Universal Valve Installation Instruction

Model 47-20 Overfill Protection Valve

Waste Oil UST Tank

IMPORTANT NOTICE- All fills are required to be done through wire mesh screen to keep out contaminants.

The model valve 47-20 is pre-assembled for installation with a 18” x ¼-20 threaded rod. The threaded rod should be cut to determine a Length L as shown in Figure 1. This length L will determine the fill capacity for shut off as specified by the tank specification manual for 90% or 95% capacity.

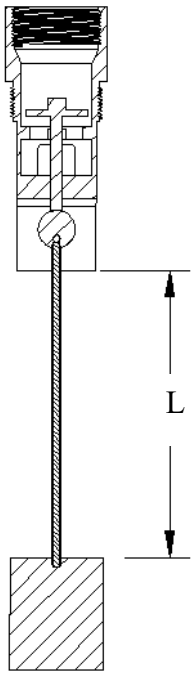


Fig 1
Pre-determined length

1. Measure the height H from the bottom of the tank as shown in Figure 2.

2. Determine whether a 90% or 95% capacity fill is required and refer to the tank specification manual to locate the height of 90% or 95% capacity fill as shown in Figure 3.

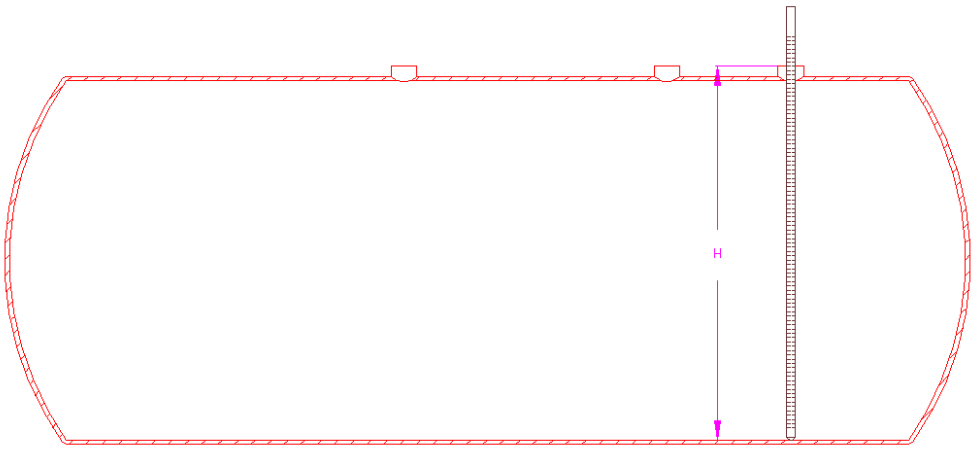


Figure 2 Tank Height Dimension

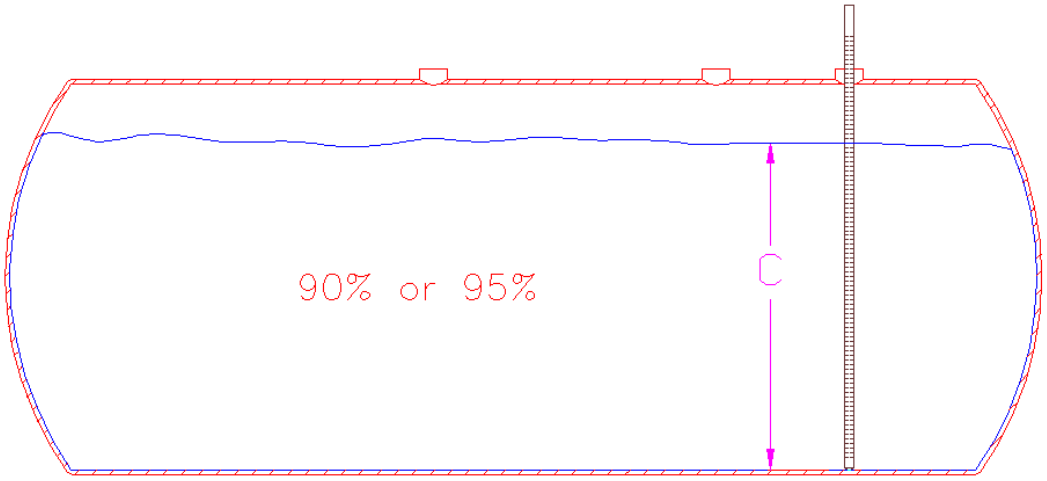


Figure 3 Height C for fill Capacity

3. Subtract 4.5” and the height “C” from the height “H” to determine a distance “Y” as shown in Figure 4. (H - C - 4.5”)
4. Divide the value obtained for “Y” by .866 to determine the distance “X” also shown in Figure 4.

