All About Those Lightweight HF Ham Whips

Easy mobile operating from 160 to 10.

by Gordon West WB6NOA

Operating mobile high frequency from 160 meters to 10 meters can be a real kick on your next vacation, or on a long commute into work. High frequency 100 watt mobile rigs have been scaled down to a size not much larger than an SSB CB rig. The Kenwood TS-50 is a good example.

If you are cramped for space on the dash, you could remote-mount the Yaesu FT-747, or surely find a spot behind the driver's seat for a microphone-controlled ICOM IC-728.

But newer vehicles may make it a challenge for a simple pre-tuned high frequency whip installation. The extra-thin metal bodies—and now composite bodies—could rule out the old ball-mount found on older-vehicle installations. Forget the bumper chain mount—bumpers are no longer metal. And the old standby gutter mount is now out of the picture because newer vehicles don't have gutters anymore!

But there is hope—with special thanks to antenna manufacturers Comet and Diamond. Their adjustable trunk-lip mounts will grab almost any tiny crevice of your newer vehicle, and they stay on securely with four strong Allen screws that clinch the inside of the groove. Look these mounts over carefully and find one that will work with your type of vehicle. You will find them hanging in clear vinyl bags in the antenna accessory section of your local ham radio store. Most dealers will also have a store sample that they may let you take outside to see how well it is going to work on your vehicle.

While these mounts are strong, you may wish to first start off your HF mobile system with an extremely lightweight, pre-tuned HF antenna whip. In other words, you may ultimately work your way up to a heavy Hustler, a heavy Outbacker, or some of the older very heavy whips from Swan or Webster—but start out "lightweight" first.

Extremely lightweight, one-quarter-wavelength, helical, center-loaded whips are always available at hamfests, seen hanging on a blister-pack card for any single ham band from 160 meters through 6 meters. One whip per band. Examples are:

- Lakeview WD4BUM mobile HF whips
- Valor Pro Am HF mobile series
- Wintenna Hamstick
- ASA Fiberwhips
- Anttron SingleBanders

There may be others, but each of these "different" lightweight whips share similar characteristics:

- Almost identical TX/RX performance as 8-ft. heavyweight whips.
- Incredibly lightweight—15 ounces for 17-meter whip.
- Hollow 4-ft. helical-wound Fiberglas shaft.
- Tunable 4-ft. stainless steel whip.
- 3/8" x 24 ferrule for trunk-lip or ball mounts.
- Low price—seen selling for under $19.95 each at ham shows.
- Change bands, change whips—30 second operation.

To test the "TX/RX performance" of these whips, we hooked up a solid-state transceiver—a unit *without* a built-in antenna tuner—to a professional heavy-duty, 50 ohm, five-position switch, going to the following station wagon roof-mounted antennas for an on-the-air comparison:

- Hustler 1/4 kilowatt, single-band whips
- Outbacker 6-foot whip
- Different manufacturers' Fiberglas/stainless whips
- Nearby house-mounted five-band trap vertical
- Cushcraft three-element beam

The beam always did best. The five-band trap vertical was second-best. The mobile antennas from all of the different manufacturers were certainly no match to the beam, but relatively close to the home-mounted 5 BTV.

When we tested between different mobile whips, including different Fiberglas/stainless whips, there was not one whip that did a whole lot better than the others, nor any one that was substantially down in the mud from the others. The 50 ohm coax switch allowed us to rapidly switch between the different antennas to get away from the typical band condition of up-and-down fading having nothing to do with the type of antenna being used.

Each manufacturer claims superiority over their competition, even though the whips may initially give equal performance.

"The Lakeview whips can take up to 600 watts, and even a kilowatt for a few seconds without going up in smoke," comments Butch at Lakeview. "I have never charged for a warranty repair, and we have never seen water pool in the shaft," adds Lakeview. An inherent problem with these whips could be moisture streaming down the outside of the stainless steel shaft, creeping into the hollow body of the whip, and pooling at the base like a rain gauge. The accumulation of water will dramatically change the base impedance, and could ultimately seep into the mount and cause problems down here. Lakeview claims this has never been a problem because of the tight fit of the tunable whip tip into the top ferrule.

"We use two set screws to keep our whip tip in place, rather than just one like the competition," comments Jeff at Wintenna. "We have made a lot of the antennas that are sold under other names," adds Wintenna. The Wintenna dual set screw doesn't require an Allen wrench to adjust—it is a slotted head, which means you have one less adjustment tool to lose in your mobile installation. We liked this. The Wintenna warranty is for a lifetime—a six-month free replacement,

