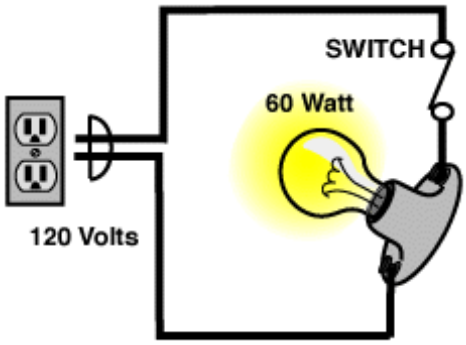
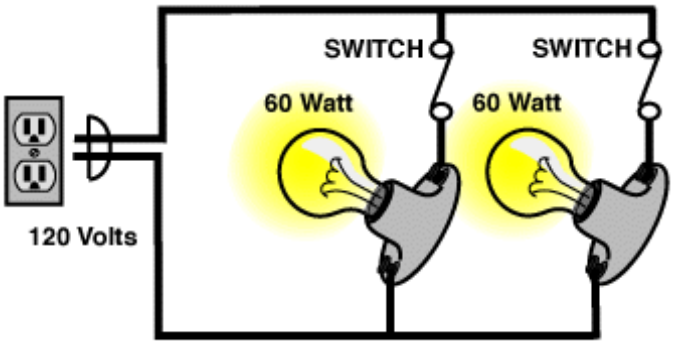
Parallel Circuits

A parallel circuit is a circuit in which there are at least two independent paths in the circuit to get back to the source. In a parallel circuit, the current will flow through the closed paths and not through the open paths.



Consider a simple circuit with an outlet, a switch and a 60 watt light bulb. If the switch is closed, the light operates. When a second 60 watt bulb is added to the circuit in parallel with the first bulb, it is connected so that there is a path to flow through to the first bulb or a path to flow through to the second bulb. Note that both bulbs glow at their intended brightness, since they each receive the full circuit voltage of 120 volts.

Every load connected in a separate path receives the full circuit voltage. If a third 60-watt bulb is added to the circuit, it also glows at its intended brightness since it also receives its full 120 volts from the source.



One special concern in parallel circuits is that the amperage from the source increases each time another load is added to the circuit in parallel. Therefore, it is very easy to keep adding loads or plugging them in parallel and thereby overloading a circuit by requiring more current to flow than the circuit can safely handle.

An obvious advantage of parallel circuits is that the burnout or removal of one bulb does not affect the other bulbs in parallel circuits. They continue to operate because there is still a separate, independent closed path from the source to each of the other loads. That's why parallel circuits are used for wiring lighting and receptacle outlets. If one light on a parallel circuit burns out, it is the only one that quits and the other lights wired in parallel stay on.