

## Sender Installation and Calibration

### SENSOR PREPARATION (Ignore this part if your unit is custom built.)

**IMPORTANT:** don't make your sender shorter than the bottom of whichever of the following ranges it is in: 3 to 6", 6+ to 12", 12+ to 24", 24+ to 48", 48+ to 96", 96+ to 192"

#### FUEL SENDING UNITS

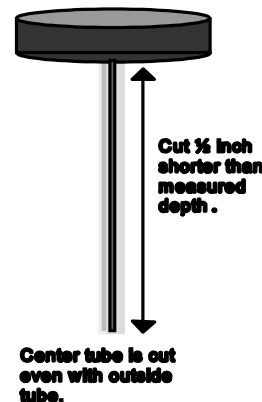
The fuel probe is constructed of concentric aluminum tubing (one small tube inside another) that are separated by small spacers press fit on the small inner tube.

Measure the depth of your tank from the outside top to the tank bottom.

Using a tubing cutter, cut the outside tube 1/4 inch or more less than the measured depth. Be careful not to damage the center tube. It is recommended to be 1 inch or more off the bottom on deeper tanks to keep probe out of sludge build up or give a more accurate reading for v-shaped tanks.

Insulators are placed on the center tube to prevent it from touching the outside tube. Slide the exposed insulators on the center tube up until they are just inside the outside tube.

Cut off the center tube flush with outside tube. Be sure the two tubes are not touching or the meter will stay pegged above the full mark when the ignition is turned on.



#### WATER SENDING UNITS

The water sending units are not interchangeable with fuel units.

The water probe has a PVC tube that is press fit on the holder and has an insulated (sensor) wire through its center and a stainless steel wire along the outside. The PVC tube is to hold the wires in place.

The stainless steel wire is the ground wire. If your tank is not grounded or is constructed of plastic then this wire must be touching the water for the unit to work properly.

Remove the stainless steel wire which is looped on itself at the bottom of the tube. Remove the tube from the holder; the tube is press fit on the holder and can be removed by pulling and twisting slightly.

Cut the tube approximately 1/2 inch shorter than the depth measured. Drill another hole in the bottom to secure the stainless steel wire.

Cut the insulated wire 1/2 inch shorter than the measured depth and seal the end with Dow Corning 100% Silicone Rubber "Gasket In A Tube". Put a one inch piece of Heat Shrink over the sealant to reinforce the seal. Allow the sealant to dry for four hours before attempting to immerse in water.

**IT IS IMPORTANT THAT THE END OF THE INSULATED (SENSOR) WIRE BE SEALED TO PREVENT THE CENTER CONDUCTOR FROM TOUCHING THE WATER. THE METER WILL STAY PEGGED ABOVE THE FULL MARK IF THE END OF THE WIRE IS NOT SEALED PROPERLY.**

Install the tube on the holder. Route the stainless steel along the outside and through the new hole on the bottom.

**CALIBRATION:** The EMPTY adjustment is set at the factory. A minor adjustment of the FULL screw (SEE "SETTING THE FULL") is all that should be required to complete the calibration. Complete calibration procedure will be necessary if you have to shorten the probe.

Make the wiring connections as shown on the wiring diagram. Turn on the ignition switch. Turn the FULL and EMPTY adjustment screws located on top of unit to the full CW (clockwise) position.

**SETTING THE EMPTY:** must be done with probe out of tank or when tank is empty.

Slowly turn the EMPTY screw CCW (counter clockwise) until the needle on the meter just stops moving downward. The needle should be on or just below the empty mark. Now turn the screw CW (clockwise) to make sure the needle starts moving upscale immediately, then turn CCW until the needle just stops moving downward again. This is the EMPTY reference mark. Repeat this step until you are sure the EMPTY reference is obtained.

**SETTING THE FULL:** Put the probe into your tank. Turn the FULL screw CCW until the needle indicates the liquid level in your tank. For best results, the probe should be fully immersed in a full tank. If you accidentally adjust below your tank level, turn the FULL screw full cw and repeat this setting.

Remove the unit from the tank. Shake the unit a few times to remove the residual liquid. The needle should now rest on or below the empty mark. This completes the calibration. Do not make any more adjustments.

### 3-TERMINAL INSTALLATION

If you had to cut your sending unit then the EMPTY adjustment must be made prior to installation (see calibration instructions).

Place the gasket on the sending unit. Align the holes and apply a sealer such as Permatex on the gasket. Put a small amount of sealant in the mounting holes and insert the mounting screws with flat washers and lock washers. Place the sending unit in the tank. Note the holes are not symmetrical, rotate until the holes line up, then tighten down the mounting screws.

**WIRING:** It is recommended that number 16 AWG wire and crimp eyelet type terminals with insulated shanks be used to wire the sending units to avoid the possibility of shorting the terminals. Secure all wire terminations with nuts and lock washers.

