

H-13791M
May, 2001



OPW Installation & Maintenance Instructions

ASSEMBLY, INSTALLATION,
and MAINTENANCE INSTRUCTIONS
FOR OPW 61SO AND 61SOM VAPOR
TIGHT, CARB - APPROVED
OVERFILL PREVENTION VALVES.

IMPORTANT:

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

Vapor Tight (CARB) Valves

GENERAL INSTRUCTIONS

The OPW 61SO Overfill Prevention Valve is designed for tight fill, gravity drop applications to help prevent accidental or intentional overfilling of underground storage tanks. It is installed in the UST fill pipe in place of a standard drop tube. The main 61SO valve closes when liquid level is within 8" of the top of the tank. A small bypass valve remains open to allow the delivery hose to drain at 3-5 gallons per minute. If the delivery truck valve is not closed after initial shut-off, the bypass valve will close when the liquid level is within 3" of the top of the tank.

IMPORTANT

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

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

CAUTION

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

WARNING

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

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

Normal Operation: A Hose "Kick" and reduced flow signal that the tank is full.

Close transport delivery valve and drain hose into tank before disconnecting any hose fitting.

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

IMPORTANT

Determine if the underground storage tank is equipped with a ball float vent valve similar to the OPW 53VM, as illustrated in *Figure 16, page 7*. To permit proper operation of the OPW 61SO, the ball float vent valve nipple **MUST NOT EXTEND** more than 6" into the tank. If it does, either remove the ball float vent valve or adjust the installation of the 61SO by adding the difference between 6" and the actual installed length of the ball float vent valve nipple to the upper tube when marking the tube in STEP 2. In all cases, the shut-off point of the 61SO must be reached before the ball float reduces flow to ensure proper overfill valve operation.

TOOLS NEEDED FOR INSTALLATION AND ASSEMBLY:

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

WARNING

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

HOW TO INSTALL THE OPW 61SO IN VARIOUS SIZE TANKS

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

INSTRUCTIONS

- 1.) Find tank capacity (in gallons) from tank calibration chart provided by tank manufacturer.
- 2.) Calculate 95% of capacity.
- 3.) Locate the 95% volume number on the tank calibration chart.
- 4.) Find the dipstick number (X) which corresponds to the 95% volume number.
- 5.) Subtract the dipstick number (X) from the tank diameter (Y) to find the upper tube reference number (Z).

