Installation & Maintenance Instructions

FOR

EBW 708 - 49X-1Y Series Drop Tube with Mechanical Overfill Prevention Valve (EBW Auto Limiter II®) Use on a Phil-Tite Phase I Vapor Recovery System

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

THESE INSTRUCTIONS ARE VERY DIFFERENT FROM OTHER MANUFACTURERS INSTRUCTIONS AND REQUIRES THE UPPER DROP TUBE SECTION TO BE FLARED USING PHIL-TITE FLARING TOOL MODEL T-6100-FT
GENERAL INSTRUCTIONS

The EBW 708-49X-1Y Series Overfill Prevention Valve and drop tube (EBW Autolimiter II) is designed for tight fill connections, gravity drop applications only, and to provide positive shut-off of product delivery before an overfill condition occurs without intervention from the transport driver (per EPA and State requirements). The valve features a sealed float pivot and a threaded lower tube connection with a maximum vapor leak rate of 0.17CFH @ 2" inches H20 or less in accordance with CARB TP-201.1C or D. For CARB EVR installations the Overfill Prevention Valve and Drop Tube are installed below the spill container drain valve in the underground storage tank (UST) in place of a standard straight drop tube.

The EBW Auto Limiter II® is designed to be installed in the 4" inch riser pipe of a UST to reduce the flow by 90% (at approximately 92% of tank capacity) and shut the flow off at 95% tank capacity. After the valve has been activated, the delivery hose can be drained.

The EBW Auto Limiter II® is designed to be installed with a Phil-Tite Spill Container, and M/F 4 X 4 riser adaptor using Phil-Tite installation instructions, work sheet, torque adapters and Flaring Tool (T-6100-FT).

IMPORTANT

Read these assembly and installation instructions completely and carefully prior to starting. Check to make sure you have the special drop tube seal (85039-DT) and a package of JB KWIK. Do not use any substitutes for these items. The use of substitute parts may cause product failure.

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

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 the storage tank and transport are securely coupled. Prefer the use of rotatable Fill and Vapor adaptors.
- Make sure the lip seal and/or all gaskets in the delivery elbows and adaptors are properly in place to prevent spills.
- Do not make a delivery using damaged or missing parts, which prevent tight connections.

Normal Operation of the over-fill valve: A Hose "Kick" and reduced flow signal that the tank has reached 92% full. Fuel flow is reduced by 90%. Close the transport delivery valve(s) and drain hose into tank before disconnecting any hose fitting. If delivery is not stopped and the liquid rises above 95% of tank capacity the EBW Auto Limiter II® valve will shut down the flow of fuel into the UST.

Overfilled Tank: The inability to drain the hose or failure of the hose to drain after closing the delivery valve(s) signals an overfilled tank. Do Not Disconnect any delivery hose fittings 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 with fuel, remove all wetted clothing immediately. Do not go into an enclosed area and stay away from any and all ignition sources.

IMPORTANT

Determine if the underground storage tank is equipped with a ball float vent valve. In all systems, the shut-off point of the EBW Auto Limiter II® must be reached before the ball float reduces flow to ensure proper overfill valve operation. See CA State Water Resources Control Board Local Guidance Letter LG-150-1 at: http://www.waterboards.ca.gov/ust/leak-prevention/lgs/index.html or call (916) 341 – 5752 or (916) 341 - 5782.
TOOLS NEEDED FOR INSTALLATION AND ASSEMBLY: See Photo below.

1. ¾”X20’ Tape measure
2. High-Tension Hacksaw, with fine tooth (24-32 teeth/inch) blade or equivalent.
3. Fine teeth half round file or de-burring tool
4. Phil-Tite Flaring Tool Assy. (T-6100-FT)
5. ¼” Ratchet with 3” extension
6. 3/16”X1/4” & 5/16”X1/4” Hex with socket adaptor
7. Small common screwdriver
8. Fine Tip Marking pen (Sharpie) or pencil

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.

Auto Limiter II® – Drop Tube Preassemble Instructions

Tank Riser – 4” inch
Install the previously measured, cut and threaded fill riser into the tank fill opening using the spill container installation instructions. Apply pipe dope to the riser NPT male threads. Pipe dope is to be non-hardening, gasoline resistant pipe thread seal compound. Correctly torque the tank riser to ensure a vapor and liquid tight fit.

Install the M/F 4”X4” riser adapter using the M/F 4X4 Installation Instructions onto the top of the 4” inch tank riser and correctly torque the adapter using the Phil-Tite special tool adaptor (T-7102 Orange).

