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AutoCal Fuel Level Senders Rev 16

Model Number: AFLS All Lengths

These senders can be distinguished from our older analog style by a "A" in the part number : ie AFLS12, and no trim/adjust potentiometers on the top of the sender.

Senders with aluminum tubing are for oil, diesel, or gasoline of up to 10% ethanol; and senders with PVC tubing are for potable water. We don't make units for non-potable water, because that leaves deposits on the sense wire.

HOW THE SENDERS MEASURE LIQUID LEVEL

These senders work by measuring capacitance without moving parts. Electronics in the head convert this measured capacitance to the programmed output of ohms or volts. In fuel senders, capacitance is measured between the inner sensing tube and the grounded outer tube, and the fluid must be non-conductive. In water senders, capacitance is measured between the inner insulated sense wire and the water, with the water being grounded by a wire wrapped around the outer tube.

SHORTENING AND BENDING SENDERS (if required)

A fuel sender's outer tube can be shortened using a tubing cutter, and the inner tube snipped. Only senders ordered as bendable, with a black bend circle on the tubing, can be bent. Bend only between the head and the bend circle.

CONNECTIONS

NEG: connect this to DC ground. NOTE: our senders only work with negative-ground systems.

SEND: connect this to the Send input of your gauge or display. NOTE: this is an electronic output which will confuse your ohmmeter if you try to take a resistance reading. We troubleshoot by voltages, while connected to the gauge.

POS (most senders): Most senders have an ignition-voltage POS terminal to run their electronics. A fused voltage between 11-28vdc should be wired to the POS connection. The voltage should turn off when the system is turned off, both for safety and to avoid running down the battery. For a number of brands of E240/F33 ohm gauge (not all), we can make a special sender that doesn't have this POS connection. These senders run their electronics from voltage on the Send connection.

ALARM (if ordered): The ALARM output switches to ground. A DC load which requires 0.3A or less can be connected to this output, with the far side of the load connected to ignition voltage.

CALIBRATION

The output range (eg E240/F33 ohms) and alarm levels (if ordered) are set at the factory. They cannot be changed by the end user. They can be changed for you back at the factory if needed.

***If you did not need to shorten the sender,
the factory Empty and Full settings will be correct!***

CALIBRATION continued***CALIBRATION FOR SHORTENED SENDERS***AUTOCAL for senders with an AutoCal stamp on the head

EMPTY: after shortening the sender, connect the empty sender to the system wiring, and turn on the power. The gauge needle should bounce between Empty and Full a couple of times and return to Empty as the sender discovers its shorter length.

FULL: Turn OFF the power and install the sender into a full tank of the appropriate liquid. Turn ON the power. The reading should go above Full and then finish on Full. This Autocal Full will use Full Detection at each fillup.

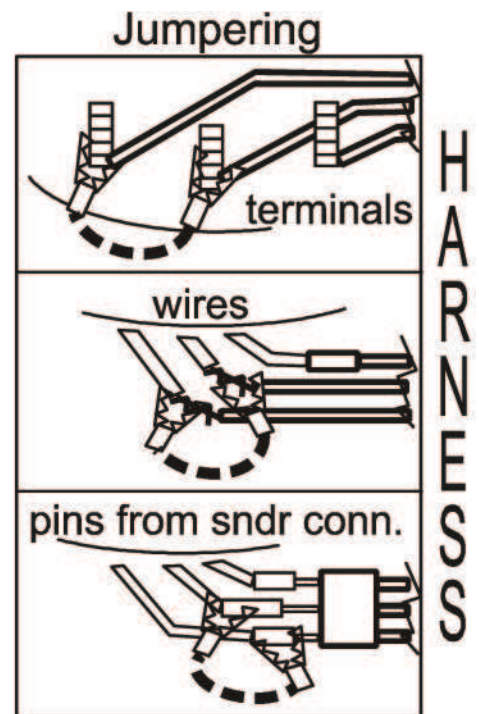
MANUAL CALIBRATION for senders not stamped AutoCal

Manual calibration is done via jumpering or bridging Send to Neg and turning on power. For our 240/33 ohm sender with no Pos connection ("2 term"), this is done with a 33 ohm resistor (Radio Shack 271-1104).

TIMING: for label dates 4/13 and later: E=10sec, F=20sec. 3/13 and earlier: E=2sec, F=6sec.

