HINTS & KINKS

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GO PORTABLE WITH AN MFJ-1775 ROTATABLE MINI-DIPOLE

When MFJ introduced its rotatable, half-wave horizontal mini-dipole for 40, 20, 15, 10, 6 and 2 meters designed for home use, I immediately thought, "RV and portable operation?" So I purchased one and was entirely pleased. It's rugged and lightweight, has lower ground loss than quarter-wavelength mobile antennas, exhibits lower noise than a vertical, has moderate directivity, is capable of full legal power and is small enough to use on a recreational vehicle (RV). These are big advantages compared to what many hams employ for RV and portable operation.

Basic Concept of the Antenna

The fundamental design of the antenna is technically sound and offers better performance than most ham antennas seen on RVs. For the HF bands it consists of four shortened end-loaded dipoles on a common boom. Six and 2 meters are included as a fan dipole.

The MFJ-1775 loading coils are stacked end-on-end on the same boom and top whips are replaced by capacitive hats made up of four short radials. A metal strap on the side connects the bases of all the loading coils together. Now, when RF is applied to the antenna, the currents "ignore" all but the one pair of loading coils and capacitive hats that bring the antenna to resonance on that frequency. The others appear as high impedances; that is, essentially switched out of circuit. My own experience bears this out. There is only modest interaction between bands

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There was, however, a problem. For RV use, the antenna is awkward to transport fully assembled. I had to perform constant assembly and disassembly on my first trip. It wasn't because the antenna was too large; it was because the capacitive-hat radials just "stuck" out inconveniently in all directions. But the solution was easy: I bent the radials at right angles near the boom. Now I can easily rotate them in against the boom for transport or storage (Figures 2 and 3). This configuration also makes fine tuning easier. Rotate the radials on any band toward the others and the tuned frequencies will decrease.

I wasn't sure if bent radials would disturb the tuning too much, so I first assembled the antenna with the unmodified parts as supplied and then compared the resonant frequencies, before and after bending, with an MFJ-259 Standing Wave Ratio (SWR) analyzer. I mounted the antenna on a 6 foot wooden ladder over average soil out in the clear. In the worst case, 10 meters, the resonant frequency increased by 600 kHz, easily within the tuning range afforded by trimming radials as supplied.

To bend the radials, use pliers to grasp each radial while installed on the antenna and make a right angle bend roughly 1/2 inch from the outer edge of the center mounting ring (Figure 2). The exact distance isn't critical, but do not bend right at the ring. This little extra space is necessary to let the radials remain clear of the aluminum strap that connects the loading coils together. Then trim the now-bent radials to bring each band to resonance, following the guidelines in the brochure. These work well and my bent-radial version performs as advertised on my RV.

As modified, I have found it to be the best of many RV antennas I have ever used. It is also a good choice for Field Day and portable situations. As a home antenna, it is not much larger than a TV antenna. The neighbors may not even notice it.

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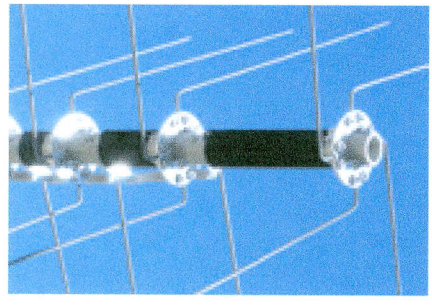

Figure 2 — Put a right angle bend in the radial about a ½ inch from the mounting ring.

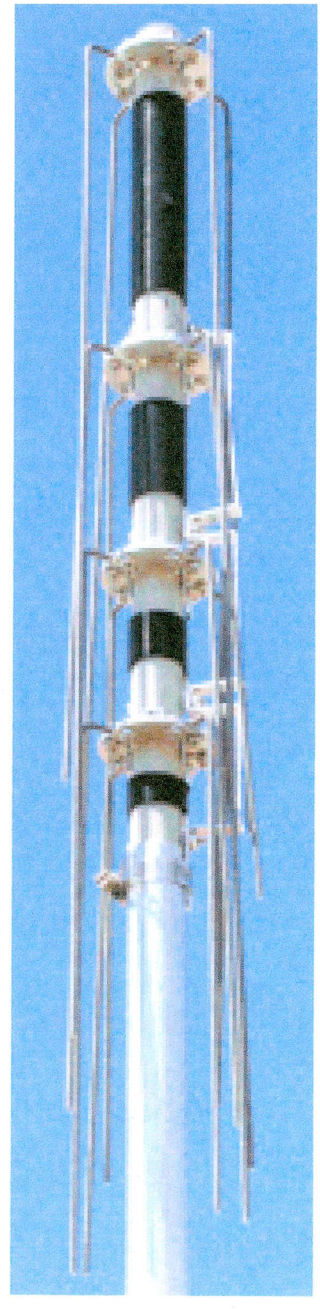

Figure 3 — View of radials ready for stowing.