IMPORTANT

Dry Fit the Fill Spill Container Assembly
Install the fill spill container onto the M/F 4”X4” riser adapter that is installed onto the 4” inch riser to tank top. Measure the distance from the top of the spill container to finish grade (approximately 4 ½” inches for 85000 series spill container and 1 ¼” inches for 85000-1 series spill container). This is to verify the 4” inch riser to the tank has been cut to the appropriate length. (See diagram below)

A change in the fill riser length after cutting the drop tube could affect the operation of the mechanical overfill valve.

To determine the correct lengths to cut the upper and lower sections of the drop tube for installation; use the Work Sheet for Determining the Drop Tube Lengths that follows:
**FRANKLIN FUELING SYSTEMS - PHIL-TITE**

**EBW 708 Auto Limiter II® Automatic Shut-off Valve and Drop Tube Measurement Work Sheet for Determining the Drop Tube Lengths**

Date:_____________

Site Location: _____________________  Installing Contractor: _____________________

Address __________________________________  Address ____________________________________

City/State _________________________________  City/State _______________________________

Contact/Phone ____________________________  Contact/Phone ____________________________

Tank Number:_________  Product:__________________  Tank Type: ___________________________

Tank Manufacture:_________________________  Tank Capacity ___________________________

(from Mfg tank chart)

Tank Diameter (from Mfg tank chart) ________________ inches

**STEP 1**  Determine the distance in inches the 708 Auto Limiter II® Automatic Shut-off valve must be set below the top of the tank for it to close when the tank reaches 95% or less capacity.

Using the manufactures tank chart, find the tank total capacity in gallons.  Multiply this number by 95% (0.95).  If you want the shut-off valve to close at less than 95% (i.e. 93%) then use that percentage to multiply by the total tank capacity in gallons.

Total tank capacity in gallons ( ) \( \times \) (0.95 or less) = ________________ gallons

Using the manufacturer tank chart, convert the 95% or less capacity in gallons to inches =________ inches

Use **TABLE 1** to calculate the correct distance.

| TABLE 1 |
|-----------------|-----------------|
| **Primary Tank Diameter in (inches)** | _________ |
| Subtract the 95% Liquid level converted to **inches** | _________ |
| This results is the distance in inches below the top of the tank to the tank’s 95% liquid level in inches | _________ |
| Subtract 4” inches **(from the last value obtained above)** | _________ |
| This is “the distance” that the 708 Auto Limiter II® Shut-off valve must be set below the top of the tank for the shut-off valve to operate correctly when the tank reaches 95% or less capacity: | _________ |
| Transfer this number to **Step 3** and **Table 2** for determining the **UPPER DROP TUBE LENGTH**. | _________ |
STEP 2  Determine the total height of the Fill (product) riser height with the M/F 4X4 riser adapter installed. See Figure 1, Measurement “A” (Note: Both the fill riser and M/F 4X4 riser adapter must be installed and correctly torqued.)

To determine the fill riser height, (M/F 4X4 riser adapter must be installed) take a tape measure and measure from inside the installed fill riser, (hook the tape on the end of the riser or on the inside top of tank) and measure from the bottom end of the fill riser to the top of the M/F 4X4 threaded riser adapter installed on top of the riser.

This is measurement “A” (___________) inches

STEP 2a  To determine the total drop tube length, take the tape measure and measure from inside the fill riser from the bottom of the tank to the top of the M/F 4X4 riser adapter.

This is Measurement “B”(___________) inches (See Figure 1)

STEP 3  Determining the Upper Drop Tube Length above the automatic shut-off prevention valve.

Use the final results in inches determined in Step 1 (_________) and ADD it to measurement “A” from Step 2 (_________) Go to Table 2.

TABLE 2
The final results from Step 1 (_________)
Measurement “A” Step 2  ADD + (_________)

UPPER DROP TUBE LENGTH = (_________)

This is the exact length the top section of the aluminum drop tube should be above the automatic shut-off valve for this tank installation.

NOTE: If this UST has a manway and the fill riser is installed in the top of the manway you must add the height of the manway to your fill riser length “A” for the shut-off valve to be set the correct distance below the top of the tank.

See the Flaring Tool instructions for cutting and flaring the upper drop tube.

STEP 4  Determining the total length of the drop tube.

After flaring the upper drop tube section take the results of measurement “B” in Step 2a (________), and subtract 6 or less inches = (_________).

