



Soldering 101

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These recommendations and techniques are what work good for me. They will give you good results and a starting point to develop your own methods.

Required Equipment

1. Soldering Iron
 - A. Pencil type of 30 watts is sufficient for general work
 - B. High wattage Pencil or Gun type for heavier work (175 watts +)
 - C. Adjustable Temperature Iron is an excellent choice but they are more \$\$
2. Solder
 - A. Rosin Core ONLY! (Acid Core is for Radiators and Copper Tubing)
 - B. Solder diameter is based on the type and size of work
3. FLUX FLUX FLUX (the most important part of your soldering toolbox)
 - A. Electronics Flux ONLY (Plumbers Paste flux is for radiators and copper tubing)

Optional Equipment (sort of)

1. Iron Tip Cleaning Methods
 - A. Water Soaked Sponge (paper towel will work too)
 - B. Small Brass Wire Brush
 - C. Coarse Steel Wool (brass is preferred as it won't rust and contaminate the tip)
2. Helping Hands
 - A. Commercially available or DIY solutions
3. Lighted Magnifier.
 - A. I own two of the adjustable arm type. I'm getting older and my vision isn't as good anymore

Techniques

1. The MOST IMPORTANT rule
 - A. Let the heat flow and pull the solder into the joint (flux makes this easier)
 1. Let the iron heat up sufficiently. Usually 5-10 minutes
 2. It's OK to move the heat source (iron) to draw solder in to areas
 3. It's OK to add a small amount of solder to the area where the tip contacts the area to be soldered to start the solder flowing into the joint
 4. It's OK to turn a joint or wire over to apply heat from the other side and start again at step 3 (normally only needed when there isn't quite enough heat)
 5. Don't add solder to the iron. This burns up the flux in the solder (explain caveats)



Cold Solder Joints

1. A cold solder joint happens when there isn't enough heat applied to flow the solder
 - A. Cold solder joints are poor conductors and are usually recognized by the following
 1. The solder is balled up on the circuit board or joint
 2. The solder has a dull or hazy appearance
2. Always look for cold solder joints on electrical/electronic devices before you chuck them in the trash. My last save of an expensive appliance was a cold solder joint on the display of our Stove/Oven. There were signs of heat (darkened areas) at a solder joint. I reflowed the solder joint and it worked as it should again. You might just be a hero...for a bit at least.