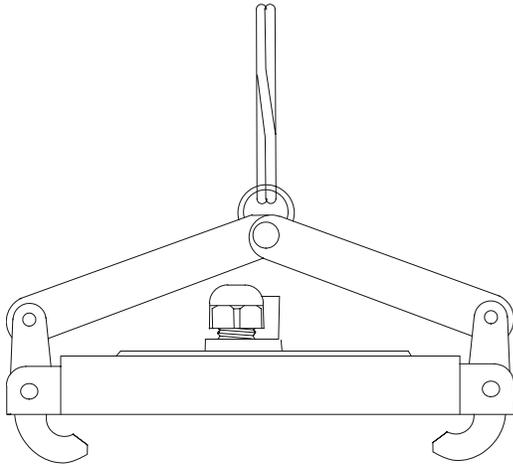


P.O. Box 405003 * Cincinnati, Ohio 45240-5003
1-800-422-2525 Domestically
513-870-3315 Internationally
www.opw-fc.com

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Figure M-1

Morrison Brothers Tank Gauge Port Components
305XPA & 305XPA1100AKEVR (cap and adaptor kit)
305 & 305-0200AAEVR (replacement adaptor)
305XP & 305XP-110ACEVR (replacement cap)



305XP Cap

Installation Instructions –

1. Apply a fuel resistant, non-hardening, anti-seize sealant (not adhesive) to cable connector threads. Follow manufacturer’s instructions for installation of monitoring system.
2. Set cap on adaptor
3. Push down on lever arms.

305 Adapter

Installation Instructions –

1. Apply a fuel resistant, non-hardening, anti-seize sealant (not adhesive) to body threads.
2. Thread body on to riser pipe. Torque to 23-26 ft.-lb.

Morrison Bros. Co.
 24th & Elm St.
 Dubuque, IA 52001

WARRANTY CARD

All Morrison products are thoroughly tested before shipment and only material found to be defective in manufacture will be replaced. Claims must be made within one year from the date of installation, and Morrison Bros. Co. will not allow claims for labor or consequential damage resulting from purchase, installation, or misapplication of the product.

Expiration Date: _____

Item No: _____

This card must be returned to manufacturer for warranty to be honored.

**TO BE FILLED OUT BY
 INSTALLER/MAINTENANCE PERSON**

Name of Maintenance Service Company:

Address:

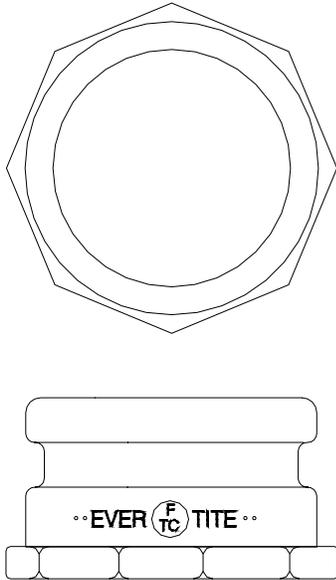
Date of Install: _____

Name and Location of Install:

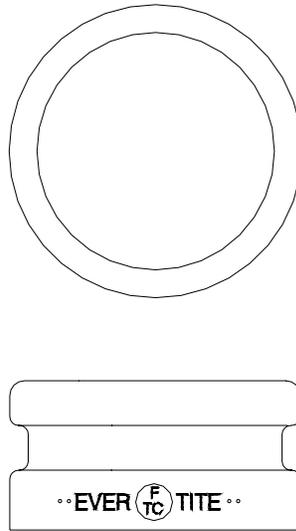
Figure M-2

Ever-Tite Tank Gauge Cap and Adaptor

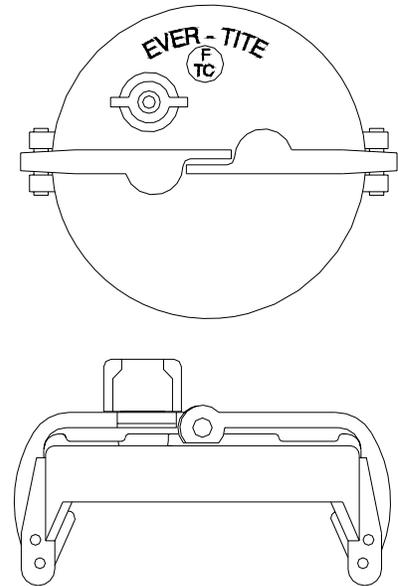
**Ever-Tite #4097AGBR
Adaptor with Hex**



