

Series Circuit Troubleshooting

Objectives:

Follow a logical troubleshooting procedure.

Identify an open, short, and changed value component in a series circuit.

Analyze a series circuit and determine if the circuit is defective.

Troubleshooting

The main reason why a technician is asked to look at a circuit is to fix it when it is not operating properly.

To find the problem, the technician must follow a procedure that is **logical** and **systematic**.

Logical: If a procedure is logical, the procedure shows consistency of reasoning. In other words, the procedure makes common sense.

Systematic: for a procedure to be systematic, steps must be followed in a certain order. Following the necessary steps insures that you will not overlook anything and you will obtain the best results from your troubleshooting.

Troubleshooting

Logical Troubleshooting procedure.

1. **Analyze the circuit:** Check circuit operation to see how it functions.
2. **Check Setup:** Recheck power, controls, and connections.
3. **Calculate** circuit values, then **measure** them in the circuit.
4. **Compare** and **recheck** calculated and measured values.

Faults

Open: Actually opens the current path, causing electron flow to stop. Has a resistance of ∞

Short: Eliminates the resistance of a component. Resistance of a short is 0Ω .

Changed Value: Occurs when a component's value surpasses its tolerance. Could be above or below original value.

	V	I	R
Short	0V	Max	0Ω
Open	Max	0A	∞