



ELECTRICAL SAFETY PROGRAM

Jeffrey Sage



Today's goals

- Electrical Safety
- What is Electricity
- Potential Difference
- Series & Parallel Circuits
- Ohm's Law

What is more important?

- Your paycheck
- Making your boss happy
- Showing up on time
- Taking care of your residents
- Lunchtime
- A new golf cart
- Whole warehouse of new tools
- Watching your favorite sport in person at the best seats in the house, with your best friend.



YOUR SAFETY

Why OSHA

Because THIS use to be acceptable...



This is how far we have come



OSHA

- OSHA is a federal agency which has established federal regulations
- 24 States and 2 U.S. territories have safety regulations that differ from the federal requirements
 - *The only rule for a State program is that the standards must be at least as stringent as the Federal program*
 - *In most cases, State programs have MORE stringent standards*
 - *Example: California runs “CalOSHA” program*

OSHA Standard

- “A standard that requires conditions, or the adoption or use of one or more **practices**, means, methods, operations, or processes, reasonable necessary or appropriate **to provide safe or healthful employment** and places of employment.”
- *29 CFR 1910 OSHA Guide Glossary*





Fines

- Aviator @ Brooks City Base – Roof team
- Apartment in Corpus Cristi – Under OSHA watch
- Flats @ ShadowGlen – Oil in concrete

Electrical



Electrical burn on hand and arm.

Reaction to Current

10–40 milliamps – Let-go threshold

30–75 milliamps – Respiratory paralysis

75–100 milliamps – Ventricular fibrillation

250–300 milliamps – Heart paralysis

5000–6000 milliamps – Organs burn

DANGER LOCKOUT SAFETY DANGER

ENERGY CAN BE DANGEROUS AND CAN BE PRESENT IN DIFFERENT FORMS:

ELECTRICITY COMPRESSED AIR HYDRAULIC PRESSURE GAS STEAM

WATCH OUT FOR STORED ENERGY. SOME MACHINES STORE ENERGY IN RAISED LOADS, COILED SPRINGS, CHARGED CAPACITORS AFTER THE ENERGY SOURCES HAVE BEEN TURNED OFF.

BE AWARE

WHAT IS ENERGY LOCKOUT?

BASIC ELEMENTS OF A LOCKOUT SAFETY PROGRAM

1. DETERMINE WHAT ENERGY SOURCES WILL BE LOCKED-OUT
2. USE LOCKS BY APPLICATOR
3. WARNING: RESISTANCE TO OPENING
4. WARNING: WHEN WILL APPLY LOCKS/TAGS
5. MULTIPLE MAINTENANCE PERSONNEL
6. BE SURE ALL STORED ENERGY IS SAFELY RELEASED OR BLOCKED
7. FOLLOW COMPANY PROCEDURE FOR PROPERLY IDENTIFYING MAINTENANCE PERSONNEL
8. BEFORE REMOVING LOCKS/TAGS AND RETURNING MACHINERY TO OPERATION, BE SURE THAT
9. ONLY PERSON WHO APPLIED LOCK THE MACHINERY TO
10. FOLLOW THE PROCEDURES COMPANY EMPLOYEE OR MAINTENANCE AND RETURN THE LOCKOUT TAGS TO RETURN THE MACHINERY TO SERVICE.
11. CONFIRM ALL LOCKS/TAGS HAVE BEEN REMOVED

WHAT IS A TAGOUT?



LOCK OUT - TAG OUT

Hand Tools



Steps

- Turn off the power
- Lock out Tag out
- Test for power before you start working
- Use insulated tools
- Use insulated gloves
- Wear safety glasses
- Know the amount of voltage your working with
- Use proper materials for the job
- Test your work

Electricity

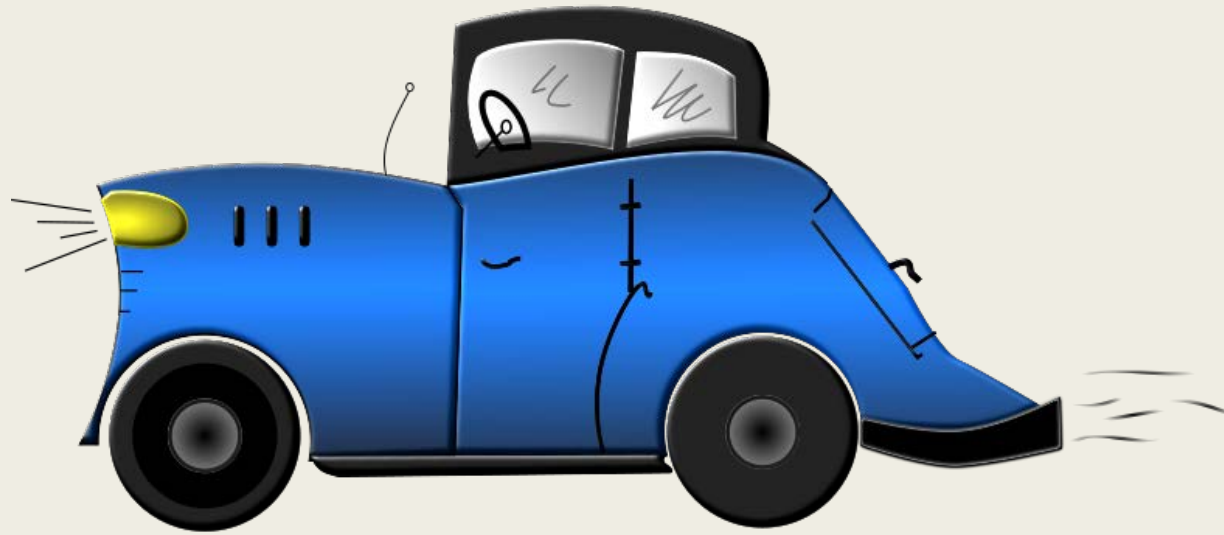
- What is it?
- Where does it come from?
- Where does it go?
- How does it get there?
- How do I know how much I have?