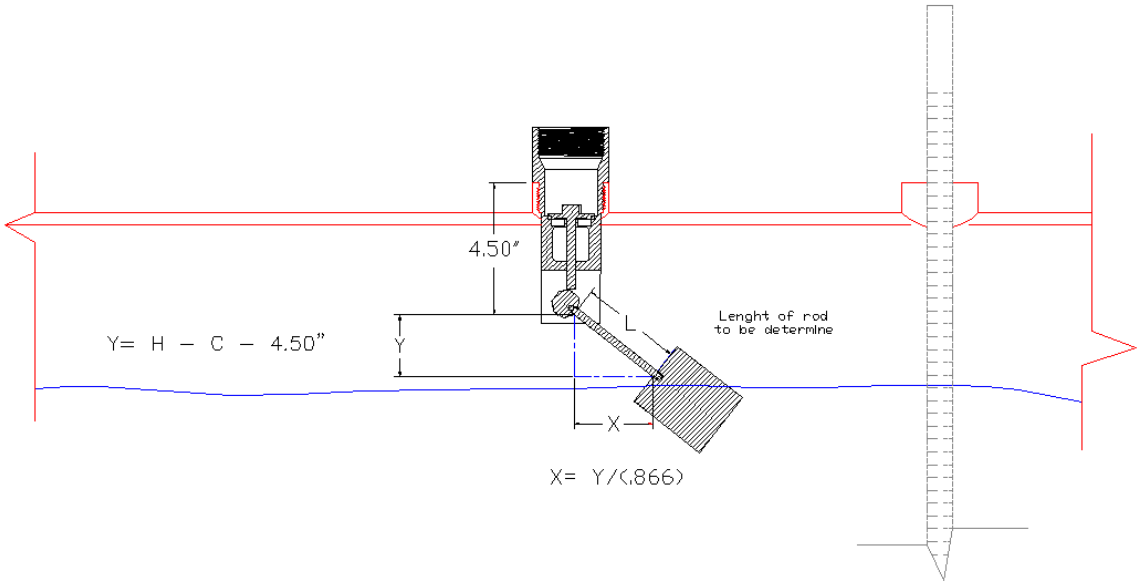


Figure 4 Calculating values for “Y” and “X”

5. To determine the Length L, add the square of “Y” (Y * Y) and the square of “X” (X * X) and take the square root of the sum.

$$L = \sqrt{(Y^2 + X^2)}$$

6. The threaded rod will screw into the poppet cam to a depth of ¼”. Add ¼” to the length L previously calculated to determine the total length for cut.

7. Apply thread sealant to ¼” at the end of the rod to be screw onto the poppet cam. Do not over thread. When installed properly the float rod should swing back and forth freely.

8. Apply pipe dope to NPT thread and install the valve with the float hanging in the vertical position.

9. Note: There is a marked line on the valve as shown in Fig 6 to indicate the direction of swing for the float. Be sure to install it so that there is no obstruction to the swing of the float. The float will swing to the right or left of the marked line for shut off.

