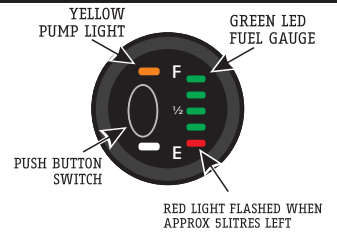




Fuel Transfer System



SWITCH/GAUGE BASIC OVERVIEW

With ignition turned on the LED bar graph will be light red when empty & green when tank is full. To turn pump on push the button, yellow indicator will illuminate only when on.

Note: If button does not push in correctly the 20mm mounting hole maybe a little tight.

Note: When tank nearing dead empty the red light will flash while the switch is in the on position. This indicates to the user that transfer is complete and the pump needs to be turned off.

The switch has the following built in features: Automatic Dimming, Surge Damped and Low level warning

If no lights come on check switch power connections:

Is 12v being supplied to fuse and switch?

Is earth wire from switch connected correctly?

If connections are OK, switch may be faulty.

TRANSFER PUMP OPERATION

Once power confirmed to the switch press the push button to activate the transfer pump.

The yellow pump light will be illuminated and you will here the transfer pump.

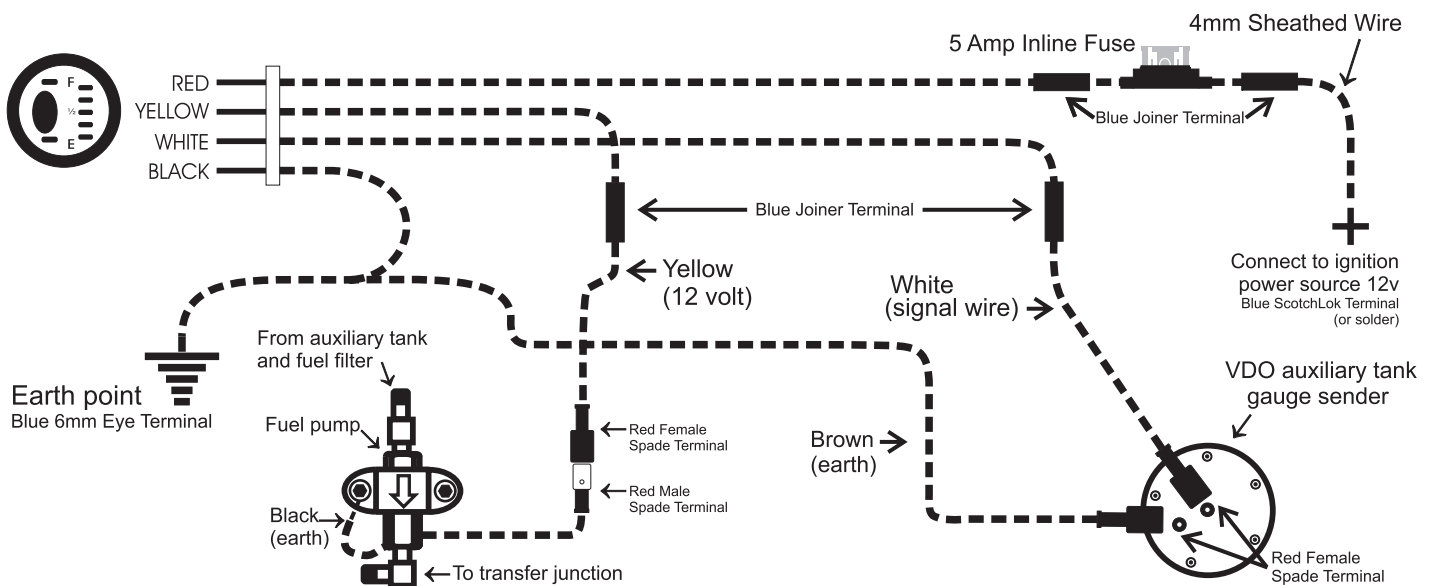
If pump is working, but not pumping - check direction of fuel flow on outlet.

If transfer pump is not activated check transfer pump power connections:

Is 12v being supplied to pump?

Is earth wire on pump connected correctly?

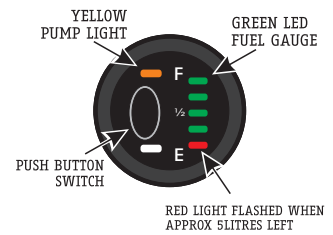
If connections are correct but pump still not working, pump may be faulty, connect direct to battery to confirm.



