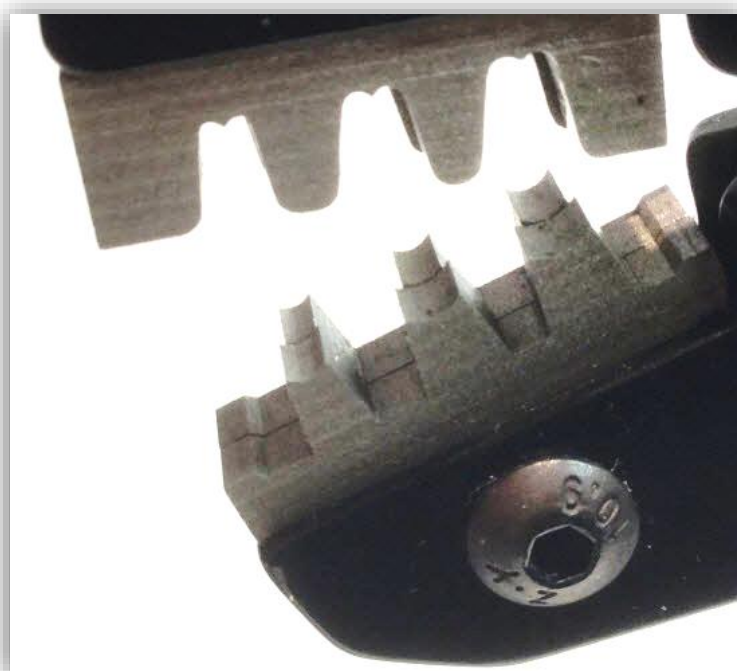
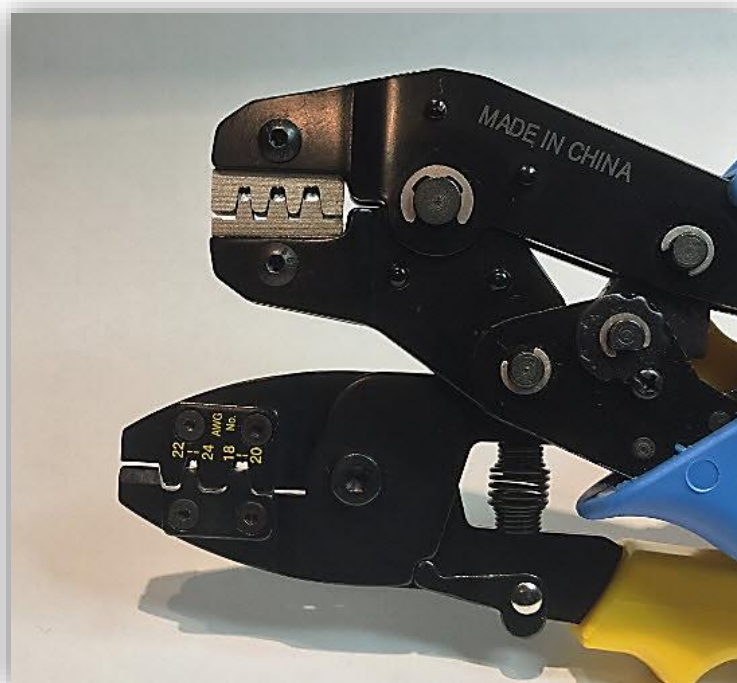
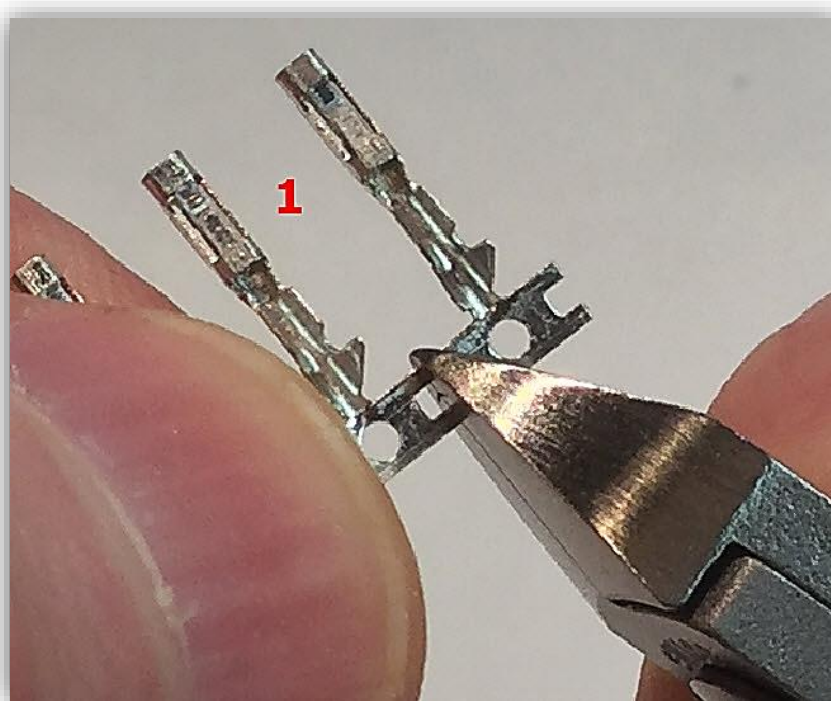


Making DuPont Jumper Wires

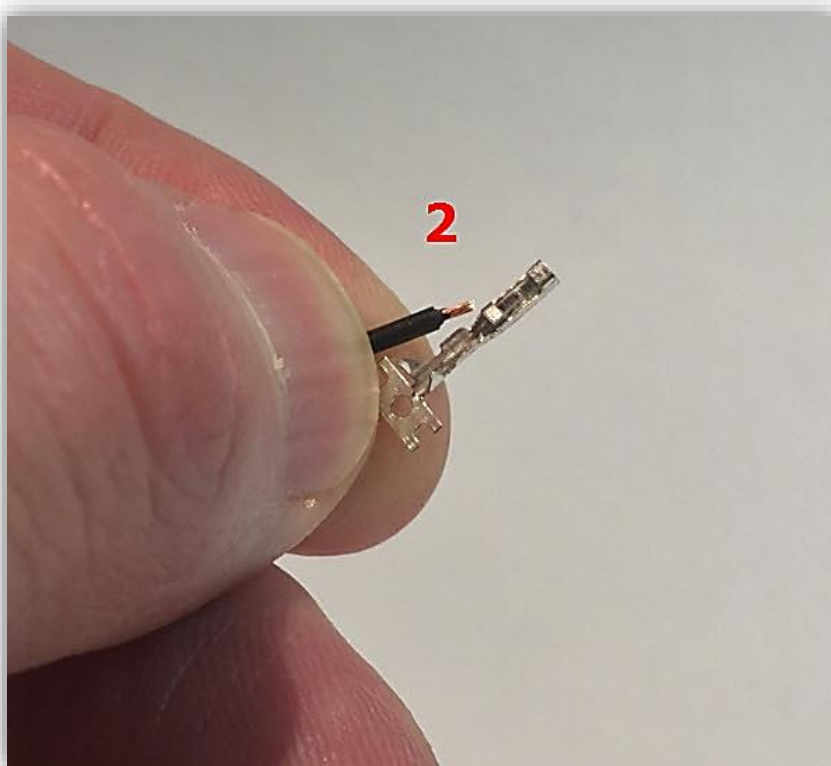
DuPont jumper wires can easily be made if you use the correct crimpers. Although you can solder the wire connection, and use needle nose pliers to secure the strain relief, soldering makes the connection rigid and prone to breakage. Your crimping tool must match the connector type!