$$(Y) - (X) = (Z)$$

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

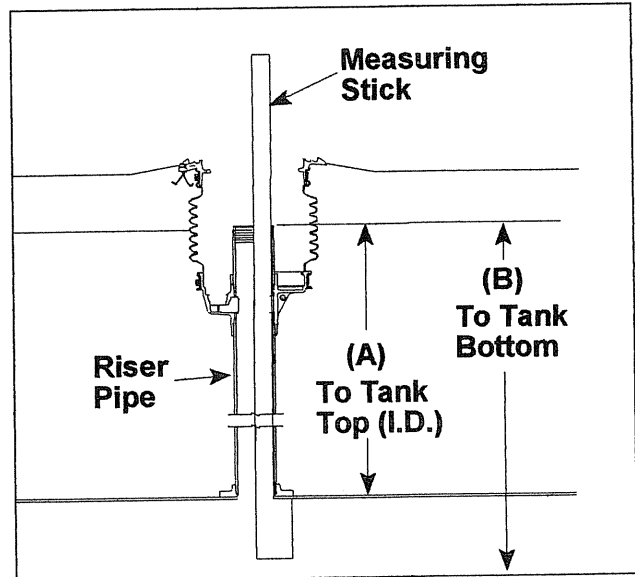
$$(Z) - 2" = C$$

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

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

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

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EXAMPLE

- 1.) For an Owens-Corning Model G-3 Fiberglass® Tank Calibration Chart:
Tank Capacity - 10,000 gal. nominal (9,403 gal. actual)
 - 2.) 95% of actual tank capacity = $0.95 \times 9403 \text{ gal.} = 8933 \text{ gal.}$
 - 3.) The closest number which is less than 8933 gal. is 8910 gal. Choosing the closest number less than 95% of actual capacity ensures that the initial shutoff will occur when the tank is no more than 95% full.
 - 4.) The calibration chart reading of 8910 gal. corresponds to a dipstick measurement of 82".
 - 5.) Dipstick number (X) = 82"
Tank diameter (Y) = 92"
 $(X) - (Y) = (Z) \quad 92" - 82" = 10"$
Upper tube reference number (Z) = 10"
 - 6.) $(Z) = 10"$ (from Step 5)
 $(Z) - 2" = C \quad 10" - 2" = 8"$
 $C = 8"$
 - 7.) Is C = 8" (from Step 6) less than 6-1/2"?
- NO** Measure the riser pipe length (A).
Upper tube length = C + (A)
C = 8" (from Step 6)
Upper tube length = 8" + riser pipe length (A).

ASSEMBLY INSTRUCTIONS

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

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

Figure numbers correspond to step numbers for easy reference.

STEP 1 □ MEASURE

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

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

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

STEP 2 □ MARK THE TUBE

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

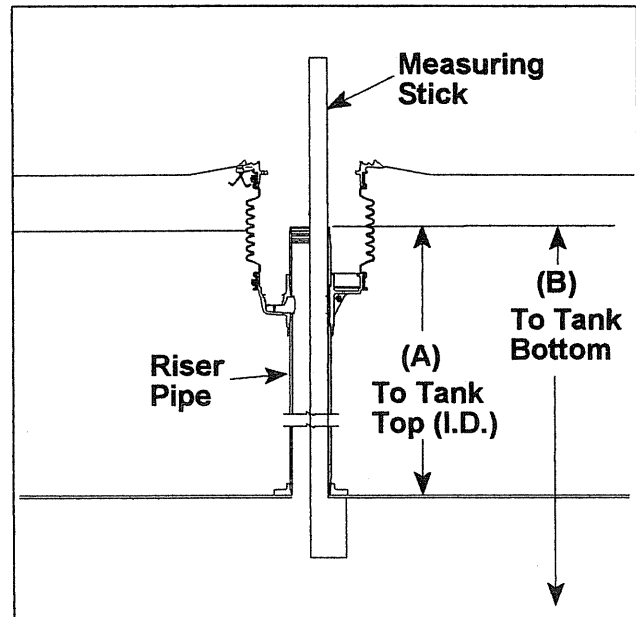


Figure 1

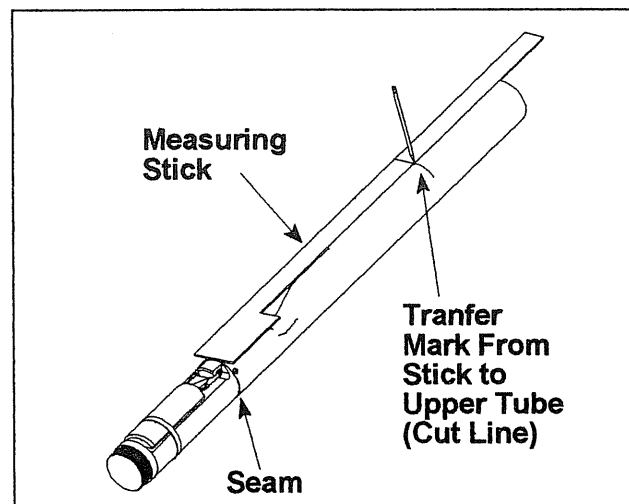


Figure 2

STEP 3 □ CUT THE UPPER DROP TUBE

Carefully saw through the tube squarely, at the mark made in Step 2. Use a hacksaw with a new fine-tooth blade. Rotating the upper tube as the sawing progresses will minimize run out and ensure a square 90 degree cut.

CAUTION -DO NOT use a pipe or tubing cutter to cut the upper drop tube, this may damage the tube, causing it to be out of round thereby prohibiting assembly of the unit.