**CAUTION!.....DISCONNECT THE BATTERY BEFORE MAKING ANY ELECTRICAL CONNECTIONS.....**

#### SINGLE TANK

1. Connect a wire from the SEND terminal on the unit to the SEND terminal on the meter.

2. Connect a wire from the POS terminal on the unit to the POS or IGN terminal on the meter or to the 12 volt (24 or 32 volt if specified) electrical system at some point after the ignition switch.

3. Connect a wire from the NEG terminal on the unit to the NEG or GND terminal on the meter and to the boat ground (Neg. 12 volt terminal).

4. This completes the installation. Put a generous coating of sealant over the wire terminals and the adjustment screws.

5. Connect the battery and turn on the ignition switch, the meter will go to the FULL mark then drop back to indicate the correct fuel level.

#### DUAL TANK

1. Connect a wire from the SEND terminal of each unit to each side of the Dual Tank Switch.

2. Connect a wire from the center terminal of switch to the SEND terminal on the meter.

3. Connect POS and NEG terminals as instructed for the single tank. Put a generous coating of sealant over the wire terminals and the adjustment screws.

4. Connect the battery and turn on the ignition switch, the needle on the meter will go to the FULL mark then drop back to indicate the correct fuel level.

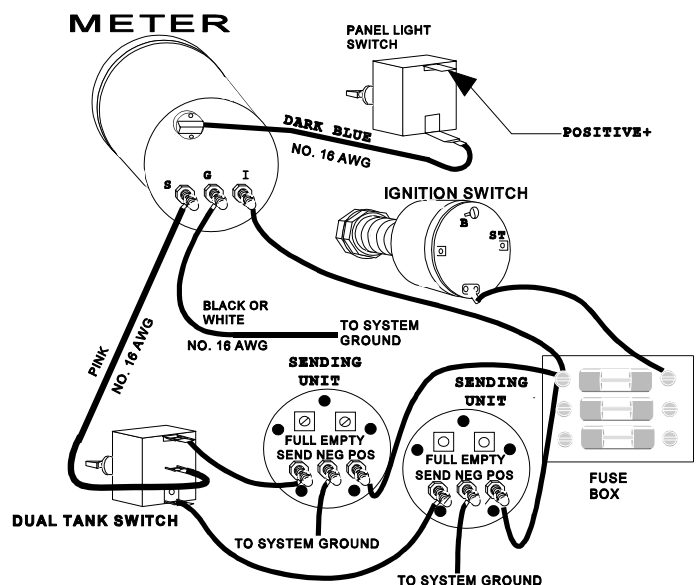
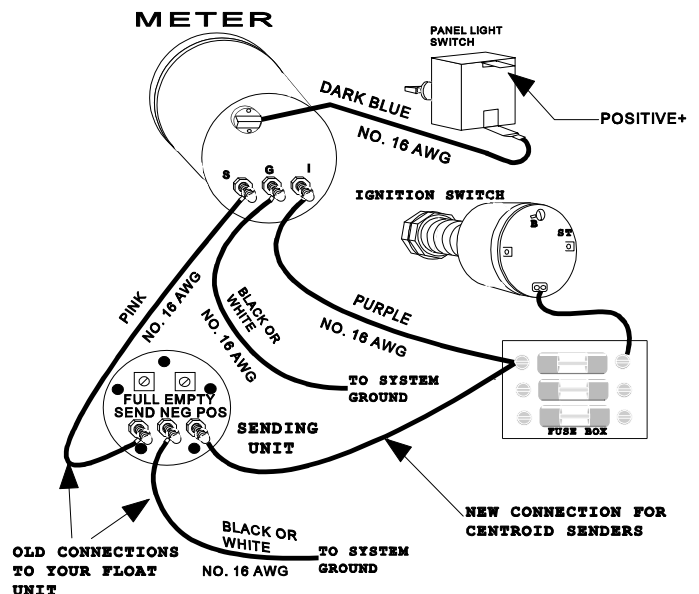
5. Place the Dual Tank Switch to read the other tank. The meter pointer will be indicating slightly below your actual tank level. Turn off the ignition switch, then turn on. The needle will go to the FULL mark then drop back to indicate the correct fuel level.

#### TROUBLESHOOTING HINTS:

**SYMPTOM: METER POINTER STAYS ABOVE FULL MARK WHEN THE IGNITION SWITCH IS TURNED ON.**

1. Full tank of gas (See "SETTING THE FULL").
2. Water in fuel tank.
3. Send and Negative wires reversed.
4. Send wire is touching NEG terminal or wiring.
5. Center rod on fuel units touching the outside.
6. Unit not calibrated

**WATER PROBES ONLY:** End of sensing wire not properly sealed.



WIRE COLORS SHOWN ARE IN ACCORDANCE WITH  
AMERICAN BOAT AND YACHT COUNCIL (A.B.Y.C.)  
NOT NATIONAL ELECTRICAL CODE (N.E.C.)