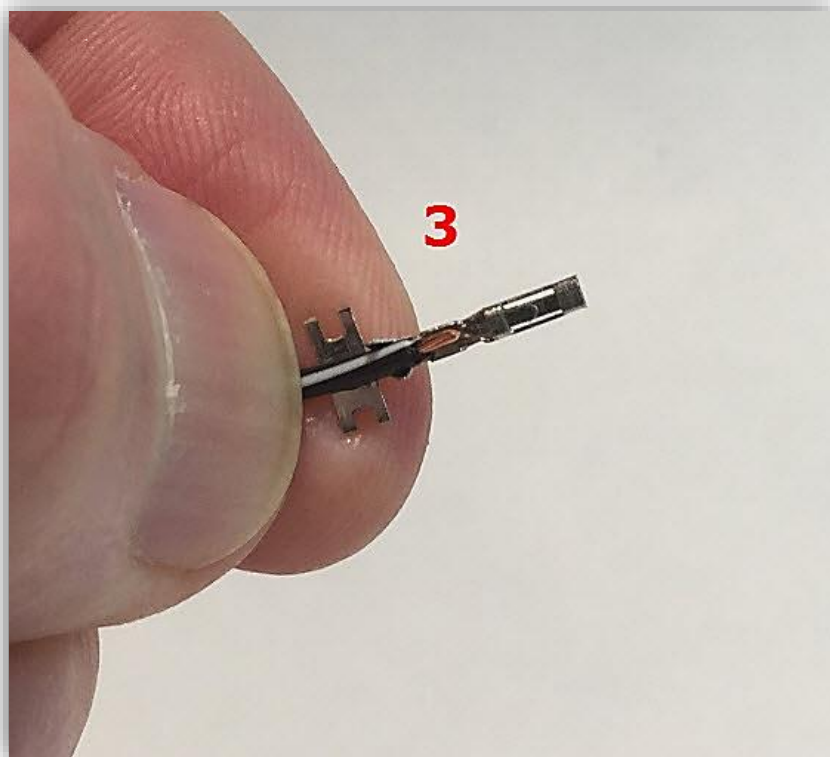
A single operation crimper has two teeth, one wider than the other. You insert the wire with connector from the wider side of tooth side.



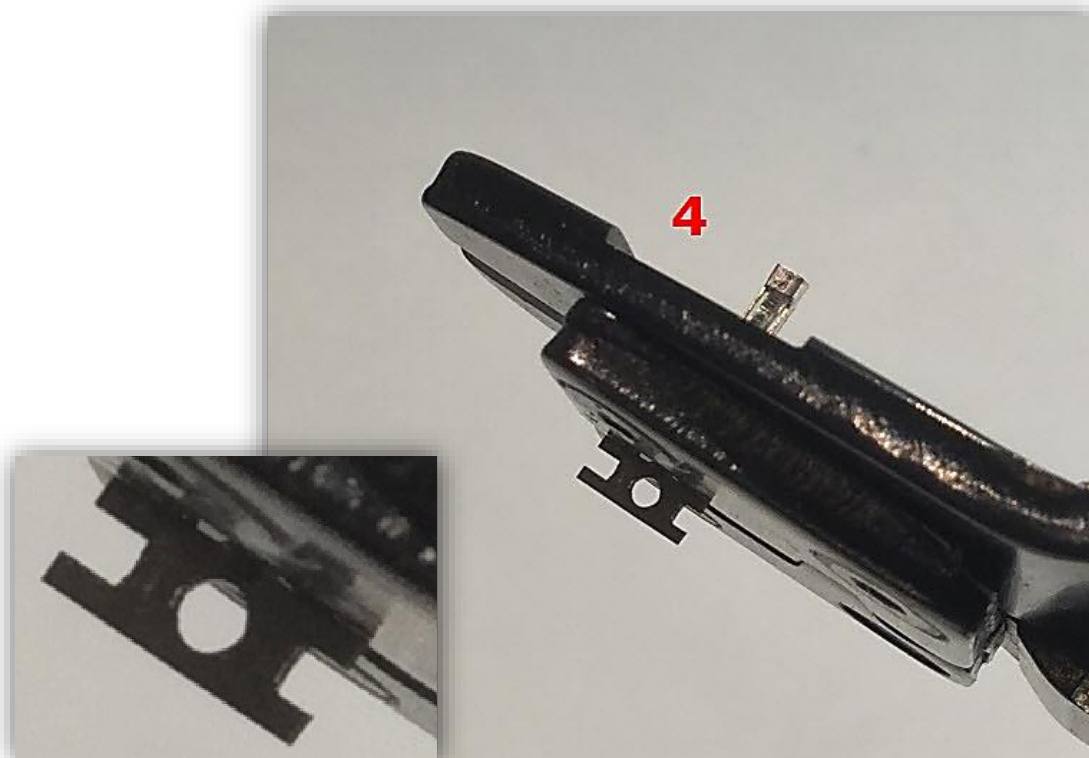
The first step in the process is to cut one of the pins off of the connector strip. Make sure you cut the carrier rail as seen in the image. **Do not** remove this carrier strip from the connector.



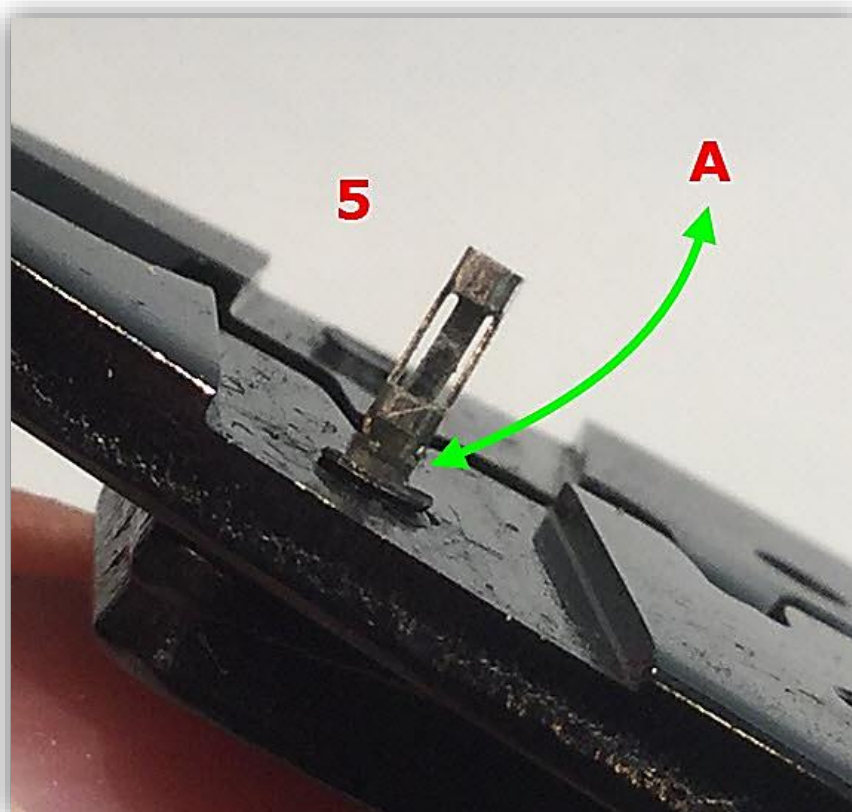
Depending on the connector just cut, strip off about 1/8 or 3/32 of an inch of insulation from a 22-24 AWG stranded wire.



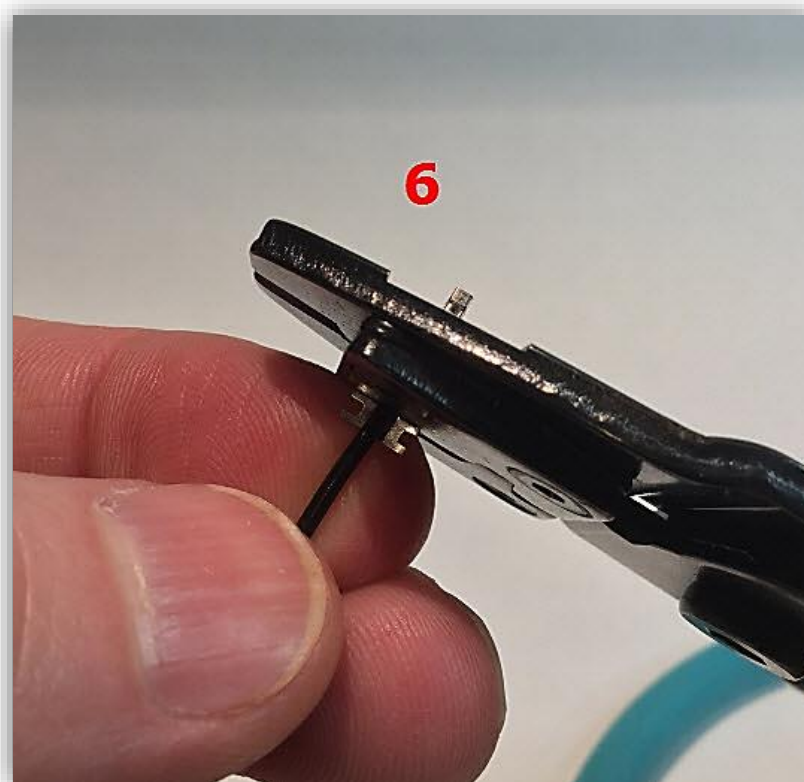
The proper way to hold the jumper wire and connector is seen in the image. Note the placement of the wire on the connector.