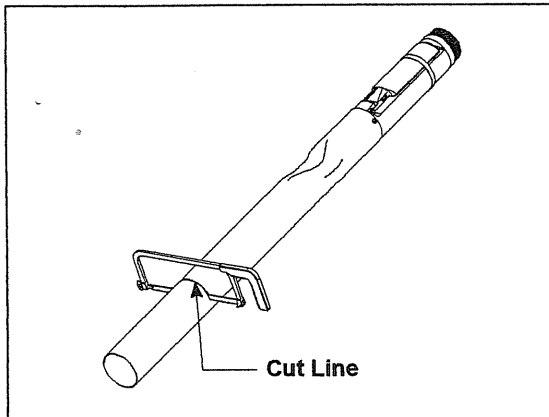


Figure 3

STEP 4 □ FILE THE DROP TUBE File the upper tube square, and remove any burrs or rough edges. Make sure the cut is flat and square.

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

Optional

In hot weather, install o-ring (Step 6) before (Step 5), sealant has tendency to dry quick in heat.

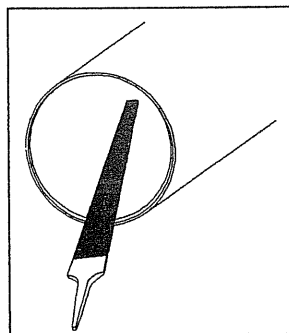


Figure 4

STEP 5 □ APPLY SEALANT

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

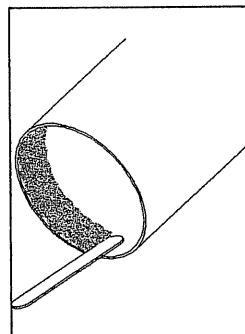


Figure 5

STEP 6 □ INSTALL INLET TUBE

Install o-ring in the o-ring groove of inlet tube (DO NOT USE GREASE). Insert the inlet tube into the upper tube until it seats against the flange on the upper inlet tube.

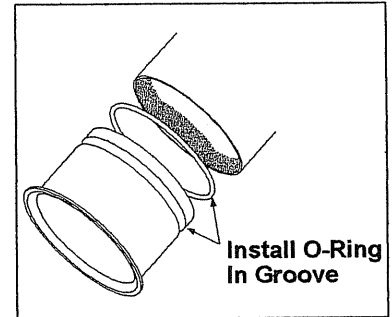


Figure 6

STEP 7 □ DRILL HOLES

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

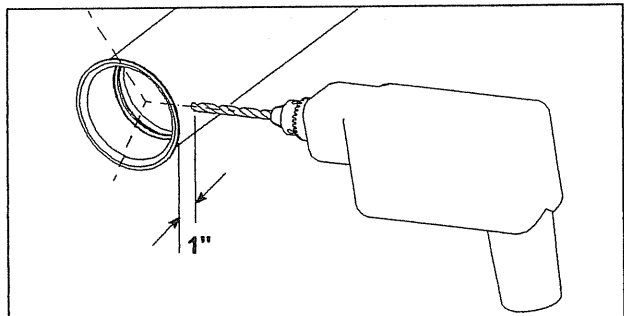


Figure 7

STEP 8 □ ASSEMBLE AND SEAL CLINCH STUDS

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

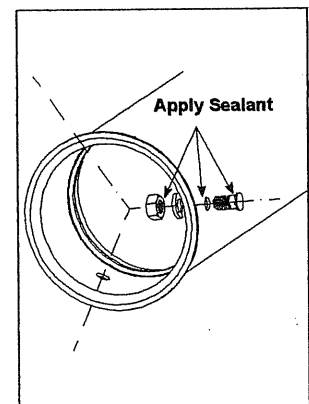


Figure 8

STEP 9 □ TIGHTEN SELF-CLINCHING STUDS

Tighten clinch studs securely with a ½" wrench. Use only the self-clinching studs that are supplied with the unit. Recommended seating torque is 150 inch-lbs. Do not over tighten.

