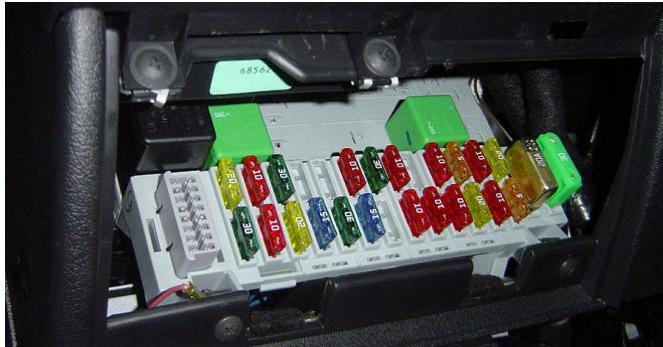


An In-circuit Car Fuse Tester, Version 1.0

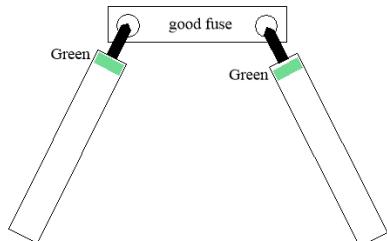
By R. G. Sparber

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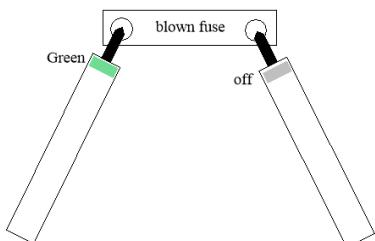


One of these fuses is blown but it is not obvious by looking at it. Without pulling each fuse and checking it with a continuity tester, how can we find it?

One option is to build and use an in-circuit fuse tester.



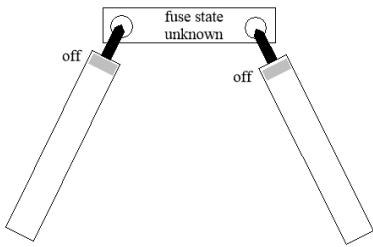
Touch one probe to each contact on the fuse. If you see a green light at the end of each probe, it means the circuit has power and the fuse is good².



If you see one green light and one dark, it means the circuit has power and the fuse is blown.

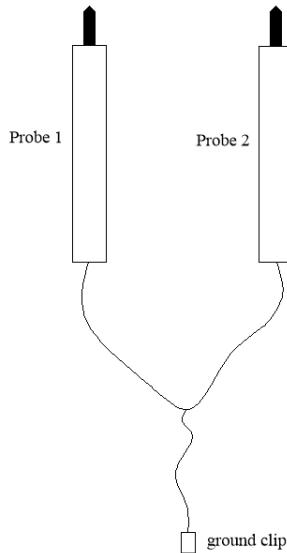
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² I am assuming that this circuit is not shorted to another circuit and the fuse under test is blown. This case will be addressed later.



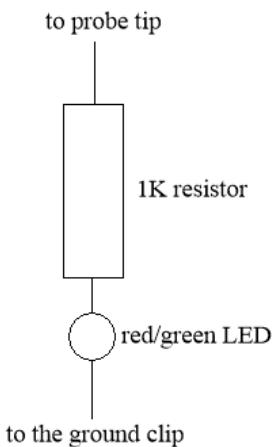
If you see no light, it means the circuit does not have power. This will be due to something other than the fuse. Either a connection to the battery has failed or there is a switch somewhere that is off.

The Tester



A wire runs from each probe to a common ground clip.

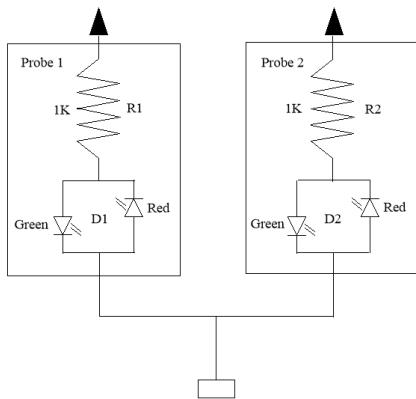
Although I can't imagine how this would be possible, if either probe shows red, you have either connected the ground clip to power and are now touching ground with the probe or your car's battery is in backwards.



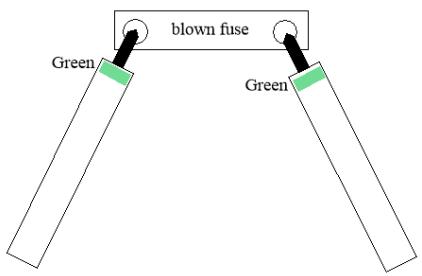
A pictorial view of the circuit is shown here. There is a 1K (1000) ohm resistor and a red/green Light Emitting Diode (LED). The resistor must be rated at least $\frac{1}{4}$ watt.

The nice thing about using a red/green LED is that you can't hurt it. Temporarily wire up this circuit. Connect ground and touch the probe tip to the car's battery. If the green LED lights, you are good to go. If you see the red LED light, flip the connections on the LED.

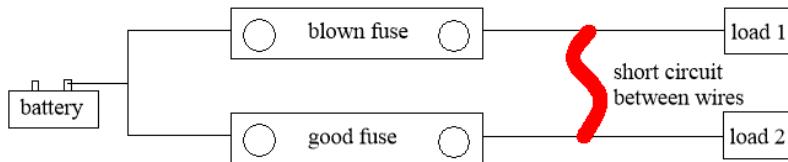
I prefer to use a clear plastic tube for each probe. This lets me see the LED from any angle. By placing the LED near the probe tip, you can focus on holding the probe on the fuse and also see the indicator.



If you can read a schematic, I suspect you don't need this one. The circuit is dead simple.



There is one situation where the tester will be fooled.



If there is a short circuit between the wires that run from two or more fuses to their loads, the blow fuse will indicate good when it is not. This is because power will flow from the battery, through the good fuse, through the short circuit, and into loads 1. The left contact on the blown fuse will correctly show that battery is connect. The right contact also shows the battery voltage but only because of the short circuit.

If in doubt, pull the fuse. If the LEDs still indicate that the fuse is good, power is coming from someplace other than through this fuse.

I welcome your comments and questions.

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