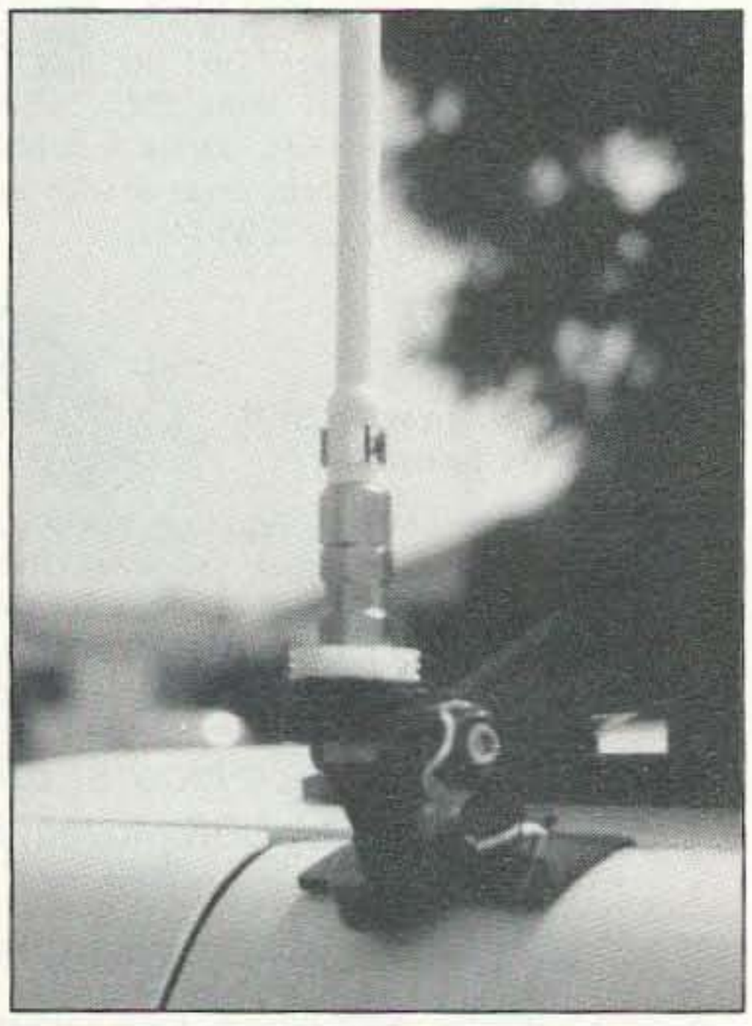

Photo A. The simple hatch mount will hold the lightweight whips on your vehicle.

Photo B. A capacity top hat extends the resonant points on a 40 meter antenna, so no tuner *is needed!*

and a 50 percent cost replacement thereafter.

Valor also makes their own HF mobile antennas, and they stress that their 20-gauge copper wire on a 3/8" Fiberglas rod with nickel-chrome-plated brass ferrules is superior to all of the other antennas out in the marketplace.

"The upper whip is 17-7 taper ground, stainless steel, and provides the user the ability to fine-tune the antenna by sliding the whip in a special ferrule until the desired resonant frequency is found," comments Gerry Stephens W8LLW, vice president of engineering at Valor.

"Our antennas are covered by a one-year limited warranty. If someone discovers a manufacturing defect, we will offer full replacement at no cost," adds Stephens. The Valor whips are rated at 250 watts PEP, but I have personally run them at 600 watts and haven't blown one up yet. Yes, the helical center-load gets mighty warm after about three minutes of high-power talking.

The Anttron HF whip seemed well-constructed, with the same gauge of helical windings that the other antennas have. The Anttron whips feature a single screw for securing the stainless steel whip into the shaft, and it takes an Allen wrench (supplied) for this simple adjustment.

The ASA "Fiberwhips" are made by Valor. They feature a screw-in top ferrule for pre-set tuning. In our tests, we found that we could use a single whip tip that would be interchangeable at its pre-set length to all ASA and all Valor whips down to the 40 meter band. On 75 and 80 meters, whip adjustment is an absolute necessity for all brands of whips.

"Our $17.75, less expensive, Fiberwhips have a one-year warranty from date of purchase, and the tapered top screw-in ferrule helps eliminate the problem of water seepage on the inside of the hollow shaft," comments Jim Wood of ASA. " . . . We suggest a small amount of Coax Seal or silicon flexible sealant for the top whip where it goes into the ferrule for anyone in a heavy wet-weather environment," adds Wood. Good advice—on any of these whips from all manufacturers, a little glob of something where the stainless steel whip goes into the shaft is a great idea.

Center-loading of these whips from all manufacturers—including a lazy helical wind-down to the base—offers good bandwidth at each band:

6 meters	1000 kHz
10 meters	500 kHz
12 meters	300 kHz
15 meters	200 kHz
17 meters	175 kHz
20 meters	150 kHz
30 meters	100 kHz
40 meters	55 kHz
75 meters	33 kHz
160 meters	12 kHz