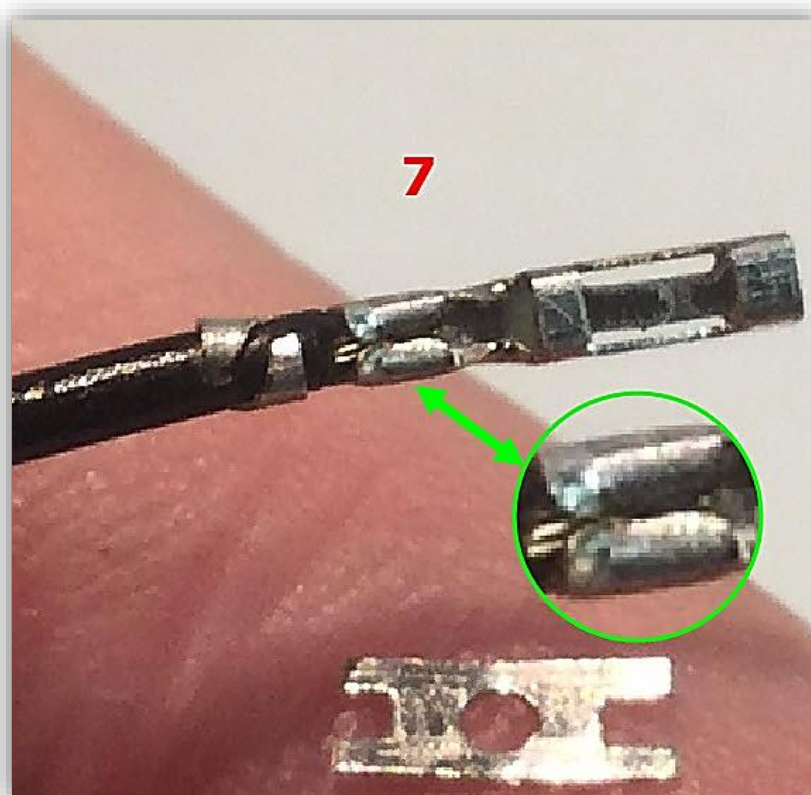
This image shows a connector in a crimping tool without the wire. Note the carrier strip (bottom of the tool) is tight against the tool's surface.



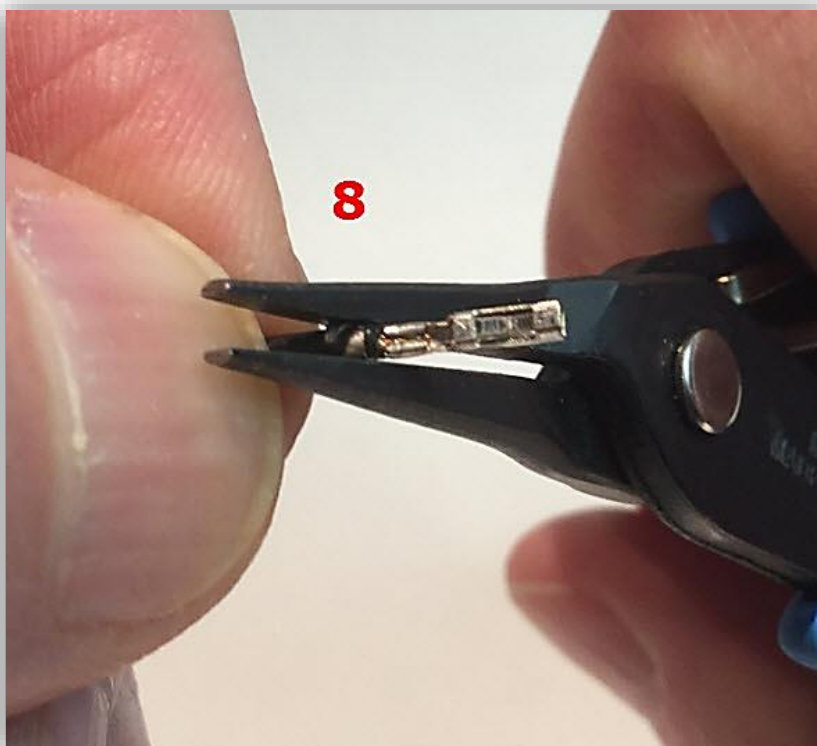
The business side of the connector must extend all the way out past the tool's upper surface!
If it is not, you will pinch the connector and it will not function.



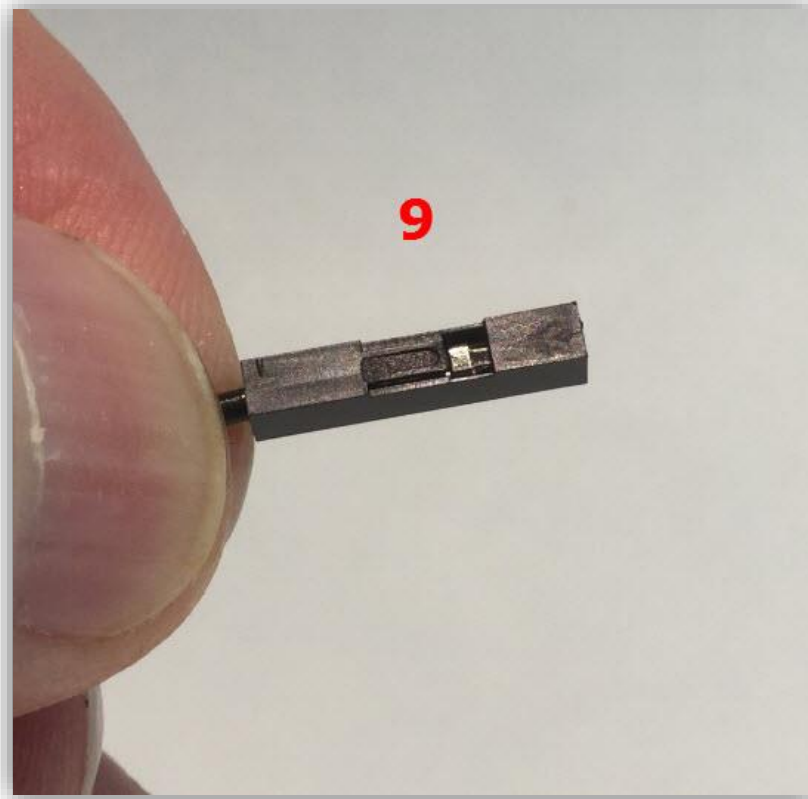
You are now ready to complete the crimp by fully compressing the tool's handles.



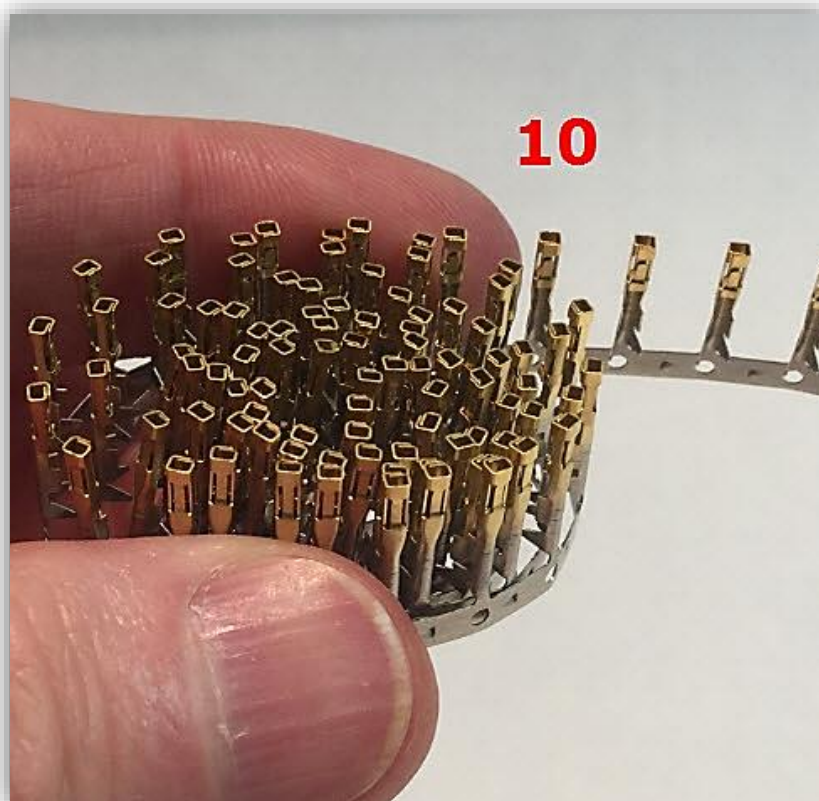
We see the finished crimped connector with the carrier strip removed. Note, in this image, there is a slight flaring or un-crimped portion that can be reworked by crimping the connector a second time.



