

California Environmental Protection Agency



ARB Approved

Installation and Maintenance Manual

For the Phil-Tite Phase I Vapor Recovery System

Approved: June 19, 2001

Amended: July 12, 2002

Amended: September 16, 2003

Summary of Maintenance Activities Required of the Phil-Tite Phase I Vapor Recovery System

¹Not For Use by Maintenance Contractors

Component	Interval	Maintenance To Be Performed
Pressure/Vacuum Vent Valve Husky Model 4885	Annual	<ol style="list-style-type: none"> 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 Container Drain Valve Phil-Tite "All Models with Drain Valves"	Every 3 years following startup	<ol style="list-style-type: none"> 1. Remove standing liquid prior to testing (note: remove standing liquid following each fuel delivery). 2. Remove any debris or accumulated dirt from container. 3. Test the drain valve using ARB procedure TP-201.1C or TP-201.1D as applicable. 4. If the drain valve passes testing, no further maintenance is necessary. If the drain valve fails testing, continue with steps 5 through 12. 5. Remove the snap-ring and foam filter from the inside of container. Inspect the foam filter, ensure that it is not torn or damaged. Replace if necessary. 6. With the snap ring and foam filter removed, loosen the allen screw in the top clamp and remove the valve assembly by pulling up on the valve handle. 7. Remove the O-ring from the bottom of the container and inspect for cuts or damage. Replace if necessary. 8. Inspect the boot-screen assembly and ensure there are no cracks or cuts. If the boot-screen assembly requires replacement, loosen the allen screw on the bottom clamp and separate clamp-handle assembly from boot screen assembly. 9. Inspect the O-ring on the shut off collar for cuts or damage. Replace if necessary. 10. Reassemble the drain valve in reverse order. Ensure that the valve assembly is properly adjusted so that the assembly moves up and down freely without binding. NOTE: The bail handle must snap into place when moved into the closed position. 11. Test the drain valve using ARB procedure TP-201.1C or TP-201.1D as applicable. If a failure still persists, remove the container and inspect the flat lower seal between the riser and spill container. Replace if necessary. 12. Reinstall the container using the installation instructions provided and test the drain valve using ARB procedure TP-201.1C or TP-201.1D as applicable.

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 and Maintenance Manual for the Phil-Tite Phase I System to ensure that all maintenance and torque requirements are met.

¹Not For Use by Maintenance Contractors

<p>Dust Caps OPW "All Models"</p>	<p>Annual</p>	<p>Visually inspect the seal in cap and replace if damaged or missing.</p>
<p>Vapor Recovery Adaptor Phil-Tite SWV-101-B</p>	<p>Annual</p>	<p>The Phil-Tite rotatable adaptors are not field serviceable with the exception of the vapor poppet or vapor poppet seal found on the SWV-101-B.</p> <ol style="list-style-type: none"> 1. Depress the vapor poppet and release. Ensure that the poppet returns to the closed position. This will verify that the spring mechanism is working properly. 2. 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. If the facility continuously operates under vacuum, a bag test may be used. Place a clear plastic bag over the adaptor and make sure it is sealed to the sides of the adaptor. 3. If no bubbles appear at the poppet area under positive pressure or the bag test shows no signs of the bag collapsing, no further maintenance is required. If bubbles appear around the poppet seal or the bag collapsed onto the adaptor, continue with steps 3 through 10 to repair the poppet seal. 4. Remove the SWV-101-B adaptor from the spill container riser using an installation tool (Phil-Tite Tool Kit #T-7043-1) 5. Using a screwdriver, hook the snap ring on the inside of the adaptor and remove. 6. After removing the snap ring, remove the brass spider, spring and vapor poppet through the bottom of the adaptor. 7. With the vapor poppet removed inspect the poppet and poppet seal for cuts, tears or damage. Replace if necessary. 8. Reassemble the vapor poppet spring and brass spider in the reverse order from which they were removed. 9. Replace the snap ring and actuate the poppet by hand, making sure the assembly is secure and actuates properly. 10. Reinstall and properly torque the SWV-101-B using the provided installation and maintenance instructions. 11. Re-test the poppet seal as described in step 1 in 2.

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 and Maintenance Manual for the Phil-Tite Phase I System to ensure that all maintenance and torque requirements are met.

¹Not For Use by Maintenance Contractors

<p>Ball Floats OPW "All Models"</p>	<p>Every 3 years following startup</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>Universal Valve Model 37 Series</p>	<p>Every 3 years following startup</p>	<p>Inspect the Model 37 to ensure proper operation. Check to ensure that the ball moves freely within the cage and that the bleed hole allows free airflow.</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>
<p>Drop Tube Overfill Prevention Device OPW 61SO-PT</p>	<p>Annual</p>	<p>Annually, inspect the flapper in the 61-SO-PT to see that it is open by looking down the drop tube opening. Test the 61-SO-PT 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 Phil-Tite 85039-DT. Re-test the 61-SO-PT with ARB procedure TP-201.1D. If this does not correct the leak the 61-SO-PT needs to be replaced.</p>
<p>Tank Gauge Components Morrison Brothers 305</p>	<p>Annual</p>	<p>Visually inspect cap to see that it is not missing any seals and is properly installed.</p>
<p>Ever-Tite 4097</p>	<p>N/A</p>	
<p>Veeder-Root 312020-952</p>	<p>N/A</p>	

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 and Maintenance Manual for the Phil-Tite Phase I System to ensure that all maintenance and torque requirements are met.

**Phil-Tite Phase I Vapor Recovery System
Installation, Operation and Maintenance Manual**

Table of Contents

<u>Equipment</u>	<u>Manufacturer/Model Number</u>	<u>Figure</u>	<u>Page</u>
Typical Installation (Product Side)		A-1	7
Typical Installation (Vapor Side)		A-2	8
Spill Container	Phil-Tite	B-1, B-2	9
	85100-F = Product (standalone)		
	85000-S = Product with Stainless Steel (SS) Sleeve		
	85000-GS = Product with SS Sleeve and Gravel Shield		
	85000-EXT = Product, external for sump configuration		
	85100-15 = Product, 15-gallon capacity		
	85101-NV = Vapor (standalone)		
	85001-NV-S = Vapor with Stainless Steel (SS) Sleeve		
	85001-NV-GS = Vapor with SS Sleeve and Gravel Shield		
	85001-NV-EXT= Vapor, external for sump configuration		
Debris Bucket	Phil-Tite PP-1005 TB (product)(required)	B-3	12
	Phil-Tite PP-1005 TBP (vapor)(optional)		
Product Adaptor	Phil-Tite SWF-100-B	C-1	13
Vapor Adaptor	Phil-Tite SWV-101-B	C-1	13
Riser Adaptor	Phil-Tite M/F4X4	D-1	15
Dust Cap	Morrison Brothers 323C-0100ACEVR (vapor)	E-1	16
	Morrison Brothers 305C-0100ACEVR(product)	E-1	16
	OPW 1711T-EVR (vapor)	E-2	17
	OPW 634TT-EVR (product)	E-2	17
Pressure/Vacuum Vent Valve	Husky 4885	F-1	18
Tank Gauge Port Components	Ever-Tite 4097AGBR (adaptor)	G-1	19
	Ever-Tite 4097AGMBRNL (adaptor)		
	Ever-Tite 4097MBR (cap)		
	Veeder-Root 312020-952 (cap & adaptor)	G-2	20
Extractor¹	Universal V421	H-1	21
	OPW 233	H-2	22

¹ Component optional for vapor recovery system configuration; other requirements may apply.

Ball Float¹	Universal	37	H-1	21
	OPW	53VML	H-2	22
	OPW	30MV	H-2	22
Drop Tube¹	OPW	61-T Straight Drop Tube	I-1	24
Drop Tube Overfill Prevention Device¹	Phil-Tite	61SO-PT	I-2	25
Riser Offset¹	Phil-Tite	M-6050	J-1	35
Double Fill¹	Phil-Tite	(configuration only)	K-1	36
Sump Configuration¹	Phil-Tite	85000-EXT-CA2	K-2	37

¹ Component optional for vapor recovery system configuration; other requirements may apply.

