TANK TENDER GAUGES

TANK TENDER INSTALLATION AND OPERATION INSTRUCTIONS.

PLEASE READ BEFORE INSTALLATION:

INSTRUMENT PANEL LOCATION: Locate the Tank Tender instrument panel out of the weather, wherever readings are convenient, and it is easy to actuate the air pump, but not below the level of the top of the tanks to be measured. When establishing the panel location, consider the necessity of running 1/8" nylon tubing from the back of the instrument panel to the tank to be measured. Bulkhead cutout for the instrument panel should be 3-1/16" wide by 5" high. Screws and washers are provided for panel mounting. If possible, some room should be left adjacent to the instrument panel for tank calibration cards.

TUBING: 1/8" OD nylon tubing should be run between the instrument panel and the tank to be measured. CAUTION! Tubing should not be pinched or kinked, or run in locations where it may come to harm. Keep tubing above the level of the tank to be measured so that in the event of a tube being cut, siphon action will not be possible. Insert nylon tubing from each tank into the brass "Legris" connectors on the back side of the instrument valves. Push in firmly and test with a light pull on the tubing. (See illustration on back of page.) **IMPORTANT:** Constant exposure at temperatures of 180° F will embrittle tubing.

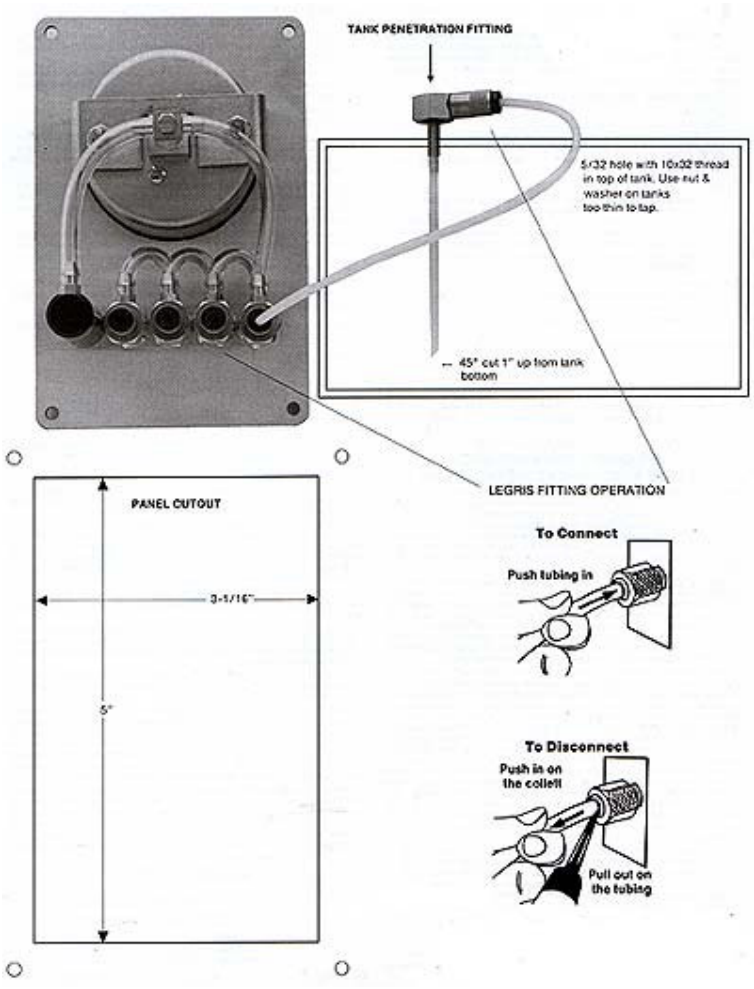
INSTALLATION OF TANK PENETRATION FITTING (TPF): The TPF has "o" ring seals for plastic or metal tanks. Select a location on the top of the tank, which is over the deepest part of the tank. Measure the depth to the bottom of the tank and cut the 1/8" nylon tubing to clear the bottom of the tank by 1". The preferred place to install the TPF is in a fitting plate or fitting plug. The TPF should not be installed directly into tank tops that are too thin. A minimum of four complete threads is preferred. Should a fitting plate or plug not be available and the tank top is thin, the TPF should be installed through a 3/16" hole with a stainless steel flat washer, lock washer and 10-32 nut inside the tank. This can only be done if the tank has an inspection plate to permit access. In every case, the TPF should be installed tight enough to compress the O-ring on the outside tank surface. The installation must be done in a manner that will prevent metal shavings from collecting in the tank while drilling and tapping. The shavings can cause internal corrosion of metal tanks and clog the fuel line (bees wax on the drill is helpful). After the TPF is installed, the tank should be pressure checked for leakage at the test pressure indicated on the tank label.

ALTERNATE INSTALLATION OF TANK PENETRATION FITTING: If top entry of TPF is not possible, TPF can be installed into tank side, approximately 1" above tank bottom. In this case there would be no tube inside the tank as the TPF fitting is now located at the depth that the nylon tube would reach if installed from the tank top. Be sure the TPF hole is drilled and tapped precisely so that there is an air tight connection between the tank and fitting, as there should always be. Run the flexible nylon tubing (outside the tank) straight up the outside of the tank (attach to tank side, do not have tubing run to unit lying flat) and continue on to unit. Operate as normal.

OPTIONAL: Purge Valve operation for holding (waste) tank - Flip toggle to "purge" prior to reading a holding tank; air will bypass gauge and purge TPF tube, if clogged; then flip back to "read" for tank level reading. Do not pump beyond gauge capacity, **or gauge damage may result.**

OPERATION CHECKOUT: Select the tank to be tested and very slowly pump (only 1-2 strokes are necessary). Gauge needle should rise slightly above the level of the fluid in the tank, then settle back to the level of the fluid. If the needle pegs over the red line there is probably a kink or blockage in the tubing between the instrument and tank. If the needle goes up, then slowly back to zero, the tank is empty or there is a leak between the instrument panel and the TPF. (See "Tank Tender System Checkout Procedure for Pressure Leaks.") Occasionally, after filling a tank, the additional head from the fill pipe will force liquid up into the TPF causing an unusually high reading. Should this be the case, pump very slowly to force liquid out of the TPF and thus obtain an accurate reading. CAUTION: If a head of fluid exists above the top of the tank (i.e., in the deck fill pipe) the gauge needle will charge up. Should you observe this, release the push button and use enough water or fuel to empty the fill pipe before testing again.

Do not operate with deck fill pipe full.



TANK CALIBRATION - Boats and RV's are constructed of a wide variety of tank shapes and sizes. For simple shapes, the following methods of calibration seem to work:
1) Measure the width and length of the tank in 1" levels and calculate the number of cubic inches for each inch of height. There are 231 cubic inches in a gallon. Therefore, the number of cubic inches divided by 231 will give you gallons per inch of the tank height.
2) A tank can also be calibrated by filling it with a metered flow hose or with a 2 or 5 gallon container and reading the Tank Tender each time 2 or 5 gallons are poured into the tank.

Pump Procedure

- Pump VERY slowly, usually only 1-2 strokes are necessary.
- Do not pump with deck fill pipe full.

Do not pump against kinked or closed tubing between instrument and tank, or blocked TPF tube.

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