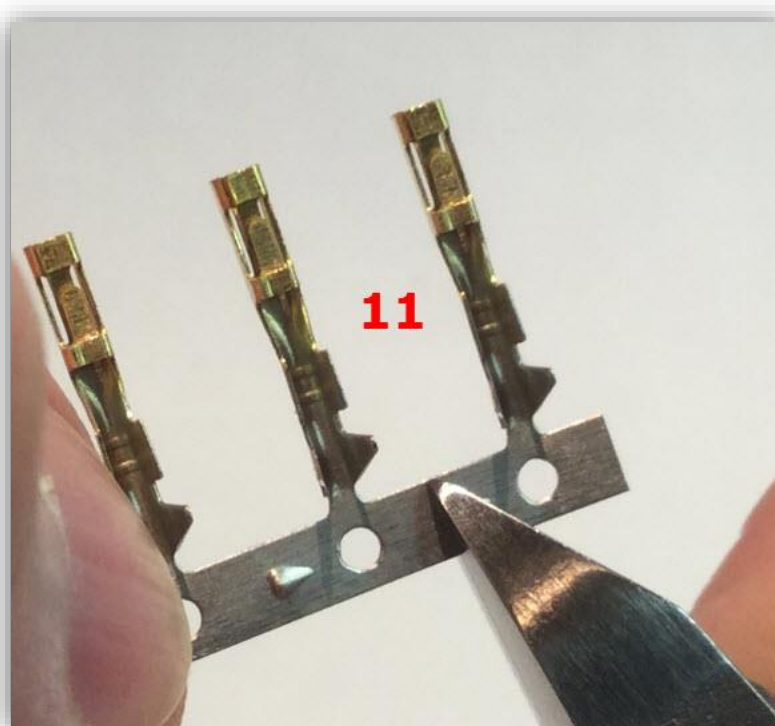
It is often necessary to slightly compress the strain relief portion of the connector so it will easily fit into a connector housing.



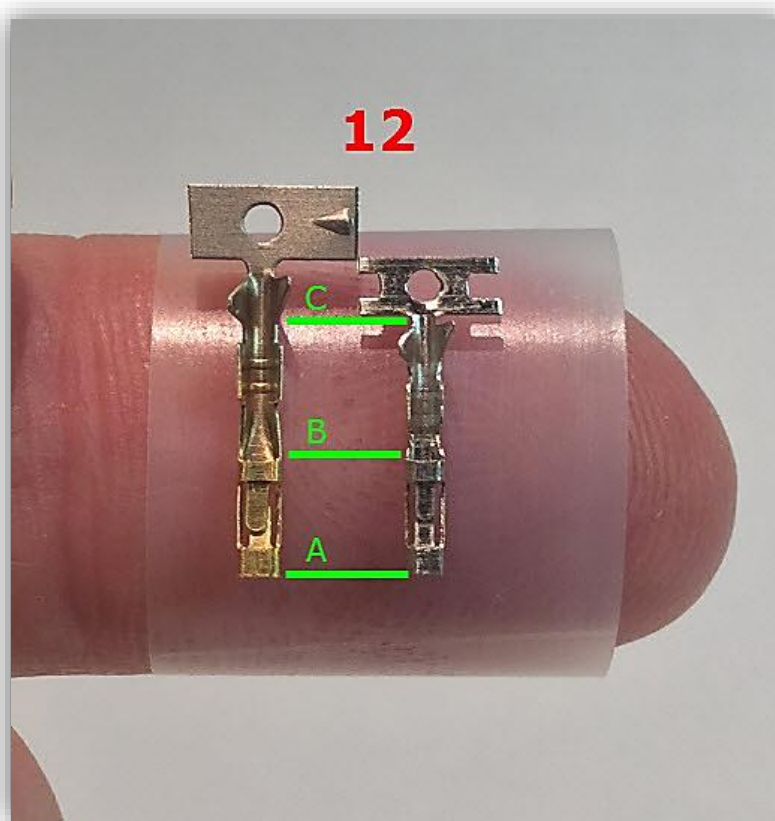
We see the finished crimped connector inserted into a single pin housing.



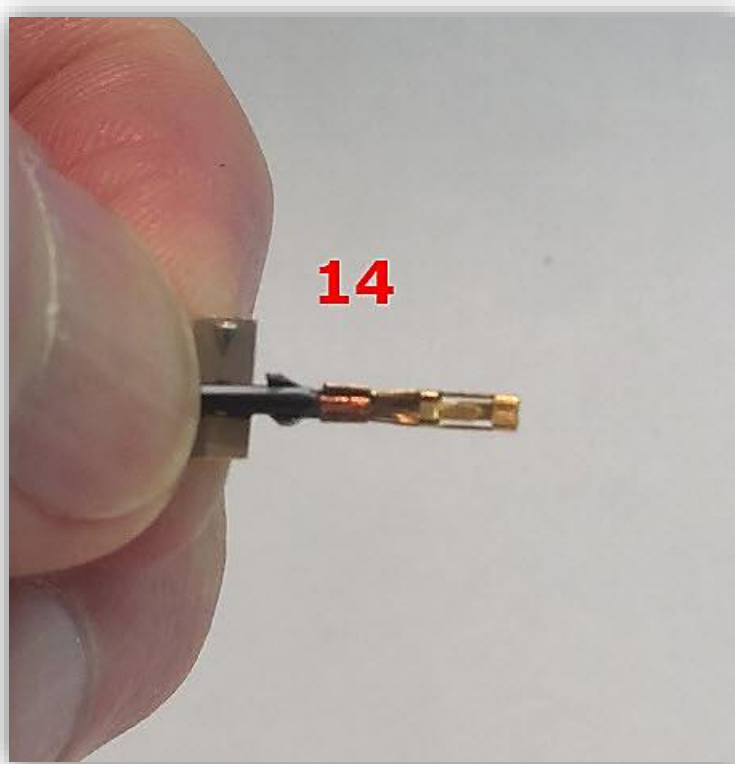
This shows a higher quality connector. It has a plating of gold to prevent oxidization.



Once again, you clip off a pin. Note in this case you can use the small raised portion on the carrier as a registration point to make your cut.



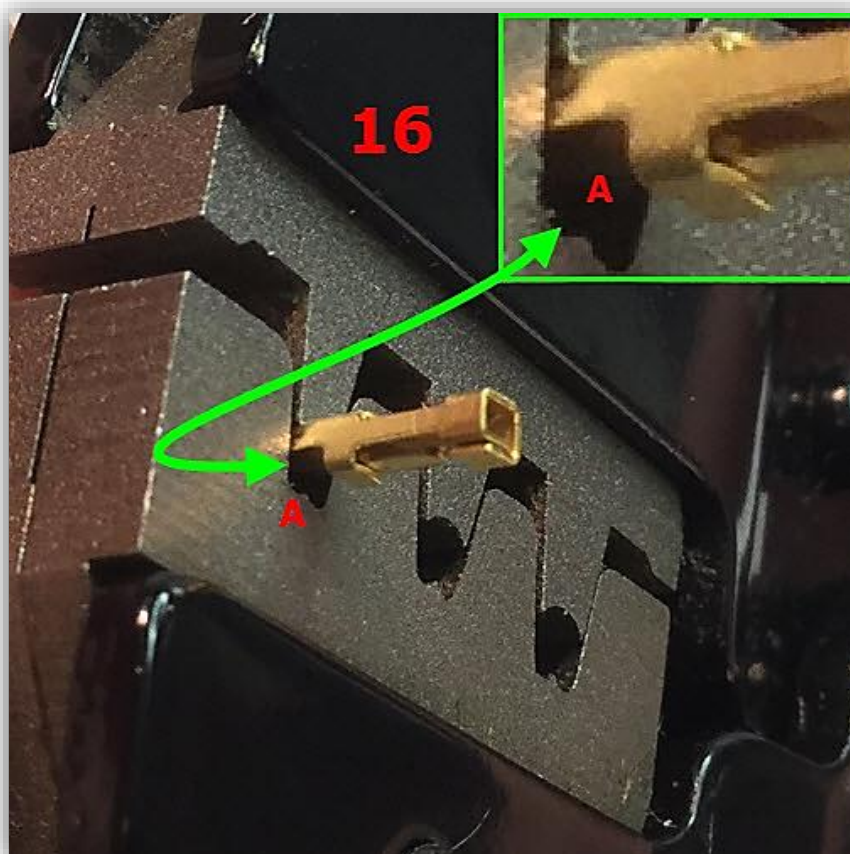
Comparing two female pins that are available. Distance A to B is the same on both pins. This is the important measurement as the housing requires it. The pin on the left is better as the strain relief will have more insulation to grasp and the wings that capture the stripped wire are longer.



