

Antenna mount for the ICOM LC-156 backpack

One of the favorite pastimes when operating QRP mode is to make contacts in the PM (Pedestrian Mobile) mode. That means carrying the QRP rig in a self contained backpack which includes the radio, battery and antenna plus any other accessory items you may want to have with you in the field.

When ICOM introduced the IC-703 QRP radio they also designed a backpack that makes it easy to operate PM mode. This backpack is known as the LC-156. The one feature I felt they left out in their design was a convenient means of attaching the antenna securely to the backpack. This article describes my design for a framework to mount the antenna on that can will attach to the LC-156 backpack with the Velcro straps already built into the backpack.

Overview:

The framework is made with ½ inch copper tubing, a common truck mirror antenna bracket, Quick Disconnect for the antenna and requires a bit of soldering. All of the parts are readily available at the hardware store and your favorite ham radio store or many of the truck stop stores that sell CB radio items. The antenna mirror mounting bracket can also be found at some Radio Shack Stores. You may already have some of these items in your junk box.

The parts list is as follows:

- Two pieces of ½ inch copper water pipe 14 ½ inches long.
- Four pieces of ½ inch copper water pipe 5 ¼ inches long.
- Four 90-degree ½ inch copper elbows.
- One ½ inch copper “T” adapter.
- One ½ inch to ¾ inch copper “T” adapter.
- One ¾ inch copper cap.
- One 5-inch ¾ inch piece of copper water pipe.
- Solder
- Propane torch
- Your choice of antenna mirror mount bracket that will mount vertically to the ¾ inch piece of water pipe. The Antenna Mounting bracket should be the type you can screw a PL-259 connector on at the bottom.
- One Hustler QD-2 Quick Disconnect antenna adaptor. Other brands of Quick Disconnect adaptors will work too.
- One 5 foot piece of ½ inch copper water pipe.
- A 3-foot piece of RG-58 coax cable with a PL-259 connector on each end.

Construction:

If you have experience using a propane torch to solder copper pipe, this project will be fairly easy to build. If not, work slowly and try not to use too much solder on the joints. Do not overheat the pipe and be sure to clean the pipe with steel wool before connecting and soldering. Do **NOT** use acid core solder. Remember, you will be using an open flame when soldering so have good ventilation and stay away from flammable materials near where you are working. Allow the pipe plenty of time to cool and do not blow on the pipe to cool it. Heat the pipe with the flame, then remove the flame and try melting the solder by touching it on the copper pipe. The solder will flow easily if the pipe is hot enough. Do not melt the solder with the flame. Be careful not to burn yourself. If you cannot handle this type of soldering, find a friend with this type of experience to assist you.

Start by soldering a 90-degree elbow on each end of the 14-½ inch pieces of ½ inch copper tubing. Be sure to keep the elbows in alignment with each other. Next solder two of the ½ inch by 5 ¼ inch copper pieces to the ½ inch “T”. Keep the pieces in alignment with each other to form a straight piece approximately 10 ½ inches long with the remaining part of the “T” open. You will not solder any pipe to this open hole.

Next, solder the remaining two pieces of ½ inch by 5 ¼ inch pieces of copper tubing to the ½ inch to ¾ inch adaptor in the same manner as the first. This will give you two pieces with a “T” that will be 10 ½ inch long. Solder the 5-inch piece of ¾ inch pipe to the “T” followed by the ¾ inch cap on the end.

Finally, solder the two 10 ½ inch pieces to the elbows on the 14-½ inch pieces to form a rectangular framework. Be sure to keep all pieces in a flat alignment with the ¾ inch piece of pipe pointing outward from the framework and the open hole on the ½ inch “T” pointing outward in the opposite direction.

Allow the framework to cool and then clean up your work if necessary to end up with a clean metal framework. If you like you can paint the framework to match the backpack at this point. I painted mine with gloss black spray paint.

Mount the Mirror mount antenna bracket along with the Quick Disconnect adaptor on the ¾ inch piece of pipe. Mount the framework on the backpack by using the 6 supplied Velcro straps on the pack. This should mount the framework securely on the pack and provide a bit of a counterpoise effect too. You can modify the framework by adding a bolt somewhere on the framework with a wing nut for attaching a trailing wire to for added counterpoise effect if necessary.

Connect the coax cable between the antenna mount and the radio and then connect your favorite antenna. The Quick Disconnect allows you to remove the antenna easily for moving in and out of buildings, cars and other tight places. The added weight of the copper framework is fairly small but adds a very solid feel for mounting the antenna.

The open ½ inch hole on the “T” at the bottom of the framework is for temporary mounting on a 5 foot ½ inch copper pole at a campsite or field day site. The 5 foot piece of pipe can be pushed into the ground and the antenna framework can be removed from the backpack and set on top of the 5 foot piece of pipe. If necessary, you can cut some ground radials and mount them at the base of the antenna and make the antenna more efficient for base operation.

I use the MP-1 antenna from Superantennas and have had good luck with this arrangement. The built in tuner on my IC-703 plus allows me to operate efficiently and get a good SWR match for the radio.

The attached pictures will give you an idea of how the finished framework should look before painting and after painting.

Good luck and have fun building this project.

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