# ***Fuel Safe***
# ***Programmable Sending Unit Troubleshooting Guide***

1. Insure there are no broken wires and that you have 12 volts available at the sender and gauge.
2. Insure all wires are connected properly:
    a. POS terminal on sending unit connected to 12 Volt positive.
    b. NEG terminal on sending unit connected to 12 Volt negative (ground).
    c. SEND terminal on sending unit connected to Signal Input Terminal on gauge.
    d. POS terminal on gauge connected to 12 Volt positive.
    **e.** NEG terminal on gauge connected **to 12 Volt negative (ground).**
3. Insure that the ohm range specified on the sender matches the ohm range specified for the gauge. Contact the gauge manufacturer for the proper ohm range.
4. When calibrating the sending unit **Timing Is Critical.** When calibrating either empty or full a little longer is better than not long enough. If you cannot calibrate empty or full, add 2 seconds to the specified number of seconds and try again.
5. **You must proceed in this exact order for Empty or Full calibration:**
    a. Start with power off.
    b. Jumper the SEND terminal on the sending unit to the NEG terminal.
    c. Turn power on.
    d. Remove jumper in the specified number of seconds (2 seconds for empty and 5 seconds for full). You must follow this procedure twice, once for empty and once for full.

## ***Symptoms and Possible Causes***

1. ***Needle on gauge does not move at all--***
    a. Positive and Ground Wire are switched at gauge or at sender.
    b. No Power at sending unit.
        i. Broken Wire
        ii. No Ground
        iii. Ignition switch is off
    c. Full was set at empty
    d. Positive 12 volt dc or ground are not connected at gauge.
2. ***Needle pegs full--***
    a. Mismatched ohm range between sender and gauge.
    b. 12 volt positive is connected to the send terminal on gauge or sending unit.
3. ***Needle pegs empty--***
    a. Mismatched ohm range between sender and gauge.
    b. Sending unit probe tube is in contact with water.
    c. Sending unit probe tube has inner tube shorted to (touching) outer tube.
4. ***Gauge needle does not travel full scale--***
    a. Mismatched ohm range between sender and gauge.
    b. Calibration or Re-Calibration is required.

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