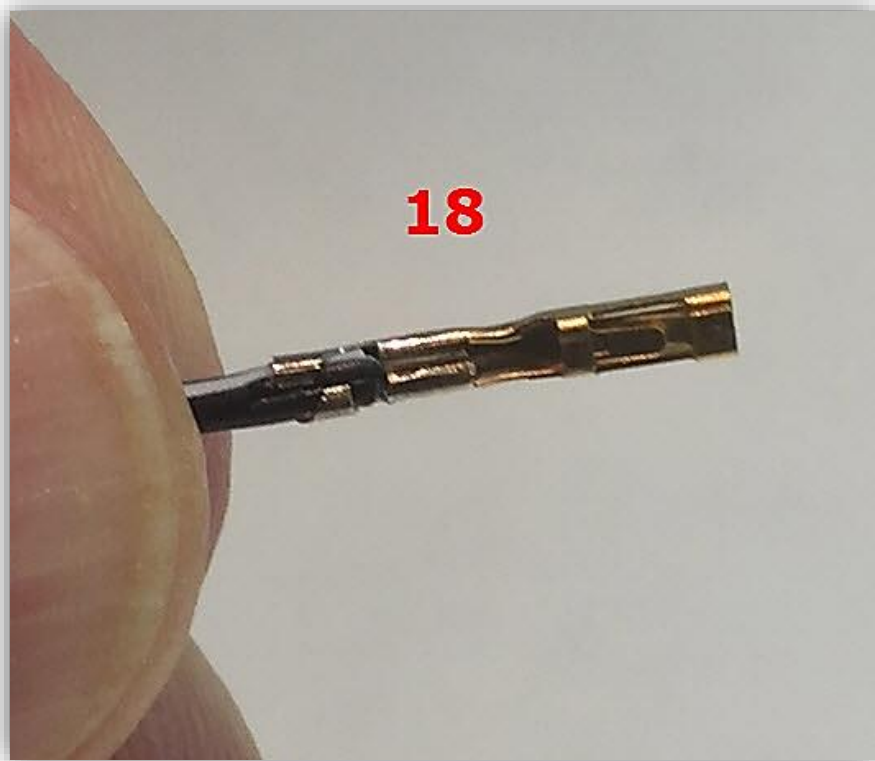
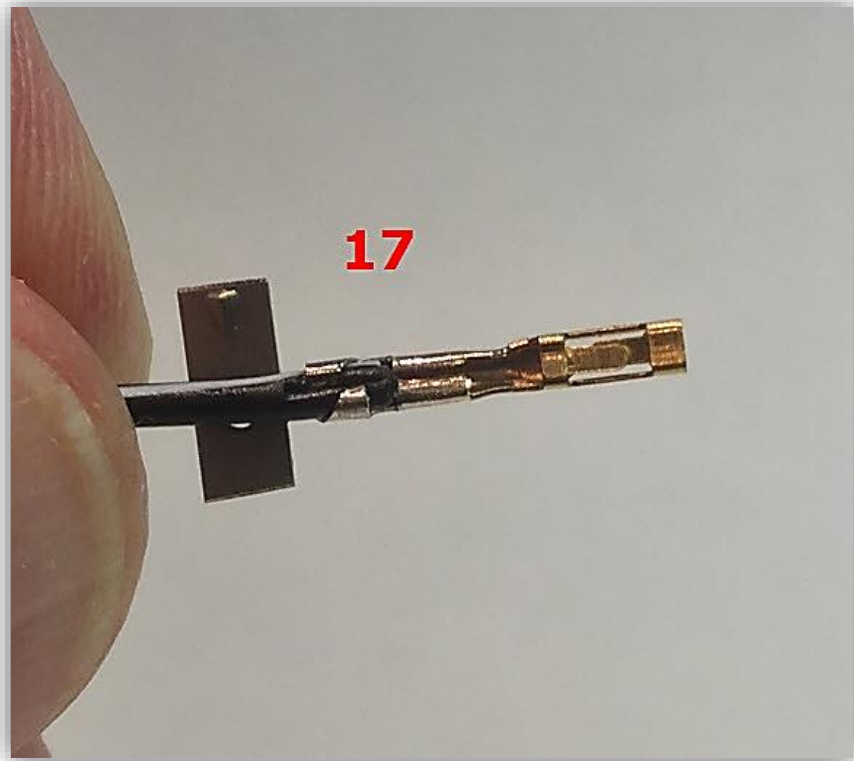
As before, we hold the stripped wire in place on the pin prior to inserting it into your tool.



Again you must position the carrier strip flush against the crimp tool.

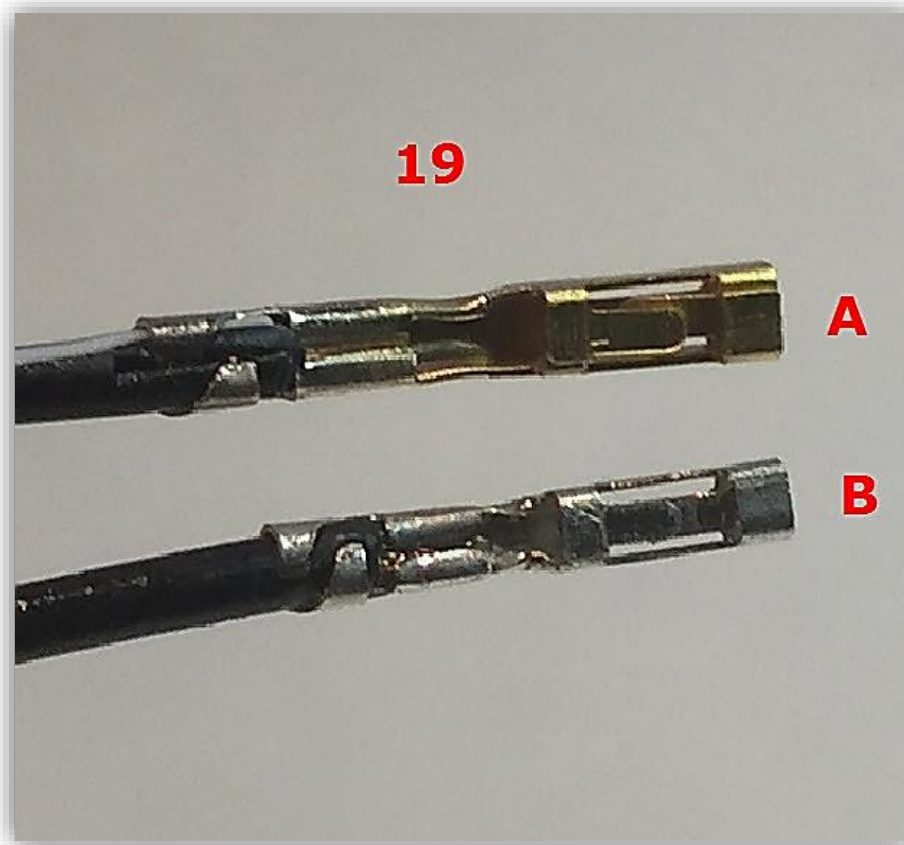


Notice the extra extension on the business end for this longer pin.

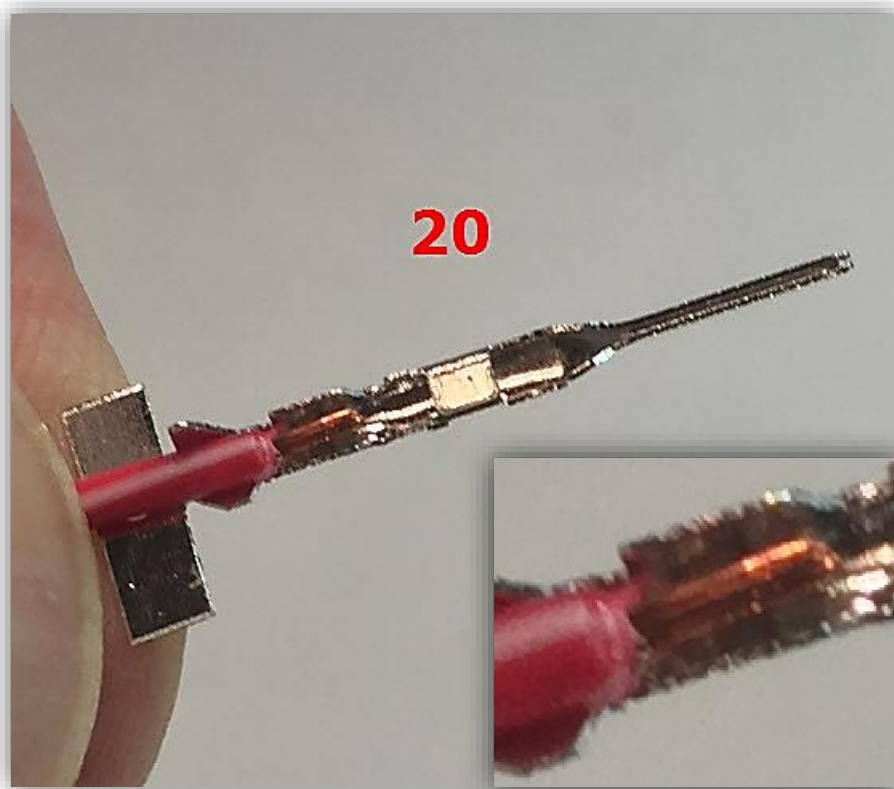


Finished crimped pin.