Figure A-1

Typical Product Side Installation Using Phil-Tite System

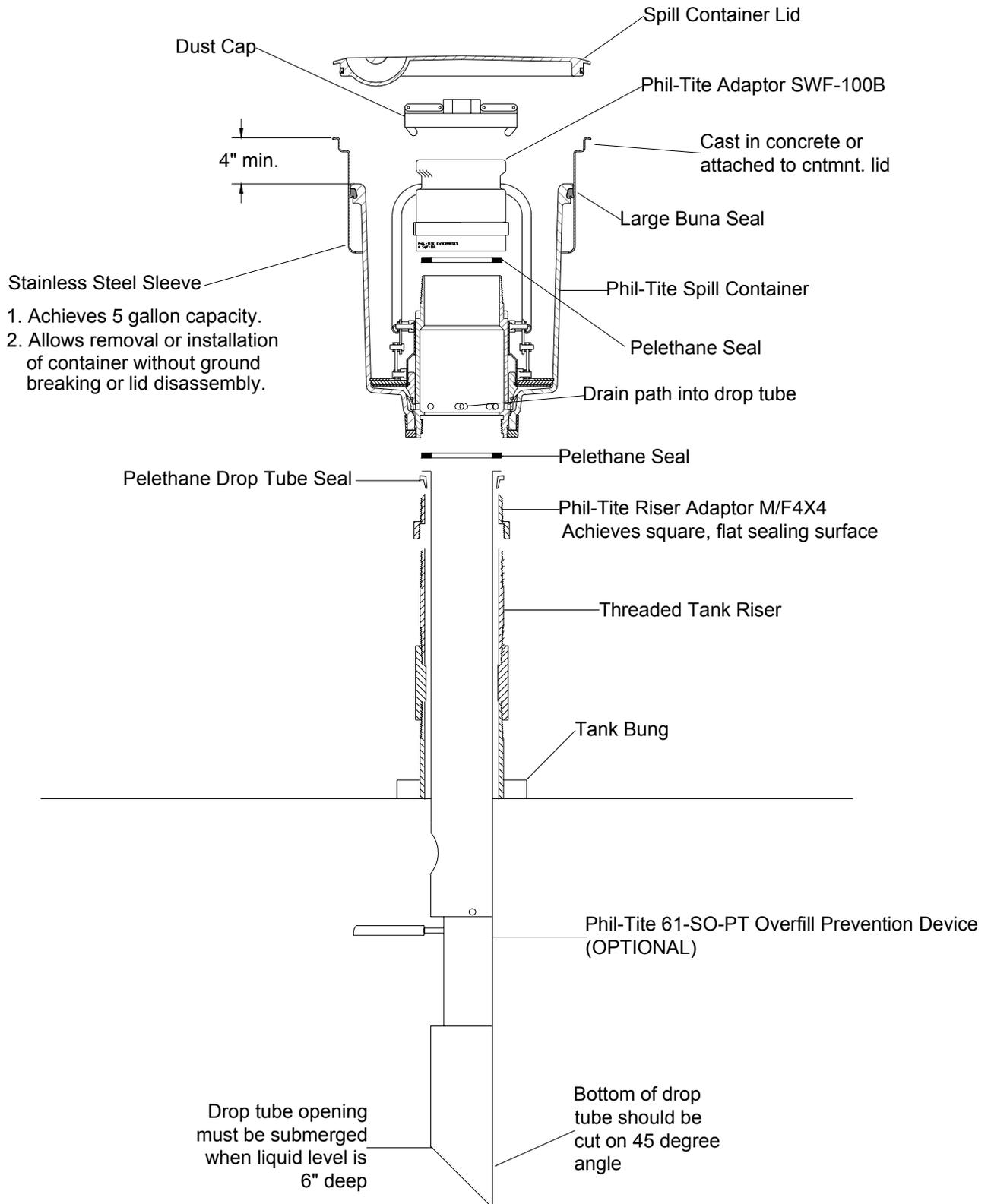


Figure A-2

Typical Vapor Recovery Side Installation Using Phil-Tite System

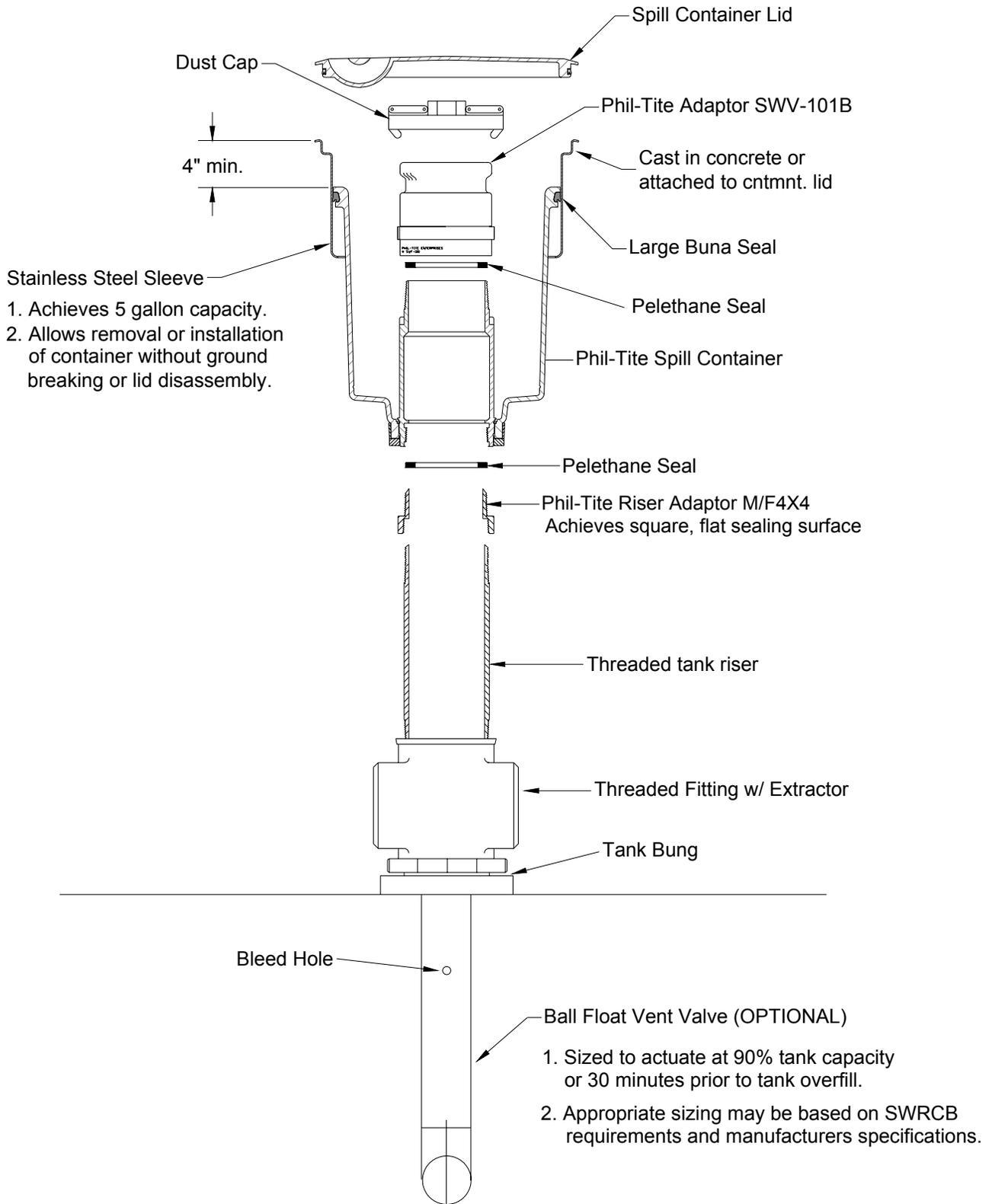
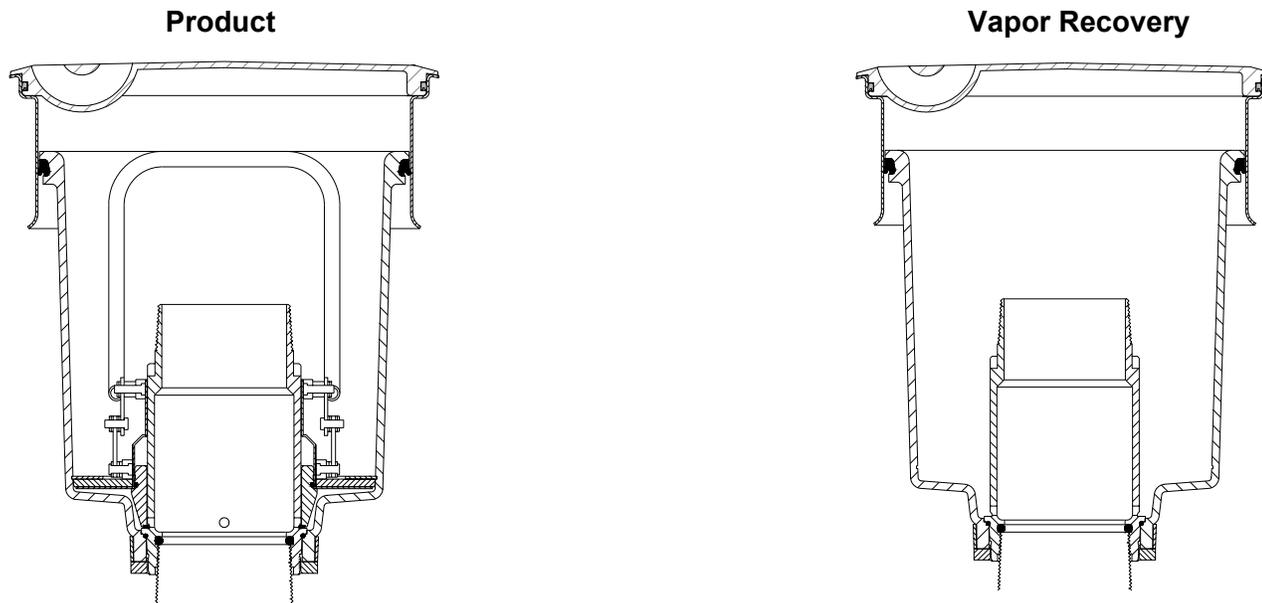


Figure B-1

Phil-Tite Product Spill Containers, 85100-F, 85000-S, 85000-GS, 85000-EXT and 85100-15
Phil-Tite Vapor Spill Containers, 85101-NV, 85001-NV-S, 85001-NV-GS, and 85001-NV-EXT
Add performance specs



PHIL-TITE SPILL CONTAINERS

Phil-Tite Spill Containers are designed to provide easy installation or removal of the container without the need for timely excavation or disassembly of secondary containment covers. Phil-Tite drain valves provide fast and complete removal of excess liquid spilled during a gasoline delivery operation while maintaining a vapor tight, reliable seal that eliminates leaks into the environment.

INSTALLATION INSTRUCTIONS:

- 1) Ensure there is adequate clearance to provide at least 4" between the top of the Spill Container and the top of the stainless steel sleeve once final installation is complete. Be sure to include the distance required of the Phil-Tite Model M/F4X4 Riser Adaptor (installed below the container).
- 2) Inspect the container ensuring that the flat lower seal is in place and properly oriented for sealing with the M/F4X4 Riser Adaptor.
- 3) Inspect the inner foam filter located inside the container. The filter should be resting on the bottom, secured by the snap ring.
- 4) Move the bail handle back and forth making sure that the lower assembly rises when moved to the open position and compresses when closed. The bail handle should move freely with no binding and snap into place when moved to the closed position.
- 5) **NOTE: DO NOT USE ANY TYPE OF THREAD SEALING COMPOUND FOR SPILL CONTAINER INSTALLATION!** Apply an even coat of Silicon based spray to the larger, outer seal of the container and the inside of the stainless steel sleeve to ease insertion. By hand, thread the container onto the M/F4X4 Riser Adaptor taking care not to cross thread. Phil-Tite Spill Containers create an optimum, leak free seal when properly tightened to the M/F4X4 Riser Adaptor as described in item #6.
- 6) Using an approved installation tool (Phil-Tite #T-7043-1 Tool Kit) and torque wrench, tighten the Spill Container onto the M/F4X4 Riser Adaptor and torque to a value between 75 and 100 ft. lbs.
- 7) Ensure there is at least 4" between the top of the container and top of the stainless steel sleeve. Install a rotatable adaptor and dust cap.
- 8) Test the drain valve using ARB procedure TP-201.1C or TP-201.1D.

THE USE OF UNAPPROVED TOOLS, OR IMPROPERLY TORQUING OF THE SPILL CONTAINER WILL VOID ANY AND ALL APPLIED WARRANTIES.

MAINTENANCE INSTRUCTIONS:

(every 3 years following startup)

- 1) Remove standing liquid prior to testing (note: remove standing liquid following each fuel delivery).
- 2) Remove any debris or accumulated dirt from container.
- 3) Test the drain valve using ARB procedure TP-201.1C or TP-201.1D.
- 4) If the drain valve passes testing, no further maintenance is necessary. If the drain valve fails testing, continue with steps 5 through 12.
- 5) Remove the snap-ring and foam filter from the inside of container. Inspect the foam filter, ensure that it is not torn or damaged. Replace if necessary.
- 6) With the snap ring and foam filter removed, loosen the allen screw in the top clamp and remove the valve assembly by pulling up on the valve handle.
- 7) Remove the O-ring from the bottom of the container and inspect for cuts or damage. Replace if necessary.
- 8) Inspect the boot-screen assembly and ensure there are no cracks or cuts. If the boot-screen assembly requires replacement, loosen the allen screw on the bottom clamp and separate clamp-handle assembly from boot screen assembly.
- 9) Inspect the O-ring on the shut off collar for cuts or damage. Replace if necessary.
- 10) Reassemble the drain valve in reverse order. Ensure that the valve assembly is properly adjusted so that the assembly moves up and down freely without binding. **NOTE:** The bail handle must snap into place when moved into the closed position.
- 11) Test the drain valve using ARB procedure TP-201.1C or TP-201.1D. If a failure still persists, remove the container and inspect the flat lower seal between the Riser Adaptor and spill container. Replace if necessary.
- 12) Reinstall the container using the installation instructions provided and test the drain valve using ARB procedure TP-201.1C or TP-201.1D.

Specification: Leak Rate less than or equal to 0.17CFH at 2 inches W.C.