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

STEP 10 □ LOWER TUBE ASSEMBLY

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

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

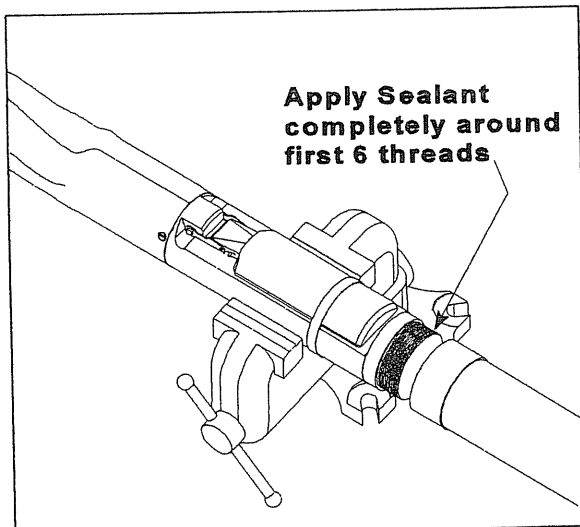


Figure 10

Note: Before installing the valve in the tank, a pressure test can be performed on the valve to check for vapor tightness. Seal off both ends of the tube with inflatable plumber's plugs. Apply a maximum 10" W.C. (1/3 PSI) air pressure. If pressure does not hold and a leak can be located with soap solution, do not install the valve. Send the valve back to OPW for warranty evaluation.
Caution: Do not over-pressure. Excess pressure can damage the valve

STEP 11 □ CUT LOWER TUBE AT 45° ANGLE

Measuring from the underside of the inlet tube flange, mark the overall length of the drop tube a distance of (B) minus 6" or as per local codes or requirements. Determine dimension (B) from the measurements taken in Step 1, Figure 1 (Tip of the riser pipe to the bottom of the tank). Saw off the excess tube at a 45 degree angle and file off any sharp burrs. (Refer to Figure 16)

STEP 12 □ PREPARE FILL RISER FOR VALVE INSERTION

Remove the tight fill adaptor and existing drop tube from the tank riser pipe.

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

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

STEP 13 □ REMOVE ELASTIC BAND

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

STEP 14 □ INSERT DROP TUBE

Make sure the O-Ring gasket is under the flange of the inlet tube. Hold the float down against the valve body and slowly insert the drop tube overflow valve into the riser pipe. Do not force valve into the riser pipe. If any obstruction or foreign matter interferes with smooth insertion of the valve, the riser pipe must be cleared.

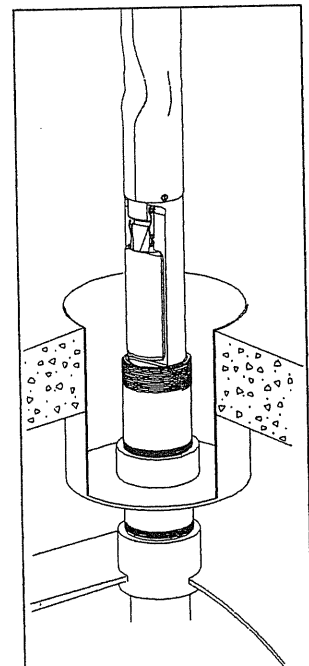


Figure 14

WARNING

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

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

STEP 15 □ CHECK INSTALLATION

Insert the drop tube all the way into the tank until the flange and gasket seat onto the riser pipe. The float will swing out into the operating position as it passes into the tank.

Make sure that the float is aligned along the length of the tank. The length of the tank can easily be determined by locating other manholes or pump boxes that are installed around other tank fittings. Look into the drop tube and align the deflector with the length of the tank.

CAUTION: No obstruction in the tank can be within 13" from the center of the riser pipe or the valve may not operate properly.