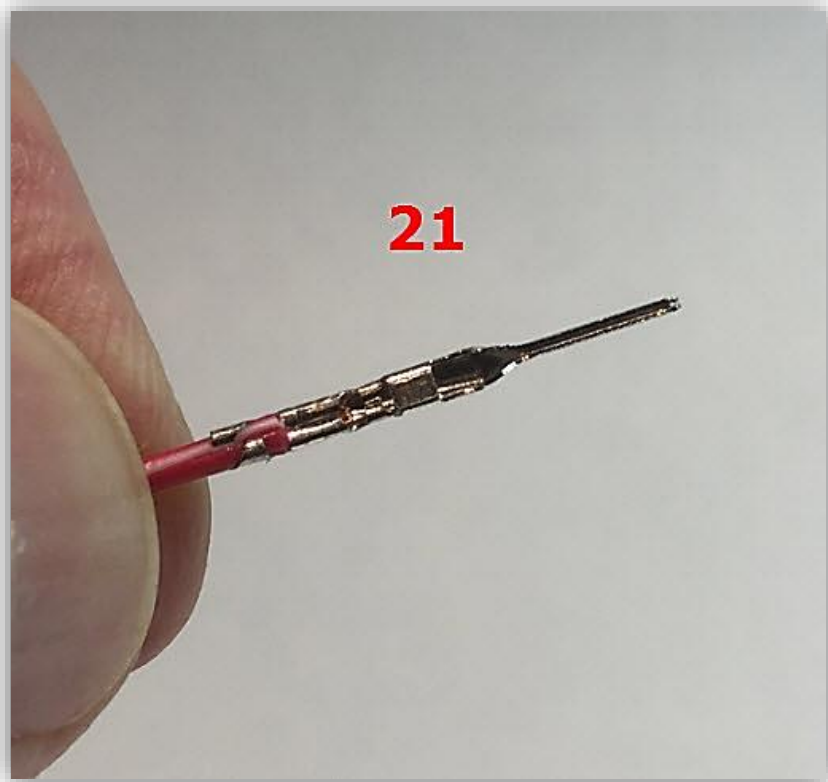
Always test your crimp by tugging on the wire while holding the connector pin.



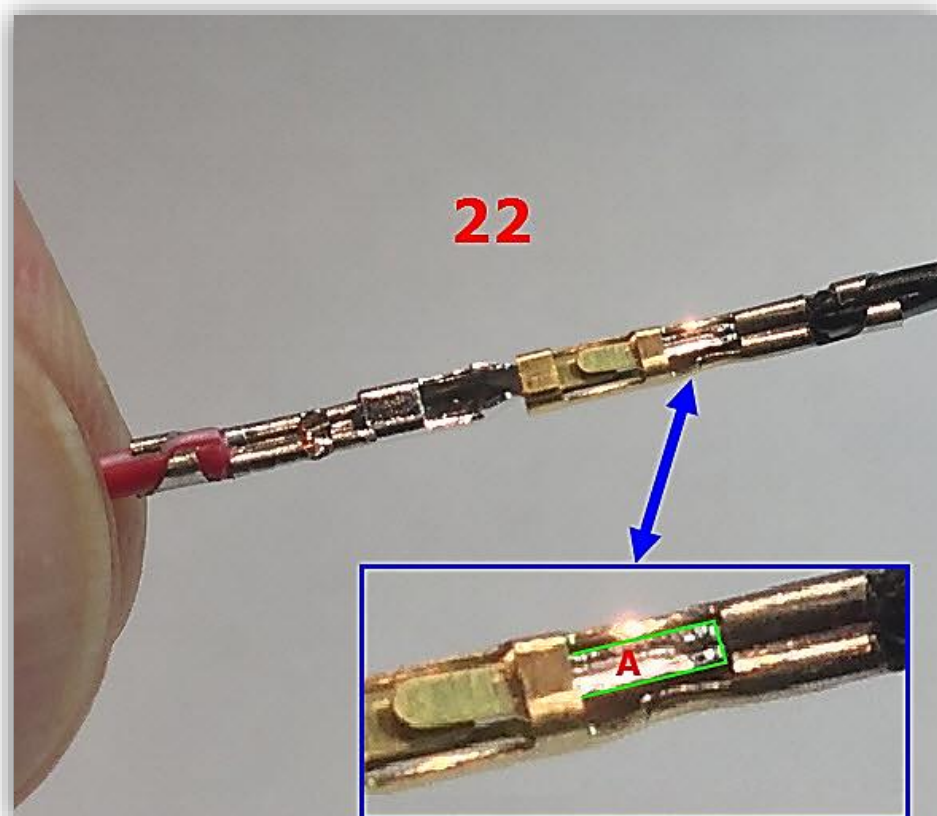
Comparison between the crimped longer and shorter pins.



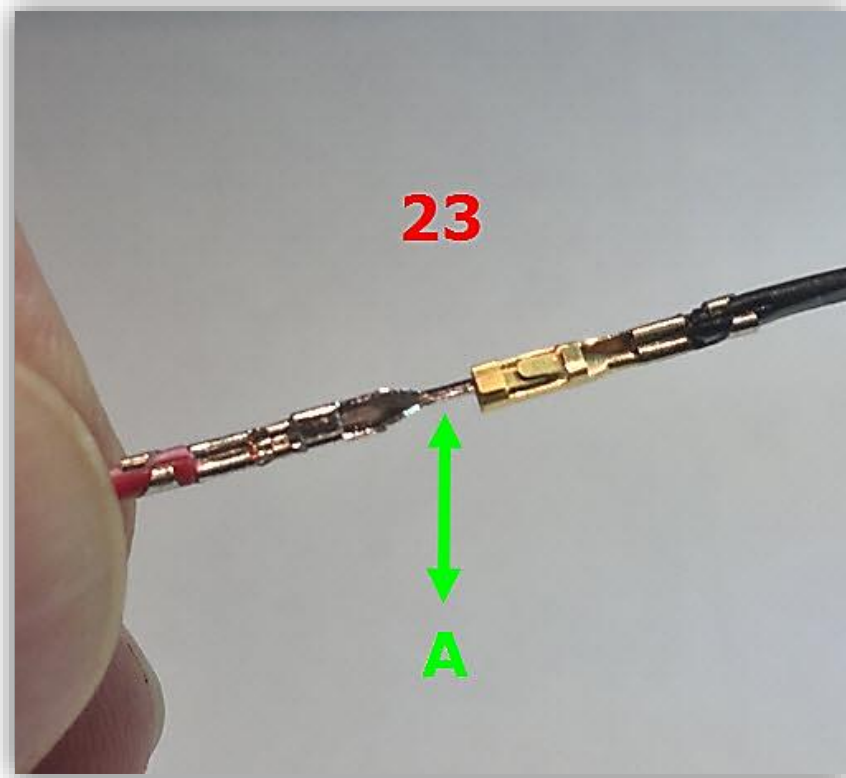
A male pin prior to crimping.



