Name _____ Date _____

Period _____

Engineering Technology Department

Overcurrent Protection

Overcurrent is any current load in excess of the safety rating of equipment or the ampacity of a conductor. **Overcurrent** may result from an overload, a short circuit, or a ground fault. **Overcurrent** does not always **cause** a fire.

Over current protection is protection against short circuits.
It generally operates instantly. With standard breakers, between 500% and 1000% of full-load current is the point where the over current protection over-rides the overload protection and opens the circuit instantly.
overload

Overload protection is protection against overheating. It operates slower. Overload protection typically operates on an inverse time curve where the tripping time becomes less as the current increases.

A **short circuit** (sometimes abbreviated to **short** or s/c) is an electrical **circuit** that allows a current to travel along an unintended path with no or a very low electrical impedance. Typically a short circuit in residential wiring is the direct connection between the “hot” conductor to a grounded conductor.

A **ground fault** is an inadvertent contact between an energized conductor and **ground** or equipment frame. The return path of the **fault** current is through the grounding system and any personnel or equipment that becomes part of that system. **Ground faults** are frequently the result of

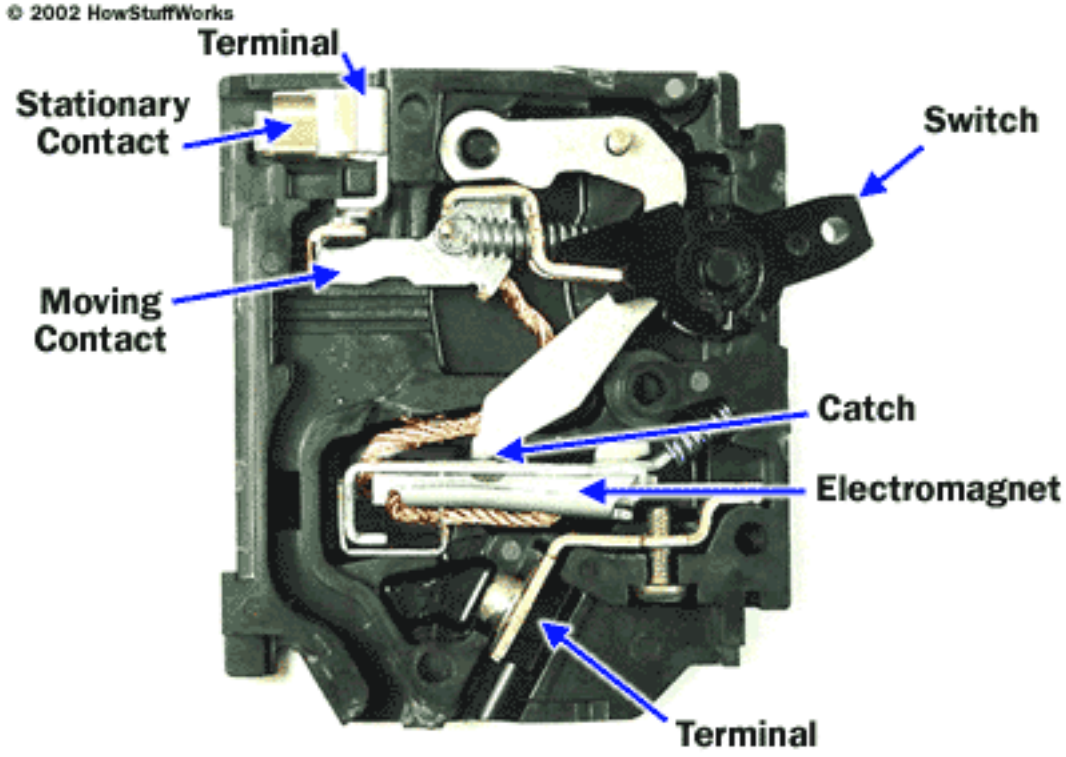
Protective Devices

Overcurrent protection devices include fuses and circuit breakers. Both are manufactured in various shapes and sizes, but all are designed to stop the flow of current should it exceed safe limits.

Fuses- A fuse interrupts an excessive current so that further damage by overheating or fire is prevented. Wiring regulations often define a maximum fuse current rating for particular circuits. Fuses are typically made for single time use.

A **circuit breaker** is an automatically operated electrical switch designed to protect an electrical circuit from damage caused by overcurrent or overload or short circuit. Its basic function is to interrupt current flow after protective relays detect a fault. Unlike a fuse, which operates once and then must be replaced, a circuit breaker can be reset (either manually or automatically) to resume normal operation.


Circuit Breakers
240V Breaker fits on both busbars
120V Breaker fits on single busbar
120-240V Tandem Breaker fits on single busbar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