

INTRODUCTION AND SAFE PRACTICES

MercedEnergy.com

11-22-2018

Soldering Group



WHAT IS SOLDERING?

- Pronunciation : “Soul-de-ring” , “sah-der-ing”.
- From the latin word “solidare”, meaning “to make solid”
- The solder melts easily, generally the “solder” is a metal alloy.
- Soft Soldering refers to lower temperatures such as below 450 degrees Celsius
 - Electronics are very sensitive, therefore Soft Soldering is the only way.
- Hard Soldering refers to high temperatures, that is above 450 degrees Celsius



ELECTRICAL SOLDERING

Not to be confused with “Electrical Discharge Soldering”

- A pulse of electricity that heats up the tip.

- Soldering Irons powered by electricity tend to be safer.
 - Make sure the Soldering Iron is UL certified.
 - “These requirements are often based on **UL's** published and nationally recognized Standards for Safety.”
- Some Soldering Irons use gas or butane, and should be used properly, or not at all.
 - Difficult to regulate temperature.
 - To be used only when there is no electricity around. Like the woods, or in a remote area.



SAFETY!!

- Make sure to protect your eyes.
- Wear safety goggles/glasses
- If you damage your eyes, you will live that way for the rest of your life!
- Use a timer, such as your phone, Remind you to turn of soldering iron.
- A soldering iron that turns of on it's on can save lives.



FUMES

- Make sure to work in a place that is well ventilated.
- Fumes are very dangerous.
- Consider a Fume Extractor.
- Do not work in small rooms, or closed windows.



TOOLS



[Soldering Kit](#)

- **Safety!!!!!!!**
 - Safety Glasses, Gloves
- Soldering Iron & Stand
 - Stand: Wound up springs.
- Wire Cutters
- Damp Sponge
- Solder
- * Buy A Soldering Kit *



[Wire Cutters](#)



[Stand](#) & Sponge



SOLDERING IRON

- Electrical Soldering Iron. (There are other types of soldering)
- Used to generate heat, to heat up the solder.
- Will only melt the solder, not the other components.
- An adjustable soldering iron is recommended.
- Low Wattage = Longer to warm up
- High Wattage = Faster warm up

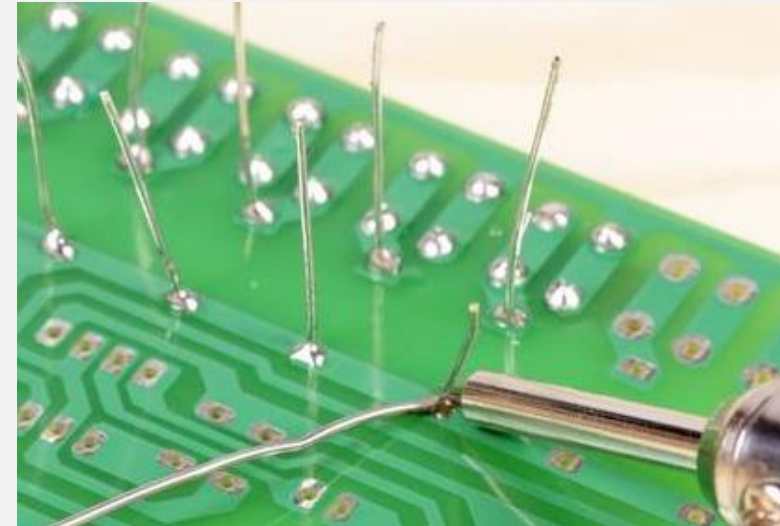


<https://www.sparkfun.com/products/14456>



TRIMMING LEADS

- Use a wire cutter to clip the leads.
- Hold the lead when clipping.
 - Leads may become projectiles, this can be dangerous.
- Or place your hand over it.
- Handle the leads properly.
 - Use a magnet to collect them.
- Wire leads are dangerous and may short batteries or the project.



WELDING

- In soldering only the soldering melts.
- All materials to be joined are melted.
- Use of flame, or electrical arc.
- Plastic welding is also positive.
- There are man ways to weld.



