

Igniter Lead Maintenance

After a season of busy use, chances are the igniter lead ends and clips will have corroded, as shown in Photo 1:



Photo 1: Corroded Igniter Lead Clips

Not in the greatest of shape, and depending on how they were put together maybe not the best wire termination either. We want a good mechanical bond to preclude premature wire fatigue, and we want a good electrical contact to ensure maximum current transfer from the wire to the clip. In the particular case of the clips shown in Photo 1, those cannot be saved; they are done, and should be removed and thrown away.

Mouser (www.mouser.com) sells the kind of igniter clips rocketeers typically use (Mouser P/N 835-502008C), and at an economical price. Copper clips are a good choice simply because they're easy to work with/solder.

A good way to install them is as follows:

Having cut off the corroded clips as well as a few inches of the charred wire, strip the new ends $\frac{1}{2}$ ", as shown in Photo 2:



Photo 2: Stripped Wire

Insert the twisted lead into the hole you'll find on the clip side with the compression ferrule. Insert it from the inside of the clip, and far enough so that when you bend the wire back into the ferrule, the insulation (not the wire, but the insulation) is captured by the ferrule. This is important, as this compression joint becomes much stronger if it includes the insulation. It minimizes wire fatigue at this joint, and the joint will last much longer mechanically. Use a small pair of needle nose pliers to compress the tangs of the ferrule around the insulation; once done it should look something like what is seen in Photo 3:

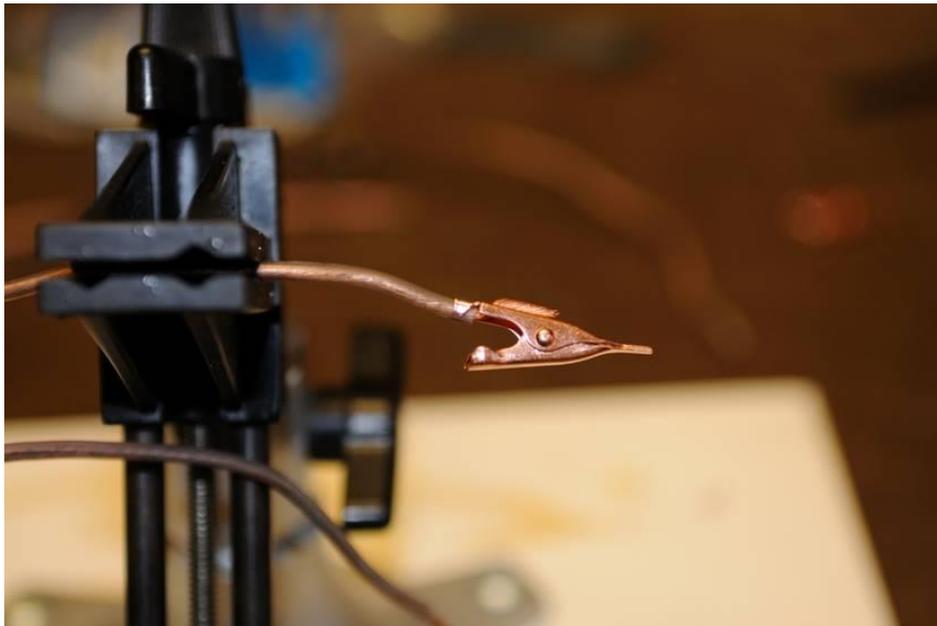


Photo 3: Mechanical Bond

Photo 3 also shows that the balance of the stripped wire has been bent forward to contact the outer skin of the clip. This is where you'll solder (on the outside, not the inside), as you'll have a much greater surface area for current transfer this way. It also augments the mechanical bond once soldered. Since your soldering iron is going to be very, very hot, make sure you have a clamp to hold the wire while you do the soldering.

Speaking of that soldering iron, make sure you've got a good working 60W soldering iron. A lower power unit won't generate enough heat to solder these connections properly. Use a good tin solder, something like 60/40 and it should be a rosin, not acid, core flux solder. If your iron is hot enough, the finished solder joint should look something like the one shown in Photo 4:

