Pacific Antenna 20/40-Meter Trap Dipole Kit

Reviewed by Mark Wilson, K1RO
k1ro@arrl.org

The Pacific Antenna 20/40-meter trap dipole kit offers a lightweight, inexpensive solution to adding those bands to a portable station. The antenna is rated for up to 100 W, and the finished length is 51 feet. (In addition to isolating the center section of the antenna for 20 meters, the traps provide some loading, which shortens the overall length from the typical 66 feet for a half-wave 40-meter dipole. Traps are discussed in detail in the "Multiband HF Antennas" chapter of the *ARRL Antenna Book*.) Pacific Antenna offers another version of this antenna for 17 and 30 meters.

Building the Kit

The kit includes everything needed to build the antenna — 75 feet of #24 AWG stranded wire, a center insulator and BNC jack, end insulators, and materials to make the traps. You just add some small-diameter rope to hang the finished antenna and a feed line. You'll need a tape measure, something to cut and strip wire, and a small soldering iron. It only took me an hour to put it all together.

Following the detailed and well-illustrated instructions, the first step is to cut the wire into six pieces (two of these will be used to wind coils for the traps). Then build the traps and do the final assembly.

Bottom Line

The Pacific Antenna 20/40-Meter Trap Dipole Kit is easy to build and results in a lightweight, portable antenna with good coverage of the 20- and 40-meter bands.

Each trap is made with a narrow PC board and a plastic coil form. Solder two small capacitors to the PC board, then wind the coil on the plastic form. I found that the number of turns on the coil worked out perfectly if you cut the wire to the specified length and wind the turns tightly. With the capacitors soldered to the PC board, slide the board inside the coil form, and solder the coil wires and antenna wires.

Once you've tested the finished antenna and it's working as expected, the traps will be covered with supplied heat-shrink tubing. The tubing is fairly thick, so I borrowed a heat gun to shrink it. Figure 14 shows a finished trap.

The center insulator is a piece of PC board material with holes and solder pads for securing a BNC connector and the antenna wires, as well as a hole at the top for a support rope (see Figure 15). The end insulators are just short pieces of the same plastic material used for the coil forms. According to my postal scale, the assembled antenna weighs just 4.5 ounces.

In the Field

I tried the trap dipole as an inverted **V** during portable operations at several local parks. I hung the center insulator from a 20-foot collapsible mast secured to the trailer hitch on my vehicle and fed the antenna with 50 feet of RG-58 coaxial cable. Rather than drive stakes into the ground, I added lightweight rope to the end insulators and tied the rope to 1-gallon beverage containers filled with water. The antenna is so light that it doesn't take much to hold it in place.

I swept the antenna system with an antenna analyzer. On 40 meters, the minimum SWR was 1.1:1 at 7.110 MHz, and it covered 7.015 to 7.210 MHz with SWR of 2:1 or less. On 20 meters, the low SWR point (1.1:1) occurred at the bottom of the band, with SWR rising to about 2.6:1 at the top of the band. Although I could have shortened the 20-meter section to move the low-SWR point higher in the band, I left it alone. The SWR curve would likely change somewhat in other portable installations, and the antenna tuner in my transceiver allowed operation throughout the bands.

In previous portable operations, I typically used short-loaded vertical antennas on my vehicle. In addition to having to change antennas to change bands, those antennas have a narrow SWR bandwidth and usually require adjustment of the whip on top when switching between the CW, digital, and phone segments of the bands. I enjoyed the wide SWR bandwidth of the trap dipole and the convenience of changing bands or band segments without adjusting the antenna. I had no trouble making plenty of contacts on both bands from several local parks.

Figure 14 — A finished trap covered with heat-shrink tubing.

Figure 15 — The feed line connects to a BNC connector on the center insulator. The PC boards used for the center insulator and traps have additional holes for routing the antenna wires to avoid stressing the soldered connections.

Although I didn't have much difficulty packing and unpacking the antenna when switching parks, I ended up using a couple of plastic rope winders to store the antenna when not in use.

Manufacturer: Pacific Antenna, P.O. Box 10301, Fayetteville, AR 72703; **www.qrpkits.com**. Price: $25 plus shipping.

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