SOLDERING STATION

- Can last a long time.
- Are very safe.
- More reliable than cheap soldering kits.
- Fast heat up times.
- ---- Hakko Digital Soldering Station



USING A SPONGE

- Make sure the tip of the soldering iron is clean.
- Using a wet sponge may cool down the soldering iron tip.
 - Do not use a sponge from your kitchen. Use sponge specifically made for soldering, regular sponges are not able to handle high temperatures.
- Using a brass sponge is recommended.



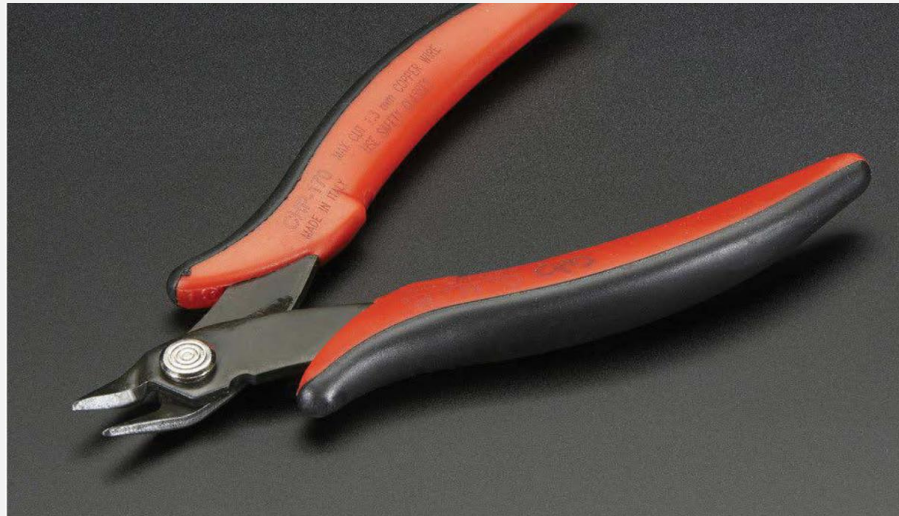
DIAGONAL CUTTING PLIERS

- Useful when soldering electronics.
 - Can trim leads better. Closer to the board.
 - Used to strip wire.
- The other type of plier is called “linemen’s pliers”.



DIAGONAL FLUSH CUTTING PLIERS

- Recommended for trimming leads.
- Very good for projects dealing with electronics.



WIRE STRIPPERS

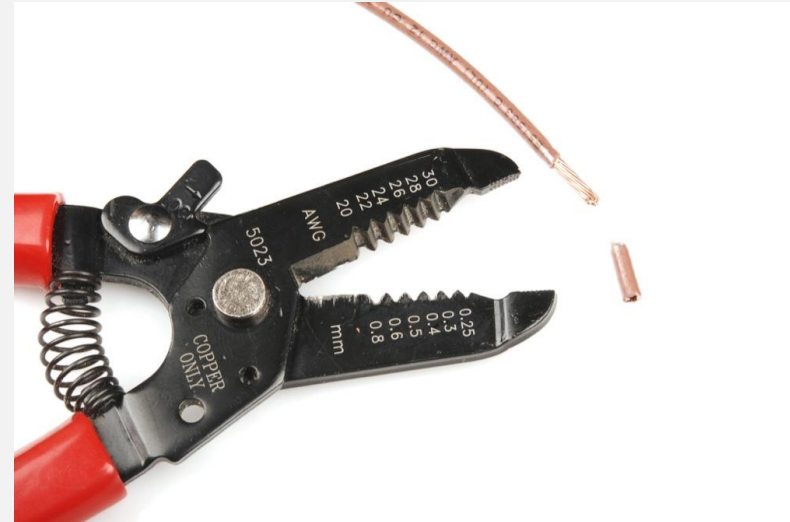
There are different types of wire strippers.

- The type you use depends on the wires.
- Used for **stranded wires**.

Generally you may use Diagonal Flush Cutting Pliers for wire stripping **solid core wire**.

Do Not Use Your Teeth To Strip End Of Wires!

- Solder may contain lead! Which may contaminate it's surroundings.



THANK YOU!

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