Figure 5 Length of Rod to be Cut

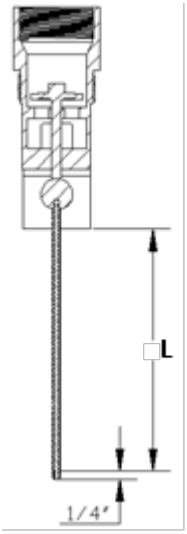
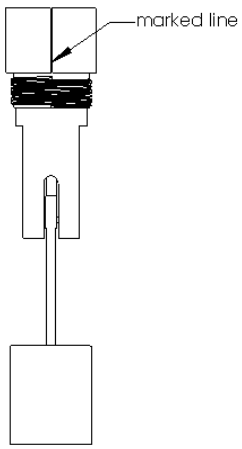
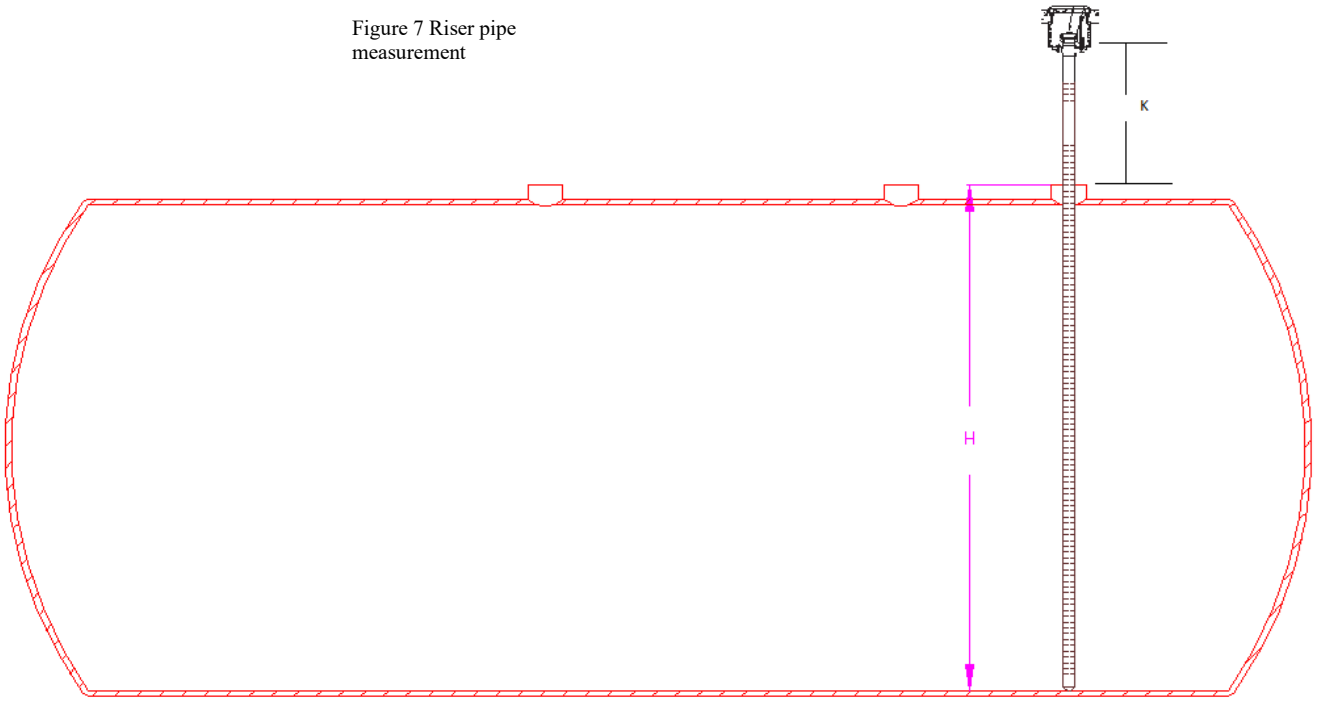


Figure 6 Marked Line showing Direction of Float



10. For UST installations of Waste Oil - need to determine “K” the riser pipe and internal spill container nipple height for the proper length 2” pipe. See figure 7 for measurements. Add 2” to this measurement for threads to properly sit through 4” adapter for coupling and cap. (2” Pipe contractor supplied. Length based on installation instructions)

Figure 7 Riser pipe measurement



Example: 8ft diameter tank with 2” tall 4” fitting, with 54” Riser height (dimension from the top of the nipple inside the spill container to the 4” fitting on the tank measurement K) .

H = 96” tank + 2” tall fitting = 98
C= 95% of Tank Capacity = 86.5 (Dipstick reading or determined from a Tank Chart)
Y= 98-86.5-4.50 = 7.0
X = 7.0/.866 = 8.08
L = y squared = 49 + x squared =65.31 add together and square root it = 10.69”
Add ¼” to L for poppet thread total length of float rod 10.94”

K = 2” internal riser nipple calculations. Measure from the top of the nipple inside the spill container to the top of the 4” fitting on the tank and then add 2”.

