

PACE Electrical Engineering

Circuit Troubleshooting Tips

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So, you've finished building your circuit and it doesn't work. What do you do? Try these tips in order.

- Make sure you in fact have a problem. Check the directions and verify that the circuit is not working the way it's supposed to

If you're sure the circuit is not working correctly, then continue with these checks:

- Check that you have connected the circuit elements together correctly.
- Check for short circuits. Make sure elements that shouldn't be connected to each other aren't
- Check for open circuits. Look for elements or wires that are not fully pushed into the breadboard. Check for any other loose connections
- Make sure that elements, such as diodes, LEDs, and polarized capacitors that must be wired in a particular direction are.
- Reread the directions to make sure you didn't miss something that may not be identified in the schematic (circuit diagram). For example, what should be done with unused IC pins?
- Verify that you have the right components. Check
 - resistor values
 - transistor types
 - capacitor values
 - chip types
- Make sure your batteries are fresh. Test their voltages using a voltmeter
- If all else fails, check for defective components
 - Swap out one component at a time with another of the same type and test the circuit with the new component
 - If you can test a component, you may do that instead of swapping it for another one