Starting at the flare end (upper section) measure the entire length of the drop tube from the top down to the bottom and mark this measurement near the bottom portion of the drop tube. This will be your cut line for the bottom portion of the drop tube. Go to Table 3

TABLE 3
Measurement “B” from Step 2a (_______)
Less 6” inches or local regulatory amount = (_______)
TOTAL DROP TUBE LENGTH = (_______)

Hint: Use 5 7/8” inches in lieu of 6” inches to ensure you do not exceed 6” inches. To make a perfectly straight cut follow the Flaring Tool instructions while using the flaring tool cutter to make this cut. Place the cutting blade directly on the marked cut line and make your cut.
STEP 5: MARKING FINAL CUT MARKS

Upper Drop Tube Length

Mark the upper tube length with the dimension found in Step 3 Table 2 from the Drop Tube work sheet. Measure the upper section of the drop tube with a tape measure from where it connects to the mechanical over-fill valve to the dimension from Table 2 “Upper Drop Tube Length”. Mark the drop tube using a black fine point marker (Sharpie) or pencil. This will be the length of the upper drop tube section of the drop tube after flaring. See Step 5 Photo 1.

Rough Cut Length

Measure 2" to 2 1/2" inches further up the Upper Drop Tube Length and mark the drop tube using a black fine point marker (Sharpie). This will be your rough cut mark. See Step 5, Photo 2.

STEP 5 Photos 1 & 2 – Marking the Upper Drop Tube length and the rough cut mark

STEP 6: REMOVE EXCESS UPPER DROP TUBE – Rough Cut

Using a Hack Saw or SawsAll, saw through the Upper drop tube on the rough cut mark. This cut does not have to be straight. See Step 6 Photo

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.

STEP 6: Photo – Performing the rough cut.

STEP 7: INSTALL THE DRIVE RING

Position the Drive Ring with the alignment markings facing forward on the upper drop tube length mark, marked in Step 5. There should be approximately 1” - 3” inches of excess upper drop tube beyond the Drive Ring. See next two following photos.

STEP 7 Photos 1 & 2 – Instal the Drive Ring on the Upper Drop Tube line/mark. Note: Rough cut has already been made.
STEP 7 Cont.

STEP 8: TIGHTEN THE DRIVE RING
Alternately Tighten the 4 Hex Screws on the Drive Ring. Check that the drive ring is still on the mark made for the drop tube Upper Drop Tube Length found in Step 3. See photo below:

STEP 9: POSITION THE DRIVE RING IN THE FLARING TOOL
Position the Upper Drop Tube with the Drive Ring into the Flaring Tool. See Photo Below:

STEP 10: SECURING THE DRIVE RING IN THE FLARING TOOL
Use the wing nut to tighten the Drive Wheel into the drive ring groove just enough to create a light tension between the drive wheel and drive ring (do not over tighten). See Photo below:

STEP 11: PERFORMING the PRECISION CUT
Apply light hand pressure on the cutter handle and rotate the drop tube to cut the proper dimension. Do not apply excessive pressure. Should the drop tube not turn, tighten the thumb-screw tension until the handle drives the drive ring. After the drop tube is cut there should be 1/4” inch of material remaining. See Photo below.

After making the precision cut, remove any burrs on the inside of the drop tube using a fine tooth file or de-burring tool. You are now ready to start performing the 0 – 45 degree flare.
STEP 12: FIRST FLARING ROLLER POSITION
The first position for the flaring roller is in the 0 – 45 degrees position. Use the long hex screw to connect the flaring roller to the flaring tool. See the following two photos below for correct position.

STEP 13: PERFORMING 0 – 45 DEGREE FLARE
Turn the long hex screw until it is snug. While turning the Flaring Tool Handle, slowly tighten the long hex screw applying continual pressure until a 45 degree flare is made. The hex screw will bottom out and become tight. When this happens, STOP turning the long hex screw, the first half of the flare is complete. Remove the long hex screw and Flaring roller.

STEP 14: 45 – 90 DEGREE FLARING POSITION
Install the flaring roller in the 45 – 90 degree position using the short hex screw. See photo below.

STEP 15: PERFORMING - 45 – 90 DEGREE FLARE
Turn the short hex screw until it is snug. While turning the Flaring Tool Handle, slowly tighten the short hex screw applying continual pressure until the 90 degree flare is completed. The short hex screw will bottom out and become tight. When this happens, STOP turning the short hex screw, the 90 degree flare is complete. Remove the short hex screw and flaring roller. See photo below.
STEP 16: FLARE COMPLETED

After the flaring procedure is completed, there should be smooth, flat 90-degree flare. Remove the flaring roller from the flare tool and the drive ring from the drop tube. See Photo below.

