

Joe Carr's Radio Tech-Notes

Installing Coaxial Connectors

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One of the skills one needs to develop when doing antenna construction is installing PL-259 UHF-style coaxial connectors. These connectors are used on the vast majority of "serious" shortwave and VHF/UHF receivers made in the past couple of decades. Although one is usually a bit fumble-fingered on the first one (or three), it's really quite easy to get the hang of it.

Figure 1A shows the PL-259 connector disassembled, with the reducer insert. The threaded outer shell unscrews from the main barrel. The reducer is externally threaded so that it can mate with the back end of the main barrel. The PL-259 is designed for RG-8/U and RG-11/U coaxial cables, so a reducer is needed when RG-58/U or RG-59/U is being used. There are two sizes of reducers, one each for RG-58/U and RG-59/U coaxial cable.

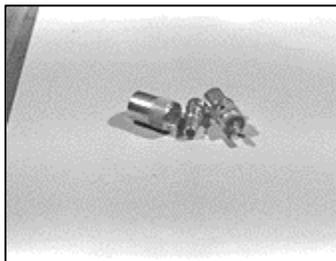


FIG. 1A

Slide the outer shell and the reducer over the end of the coaxial cable, as shown in Fig. 1B. Next, use sharp pen knife, a razor knife, single-edged razor blade, scalpel or hobby knife to slit the end of the cable's outer insulation, without damaging the underlying shield. Cut back about 0.75-inch of the outer insulation.

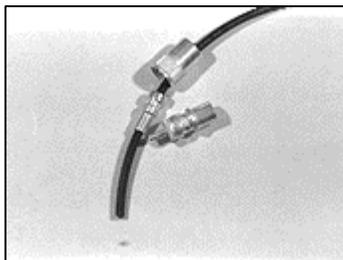


FIG. 1B

Next, use a sharp pointed tool, such as a small screw driver, dental pick or soldering aid, and carefully pick apart and separate the strands of the shield. Once the shield is frayed, fold it back onto the reducer insert (Fig. 1C).

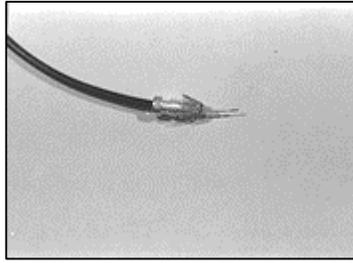


FIG. 1C

Strip the inner insulation away from the inner conductor, about 0.25-inch. Insert the assembly into the main barrel such that the inner conductor goes into the inside end of the center conductor of the connector barrel. Screw the reducer into the threads provided, trapping the shield fibers in place. When the reducer is properly seated, there will be no space between the collar on the reducer and the back of the main barrel (Fig. 1D). Further, you should see strands of the shield through holes in the narrow section of the main barrel.

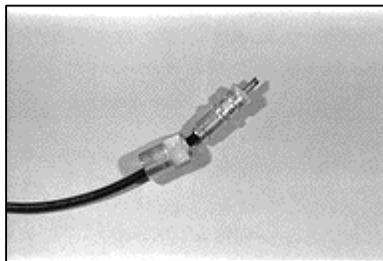


FIG. 1D

Check for short circuits between the inner and outer conductors using an ohmmeter or continuity tester. Do this before doing anything further.

Once the integrity of the electrical connections is proved, solder the shield to the main barrel through the holes in the barrel. Use at least a 100-watt soldering iron or gun for this task (there is a lot of metal there, and it won't properly heat up with a 40-watt pencil iron!).

Finally, bring the outer shell back up on the barrel, and thread it in place. You are now finished (Fig. 1E).

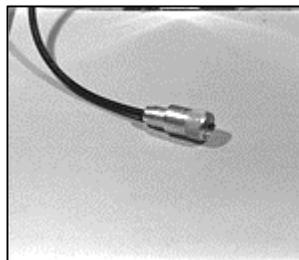


FIG. 1E