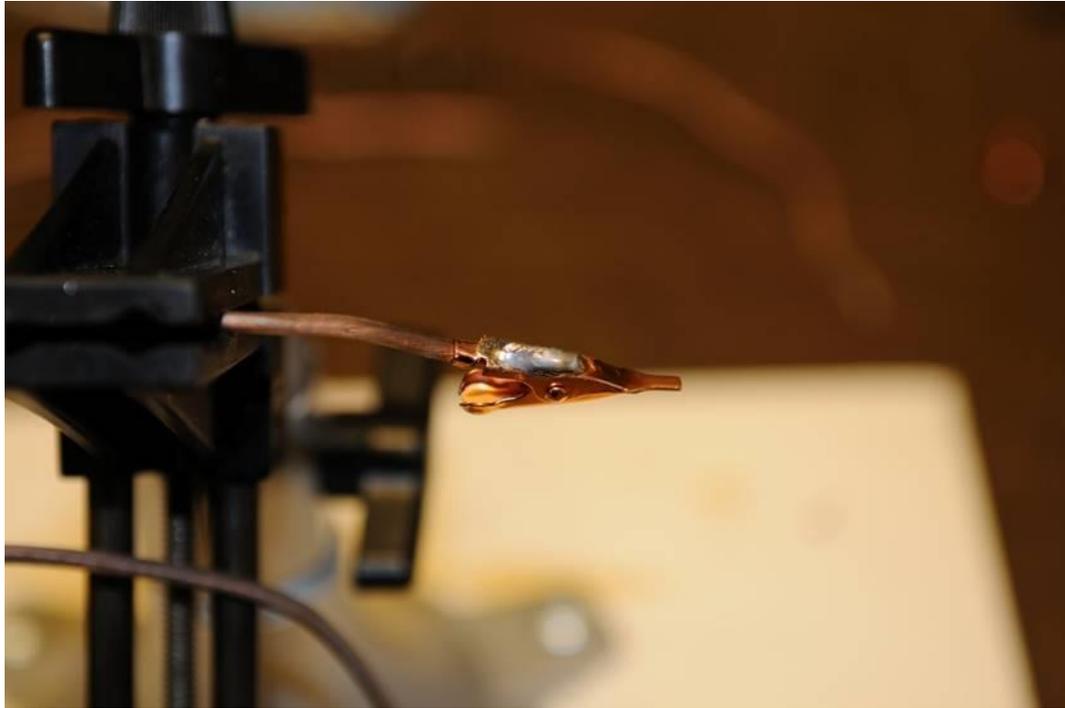


Photo 4: Soldered Connection

As an added measure of protection and insulation, cover the finished joint with some heat shrink tubing. If you choose to do that here, then you need to slide that onto the wire lead before you do any soldering! For this cable/wire type, 3/16" heat shrink is about the right size, and you should be able to find packages of this tubing in the electrical section of Lowes or Home Depot. Photo 5 shows a 1" length of 3/16" heat shrink on each joint:

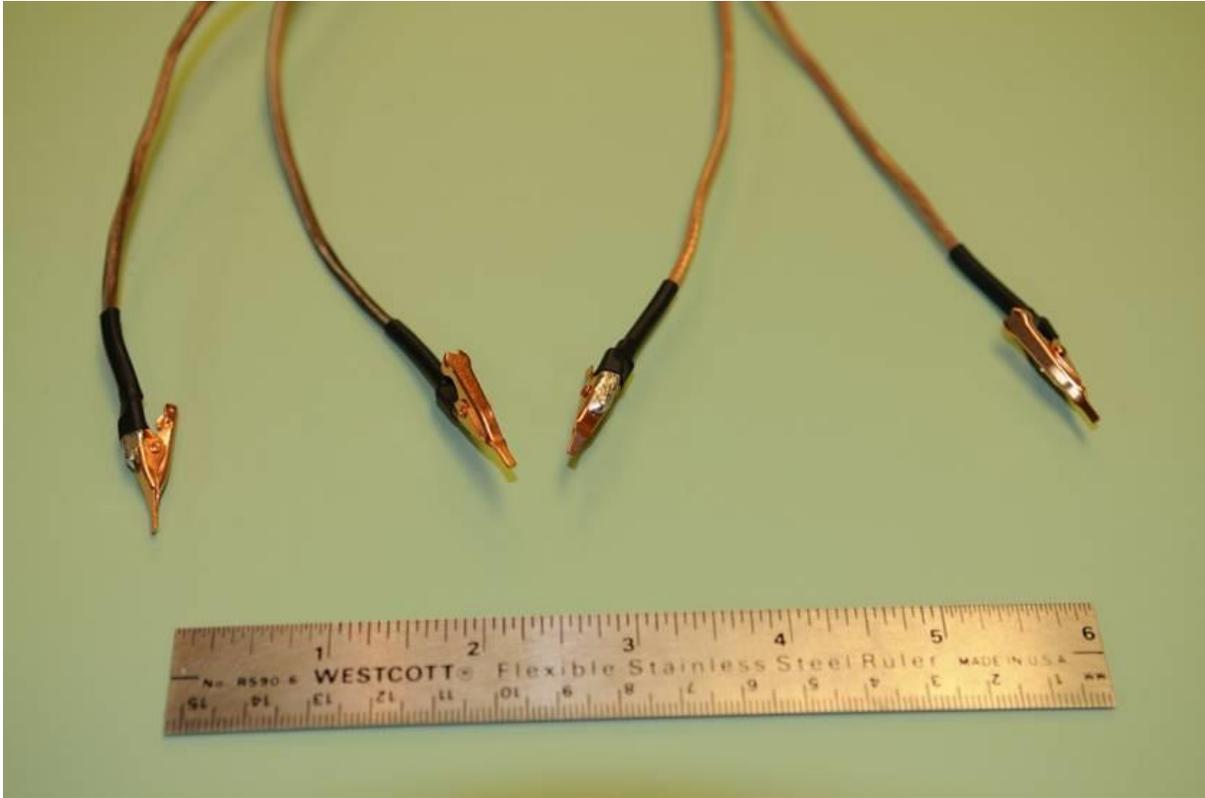


Photo 5: The New Clips

And that's about all there is to it; some new, ready to go, highly conductive igniter clips. Don't forget to turn that soldering iron off when done!