<p>Phil-Tite Enterprises, Inc. 3732 Electro Way Redding, CA 96002 Phone - 530-223-7400 Fax - 530-223-7418</p> <p>WARRANTY</p> <p><small>This product is warranted by Phil-Tite Enterprises, Inc. against defective material and workmanship for 1 (one) year from installation date. We will repair/replace, as we deem necessary, product that has been verified defective by a representative of our company. Any damage caused by either freight or wrongful installation are not covered under this warranty. This warranty does not cover normal wear, or force majeure - caused by fire, flood, earthquake, explosion, war, or acts of God. Seals and O-rings are not a warranty item. Warranty is null and void if a) item is disassembled, b) item is installed improperly, or c) warranty label has been tampered with or is removed from product.</small></p> <p>Expiration Date: _____ Serial Number: _____ Model Number: _____ Mfg. Number: _____</p>	<p><u>TO BE FILLED OUT BY INSTALLER AT THE TIME OF INSTALLATION</u></p> <p>This Card MUST be returned for Warranty to be honored</p> <p>Date of Installation: _____ Installation Company: _____ Address: _____ Telephone: () _____ Facility Name: _____ Address: _____</p>
--	--

Please detach here, fill out completely, and promptly mail back to Phil-Tite Enterprises.

Place Stamp Here

Phil-Tite Enterprises, Inc.
3732 Electro Way
Redding, CA 96002

OWNERS COPY

TO BE RETAINED ON-SITE WITH FACILITY OWNER

Phil-Tite Enterprises, Inc.
3732 Electro Way
Redding, CA 96002
Phone - 530-223-7400
Fax - 530-223-7418

WARRANTY

This product is warranted by Phil-Tite Enterprises, Inc. against defective material and workmanship for 1 (one) year from installation date. We will repair/replace, as we deem necessary, product that has been verified defective by a representative of our company. Any damage caused by either freight or wrongful installation are not covered under this warranty. This warranty does not cover normal wear, or force majeure - caused by fire, flood, earthquake, explosion, war, or acts of God. Seals and O-rings are not a warranty item. Warranty is null and void if a) item is disassembled, b) item is installed improperly, or c) warranty label has been tampered with or is removed from product.

TO BE FILLED OUT BY INSTALLER AT THE TIME OF INSTALLATION

Expiration Date: _____	Date of Installation: _____
Serial Number: _____	Installation Company: _____
Model Number: _____	Address: _____
Mfg. Number: _____	_____

NOTE: Return Warranty registration card must be returned for Warranty to honored.

Telephone: () _____

Figure B-2

Phil-Tite 85011 Spill Container Lid

14" CAST LID (ONE OPENING)

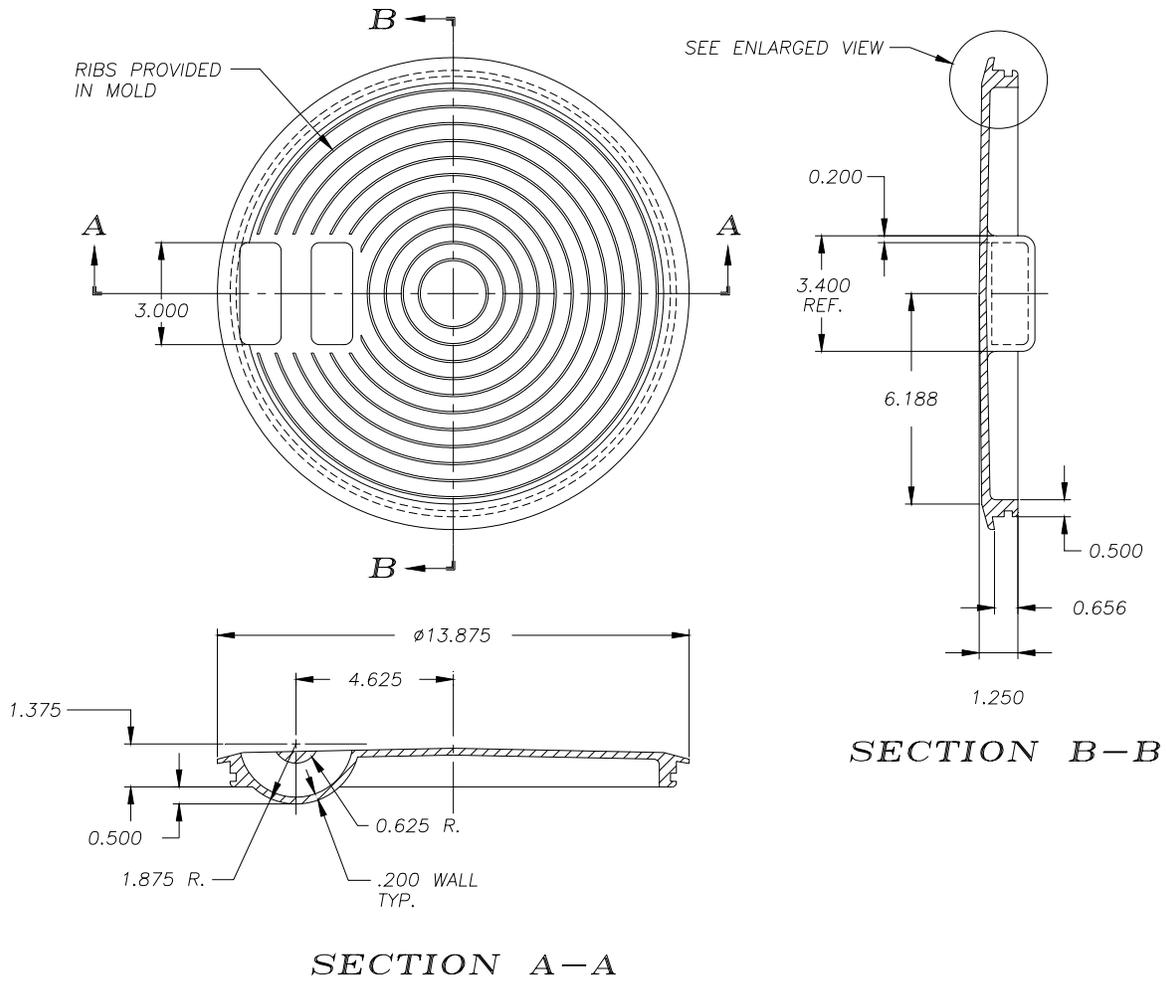
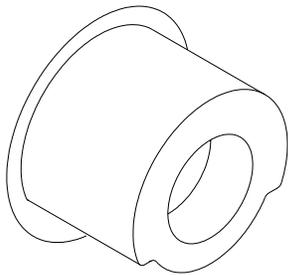
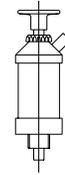
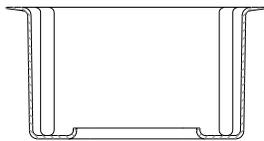


Figure B-3

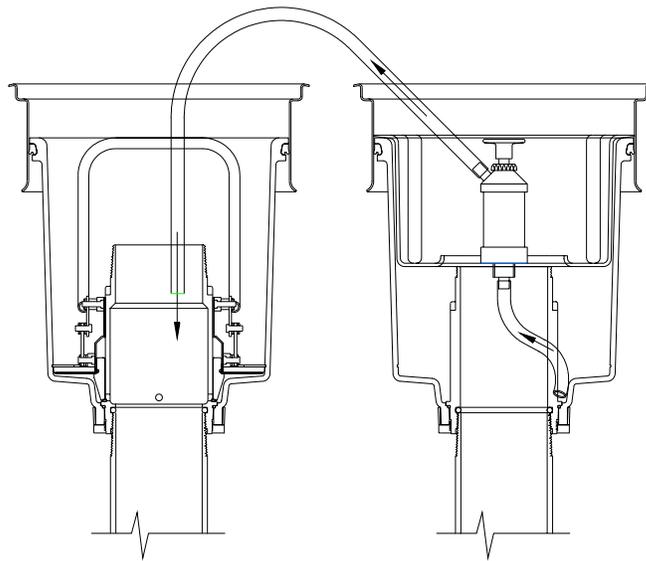
Phil-Tite Debris Bucket
Part Number PP 1005 TB (Product) (required)
Part Number PP 1005 TBP (Vapor) (optional)
Phil-Tite Hand Pump EP-400-VB (optional)



Debris Bucket



Hand Pump
(installed in vapor
debris bucket only)



PRODUCT

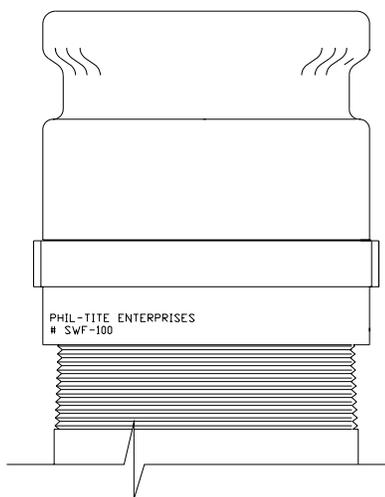
VAPOR REC

Hand Pump Operation

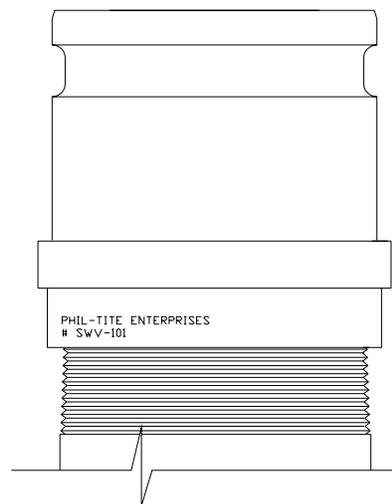
Figure C-1

**Phil-Tite SWF-100-B Rotatable Product Adaptor and
Phil-Tite SWV-101B Rotatable Vapor Adaptor
Add torque, 360 performance specs**

Product



Vapor Recovery



PHIL-TITE ROTATABLE ADAPTORS

Phil-Tite Rotatable Adaptors are designed to produce a free turning, 360 degree rotation of a fuel delivery elbow which prevents the adaptors from loosening or overtightening on the spill container riser which prevents leaks into the environment.

INSTALLATION INSTRUCTIONS:

- 1) Remove the adaptor from the box and inspect for shipping damage. Ensure that the adaptor seal is in place and is free from damage or defects. SWV-101-B Only, ensure that the vapor poppet opens and closes freely by actuating the poppet by hand.
- 2) **DO NOT USE ANY TYPE OF THREAD SEALANT ON THE ADAPTOR OR IT'S MATING THREADS!** Phil-Tite adaptors are designed to create a leak free seal when properly tightened as described in item #4.
- 3) By hand, thread the adaptor onto the spill container riser taking care not to cross thread.
- 4) Using a torque wrench and an adaptor installation tool (Phil-Tite Tool Kit #T-7043-1), tighten to a torque value between the range of 50 and 75 ft. lbs.
- 5) Once properly tightened, install a compatible dust cap. The adaptors are ready for operation.

THE USE OF UNAPPROVED TOOLS, OR IMPROPERLY TORQUING OF THE SPILL CONTAINER WILL VOID ANY AND ALL APPLIED WARRANTIES.

PLEASE CONTACT PHIL-TITE ENTERPRISES FOR A SCHEDULE OF "HOW-TO" CLASSES OFFERED FOR THE INSTALLATION OR REPAIR OF ALL PHIL-TITE PRODUCTS.