S = Confirm Riser Pipe at correct height. After assembly of the riser pipe and coupling measure the top of the 4” adapter to the shoulder on the valve. (S dimension on drawing on the next page.) Adjust the 4” adapter up and down the 2” riser to match K less the 2” added for threading on the top fill adapter. When correct height is confirmed tighten all 3 set screws on the 4” adapter to lock the valve at the correct height.

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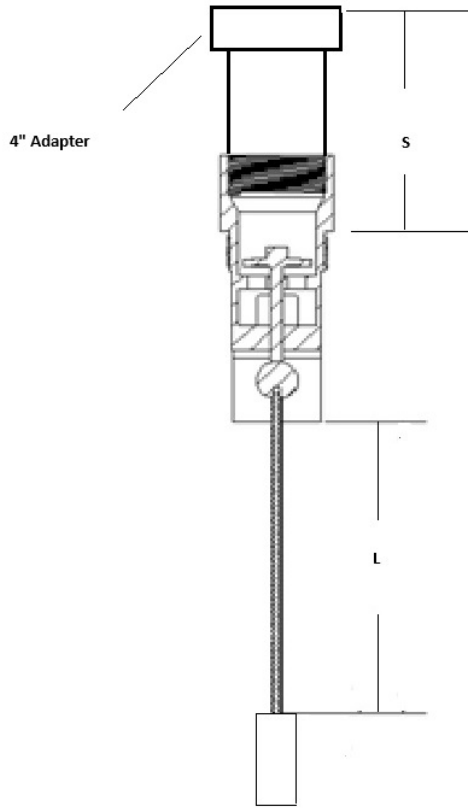
4" Adapter
S
L

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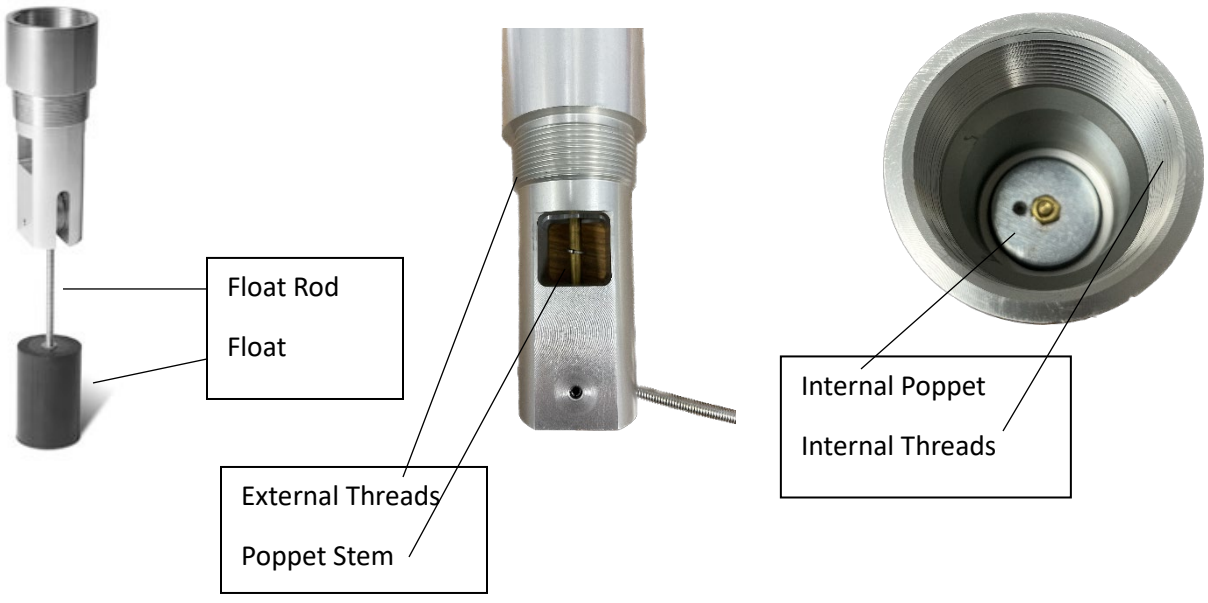
Model 47 Test Procedure

Model 47 test procedure:

1. Remove model 47 from the tank.
2. Inspect that the float rod moves back and forth freely.
3. Manually push the float rod up to 90 degrees and inspect the internal poppet that it closes.
4. Inspect the valve for any obvious physical damage.
    a. Float rod not bent.
    b. Float still in original condition – material not spongy
    c. Poppet Stem not bent and moves freely up and down when the float swings.
    d. Internal and External threads are not crossed or damaged.