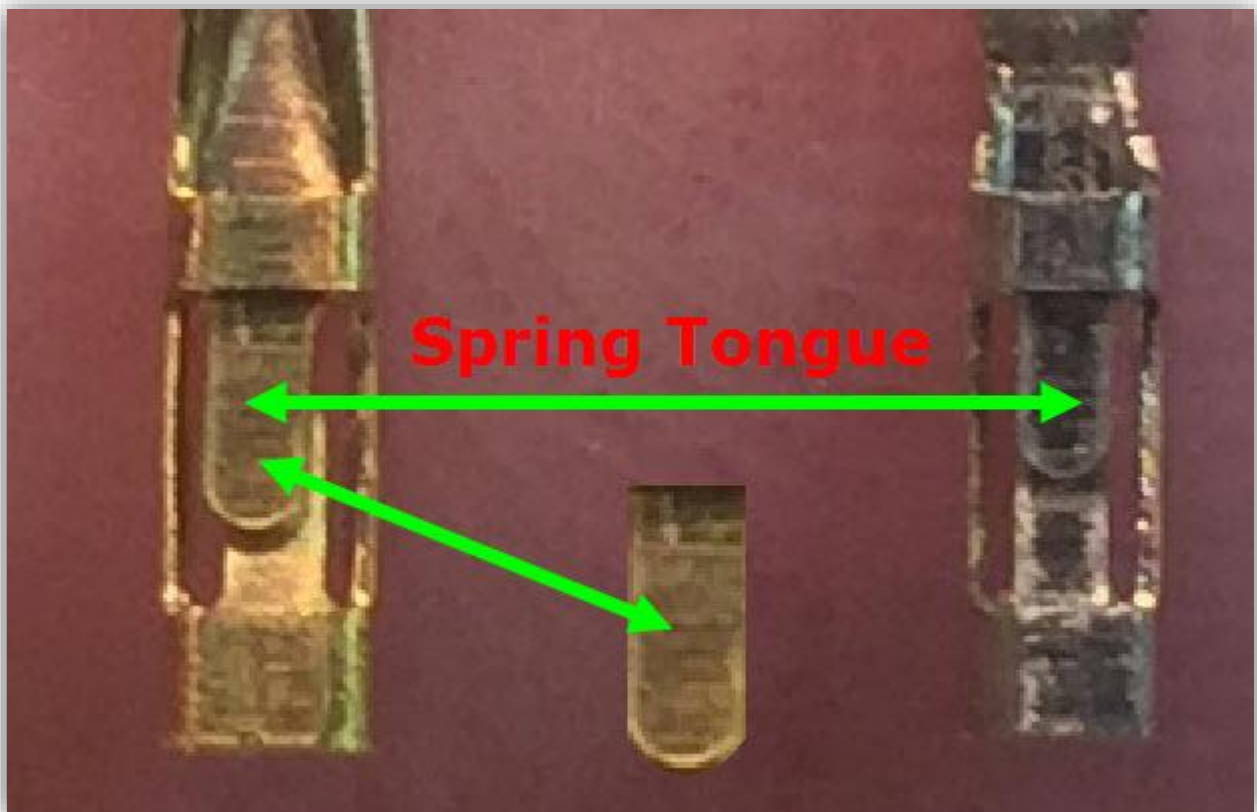
Finished crimped male pin.



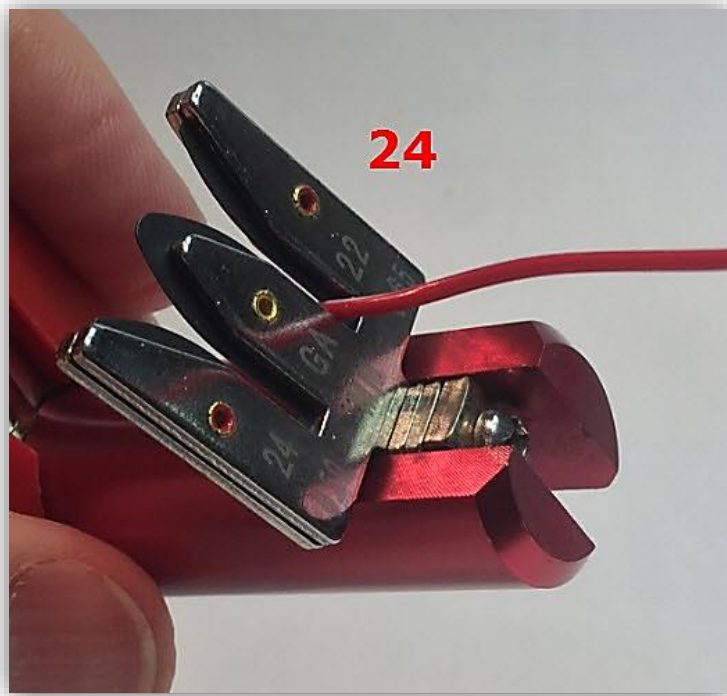
Combined male and female pin. Notice the tip of the male pin should be visible when fully inserted.



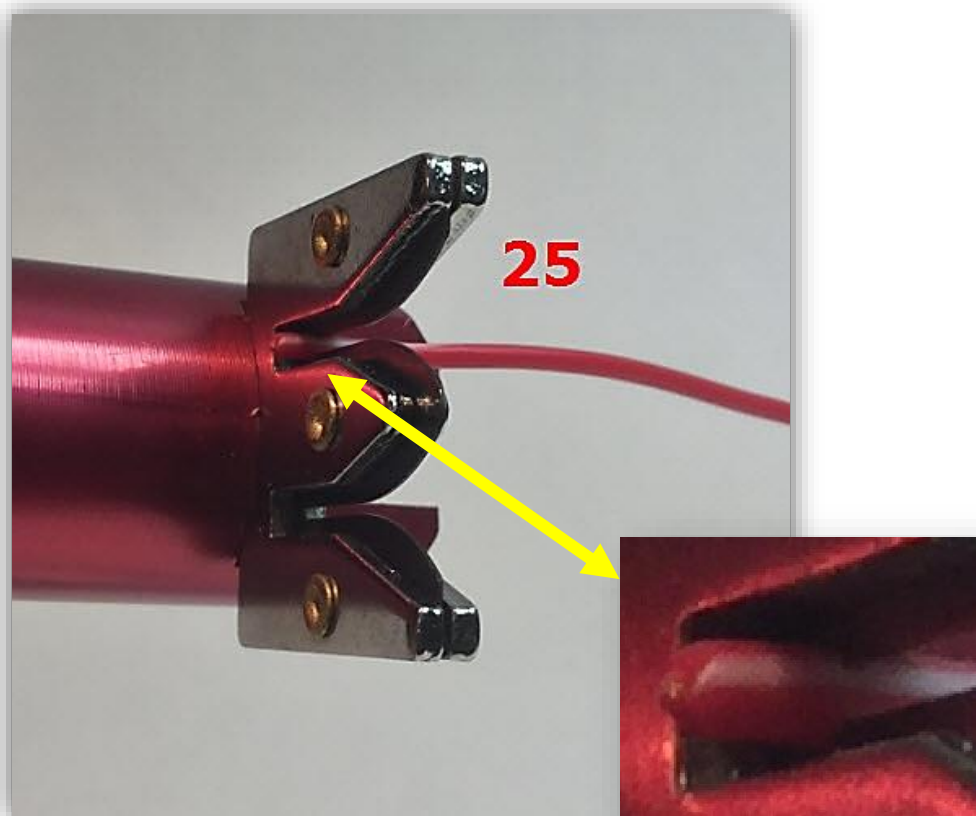
If the female pin was crushed while crimping, the two pins will not mate properly.



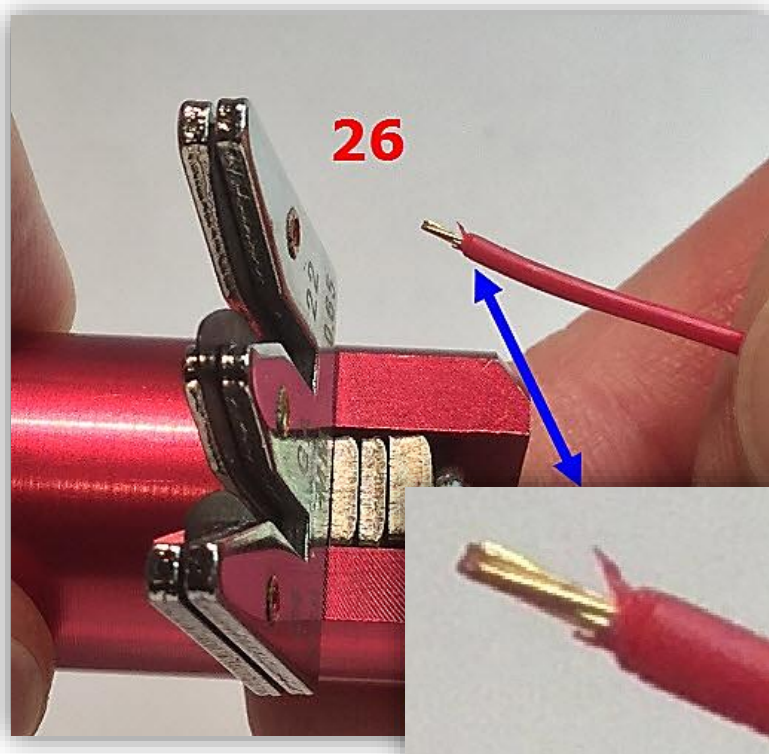
The female connectors have a compression tongue.
If the mating male pin is on the loose side, compress the tongue inwards to tighten the pin spring.