Specifications: 360-degree rotation
Static Torque less than or equal to 108 lb-inches

**MAINTENANCE INSTRUCTIONS:
(annually)**

The Phil-Tite rotatable adaptors are not field serviceable with the exception of the vapor poppet or poppet components found on the SWV-101-B Rotatable Vapor Recovery Adaptor.

- 1) Depress the vapor poppet and release. Ensure that the poppet returns to the closed position. This will verify that the spring mechanism is working properly.
- 2) 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.
If the facility continuously operates under vacuum, a bag test may be used. Place a clear plastic bag over the adaptor and make sure it is tightly sealed to the sides of the adaptor.
- 3) If no bubbles appear at the poppet area under positive pressure or the bag test shows no signs of the bag collapsing, no further maintenance is required. If bubbles appear around the poppet seal or the bag collapsed, continue with steps 3 through 10 to repair the poppet or poppet seal.
- 4) Remove the SWV-101-B adaptor from the spill container riser using an installation tool (Phil-Tite Tool Kit #T-7043-1).
- 5) Using a screwdriver, hook the snap ring on the inside of the adaptor and remove.
- 6) After removing the snap ring, remove the brass spider, spring and vapor poppet through the bottom of the adaptor.
- 7) With the vapor poppet removed inspect the poppet and poppet seal for cuts, tears or damage. Replace if necessary.
- 8) Reassemble the vapor poppet spring and brass spider in the reverse order from which they were removed.
- 9) Replace the snap ring and actuate the poppet by hand, making sure the assembly moves freely and closes when released.
- 10) Reinstall and properly torque the SWV-101-B using the provided installation and maintenance instructions.
- 11) Re-test the poppet seal as described in steps 1 in 2.

<p>Phil-Tite Enterprises, Inc. 3732 Electro Way Redding, CA 96002 Phone - 530-223-7400 Fax - 530-223-7418</p> <p>WARRANTY</p> <p><small>This product is warranted by Phil-Tite Enterprises, Inc. against defective material and workmanship for 1 (one) year from installation date. We will repair/replace, as we deem necessary, product that has been verified defective by a representative of our company. Any damage caused by either freight or wrongful installation are not covered under this warranty. This warranty does not cover normal wear, or force majeure - caused by fire, flood, earthquake, explosion, war, or acts of God. Seals and O-rings are not a warranty item. Warranty is null and void if a) item is disassembled, b) item is installed improperly, or c) warranty label has been tampered with or is removed from product.</small></p> <p>Expiration Date: _____</p> <p>Serial Number: _____</p> <p>Model Number: _____</p> <p>Mfg. Number: _____</p>	<p><u>TO BE FILLED OUT BY INSTALLER AT THE TIME OF INSTALLATION</u></p> <p>This Card MUST be returned for Warranty to be honored</p> <p>Date of Installation: _____</p> <p>Installation Company: _____</p> <p>Address: _____</p> <p>_____</p> <p>Telephone: () _____</p> <p>Facility Name: _____</p> <p>Address: _____</p> <p>_____</p>
---	---

Please detach here, fill out completely, and promptly mail back to Phil-Tite Enterprises.

Place
Stamp
Here

Phil-Tite Enterprises, Inc.
3732 Electro Way
Redding, CA 96002

OWNERS COPY

TO BE RETAINED ON-SITE WITH FACILITY OWNER

Phil-Tite Enterprises, Inc.
3732 Electro Way
Redding, CA 96002
Phone - 530-223-7400
Fax - 530-223-7418

WARRANTY

This product is warranted by Phil-Tite Enterprises, Inc. against defective material and workmanship for 1 (one) year from installation date. We will repair/replace, as we deem necessary, product that has been verified defective by a representative of our company. Any damage caused by either freight or wrongful installation are not covered under this warranty. This warranty does not cover normal wear, or force majeure - caused by fire, flood, earthquake, explosion, war, or acts of God. Seals and O-rings are not a warranty item. Warranty is null and void if a) item is disassembled, b) item is installed improperly, or c) warranty label has been tampered with or is removed from product.

TO BE FILLED OUT BY INSTALLER AT THE TIME OF INSTALLATION

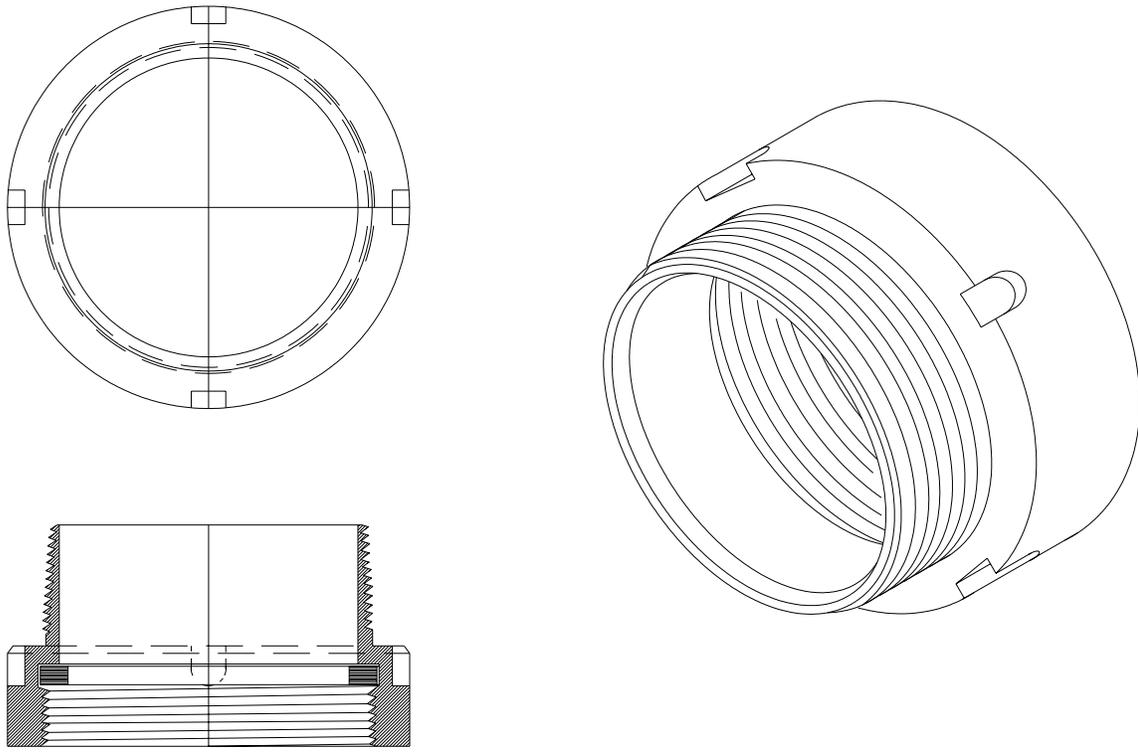
Expiration Date: _____	Date of Installation: _____
Serial Number: _____	Installation Company: _____
Model Number: _____	Address: _____
Mfg. Number: _____	_____

NOTE: Return Warranty registration card must be returned for Warranty to honored.

Telephone: () _____

Figure D-1

Phil-Tite Model M/F4X4 Riser Adaptor



PHIL-TITE M/F4X4 RISER ADAPTOR

The Phil-Tite M/F4X4 Riser Adaptor is designed to provide a flat, true sealing surface for the installation of a gasket sealed, threaded component such as a Spill Container, Threaded Adaptor or storage tank gauging device.

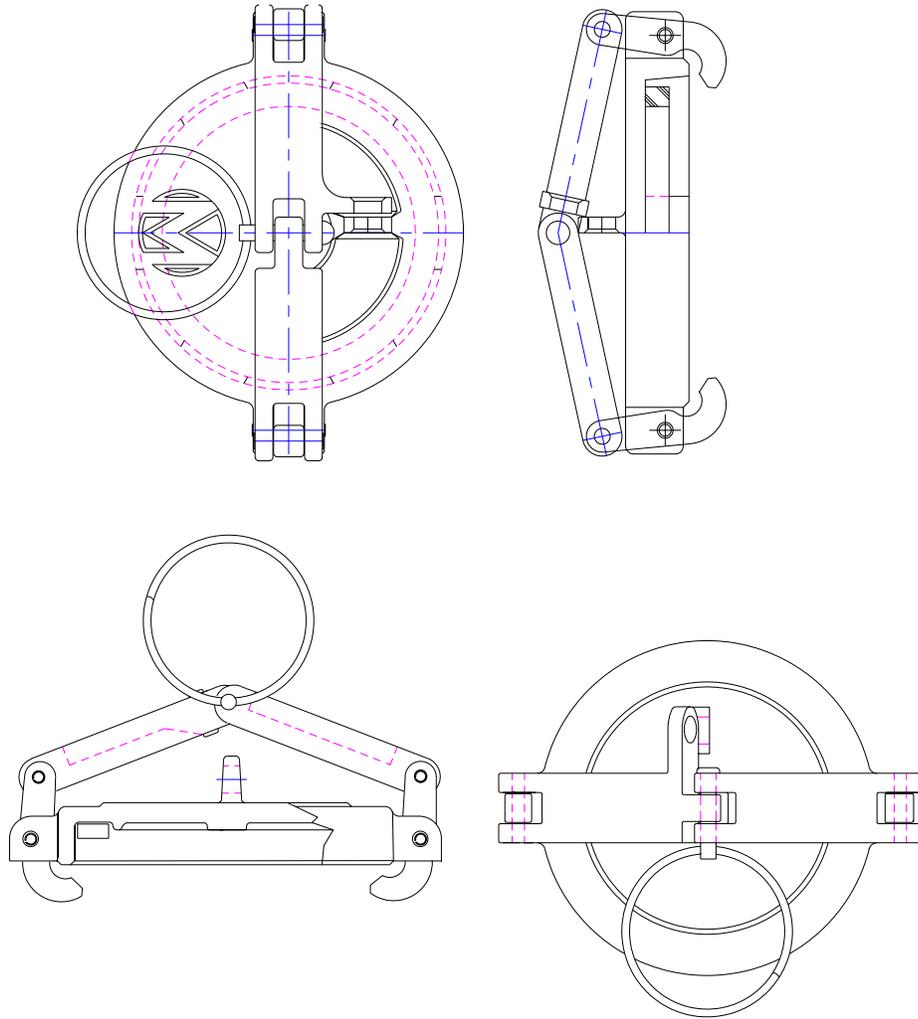
INSTALLATION:

1. If installing a Spill Container on the M/F4X4, determine the final riser height required to meet finished grade and then subtract 1-3/4" to include the M/F4X4 Riser Adaptor. For all other components, determine the desired final riser height including the M/F4X4. Cut and thread the riser pipe to the appropriate height.
2. Apply a gasoline resistant, non-hardening thread sealant to the threads of the riser pipe **only**. By hand, thread the M/F4X4 onto the riser pipe.
3. Using an approved Installation Tool (Phil-Tite T-7043-1 Tool Kit), tighten the M/F4X4 onto the riser to a torque value between **150 and 175 Foot-Pounds**.
4. If installing a drop tube at the product fill riser, install the provided drop tube gasket under the drop tube flange and insert the tube into the tank.
5. Install a Spill Container, threaded adaptor or tank gauging equipment onto the Riser Adaptor ensuring that it is installed in conjunction with the **Manufacturers Recommended Installation Instructions**.

