Electrical Safety "Wiring"

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Improper wiring can lead to electric shock injuries.

The most common circuits, 120 Volt electrical circuits, are comprised of three conductors:

- A "hot" conductor which carries electricity to equipment, lighting, etc.
- A "neutral" conductor which provides a return path to complete the circuit.
- A ground which provides a return path in the event of a fault.

Improper wiring of electrical circuits servicing outlets and equipment can lead to shock injuries. The following three situations can result in a shock to personnel:

- If the hot and neutral conductors are inadvertently reversed (a situation known as reverse polarity) equipment will remain energized even after it is turned off.
  - In such a case the circuit would be open on the neutral side of the circuit rather than the hot.
  - This situation could result in a shock hazard because electrical energy is still flowing to the equipment.
  - Any contact with the equipment and the ground (such as through a person) could cause injury.
- If the "hot" and "ground" conductors are reversed the tool or equipment casing would be energized.
  - This situation could cause any "non-current carrying" parts of that equipment to be energized.
  - This is a potential shock hazard to anyone who touches that equipment.
- If the "ground" conductor is not properly wired there is no return path to the ground in the event of a fault.

Receptacle testers:

- A device called a receptacle tester is available for about $5.00 at home improvement stores and is essential for any electrical tool kit.
- It is a plug-in device which will tell the user if a wiring system is correct, wired as "reversed polarity", wired as "open ground", or wired as "hot/ground