

## Soldering PL-259 Connectors to RG-8X

This procedure may be adapted to any coax connector.

1. If your soldering skills are not the best you should practice before starting. Adequate tools and soldering supplies are essential to good soldering. Take your time and enjoy the process and produce a quality product that will give you years of good service.
2. Maximum transfer of heat in the shortest period of time is critical to properly solder a PL-259. Larger wattage irons (100-200 watts) helps assure a rapid transfer of heat. Do not use soldering guns as they do not have enough tip mass to store sufficient heat. Assure your soldering iron tip is well cleaned and tinned at all times.
3. Unscrew the outer shell of the connector. Using a piece of sandpaper about ¼" x 2-3 inches long roughen the surface of the inner connector part between the threads and the knurled area in the recess where the four small holes are located. This will remove some of the surface finish and allows the solder to better flow
4. Again, using the sandpaper roughen about ¼ " of the smaller diameter surface of the UG-176 adapter.
5. Using a drill bit or small bladed screwdriver, remove the plating material inside each of the four holes.
6. Using a small amount of diluted liquid detergent wash the UG-176 and both parts of the PL-259. Rinse thoroughly and dry. This process removes oils and other foreign material.
7. Slide the UG-176 4-6 inches over the RG-8X cable with the smaller end toward the end of the cable. Next, slide the outer shell of the PL-259 connector over the coax and past the UG-176. The knurled end must be toward the end of the coax.
8. Measure ¾ inches from the end of the coax. With a sharp knife carefully cut through the outer jacket of the coax. The cut is best made using several concentric circles around the coax with the sharp knife. Use care not to cut or nick the braid underneath.
9. Remove the outer jacket...it may be necessary to cut the jacket length ways of the coax to facilitate removal. Do not cut the braid underneath. Inspect the braid for cuts or nicks.
10. Fan the braid slightly and fold it back over the cable toward the UG-176. Assure the braid is even with equal spacing between strands.
11. Slide the UG-176 toward the coax end until it is under the braid and flush with the end of the outer jacket. Assure the braid strands are evenly spaced around the circumference of the UG-176. Using scissors trim the braid leaving 3/8" over the UG-176.
12. Using a knife cut the inner foam insulation 5/8" from the coax end. Remove the foam and inspect the inner conductor for nicks and cuts.
13. Carefully tin the inner conductor. Do not to overheat it. Avoid lumps of solder on the conductor.
14. Carefully slide the inner portion of the PL-259 over the coax end. Assure the inner conductor slides into the inner tip. Inspect for loose or stray braid ends.
15. Carefully screw the UG-176 adapter into the inner part of the PL-259. If it binds the braid is catching in the screw threads. If so unscrew the UG-176, trim or rearrange the braid and reassemble. Several strands of braiding should be visible thru each of the four holes.
16. Mount the connector end in a vise with the cut out end of the tip facing toward you and up about 45 degrees.
17. With the soldering iron tip make solid contact with the connector tip and the inner conductor inside. Flow solder into the inner part of the connector tip after 5-10 seconds. Use only 3/8 to 7/16 inch of 1/16 inch diameter solder...more may run inside and melt the inner foam or cause a solder bridge. Inspect the inner and outer portion of the tip. The inner part should have no voids and the outer part should not have solder lumps.
18. Place the tip of the soldering iron (totally heated) in one of the four side holes facing you. Assure it has good contact with the rim of the hole and if possible contacting the braid and UG-176 inside the hole. Allow 10-15 seconds for heat to transfer from the soldering iron. Flow solder onto the tip of the iron and into the hole. With proper heat about 3/8 inch of 1/16 inch diameter solder should be sufficient. Excessive heat may damage the coax and inner parts of the connector.
19. When finished applying solder visually inspect your work without touching the connector. Large solder lumps and solder on the screw threads are not acceptable....there should be even flow around and in the hole with a slight dimple showing the hole outline.
20. Reposition the connector in your vise making another hole visible for soldering.
21. Repeat steps 18-21 above until all four side holes are soldered.
22. If you feel you need to remove solder flux use alcohol (preferable denatured) sparingly with a cotton swab.
23. With an ohmmeter check for no continuity between the center pin and outer shell. Screw the outer shell onto the connector. If it doesn't screw on easily there is probably solder in the threads.
24. Evaluate your work. Is it good enough for YOUR shack. What can you learn from it? If it is good work be proud of it and enjoy the fast disappearing art of hand soldering your own projects.