WARNING! THE USE OF UNAPPROVED TOOLS OR IMPROPER INSTALLATION WILL VOID ANY AND ALL APPLIED WARRANTIES.

Figure E-1

Morrison Brothers Adaptor Dust Caps
323C-0100ACEVR (vapor adaptor dust cap)
305C-0100ACEVR (product adaptor dust cap)



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:

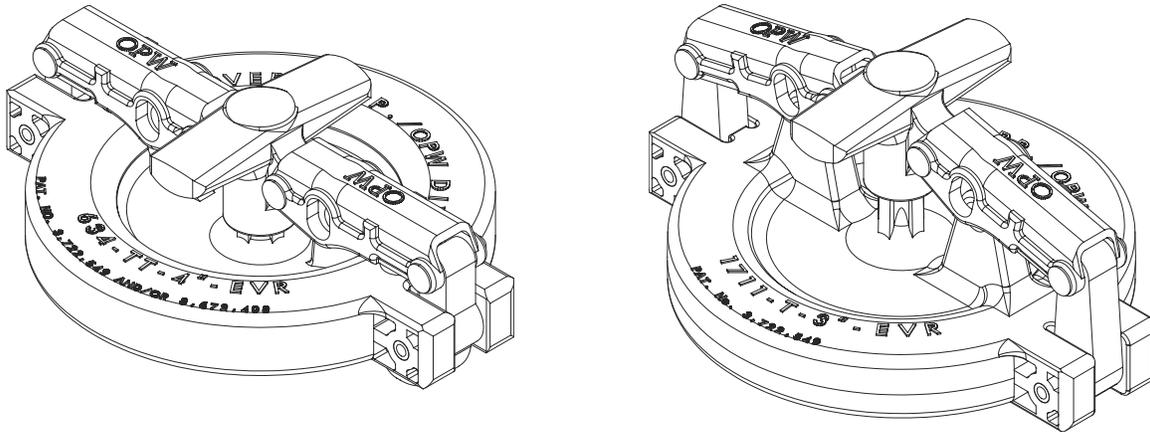
Address:

Date of Install: _____

Name and Location of Install:

Figure E-2

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



Operation and Maintenance:

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

Standard Product Warranty

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

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

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



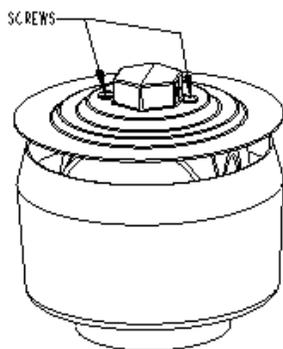
P.O. Box 405003 * Cincinnati, Ohio 45240-5003
1-800-422-2525 Domestically
513-870-3315 Internationally
www.opw-fc.com

Figure F-1
Send a copy to Art
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 ARB procedure TP-201.1E or the applicable ARB Executive Order.



HUSKY CORPORATION • 2325 HUSKY WAY • PACIFIC, MO 63069
www.husky.com

PHONE: 800-325-3558

009041 - 6 9/19/03

(REVERSE SIDE IS 009063)

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

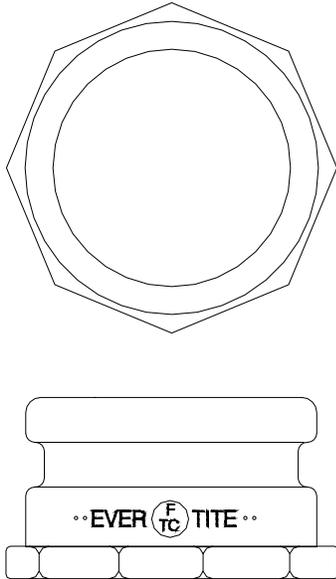
PHONE: 800-325-3558

009063- 0 6/5/02

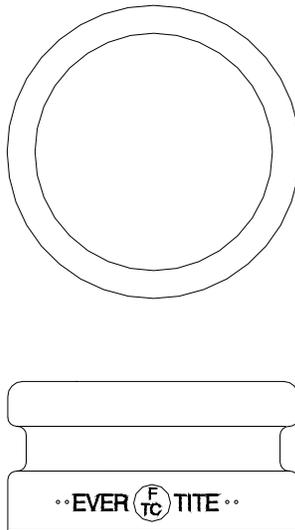
Figure G-1

Ever-Tite Tank Gauge Port Components

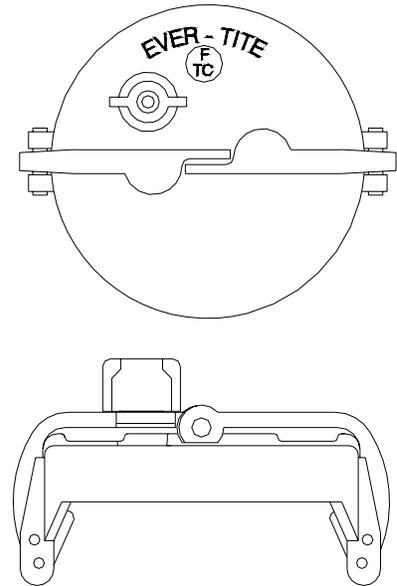
**Ever-Tite #4097AGBR
Adaptor with Hex Base**



**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

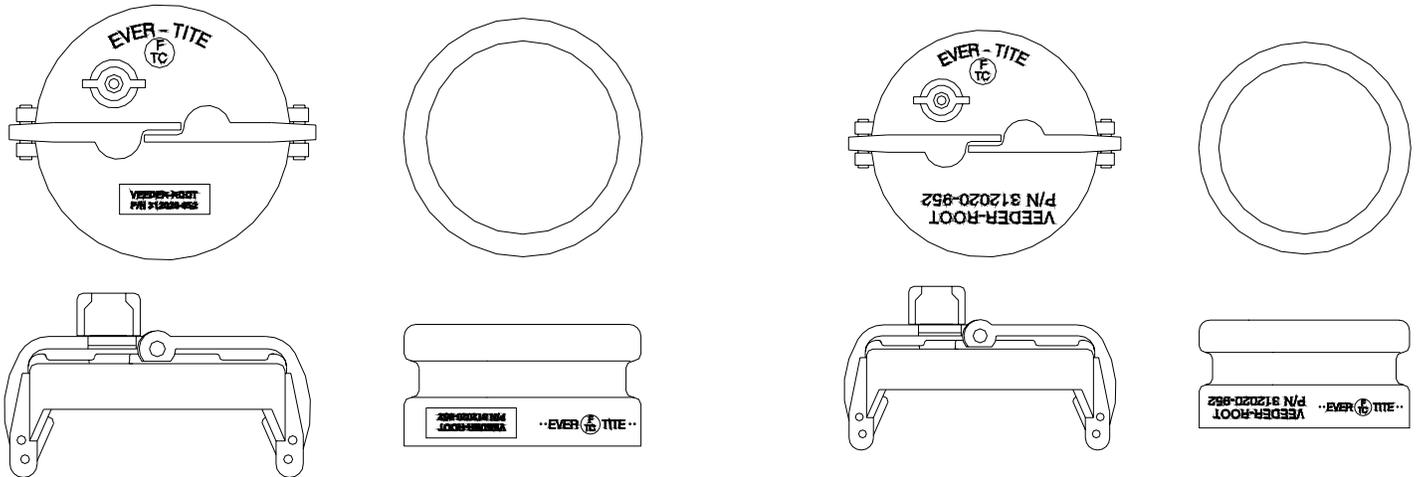
The Company warrants its goods to be free from defects in material and workmanship as represented in our catalogs or applicable drawings and specifications agreed to by us at the time of acceptance of the order by Ever-Tite Coupling Products. Our obligation under this warranty shall be limited to repairing 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 G-2

Veeder-Root P/N 312020-952 Tank Gauge Port 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.

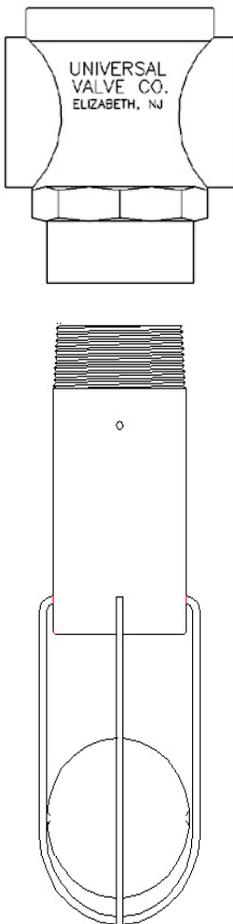
We shall not be responsible for any expenses incurred by the user.

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.

Figure H-1

**Universal Model Number 37 Series Ball Float Vent Valve
And Model V421 Series Extractor Fitting**

**Installation Instruction for Model 37 Series
Float Vent Valve and Model V421 Extractor Fitting**



1. Apply a non-hardening, gasoline resistant, pipe compound to the threads of Model 37 before installing the unit into the cage assembly of the Universal Model V421 Extractor Fitting. Tighten the Model 37 into the cage assembly to a torque of approximately 45 ft.-lbs.
2. Apply a non-hardening, gasoline resistant, pipe compound to the threads of the cage assembly to facilitate removal at a later date. Install the cage assembly into the Model V421 to a torque of approximately 45 ft.-lbs. Use caution when installing the cage assembly into the Model V421. Do not over tighten. Make sure the ball moves freely.
3. Apply a non-hardening, gasoline resistant, pipe compound to the threads of the Extractor Fitting and hand tighten the assembly into the tank bung. Tighten the Extractor Assembly into the tank to a torque of approximately 150 ft.-lbs.

Maintenance

Every 3 following startup, inspect the Model 37 to ensure proper operation. Check to ensure that the ball moves freely within the cage and that the bleed hole allows free airflow.

WARNING! This product is only to be used on gravity drop systems. **DO NOT** use this product if the tank is being filled by means of a pump.

Universal Valve Co., Inc.
478 Schiller Street
Elizabeth, NJ 07206
Phone: (800) 223 -0742
Fax: (908) 351-0369



©Copyright 2002 Universal Valve Co., Inc.

Figure H-2

OPW Model 53VML 30MV Ball Float Vent Valves and 233 Extractor



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.

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.

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 AND 30MV 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.