STEP 17: CHECK YOUR FLARE MEASUREMENT

Measure the upper drop tube for the correct length. The Upper Drop tube mark should be at the base of the flare. See Photo Below.

STEP 18: INSTALLING THE DROP TUBE SEAL

Install the Phil-Tite Special Designed Drop Tube Seal (85039-DT) onto the drop tube with the flat side up against the drop tube flare. See Photo Below.

STEP 19: INSTALLING LOWER DROP TUBE ASSEMBLY

If a vise is used, clamp on the valve body casting only to avoid damage to the float. Mix the two-part J-B Kwik provided until the color is uniform. Using a mixing stick, generously apply J-B Kwik to the first 6 male threads on the valve body as shown in Figure 2. 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 (J-B Kwik) to cure for a minimum of 4 hours before installing the drop tube assembly into a tank with fuel.

Note: After the sealant (JB Kwik) has cured and before installing the drop 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" inches 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 FFS/Phil-Tite for warranty evaluation.

Caution: Do not over-pressurize. Excess pressure can damage the valve.
STEP 20: CUTTING LOWER END OF DROP TUBE
Measuring from the underside of the inlet tube flange, mark the overall length of the drop tube a distance of (B) minus 6" inches or as per local codes or requirements. Determine dimension (B) from the Drop Tube Measurement Worksheet taken in Step 3, Figure 1 (Top of the FFS M/F 4 X 4 Riser Adaptor to the bottom of the tank). Saw/Cut off the excess tube and file off any sharp burrs.

Optional: Install the Phil-tite Tank Bottom Protector on the lower tube (Refer to Installation instructions supplied with the Tank Bottom Protector).

STEP 21: PREPARE TANK RISER FOR OVERFILL VALVE INSERTION
IMPORTANT: Inspect the tank 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 tank riser pipe may prevent proper installation or operation of the valve. Thoroughly clean top of tank riser pipe.

Important: Before installing the drop tube, allow the sealant to cure for minimum of 4 hours.

STEP 22: REMOVE ELASTIC BAND
Check the exposed floats for freedom of movement. If floats drag, inspect guide bar for damage. Both of the floats should be free to move up and down without drag.

STEP 23: INSTALL THE DROP TUBE
Make sure the special drop tube seal (85039-DT) is installed correctly. Slowly insert the drop tube into the tank riser pipe. Do not force the valve into the tank riser pipe. If any obstruction or foreign matter interferes with smooth insertion of the valve, the tank riser pipe must be cleared.

WARNING
Failure to follow the assembly and installation instructions or use of excessive force to insert the Auto Limiter II® will “VOID THE WARRANTY!”

STEP 24: 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 Riser Adaptor.

STEP 25: FINAL INSTALLATION
Install a Phil-Tite Fill 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 swivel adaptor and tighten according to the manufacturer’s installation instructions.
STEP 26: INSTALL WARNING PLATE

Install warning plate around the 4” inch riser pipe below the threaded portion using the stainless steel band clamp.

Figure 4

STEP 27: VALVE REMOVAL

The Over-fill prevention valve can be removed from the tank by removing the Swivel Adaptor and Spill Container. Reinstall per the above instructions.

Step 28: Electronic Liquid Level Monitoring

If an electronic level monitor is installed, it must be calibrated to match the top of the EBW Auto Limiter II® valve body, correlated to the 95% tank level dimension used during assembly.

PREVENTATIVE MAINTENANCE

The EBW Auto Limiter II® 708 series is maintenance free. Be sure to fill out the EVR Equipment Warranty form (F-8352) and send in to FFS/Phil-Tite within 30 days of installation. Failure to do so will void the warranty. Annual visual inspection of the installed drop tube for remnants of broken dip sticks or visual damage is recommended. Repairs must be performed by certified individuals.

CAUTION: Do not insert any foreign object(s) into the drop tube if the 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 EBW Auto Limiter II® is damaged and needs to be replaced.

EBW Auto Limiter II® Performance Specifications:

This Overfill Prevention Valve was manufactured by FFS and has been tested by FFS to meet the following specifications: “The maximum leak rate does not exceed 0.17 CFH at 2.00” inches W.C. when tested in accordance with CARB TP-201.1C or D.

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

Construction

Valve Body: Anodized Cast Aluminum
Upper Drop Tube: Aluminum
Lower Drop Tube: Aluminum
Flappers: Die Cast Zinc and Acetal
Float: Polyethylene

Models

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FOR P/N F-9020

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Folding Illustrated

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For Internal Use Only

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