Crimp type RF connectors

by Karl Shoemaker

Introduction:

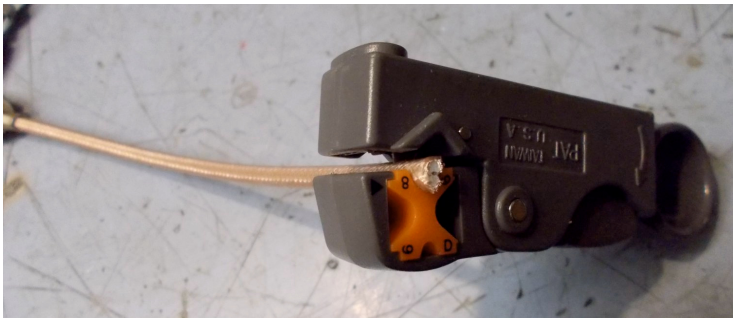
RF connectors make the connection between the coax and equipment. The equipment can be either a radio or antenna. There are several type of connectors in the industry. For this discussion is the crimp type for use in the 1.25 meter amateur band.

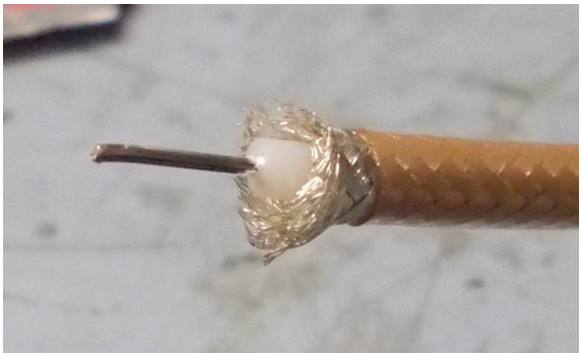
Overview:

The Author has traditionally used the clamp type since the mid-1970s. This means to solder the center pin and dress the shield so that it lays over the clamping ring, inside the connector's body. This would be for several types of coax including RG-223, RG-213, RG-214, FSJ-1 and FSJ-4. In the case of hard-line, such as the LDF-4 and 5, the outer copper is "bend" over the aforementioned ring.

Recently, the Author is researching the (modern) crimp type connectors for both large and small braid coax. With little experience this document is subject to updates and corrections as the project continues. For this discussion the RG-142 type double braided coax will be used with the RFN-1005-3C connector "made" for RG-141. Update: The Author found the RFN-1005-3C**1** is the correct connector for RG-142 therefore, will be ordering and trying that part for future tests.

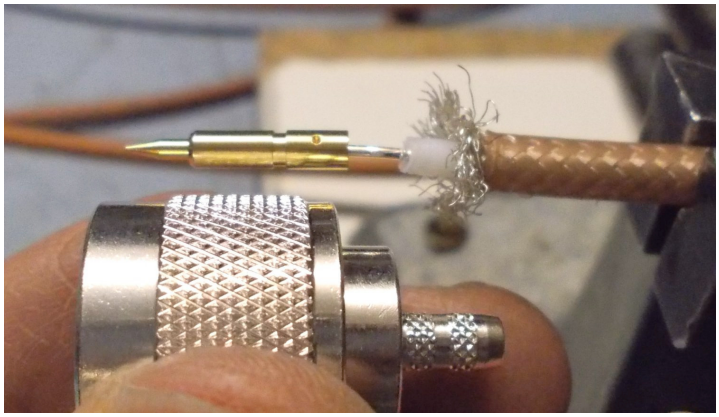
First the quarter-wave length is determined and cut. This "prep" tool is nice and cuts both the braid and center insulation with a few twists of the finger. The right shows the result after combing the





braid a little. This will facilitate it clearing the connector when it's slid on.

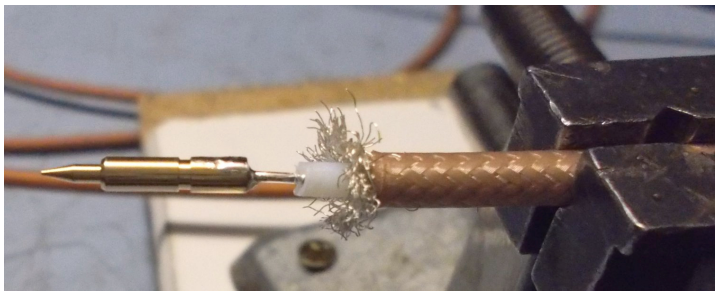
The center pin is placed so the connector can be verified the cut is the proper length. In the past practice was to have the end of the pin up against the dialectic however, this would cause the front of the pin to not appear where it should on the front.



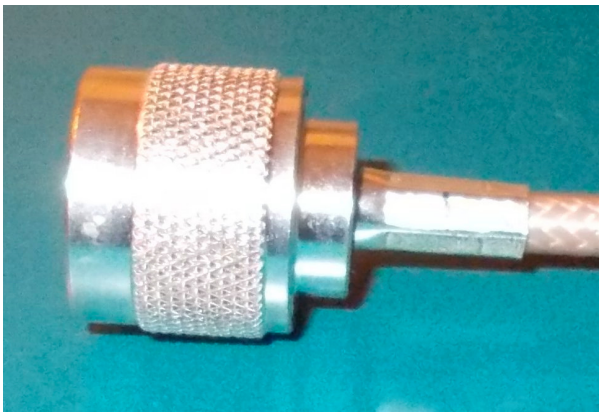
This image does not show that very well, however. Future research may revile other thoughts on this procedure as well.

Keep in mind this is a work in progress.

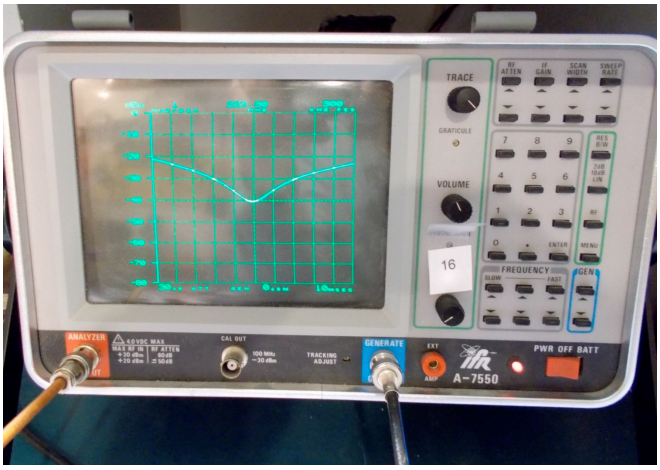
Next, the center pin is either crimped or soldered. The Author found the center pin crimp make some nasty bulges therefore, choose to solder the pin (lower image).



Below shows the complete crimp. The Author likes to carry the full crimp to the end of the connector for a clean look.



Below is the test arraignment for checking the electrical proper length of the stub.
The stub is plotted to confirm this. Quarter-wave stubs are use for high-pass cavity filters.



The next test was with a RFU-505-C1 “UHF” male connector. The Author cut back 5mm from the outer jacket (brown cover) then 17mm to the dialectic, then 16mm to the center end for a total of 38mm cut. The crimp on the center used was .680” while the outer sleeve was .213”. This is still a work in progress where the spec sheet and install instructions will be sought.