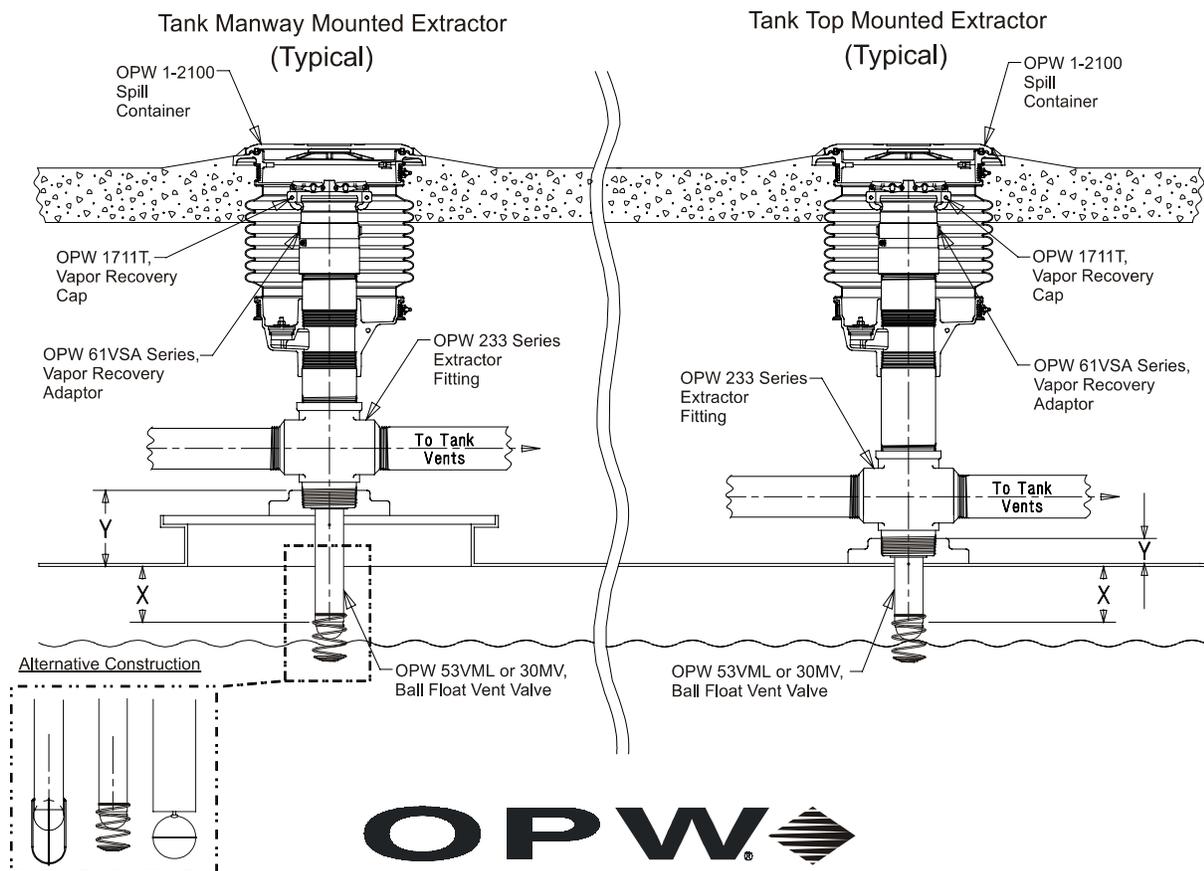
Step 3: Add measurements "X" and "Y". Then subtract 1/4" and round up to the nearest length ball float.

Specifying the Proper Length 30MV Series Ball Float

Step 1: Determine Dimension "X": Consult the tank chart (provided by the tank manufacturer) to determine the distance that corresponds to 308 gallons.

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.

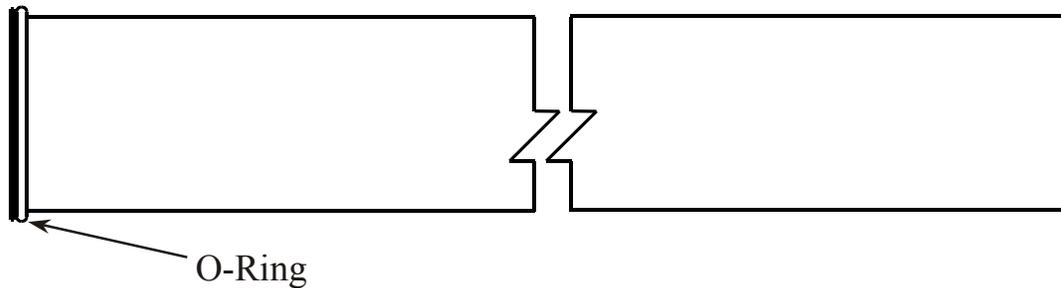


P.O. Box 405003 * Cincinnati, Ohio 45240-5003
1-800-422-2525 Domestically
513-870-3315 Internationally
www.opw-fc.com

Copyright, 2003- OPW Fueling Components Inc., Cincinnati, OH
Printed in U.S.A. p/n H14111PA (9/03)

Figure I-1

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

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.



Figure I-2

Phil-Tite Model 61-SO-PT Drop Tube Overfill Prevention Device

MAY 2003

PHIL-TITE ENTERPRISES, INC.

***Installation & Maintenance
Instructions***

**INSTALLATION and MAINTENANCE INSTRUCTIONS FOR THE
PHIL-TITE 61-SO-PT DROP TUBE OVERFILL PREVENTION VALVE.**

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

GENERAL INSTRUCTIONS

The Phil-Tite 61SO-PT 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-PT 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-PT models of the 61SO-PT are designed to be installed with a PHIL-TITE Spill Container and PHIL-TITE M/F 4 X 4 adaptor.

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 as illustrated in Figure 16. In all systems, the shut-off point of the 61SO-PT must be reached before the ball float reduces flow to ensure proper overfill valve operation.

TOOLS NEEDED FOR INSTALLATION AND ASSEMBLY:

1. Tape measure
2. Hacksaw or cut-off saw, fine tooth; 24 teeth/inch
3. Fine half round file
4. PHIL-TITE Flaring tool
5. Two-part sealant (supplied) (JB Weld 8276)

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 number) that is not certified by the California Air Resources Board (ARB) for a specific Phase I Vapor Recovery System. Please refer to Exhibit 1 of the appropriate ARB Phase I Executive Order for a list of certified Phase I Vapor Recovery System Equipment.

HOW TO LOCATE THE POSITION OF THE Phil-Tite 61SO-PT (61-SO-PT) AT 95% TANK CAPACITY

The length of the upper tube and the placement of the 61SO-PT valve body determine the shut-off point. Following the standard instructions for the

61SO-PT will provide for initial shutoff at 95%. All length measurements are in inches.

INSTRUCTIONS

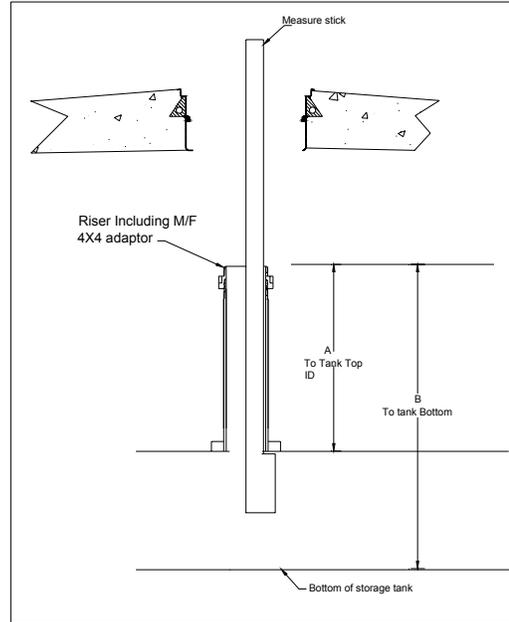
- 1.) Find tank capacity (in gallons) from tank calibration chart provided by tank manufacturer.
- 2.) Calculate 95% of capacity.
- 3.) Locate the 95% volume number on the tank calibration chart.
- 4.) Find the dipstick number (X) which corresponds to the 95% tank volume. And, find the dipstick number (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 M/F 4 X 4 Adapter installed on the riser pipe to the inside, top lip of the storage (A).

Upper Tube Length = C + (A)

YES Upper tube length is 6 1/2" plus the distance to the top of the Riser Adaptor (Dim "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 x 9403 gal. = 8933 gal.
- 3.) The closest number which is less than 8933 gal. Is 8910 gal. Choosing the closest number less than 95% of actual capacity ensures that the initial shutoff will occur when the tank is no more than 95% full.

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

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

- 6.) $(Z) - 2" = C$ $(10" - 2" = 8")$
 $C = 8"$

- 7.) Is 8" less than 6 1/2"?

NO Measure from the top of the M/F 4 X 4 Adaptor to the inside, top lip, of the storage tank, measurement (A) (see Figure 1).

Upper tube length = 8" + (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 61SO-PT 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 MINIMUM UPPER TUBE LENGTH REQUIRED

Install the PHIL-TITE M/F 4 X 4 adaptor on the tank riser (Refer to the Installation Instructions Supplied). Insert the 61SO-PT 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 PHIL-TITE M/F4 X 4 Adaptor (See Figure 1 & 1A).

STEP 2: MARK THE MINIMUM UPPER TUBE LENGTH

Using the measuring stick, transfer the minimum length required measurement to the tube as shown in Figure 2. This is NOT a cut mark.

STEP 3: MEASURE DIMENSION A AND B

Using a tape measure, measure the distance from the top of the PHIL-TITE M/F 4 X 4 Adaptor to the inside top lip of the tank (Dim "A"). Measure from the top of the PHIL-TITE M/F 4 X 4 Adaptor to the bottom of the tank (Dim. "B"). See Figure 1. These results will assist in determining proper position.

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-PT is designed to be installed into schedule 40 riser pipes. The 61SO-PT cannot be installed into schedule 80 riser pipes.

STEP 4: MARK THE 95% UPPER TUBE LENGTH

Use the result obtained for "C" from HOW TO LOCATE THE POSITION OF THE 61SO-PT AT 95% TANK CAPACITY. Measure off a distance equal to result "C" above the mark created in Step 2 (furthest away from the valve). This is NOT a cut mark. This mark identifies the distance required to position the valve at 95% tank capacity.

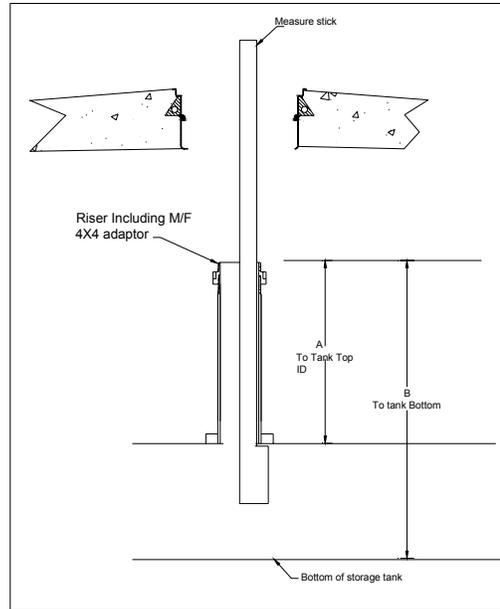


Figure 1

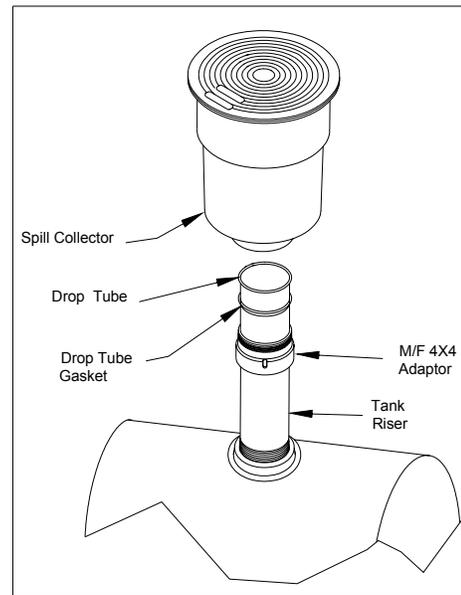


Figure 1A

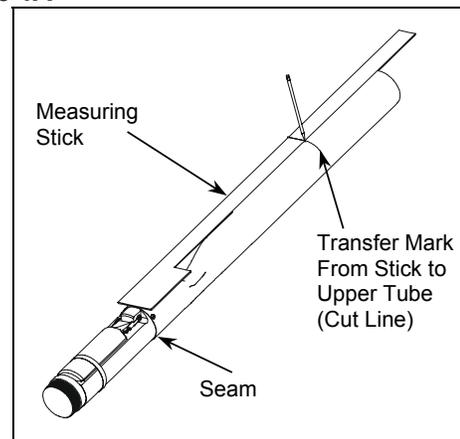
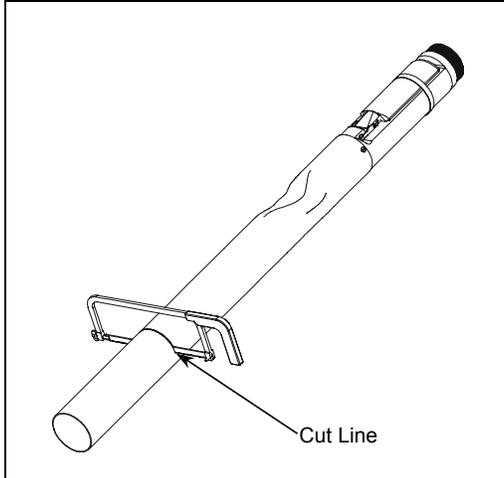


