

10 Meters Lives!

Don't let the sunspot cycle fool you.

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Have you tried 10 meters lately? I know, I know. We're at or near the bottom of the sunspot cycle and 10 meters is useless—or is it?

I've been finding this band opening up frequently. It often opens from the late morning through the afternoon. I've also found it open occasionally to as late as 10:00—at night! One recent Saturday evening I got on 10 meters at 8:00 p.m. and worked K2YJL/mobile in Kentucky running a Uniden 2510, NØKXL in Kansas running a Uniden 2510, and KF4BGR in Florida running an Emperor TS-5010. K2YJL told me he has confirmed 170 countries over the past two or three years operating mobile with his Uniden 2510 and Hamstick™ antenna! I suspect that 10 meters has *always* had openings, even during lows in the sunspot cycle. Most rigs nowadays have scanning capability. Go ahead and put your radio on scan so you'll find out when the band opens.

Incidentally, the belief that 10 meters is dead has resulted in some great deals on the above-mentioned rigs. To give you a personal example, I recently traded an unused microphone for a mint condition HTX-100!

OK, you've scored that 10-meter rig from a less-than-savvy, but happy, previous owner (he thinks *you* got the short end of the deal). Now you need an antenna or two to get going.

For 10-meter base station operation, I recommend a high horizontal antenna. I've found that a high horizontal antenna usually outperforms a ground-mounted vertical or ground plane antenna by several S-units.

Recycle that, good buddy!

Look for used CB antennas at hamfests. A dipole made from two slightly shortened CB whips back-to-back at 20-25 feet up in the air will do a great job. For the dipole center, use a

PVC "T" attached to the top of a PVC or aluminum mast attached to your chimney with a cheap hardware-store chimney mount.

To attach the CB whips to the PVC "T," use PVC reducers and 1/8-NPT brass adapters as shown in **Fig. 1** (all available from your local hardware store). As it turns out, 1/8-NPT is the same as a slightly tapered standard 3/8 x 24 antenna thread. You can chase the 1/8-NPT threads with a 3/8 x 24 tap but this isn't really necessary unless you'll be screwing and unscrewing the elements frequently.

Pick the "T," reducers, and adapters to fit your mast. The 3/4" PVC "T" shown has an inside diameter of one inch, because it must pass over the one-inch outside diameter of 3/4" PVC pipe and so it will take a one-inch OD aluminum mast. The CB whip bases screw directly into the 1/8-NPT thread.

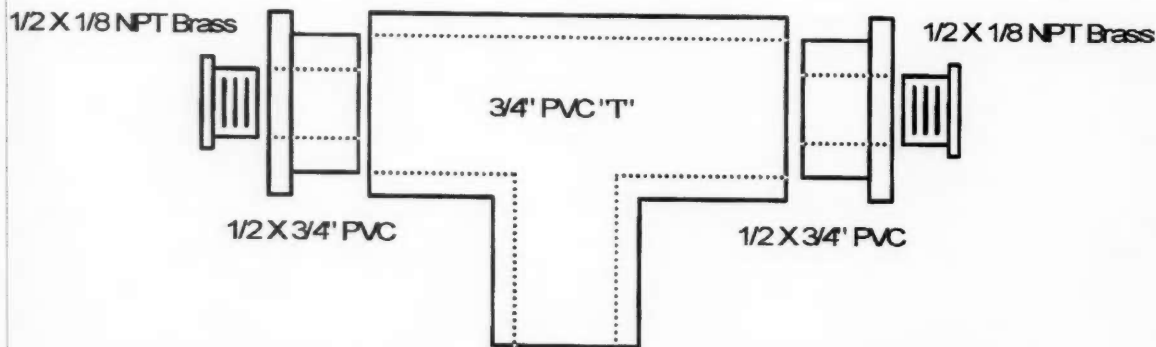


Fig. 1. Dipole center piece.

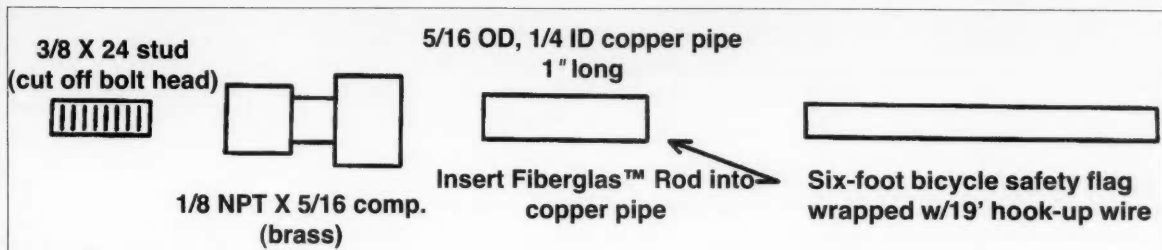


Fig. 2. Mobile antenna details.