If you plan to make these jumper wires regularly, you might want to invest in a wire wrapping wire stripper. This tool does not nick or cut any of the strands during the stripping process.



An insulated wire is positioned at the point where you want the stripping to start. Then you pull the wire through the stripper. You can easily remove 1/8 to 2 inches of insulation without damaging or losing the strands.

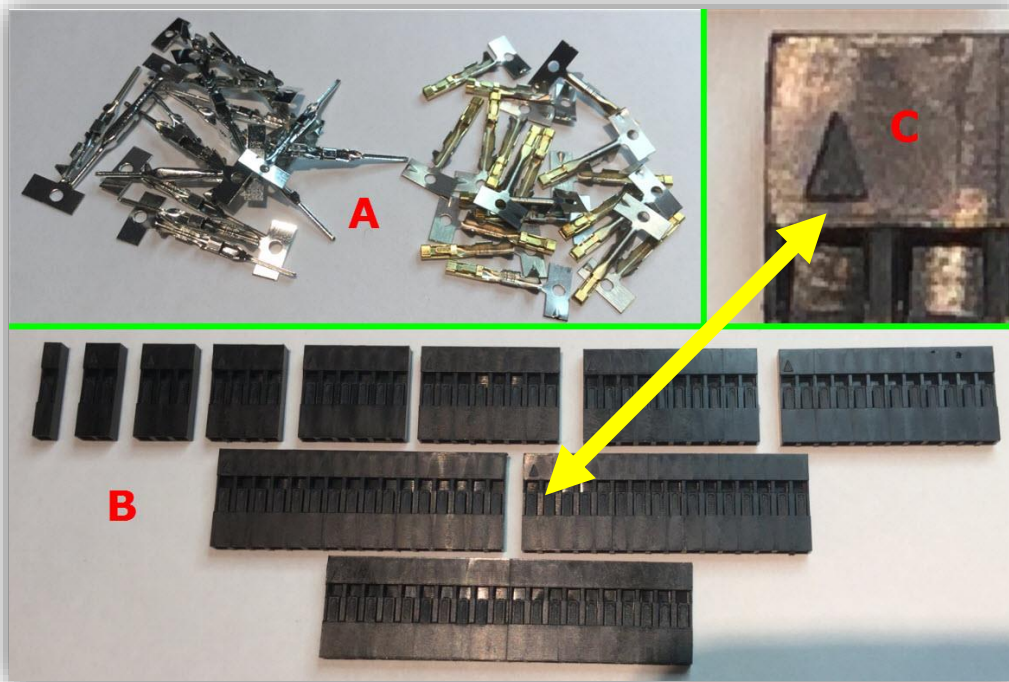


After pulling the wire through the stripper, you may be left with a small piece of insulation still attached. Cut this off with flush cutters.

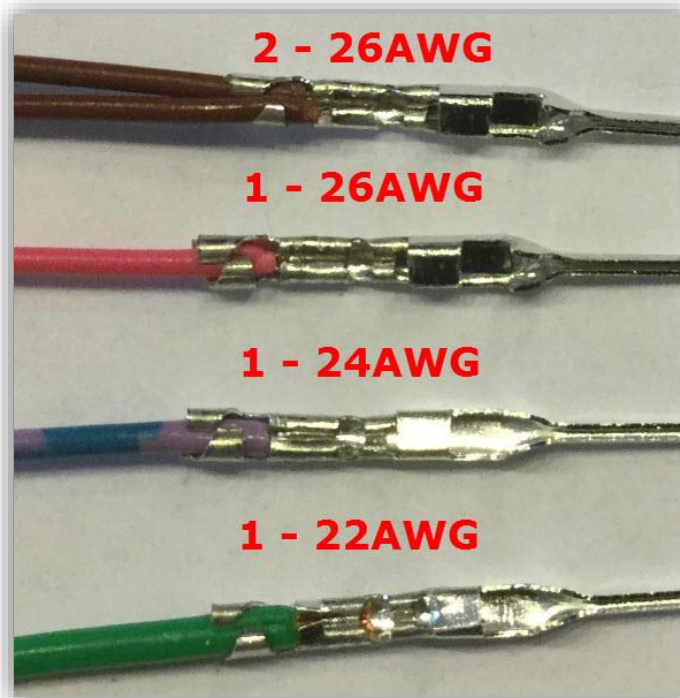


Side view of the stripping tool, ST-100

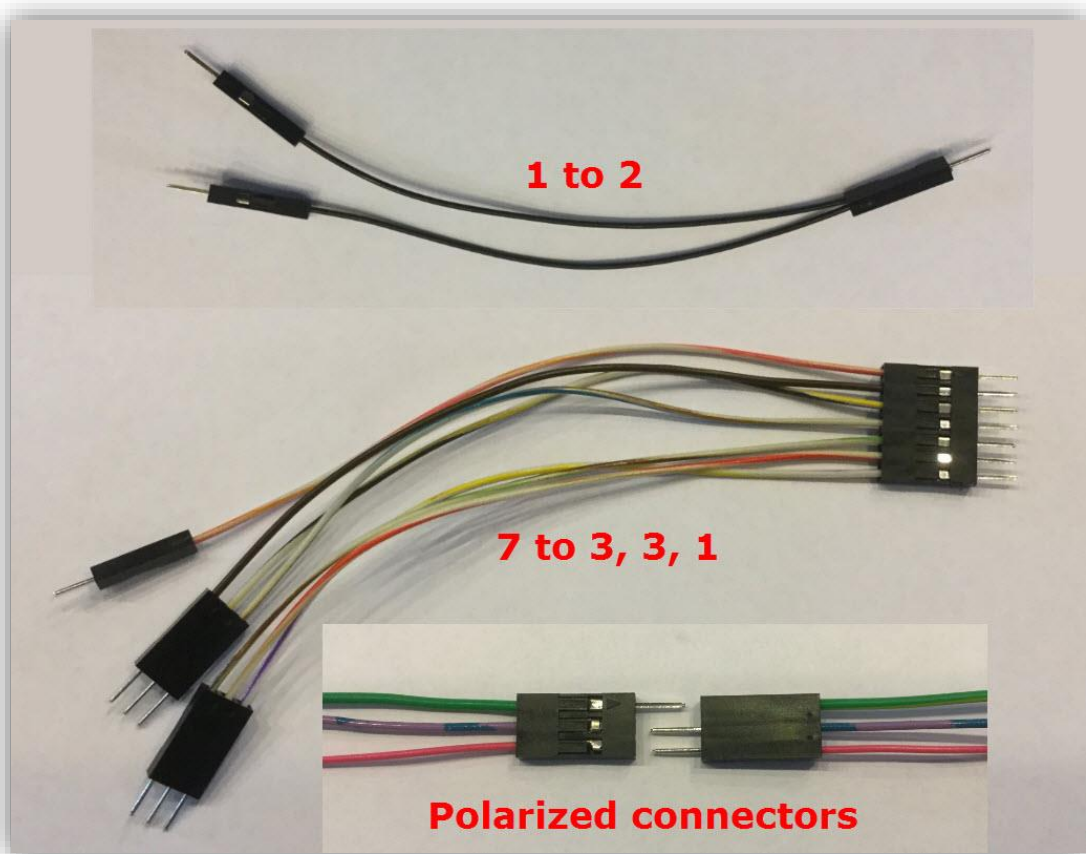
<http://www.stanleysupplyservices.com/ok-industries-st100-22-24-wire-awg-cut-strip-tool/p/118-050>



- You may want to cut several female and male connector pins from their carrier strips ahead of time so they will be ready to use. Having a collection of different sized DuPont housings is handy so you can immediately make up your assemblies.
- Two row housings are also available.
- You can also epoxy or crazy glue two single row housings to make a two row version.
- If you want to polarize your housings make one of the pins male with the rest female.
- Note: in image C, there is a small triangle on the housing to identify pin one.



Some examples showing insulation and wire gauge differences.



Some finished cable wiring harnesses.

- Top, 1 to 2 male to male.
- Middle, 7 to 3, 3, 1 male to male.
- Bottom, you can polarize your connectors: 1 male with 2 female to 1 female with 2 male.