**Ever-Tite #4097AGMBRNL
Adaptor**



Ever-Tite #4097MBR Cap



Installation Instructions

1. Thread by hand to avoid cross threading.
2. Tighten adaptor to 75 to 100 foot-pounds torque.

Warranty

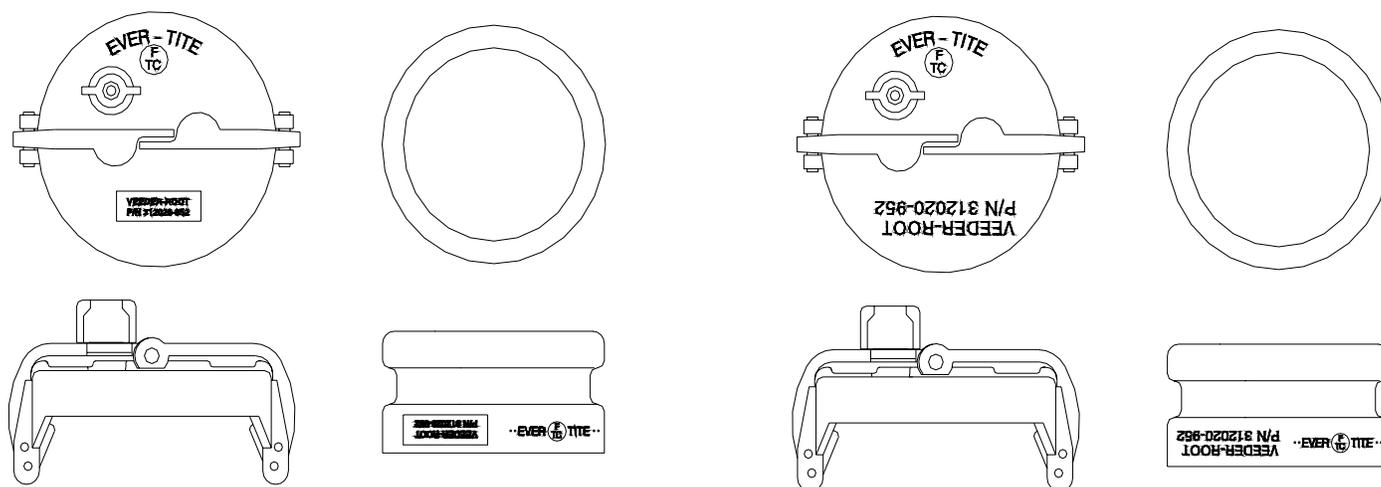
The Company warrants its goods to be free from defects in material and workmanship as represented in our catalogs or applicable drawings and specifications agreed to by us at the time of acceptance of the order by Ever-Tite Coupling Products. Our obligation under this warranty shall be limited to repairing or replenishing any parts which shall, within one (1) year after shipment to the original purchaser, be demonstrated to be defective. This warranty is expressly in lieu of all other warranties, express or implied, including the warranties of merchantability and fitness. No person, firm or corporation is authorized to assume for us any other liability in connection with the sale of these goods.

Figure M-3

Veeder-Root P/N 312020-952 Tank Gauge Cap and Adaptor

Original Identification Method

New Identification Method



Installation Instructions

Install a CARB approved machined adaptor onto the riser. Apply a gasoline-resistant, non-hardening thread sealant to the threads of the riser adaptor only. Next screw the ring from the Veeder-Root kit (P/N 312020-952) onto the riser adaptor by hand until the gasket contacts the sealing surface. Then use a torque wrench attached to an appropriate strap wrench (K-D Specialty tools nylon strap oil filter wrench P/N 3149, or equivalent) and tighten the ring to 35 - 45 ft-lbs. Loosen the cord grip nut and push the cable through the cap and cord grip, then clamp the cap onto the ring.

Warranty

We warrant that this product will be free from defects in materials and workmanship for a period of 1 year from the date of installation or 24 months from the date of invoice, whichever occurs first. During the warranty period, we or our representative will repair or replace the product, if determined by us to be defective, at the location where the product is in use and at no charge to the purchaser.

We shall not be responsible for any expenses incurred by the user.

This warranty applies only when the product is installed in accordance with Veeder-Root's specifications, and a Warranty Registration and Checkout Form has been filed with Veeder-Root by an Authorized Veeder-Root Distributor. This warranty will not apply to any product which has been subjected to misuse, negligence or accident; or misapplied; or used in violation of product manuals, instructions or warnings; or modified or repaired by unauthorized persons; or improperly installed.