

Ask a Marine Technician

By Kevin Ladenheim *Mallard Marine Services*

Tip of the Month: When you reterminate an untinned conductor you will often find that the copper is black with corrosion. A gentle application of fine sandpaper will brighten the copper. Apply an anti-oxidant like Sanchem NO-OX-ID® or Ideal Noalox® and work it into the strands before making a new connection. Tinned copper wiring is always the best choice, I have reterminated cabling that was thirty plus years old and it was still good as new.

Q. What tools do you recommend for making good electrical connections?

A. Connections larger than 10 awg are less common and require expensive tools so I will cover 18 to 10 awg crimp connections. Write to the email address at the end of the column for tool suggestions for the larger connections.

There are two main types of crimp connections you should be using: heat shrink and insulation crimp.

For both types of connections the terminal barrel will usually have a seam. Orient the connector in the tool to prevent the seam from opening when crimping.

Heat Shrink Crimp Connections

A heat shrink connection is two parts: a single mechanical crimp from a tool, and application of a heat gun to shrink the glue lined heat shrink to the wire insulation, providing sealing and strain relief. If you sometimes want to make waterproof connections and only want to invest in a few tools you can just make all connections this way. I recommend the Porter Cable PC1500HG heat gun (~\$30), the variable heat is very useful for plumbing tasks. The Sea-Dog Line 429920-1 crimper (~\$30) is very nice and is widely available. It's a ratcheting cycle crimper that releases automatically when done. Be sure to heat the connector until it goes from opaque to clear and the glue flows. If you watch carefully you will see the transition.

Plain Crimp Connections

A good source of quality nylon crimp terminals is Ancor brand, carried at your local marine store. The 3M Scotchlok insulation grip terminals are also good. Avoid cheap

vinyl terminals from auto parts stores, they are junk. An insulation grip connector is designed for a tool that makes a double crimp. One crimp is from the bare metal of the terminal to the bare conductor, the second crimp grips the insulation. Both crimps happen simultaneously because of the shape of the tool die. Always give your connector a good pull to test connection strength.

For double crimps, I recommend the Ancor 703030 double crimper (\$61). With a short handled tool like this, leverage can sometimes be a problem for yellow connectors. Use two hands and carefully support the tool on your boot or a surface if needed.

Quick and Dirty Plain Crimping (Not recommended)

Folks have told me that they have made connections with pliers, vises and vise grips. You can never do a good job with those tools. People also commonly have a thin, flat tool that is combo stripper and crimper, unfortunately you can't do a good job with those either. The bare minimum if the above tools are unavailable is a simple plier type crimper like the Channellock 909 (~\$17). Be sure to aggressively tug on your work to test when using this tool and be very careful if you attempt to crimp the insulation grip portion of the connector.

Please send questions and comments to ubbasktech@gmail.com. All emails will be answered.



Ancor 701030 Ratchet Double Crimper



Sea-Dog Line 429920-1 Heat Shrink Crimper