

## Hamstick Dipole Is A Practical and Portable Limited-Space HF Antenna

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When setting up portable or space restricted antennas, stand-alone mobile whips are often avoided due to the lack of a good grounding method. Stringing ground radials or using a ground rod in the field or the attic becomes increasingly difficult. While using one mobile whip by itself requires a good ground or counterpoise (usually the car body), a pair can be operated as a dipole. Lakeview ([www.hamstick.com](http://www.hamstick.com)) makes a universal dipole mount for \$13.95. They also supply quick-disconnect fittings with 3/8" X 24 threads which allow push-and-twist assembly of the mobile whips to the dipole mount within seconds for those of us wishing to make a quick setup or band change without tools.

Pro-Am makes Valor HF linear loaded whips that disassemble in half using a single threaded nut. This has the advantage that tuning adjustment is not lost when the antenna is disassembled. Hamstick whips have two small set screws that must be loosened to remove the stinger portion. Both brands cost about \$24 per whip. The eight-foot whip disassembles to two four-foot pieces. Each whip is designed to cover one amateur band and can be adjusted from the phone to the CW sub-bands by changing the stinger length.

The 2:1 VSWR bandwidth is narrower on the lower bands since the whips are proportionally smaller compared to the longer electrical wavelengths. The 20-meter whips measured about 100 kHz, the 40-meter at 40 kHz and the 75-meter about 20 kHz. If your HF rig has a built-in tuner, the useable frequency span approximately doubles without significant loss of antenna efficiency.

An on-the-air comparison was made between the portable whip dipoles up 20 feet and half-wave dipoles for 40 and 75 meters. On 40 meters, two whips were about 1-1/2 S-units (about 10 dB) below the half-wave 40-meter dipole. Two 75-meter whips were almost three S-units (about 18 dB) below a half-wave 75-meter dipole (no wonder, since a 75-meter half wave dipole is 130 feet compared to the 16 feet of the two whips). On 20 meters, we were surprised to see only about one S-unit (6-dB) difference from a G5RV dipole antenna. Getting the portable whip dipole higher than 20 feet would also improve efficiency on the lower bands.

This portable dipole system was used to make contacts with European Russia on 20 meters from a condo in San Luis, CA as well as by Ed to San Juan Puerto Rico, Prince Edward Island and Mexico City from the Pentagon south parking lot in Washington, DC during the 2000 Marine Corps Marathon.

A pair of Radio Shack 10-foot TV mast sections supported my antenna parallel to the plastic rain gutter on the corner of the house. Bungee cords were used to hold it in place. Raising and lowering the antenna and masts to change bands can be done by one person, but two make the job easier when the wind is blowing.

Ed uses four 5-ft. mast sections for ease of storage in a vehicle. He recommends that whips all be equipped with quick-disconnects, be color-coded by band and stored with a 4' ground rod in capped 3" diameter PVC pipe. RACES may need to set up in a paved area such as an EOC parking lot. To do so bolt a folding 3-ft. TV roof tripod onto a triangular support frame constructed of three 5' pieces of 1" angle iron, using 1/4-20x3" bolts and wing nuts. Similarly attach a length of 2x6" across the open end opposite the TV tripod. Park a front tire of your vehicle on the board or place sandbags across it to provide wind stability. All stash easily in an SUV. With practice, you can erect the antenna in 5 minutes!

A variation provides dual HF band coverage with a single coaxial feedline. Two hamstick dipole mounts were bolted together with their center-isolated posts connected together using #12 gauge wire. Two sets of whips for 40 and 75 meters were assembled. Coax was attached to one of the mounts. There is minor interaction between the whips, although the #12 gauge wire looks slightly capacitive. Connecting the coax to the lower band dipole mount reduces the effect of the #12 gauge wire. A 25-foot length of coax was coiled at the base of the mast as an RF choke to reduce any stray RF from coupling onto the shield. The same could be accomplished by using ferrite beads on the coax feed near the dipole mount.

Either arrangement provides a viable, convenient, portable, horizontally polarized, high-angle antenna for NVIS operation on 40 and 75 meters. It is also a directional antenna on the higher frequencies, which is an effective performer for those who live in antenna restricted communities.

As with any transmitting antenna, be sure the radiating elements, especially the stinger end sections, are kept safely away from bystanders. 73