To attach your coax, drill and tap holes in each of the brass adapters to take a #6 brass screw. Attach a solder lug to each adapter with brass screws (use brass or copper lockwashers). Solder the shield to one solder lug, and the coax center conductor to the other solder lug.

Alternately, you can just drill a small hole in each brass adapter and solder a wire to the hole to use as the connecting point for your coax (solder to the brass adapters *before* they are mounted in the PVC, or you'll have a melted PVC mess on your hands!).

If you're a real purist, you can also add a balun, but that's not really necessary if your coax exits the antenna at right angles and stays that way for a while.

Goin' mobile

When you're shopping for those used CB antennas for your base station dipole, think about a *third* CB whip for your car. Operating mobile will add another exciting dimension to your ham fun. The Uniden, Radio Shack, Lincoln, Emperor, etc., rigs are all small enough to fit easily in all cars. My Uniden 2600 mounts vertically on the transmission hump in my Geo Metro and causes no problems to the passenger (normally the ever-critical spouse). Incidentally, the CB antennas need to be shortened about four to five percent to put them on 10 meters. An MFJ or Autek SWR analyzer will permit you to get everything perfect in an amazingly short time!

Mobile antennas for 10 meters can be made inexpensively by shortening CB antennas as mentioned above—but you can “roll your own” low profile (six feet) 10m mobile antenna for even less!

As you can see in Fig. 2, a mobile antenna can be built from a 6-foot Fiberglass™ bicycle safety flag (around \$3 at discount stores), 19 feet of #22-24 hookup wire, a one-inch-long piece of 5/16" OD (1/4" ID) copper pipe, a 1/8-NPT x 5/16 compression brass adapter, a 3/8 x 24 bolt, and some 3/8" heat-shrink tubing.

To build this antenna, solder one end of the hookup wire to one end of the one-inch-long copper pipe. Put some epoxy on one end of the Fiberglass rod and slide this end of the rod into the copper pipe. Next, insert the copper pipe into the 5/16" compression fitting

“Operating 10m mobile will add another exciting dimension to your ham fun!”

and tighten. Screw a 3/8 x 24 stainless-steel bolt into the 1/8-NPT end of the brass adapter and tighten securely (the 1/8-NPT tapered thread makes a nice interference fit). Cut off the head of the 3/8 x 24 bolt and file off the rough edges as necessary so it will screw into a 3/8 x 24 mount. Now, wrap the wire evenly around the whip and hold the end of the wire in place temporarily with masking tape. Mount the antenna on your car and check the resonant frequency with your SWR analyzer.

If the resonant frequency is too low, you can either remove some wire or compress the turns at the top of the antenna. If the resonant frequency is too high, compress some turns around the center of the antenna. With just a little effort, you can adjust the turns and turn spacing to resonate this antenna right where you want it. Incidentally, the SWR at resonance will probably be around 1.5:1. Since most radios aren't bothered by a 2:1 SWR and the cable

loss will be negligible, you really don't need to worry about this “high” SWR. However, if you want a perfect 1:1 SWR match, connect a 25 pF 500 WVDC silver mica capacitor from the base of the antenna to ground. Make sure you make the antenna adjustments with the capacitor in place.

When the antenna resonates where you want it, add a few pieces of heat-shrink tubing along the length of the antenna to hold the wire in place. You now have a flexible, low profile, and low wind resistance 10-meter mobile antenna for less than \$7! This same method works for other frequency band antennas, too.

I turned my Uniden 2600 into a dual-band 10- and 12-meter rig by adding the Chipswitch™ to it, so I also needed a 12-meter mobile antenna. The Chipswitch (available from Chipswitch, 4773 Sonoma Hwys, Suite 132, Santa Rosa CA 95409-4269, FAX 707-539-7571 or phone 707-539-0512), permits continuous operation between 24.5 and 30 MHz for Uniden and Lincoln 10-meter rigs. For my 12-meter mobile antenna, I started with 20 feet of wire and was easily able to get the antenna to resonate in-band.

I also built a 15-meter mobile antenna which required 25 feet of wire. For frequencies below 10 meters, the base matching capacitor becomes more important for keeping the SWR reasonable. I needed 50 pF on 15 meters for a 1:1 SWR.

Ten meters is not as dead as many folks think—and it's easy (and inexpensive) to get on the band. I've given you some hints on obtaining inexpensive 10-meter rigs, and information on building inexpensive base and mobile antennas. When the sunspots finally start to appear, you'll have a head start on all the fun.