Figure 2

STEP 5: REMOVE EXCESS UPPER TUBE

Mark the tube 1-1/2" above the 95% mark created in Step 4. Carefully saw through the tube taking care to make a straight cut. Use a hacksaw with a new fine-tooth blade.

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.



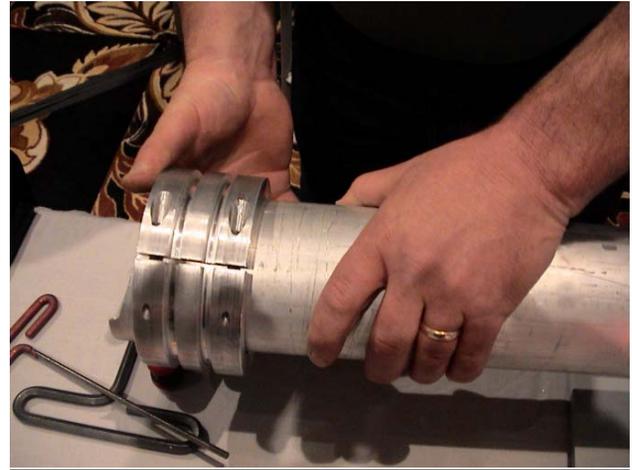
STEP 6: MARK FINAL CUT MARK

Mark the upper tube 1/4 of an inch above the 95% mark created in Step 4. This will allow enough material to create the flange.



STEP 7: INSTALL DRIVE RING

Position the Drive Ring on the 95% mark created in Step 4. You should see the final cut mark 1/4 of an inch above the Drive Ring. There should be approximately 1-1/2 inches of excess upper tube beyond the Drive Ring.



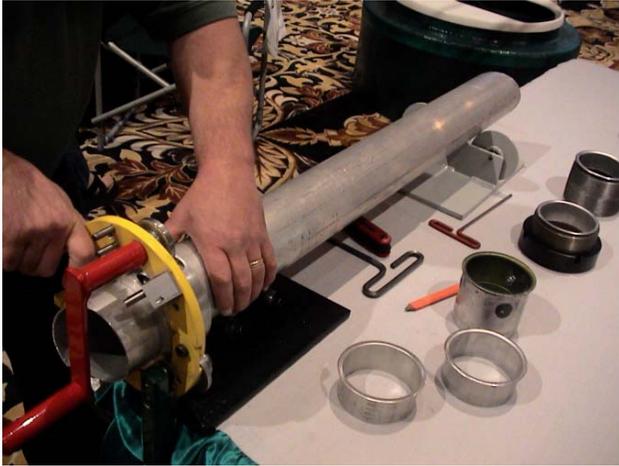
STEP 8: TIGHTEN

Tighten the Drive Ring onto the drop tube at the 95% mark created in Step 4.



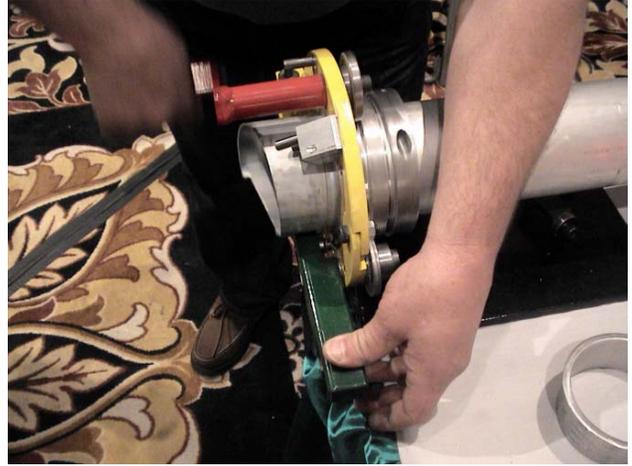
STEP 9: POSITION

Position the Drive Ring and upper tube in the flaring mechanism.



STEP 11: PERFORM FINAL FLARE CUT

Apply light thumb pressure on the cutter and spin the drop tube to cut to proper dimension. **Do not apply excessive pressure.** Should the mechanism not turn, tighten the thumb-screw tension until the handle drives the tube



STEP 10:

Use the thumb-screw to tighten the Drive Wheel against the tube just enough to create a light tension between the Drive Wheel and tube (do not over tighten).

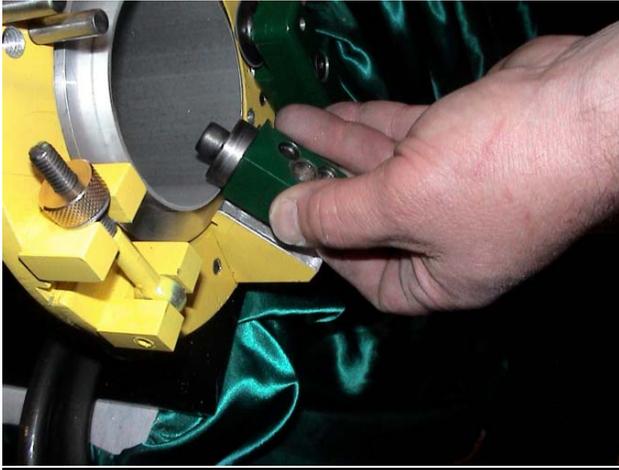


After tube is cut there should be 1/4 of an inch of material remaining. You are now ready to start the flare.



STEP 12: FIRST FLARING WHEEL POSITION

The first position for the flaring wheel is on the lower mount (45 degrees).



Apply light tension using the Allen bolt and start spinning the tube. Apply continual pressure until the tube begins to flare slightly. Should the drive mechanism not turn, apply more pressure with the thumb-screw.



STEP 13: INTERMEDIATE FLARING POSITION

Re-Mount the Flaring Wheel on the next angle mount to increase the amount of flare. Repeat the flaring procedure as used in Step 10.



STEP 14: REMOVE THE FLARING WHEEL AND DRIVE RING

After the flaring procedure is completed, there should be smooth, flat 90-degree flare. Remove the Flaring Wheel and Drive Ring from the upper tube.

STEP 15: INSPECTION

Inspect the flare to ensure the flare is flat and even.



STEP 16: INSTALL DROP TUBE SEAL

Install the drop tube seal supplied with the PHIL-TITE M/F 4X4.

STEP 17: LOWER TUBE ASSEMBLY

If a vise is used, clamp on the valve body casting only to avoid damage to the float. Mix the two-part epoxy provided until the color is uniform. Using the mixing stick, **generously apply epoxy 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 4-6 hours before installing into tank.

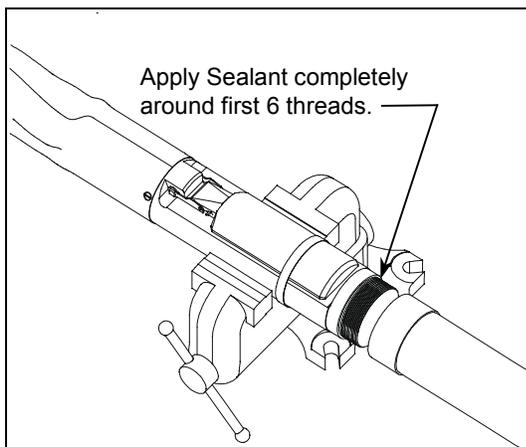


Figure 19

Note: After the sealant has cured and before installing the tube into 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 PHIL-TITE for warranty evaluation.

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

STEP 18: 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 3, Figure 1 (Top of the PHIL-TITE M/F 4 X 4 Adaptor 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 PHIL-TITE Tank Bottom Protector on the lower tube (Refer to Installation instructions supplied with the 6110-PT Tank Bottom Protector).

STEP 19: PREPARE TANK 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 drop tube, allow the sealant to cure for 4-6 hours.

STEP 20: REMOVE ELASTIC BAND

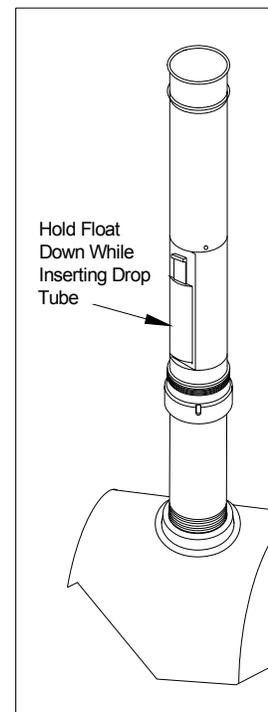
Remove the elastic band securing the float to the valve body. The float will move into an outward position.

STEP 21: INSTALL DROP TUBE

Make sure the drop tube gasket is installed. Hold the float down against the valve body and slowly insert the drop tube into the riser pipe. Do not force the 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 61SO-PT will VOID THE WARRANTY!



STEP 22: CHECK INSTALLATION

Insert the drop tube all the way into the tank until the flange and gasket seat onto the top of the Phil-Tite M/F 4 X 4 Adapter. 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.

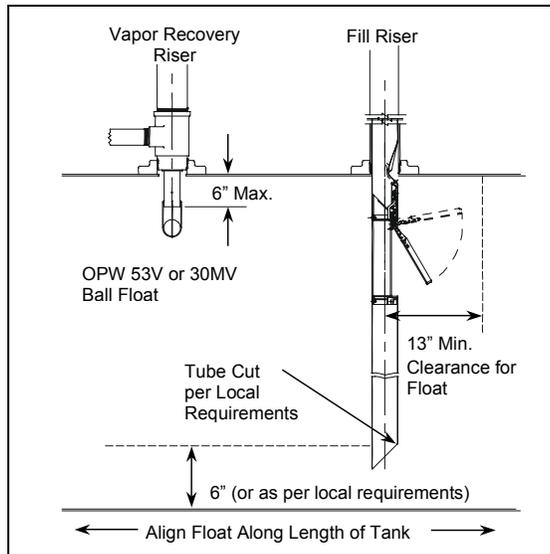


Figure 25

STEP 23: FINAL INSTALLATION

Install a PHIL-TITE Spill Container according to the manufacturer's installation instructions. Ensure that the drop tube does not rotate while tightening the Spill Container by observing the position of the deflector. Install a PHIL-TITE Rotatable adaptor and tighten according to the manufacturer's installation instructions.