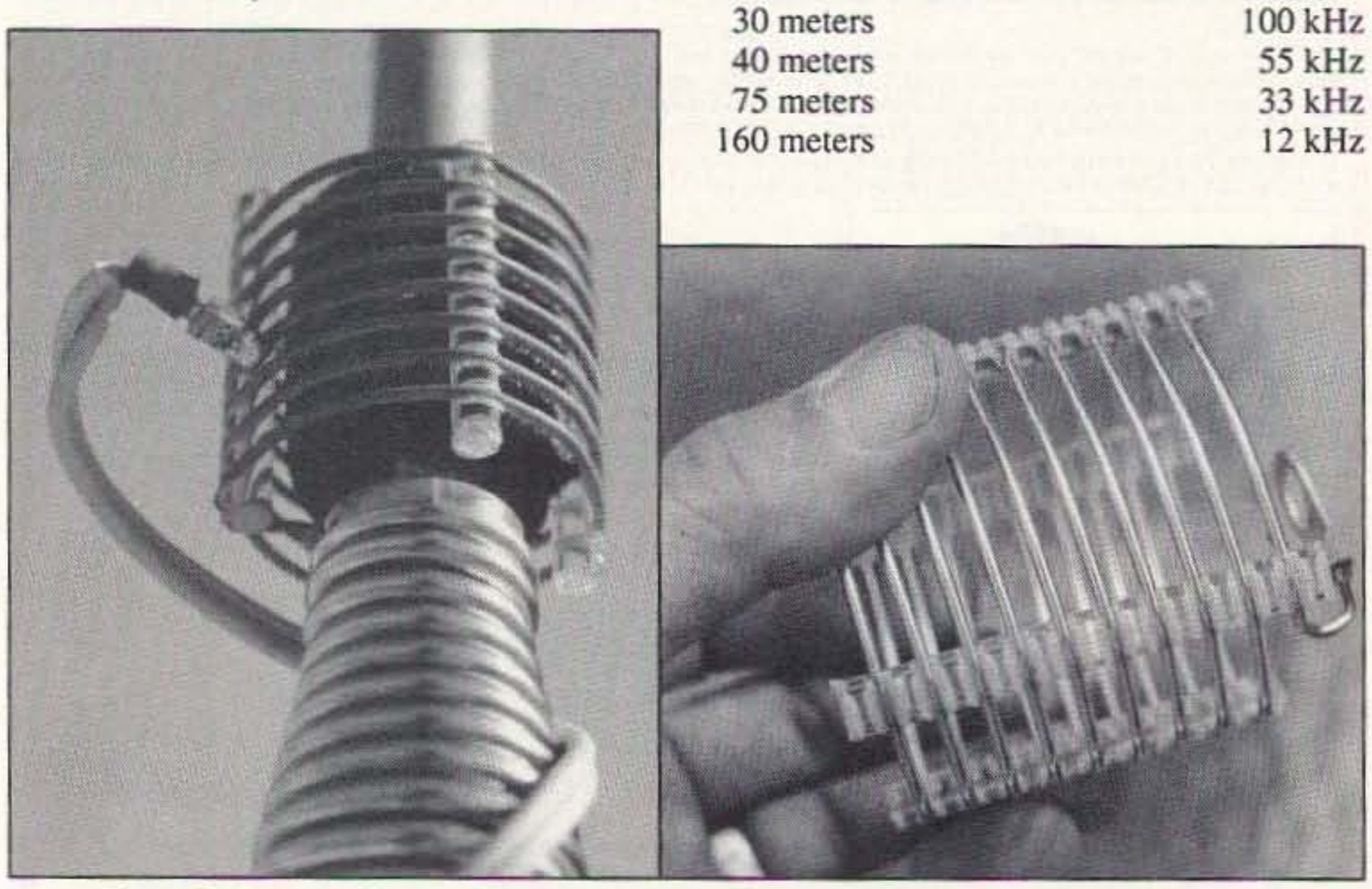

Photo D. It may take a coil to resonate the 75m and 40m whips on some vehicles.

Photo C. Seal this slip-joint to keep moisture from entering the hollow shaft.

We found that where we mounted the whip on our vehicle, 40 meters, 75 meters, and 160 meters made a *major* difference in how low the SWR would dip after fine-tuning the whip tip. In some cases, a disc capacitor in shunt with the feed point assisted in bringing the feed point impedance back up to a target 50 ohms. Valor includes some of these disc capacitors with some of their antennas.

In other cases, it took a coil from Antennas West to give us a better match on the lower bands. Newer transceivers with built-in automatic antenna tuners can also help resolve this mismatch problem between the antenna and feedline and the 50 ohm rig. While the built-in tuner doesn't solve the feed point problem, it will allow your radio to put out more power into a seemingly resonant load. Nothing beats working with an antenna bridge to define a feed point problem and resolving it by either relocating the feed point to another part of your vehicle, or working with coils or capacitors to bring the antenna into resonance.

So if you are looking for a cheap HF whip, take your pick from what is offered by these manufacturers. Some whips come in colors, too. But be sure to ask the seller how long they expect the colored plastic jacket on the outside of the whip will last. Some whips won't make it through the summer exposed to the sun every day. Yet, others may go through several years of hot and freezing before the plastic ultimately begins to crack and peel off. And when that happens, you can either "roll your own" for a re-wrap, or toss it in the trash can and buy another one for under $20. With this type of whip, you get great value at an incredibly low price. 73