MANUAL EMPTY:

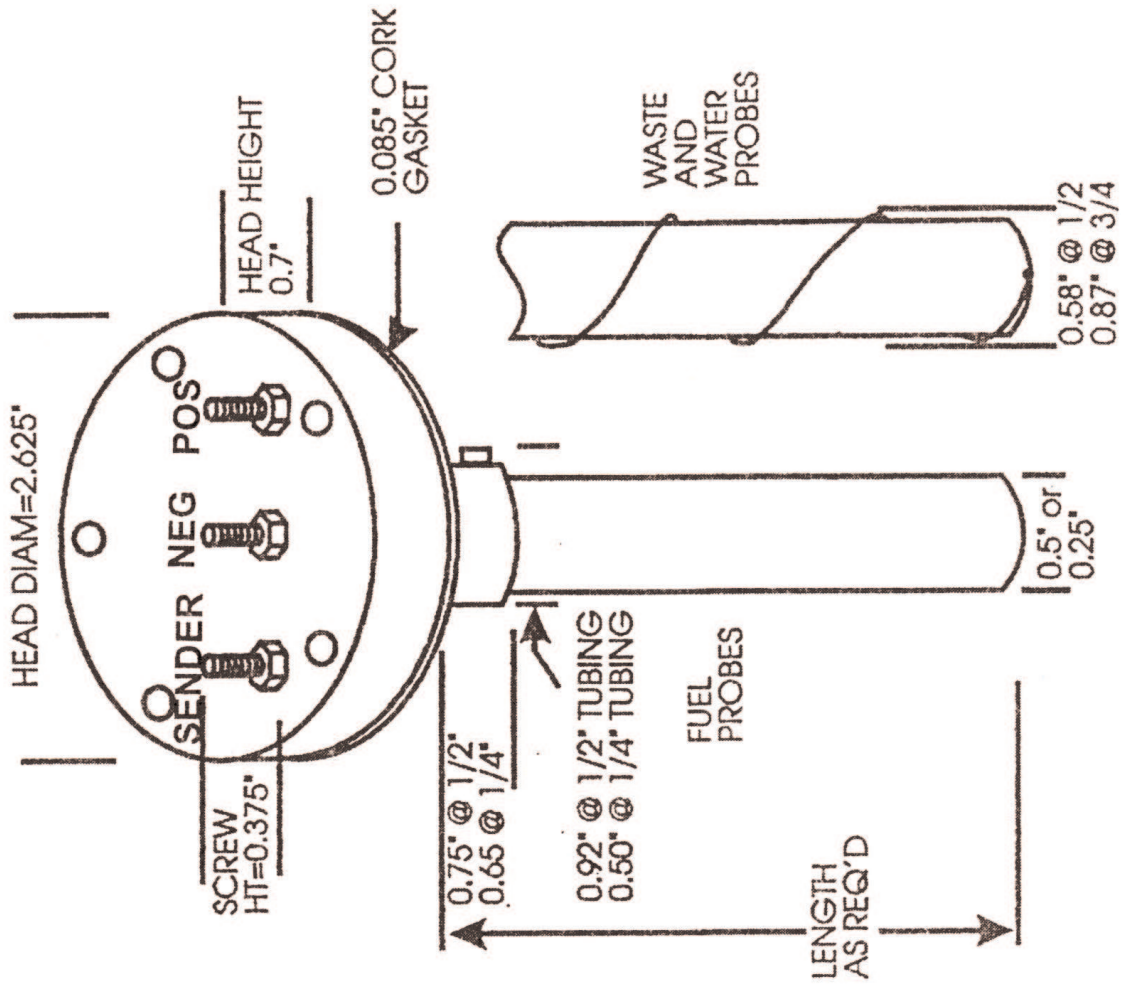
- 1) Have the sender out of the tank and wired normally to the gauge, with the ignition switch OFF
- 2) have the jumper applied
- 3) have someone turn the ignition switch ON and count the Empty seconds listed above, at which point you remove the jumper
- 4) The reading should bounce several times between Empty and Full over about 5 seconds before finishing on Empty. If you dont see these multiple bounces or dont finish on Empty, please email for advice.



MANUAL FULL: For fuel senders with 1/2" tubing, Full is set automatically by the Full Detection sensor at powerup each time the tank has been filled. This is useful because it corrects for "dielectric constant" differences between tank-fulls of fuel. But for water senders or fuel senders with 1/4" tubing, or if for some reason you find you need a non-automatic

Full:

- 1) Have the sender in a full tank or container of the appropriate liquid and wired normally to the gauge, with the ignition switch OFF
- 2) have the jumper applied
- 3) have someone turn the ignition switch ON and count the Full seconds listed above, at which point you remove the jumper
- 4) the reading should bounce several times between Empty and Full over about 5 seconds before finishing on Full. If you dont see these multiple bounces or dont finish on Full, please email for advice.



MOUNTING DIAGRAM
 Standard 5-hole bolt pattern
 actual size- if circle measure 2 5/8"