(See next page for checking the float rod length before reassembly)

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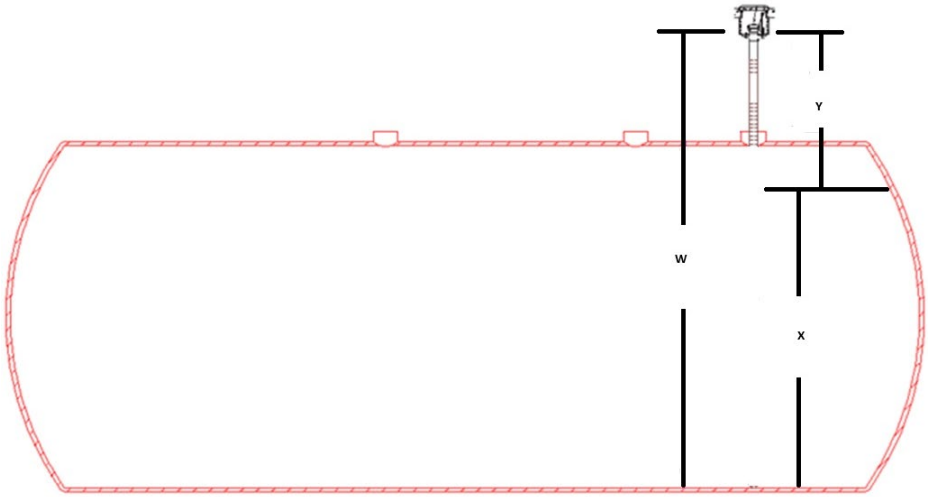
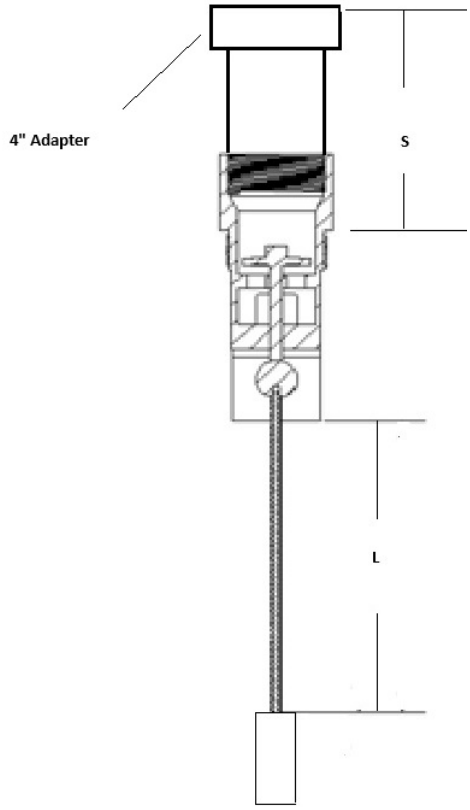
Checking the Float Rod length before re-assembly:





1. Measure for “W” – measure from the top of the riser (where the 4” adapter on the 47-20-USTWO threads on inside the spill container) to the bottom of the tank
2. Find the 95% height from a Tank Chart. “X”
3. Tank “Y” is W-X
4. Measure “S” from the valve. This is the measurement from the top of the 4” adapter to shoulder above the male threads (see drwg)
5. Measure “L” from the valve.
6. Valve “Y” = Take “L” multiply it by .65 and then add 4.5 and then add “S”
7. Both Tank “Y” from step 3 should equal Valve “Y” from step 6

EXAMPLE:

W= 146”, X= 86.5, Tank Y = 59.5”

S= 46”, L= 13.74 , Valve Y = 13.74*.65(8.93) +4.5(13.43)+S(59.43)

Valve Y = 59.43 – Tank Y = 59.5”