

Connectorizing RG6 Cable

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High quality RG6 cable can be easily procured, often for free. As an example, recently our local cable truck was behind my house doing some work, and I asked them if they had any odd lengths of cable that they might be discarding. In minutes I found myself with several hundred feet of RG6 cable! Of course, RG6 is 75 ohm cable. However, any resulting impedance mismatch is easily handled by your radio's internal antenna tuner. Often, no matching is necessary – depending on your antenna system and cable lengths.

Besides being free, what other benefits does RG6 have? This CATV cable is very rugged, designed to be directly buried, 100% shielded, and has lower loss and higher power rating than either RG58 or RG8X. The biggest disadvantage is that the shield is all aluminum – normally consisting of aluminum foil covered with aluminum braid – making it difficult to connectorize. In the past, I've used crimp-on F-connectors and F-to-PL259 adapters. Recently, however, I've been soldering on standard PL259 connectors.

Several years ago I purchased a butane torch kit at Dayton from The Solder-It Company (www.solder-it.com). My main reason for purchasing the SolderPro-120 was for outdoor cordless soldering. However, The Solder-It Company sells different types of solder paste for soldering unusual metals – like aluminum. As it turns out, this was just the ticket for assembling a good RG6-to-PL259 connector. Here's how I do it.

First, carefully remove 2-1/4 inches of the outer dielectric covering. Pull back the braid slightly and cut off 1/4-inch of the center shield, dielectric and center conductor. Pull the braid back over the end of the cable and twist it. Then feed this cable through an UG175 reducer (for RG58 cable) and pull it through until the outer dielectric is flush with the back of the reducer. This is a nice, snug fit – but still easy to pull through. Next fold the braid over the reducer and clip off excess length. Support the assembly vertically and squirt a bead of the aluminum solder paste around the end of the reducer, making sure the paste contacts the reducer and the aluminum foil shield and braid. Now heat the reducer with the butane torch until you see beads of solder forming in the paste, and then briefly play the torch flame over the solder paste. Just a fraction of a second or less is necessary – otherwise you can damage the foil and dielectric. You'll see that the solder will “wet” or “tin” the aluminum braid and foil, and will also wick down into the reducer. Since the aluminum is tinned, it will now take normal solder. Therefore, use a soldering iron and flow additional solder over the connection. Next, cut off the remaining shield and dielectric right at the solder joint and screw the reducer/cable assembly into PL259. Finally solder the PL259 to UG175 reducer through the solder holes on the PL259 as is usually done, and then solder the RG6 center conductor to the PL259 center pin. I like to finish off by putting a bead of 2-part epoxy around the coax/reducer interface at the back of the PL259, just to keep everything nice and secure. The photos below show the steps.

This process works great, giving you a nice, soldered PL259 connector on your RG6 coax. Give it a try. Any if you don't have a butane torch, you'll find that it doesn't take too much free cable to justify purchasing one!



Ready to pull through the reducer



After soldering



Foil & dielectric removed



Completed connector with epoxy