STEP 24: 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.

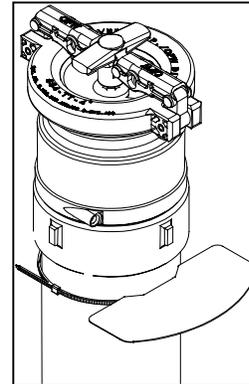


Figure 26

STEP 25: VALVE REMOVAL

The valve can be removed from the tank by removing the PHIL-TITE Spill Container. Reinstall per the above instructions.

Step 26: Electronic Liquid Level Monitoring

If an electronic level monitor is installed, it must be calibrated to match the top of the 61SO-PT valve body, correlated to the 95% tank level dimension used during assembly.

PREVENTATIVE MAINTENANCE

Annually, inspect the flapper in the 61-SO-PT to see that it is open by looking down the drop tube opening. Test the 61-SO-PT 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 Phil-Tite 85039-DT. Re-test the 61-SO-PT with ARB procedure TP-201.1D. If this does not correct the leak the 61-SO-PT 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 the valve position before "sticking" the tank. If valve 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-PT is damaged and needs to be replaced.

Phil-Tite 61SO-PT Performance Specifications:

This Overfill Prevention Valve has been manufactured and tested to, and met the following specifications:

Specification: Leak rate, Less than or equal to 0.17 CFH at 2.00"W.C.

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

Please detach here, fill out completely, and promptly mail back to manufacturer.

Phil-Tite Enterprises, Inc.
3732 Electro Way
Redding, CA 96002
Phone - 530-223-7400
Fax - 530-223-7418

WARRANTY CARD

This product is warranted by Phil-Tite Enterprises, Inc. against defective material and workmanship for 1 (one) year from installation date. We will repair/replace, as we deem necessary, product that has been verified defective by a representative of our company. Any damage caused by either freight or wrongful installation are not covered under this warranty. This warranty does not cover normal wear, or force majeure - caused by fire, flood, earthquake, explosion, war, or acts of God. Seals and O-rings are not a warranty item. Warranty is null and void if a) item is disassembled, b) item is installed improperly, or c) warranty label has been tampered with or is removed from product.

Expiration Date: _____

Serial Number: _____

Model Number: _____ Mfg. Number: _____

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: _____

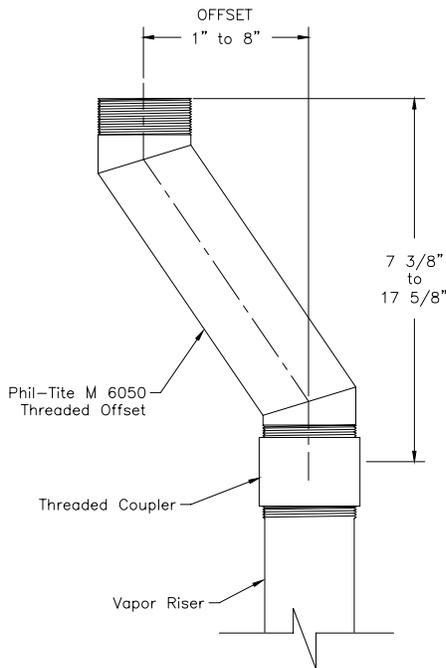
Date of Install: _____

Name and Location of Install: _____

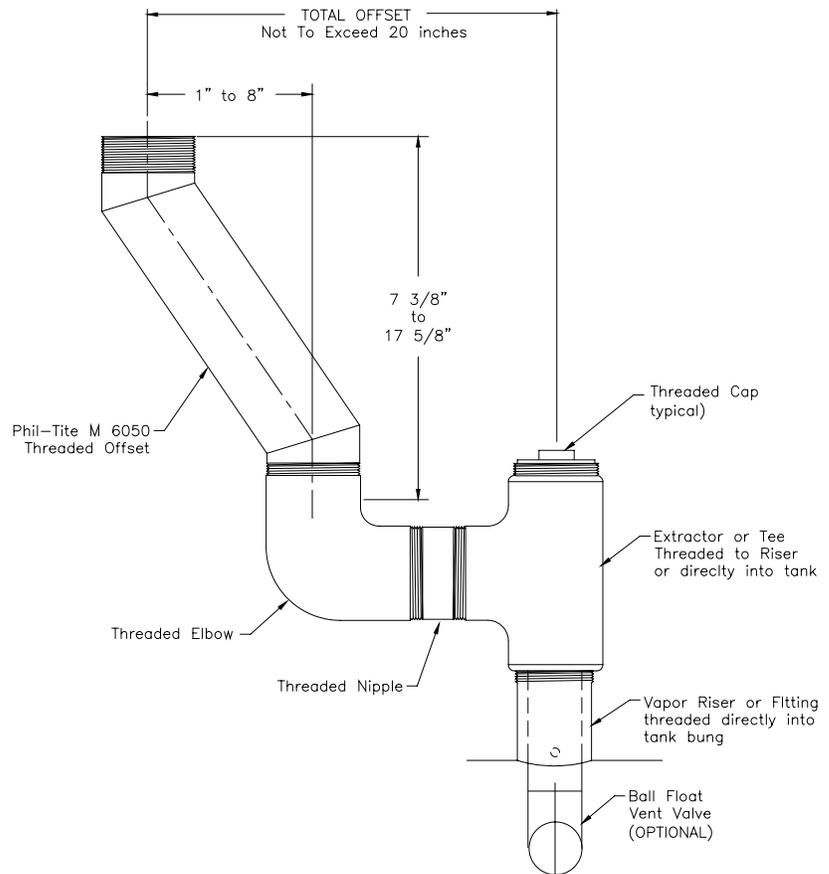
Figure J-1

Phil-Tite Model M-6050 Vapor Recovery Riser Offset

Offset Using Straight Riser



Offset Using Ball Float



Phil-Tite M-6050 Vapor Riser Offset

INSTALLATION:

- (1) On the underground storage tank, measure the tank bungs from center to center and then subtract 16 inches from that measurement. The result will match the size of the M-6050 Vapor Riser Offset required which also includes additional space for connections or fittings.

Example: If the tank bungs measure out to 22 inches center to center and you subtract 16 inches, you will have a maximum size, 6-inch M-6050 Vapor Riser Offset for your application.

- (2) Apply a gasoline resistant, non-hardening thread sealant to the TANK END ONLY of the M-6050 using the sealant manufacturers recommended instructions. The use of sealant on the spill container end varies by manufacturer.
- (3) By hand, thread the M-6050 into the pipe coupler or threaded fitting depending on your configuration (see figures). By hand, thread the entire assembly onto the underground storage tank.

Note: If a Ball Float Vent Valve is to be installed, you must use a threaded connection to allow the installation and removal of the Ball Float Vent Valve.

- (4) Tighten the M-6050 and threaded fittings to a torque value between the range of **150 and 200 Ft-lbs.**

Figure K-1

Typical Phil-Tite Double Fill Configuration

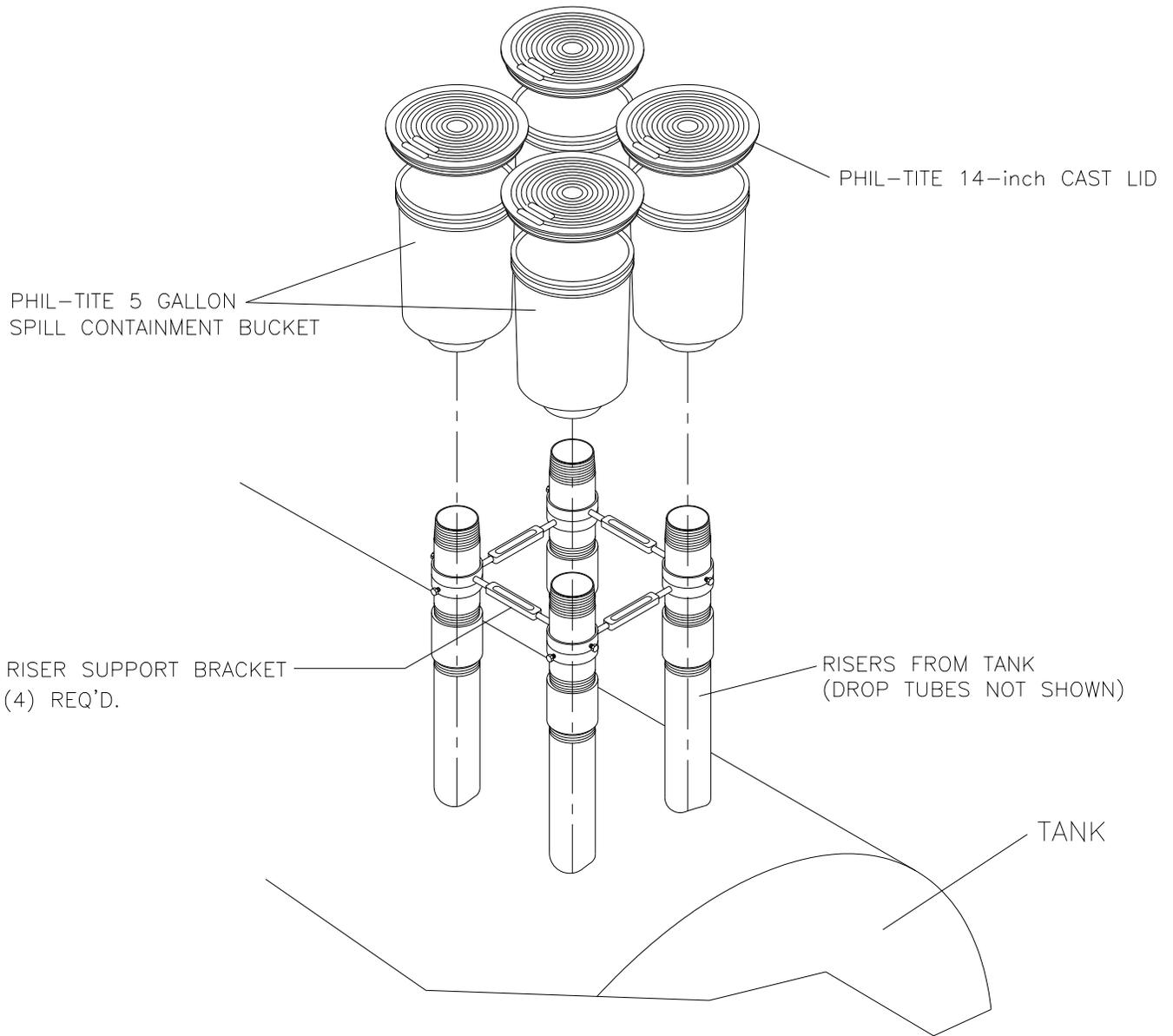


Figure K-2

**Phil-Tite 85000-EXT-CA2 Sump Configuration
Using Fiberlite FL 36-inch diameter Raised Composite Cover**