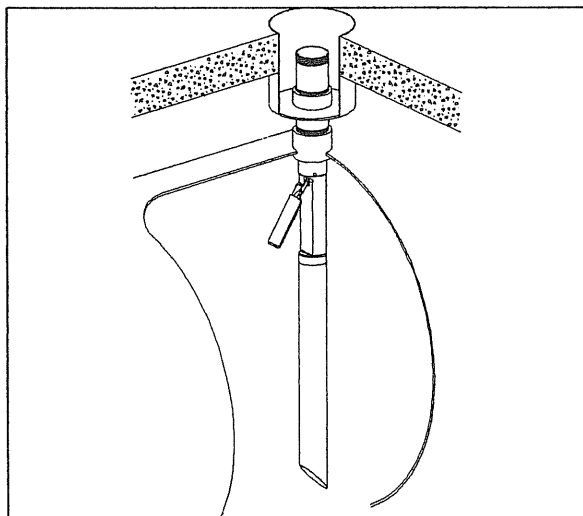


Figure 15

STEP 16 □ ALIGN VALVE

Reinstall the tight fill adaptor and tighten. Make sure that the valve does not rotate while tightening the adaptor by observing the position of the deflector. The valve must remain aligned

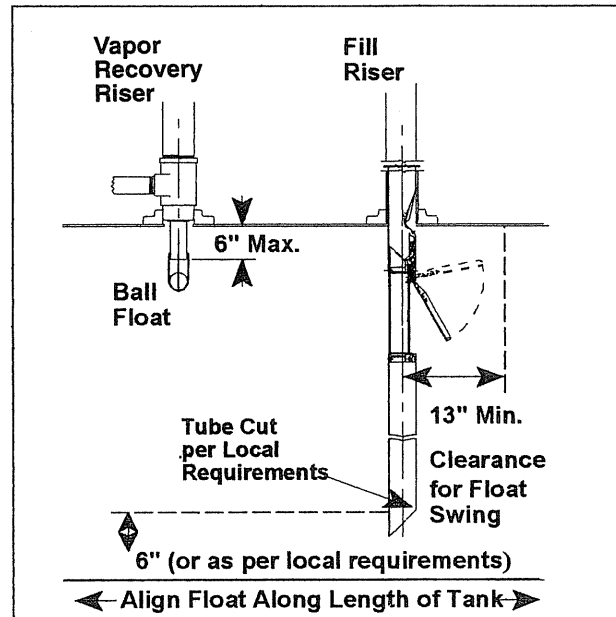


Figure 16

along the length of the tank as in Step 15. Repeat this step as necessary to assure proper alignment of the valve.

STEP 17 □ INSTALL WARNING PLATE

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

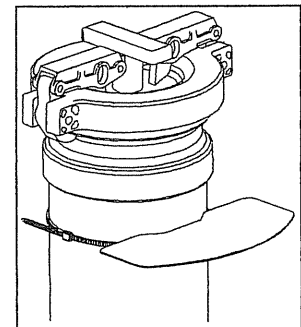


Figure 17

STEP 18 □ VALVE REMOVAL

The valve can be removed for tank leak testing, inspection, etc., like any ordinary drop tube. Reinstall per the above instructions.

PREVENTATIVE MAINTENANCE

No maintenance is required for normal operating conditions. It is advisable, however, to periodically inspect the valve for damage, contamination, and freedom of movement of the float. It is also advisable to check the drop tube for weakening due to wear or corrosion.

61SO Performance

Specifications:

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

Performance Type: Pressure Integrity of Drop Tube with Overfill Prevention

Requirement: Leakrate at +2.0"w.c. $\leq 0.17\text{CFH}$

Test Procedure: TP201.2B

Important: Please leave these instructions and maintenance procedures with the tank owner/operator.

Notice: OPW products must be used in compliance with applicable federal, state, and local laws and regulations. Product selection should be based on physical specifications and limitations and compatibility with the environment and material to be handled. OPW makes no warranty of fitness for a particular use. All illustrations and specifications in this literature are based on the latest production information available at the time of publication. Prices, materials, and specification are subject to change at any time, and models may be discontinued at any time, in either case, without notice or obligation.

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