HOW DOES
ELECTRICITY
MOVE?



WHAT TYPE
OF CIRCUIT
ARE
CHRISTMAS
LIGHTS?



WHAT TYPE OF CIRCUIT ARE AUTOMOBILE HEADLIGHTS?

DC = Direct Current

We've learned what direction electrons flow.

Negative to positive or...

from a point where there are more electrons to a point where there are fewer electrons.

How often are we exposed to

DC current?

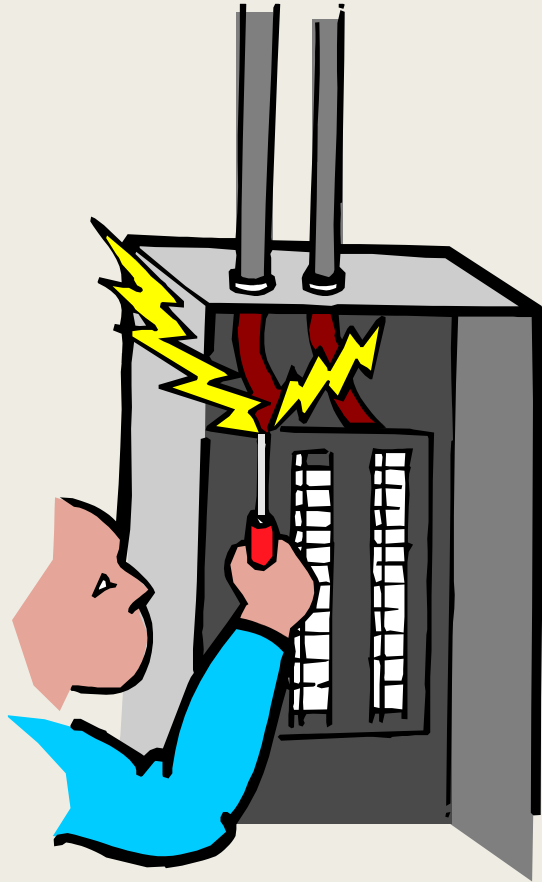
AC = Alternating Current

The direction of the current flowing in a circuit is constantly be reversed back and forth.

How often are we exposed to

AC current?

Circuit Breakers



The amperage rating of a fuse must not be greater than the ampacity of the wires being protected.

Fuses and breakers are used to protect wires, not people.



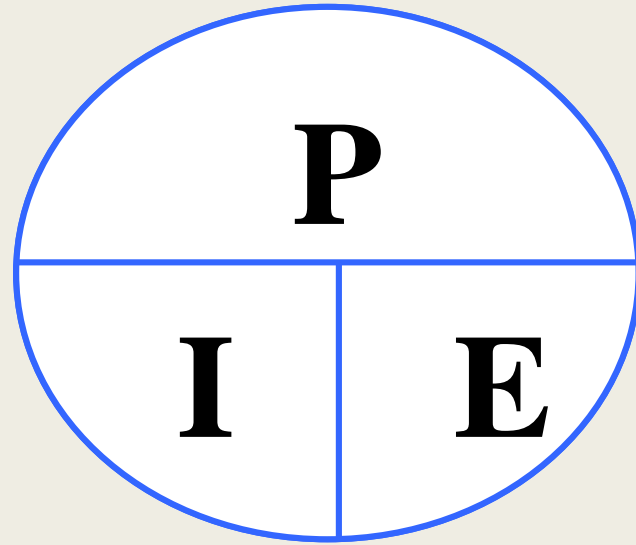
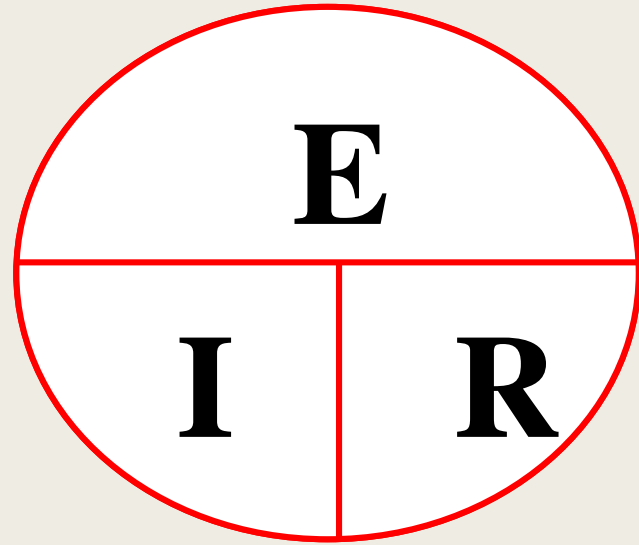
GROUND - The safety ground provides an alternate pathway for electrons to travel should there be a ground fault.

OHMS Law

Ohm's Law defines the relationships between:

- (P) power = Watts
- (E) voltage = Volts
- (I) current = Amps
- (R) resistance = Ohms





OHMS LAW

Review

01

Electrical
Safety

02

What is
electricity

03

Series &
Parallel

04

OHM's Law