

Soldering PL-259 Connectors to RG-8/U and RG-213

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. Using a drill bit, small bladed screwdriver or small round file, remove the plating material inside and immediately around each of the four holes.
5. Using a small amount of diluted liquid detergent wash both parts of the PL-259. Rinse thoroughly and dry. This process removes oils and other foreign material.
6. Slide the outer shell of the PL-259 connector over the coax end and several inches up the coax. The knurled end must be toward the end of the coax.
7. Measure ¾ inches from the end of the coax. With a sharp knife cut through the outer jacket of the coax, the inner shield and through the inner insulation to the inner conductor. The cut is best made using several concentric circles around the coax with the knife. Use extreme caution not to cut or nick the inner conductor.
8. Remove the outer jacket, braid and inner insulation....it may be necessary to cut each length ways of the coax to facilitate removal. Inspect the inner conductor for cuts or nicks.
9. Measure 5/8 inch back from the coax end. Carefully cut the outer jacket using concentric circles. Do not nick or score the braid.
10. Sparingly tin the exposed inner conductor. Do not allow solder to build up or lump on the conductor.
11. Again, sparingly tin the braid. Do not allow solder to build up or lump on the braid.
12. If there is ANY build up of solder use a small file and carefully remove all excess solder. Do not file hot solder. It will fill in the grooves in the file and decrease it's usefulness.
13. In order to fit inside the inner connector part the braid must be tight against the inner insulation and have not rough edges, lumps or protrusions.
14. Carefully slide the inner part of the PL-259 over the coax end. Assure the inner conductor slides into the inner tip.
15. Carefully screw the inner part of the PL-259 onto the coax cable. You will need to hold the coax very tight and may need to use a quality pair of pliers to screw the inner part onto the coax. Use a soft cloth in your hand to grip the coax. Do not use a vise to hold the cable. It most likely will be crushed.
16. If the inner part binds the braid is catching inside the PL-259. This is caused by the braid not being tight on the inner insulation, lumps of solder on the braid or the braid being out of round. Unscrew the inner part from the coax and check for and correct these conditions.
17. After successfully screwing the inner part of the PL-259 onto the coax mount it in a vise with the cut out end of the tip facing toward you and up about 45 degrees. Do not over tighten the vise.
18. With the soldering iron tip make solid contact with the sides of one hole in the inner part. Flow solder into the inner part of the hole by touching the solder to the soldering iron tip after about 10-15 seconds depending on the temperature and mass of your soldering iron. After 15-20 seconds you should be able to flow solder into the hole by touching the solder to the surface immediately adjacent to the soldering iron tip.
19. Repeat steps 17 and 18 for the remaining three holes in the inner part of the PL-259. Use extreme caution and especially with the remaining holes that the PL-259 is not over heated. Allow at least 45-60 seconds for cooling between soldering each hole. Excessive heating will cause solder bridges and /or melting of the inner or outer insulation causing electrical shorts.
20. When finished applying solder visually inspect your work without touching the connector (it's hot). Large solder lumps and solder on the screw threads are not acceptable. There should be even flow around and in each hole with a slight dimple showing the hole outline.
21. Touch the tip of the soldering iron to the junction of the pin and inner conductor at the end of the PL-259. After a few seconds touch solder to the junction. Flowing excess solder into the junction will cause a solder bridge between the inner conductor and braid. Do not allow solder to lump or build up on the outside of the pin. If it does allow it to cool and use a small file to remove the excess. With wire cutters remove any of the coax center conductor protruding beyond the end of the center pin of the PL-259.
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.