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Fuel Transfer System



LED GAUGE OPERATION

A short delay (0.5 seconds) after powering switch/gauge the bar graph display will instantly indicate the fluid level in the auxiliary tank. Once the unit is on and displaying fluid quantity the gauge movement is damping so that the display is not susceptible to surge with spasmodic movement of the fuel. If it is required to test the fluid quantity sender at different scale positions it will be necessary to cycle the power to the unit from "Off" to "On" to get an instant reading or else wait about 2.5 minutes for the gauge to acquire the new reading. At very low fluid quantities where the sender inputs a value of 10 Ohms, the red light will display. At 5 Ohms or less the display will flash continuously 0.5 seconds off-0.5 seconds on as a final low quantity warning while transferring fuel.

Night Time Dimming function

Shining a torch into the small window beneath the push button when the ambient light is low can test the dimming function. This will cause the display brightness to step up to the maximum. Blocking light to the same window in high ambient light conditions will cause the display to dim down.

If gauge stays on empty

1. IS THE GAUGE WIRED CORRECTLY AS PER THE DIAGRAM.

It is possible to have an empty light with the sender incorrectly connected.

2. CHECK WHITE AND BLACK WIRES AT SWITCH PLUG FOR CONTINUITY:

If tank empty there should be a reading of approx 2-5 Ohms

If tank full there should be approx 90 Ohms

If an ohms reading found the gauge could be faulty, the float may have fallen off the sender or the float may be caught on a baffle or it could be a bad earth for switch.

If the sender is suspect it will have to be removed to check the above symptoms.

If the gauge is suspect it can be tested by using another working sender if available or a resistor up to 90ohm or the inbuilt factory test below using a 180 Ohms resistor (a resistor is available from dick smith for under 50cents).

3. IF NO OHMS READING CHECK WIRING FOR OPEN CIRCUIT.

This could be a bad earth on sender, signal wire.

4. IF NO OPEN CIRCUIT FOUND TEST THE OHMS DIRECTLY ON THE SENDER TERMINALS

if an ohms reading is obtained, the float may have fallen off the sender or the float may be caught on a baffle or the wiring to the switch is faulty.

If no ohms found at the sender, it is a faulty sender and will need to be removed to check the above symptoms.

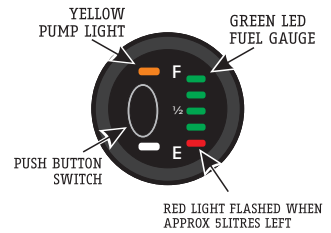
NOTE: if tank is definitely full but an empty reading of 2-5 ohms found, float may be damaged and sitting on bottom of tank.

NOTE: If gauge reading does not move or change after transferring or adding fuel, the sender float arm may be caught on internal baffling or the sender itself maybe damaged.

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Fuel Transfer System



Inbuilt testing for an intermittent signal

If after reading the auxiliary tank level for around 10 minutes the unit is unable to obtain an in range reading from the sender it will presume the sender is faulty and flash the display at the rate 2.5 seconds on-0.5 seconds off. While in this fault warning mode the unit will remain displaying the last good reading it was able to obtain. The fault mode flashing will stop if a good signal becomes available. If the unit detects a faulty sender at the time of switch on it will display the normal low level flashing of the red lamp and then flash the fault signal i.e. 2.5 seconds on-0.5 second off after approximately 10 minutes if a good signal is not obtained.

Inbuilt test to determine if the switch is faulty.

In order to check the circuitry and microprocessor operation a factory test can be initiated by connecting a 180 Ohm resistor from the White wire to ground instead of the 0-90 Ohm sender and cycling the Red wire from Off to On.

In this test mode each lamp will cycle on one at a time with full brightness including the Amber lamp, staying on for about one second. When this step is complete all the lamps will come on under dimming control to allow the operator to test the dimming function by shining a light into the sensing window beneath the pushbutton or else blocking ambient light entering the same window. After a further five seconds the unit will switch to normal operation.

The LongRanger Switch/Gauge Specification:

Part Number	ELSWGAEONOFF12V05
Power Supply Voltage	8 to 18 volts DC
Normal Operating Current	85mA DC max. not including the switch load
Operating Temperature	-20 C to +85C
Switch Current Rating	5A DC
Circuit Breaker Trip Current	8.5A DC
Resistive Sender Input	0 - 90 Ohm Typical
Optional Voltage Input	0 - 5 Volts or 0 - 12 Volts Factory Calibration

Resistive Sender Calibration:

0 – 90 Ohm Resistive Calibration Nominal switch points:

< 5 Ohms	Red Lamp Flashing
> 5 Ohms < 10 Ohms	Red Lamp On
> 10 Ohms < 30 Ohms	1 Green Lamp On
> 20 Ohms < 50 Ohms	2 Green Lamps On
> 50 Ohms < 70 Ohms	3 Green Lamps On
> 70 Ohms	4 Green Lamps On

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