

# Four-Band Mobile Antenna

— looks like a weird hat rack

Do you ever find yourself cruising down the highway working forty meters and wishing you could switch to twenty, fifteen, or ten without having to stop to change resonators? You can! I experimented with this contraption in 1960 and have been using it ever since. There is even a commercial version that came out a couple of years ago.

Any set of three resonators may be used but I prefer the 40-20-10 combination since you also get a 15-meter fallout from it. When I first started using it with an old Galaxy V, I installed a remotely-operated

super-tuner gizmo in the trunk, but later found that with patient stinger adjustments on the three resonators, the tuner was not really needed. I am presently using an Atlas 210 for mobile, and the broadbanded rigs are supersensitive to swr over 1.5:1. I have worked many foreign countries with this rig with good signal reports.

The strap that holds the resonators must be of sufficient strength to prevent the angles of the forward and aft resonators from changing. Changing this angle affects the resonant frequency. The strap I hap-

pened to start out with was about one inch wide and 3 1/4 inches long. A hole large enough to accommodate the threaded extension on the mast is drilled in the center. (I happened to have had all Hustler equipment so that is what I have used since.) The other holes on each end are large enough to hold non-corrosive bolts that will screw into the bottoms of the other resonators. The strap is bent as shown with each end dropped at forty-five degrees. The assembly is attached to the mast and held in place by the center resonator, and the time-consuming tuning is started.

Begin with the lowest frequency resonator, adjusting to the lowest swr, then proceed to the next higher and then the last. The resonators interact, and this procedure must be repeated several times until the swr no longer can be improved. I have 1.1 at 7.260 and 1.35 at 7.225 and 7.295. On twenty meters, the swr is less than 1.35 across the band and even better on ten. The swr does peak up to 1.5 on fifteen meters. I use the ten-meter resonator to hold the

strap to the mast with the twenty-meter resonator in front and the forty-meter aft. This streamlines the assembly in the direction of travel and reduces wind resistance. Also, with the larger resonator aft, it tends to stabilize the assembly at normal highway speeds.

I have found that the majority of the noise associated with mobile reception can be eliminated by using the copper braid out of RG-8 coax as grounding straps and grounding the car hood and trunk lid to the frame of the car. In addition, the exhaust should be grounded in at least two places, one in front of the muffler and one aft. Be sure to scrape the rust off to bare metal when attaching the grounding straps. The braid can be cut to the desired length, the ends shaped to hold a bolt, and then heavily soldered to make a good connection.

Several of my ham friends around the country have built this antenna system over the years and have enjoyed it. I would be pleased to hear from anyone who tries it and of any ideas for improvement. ■

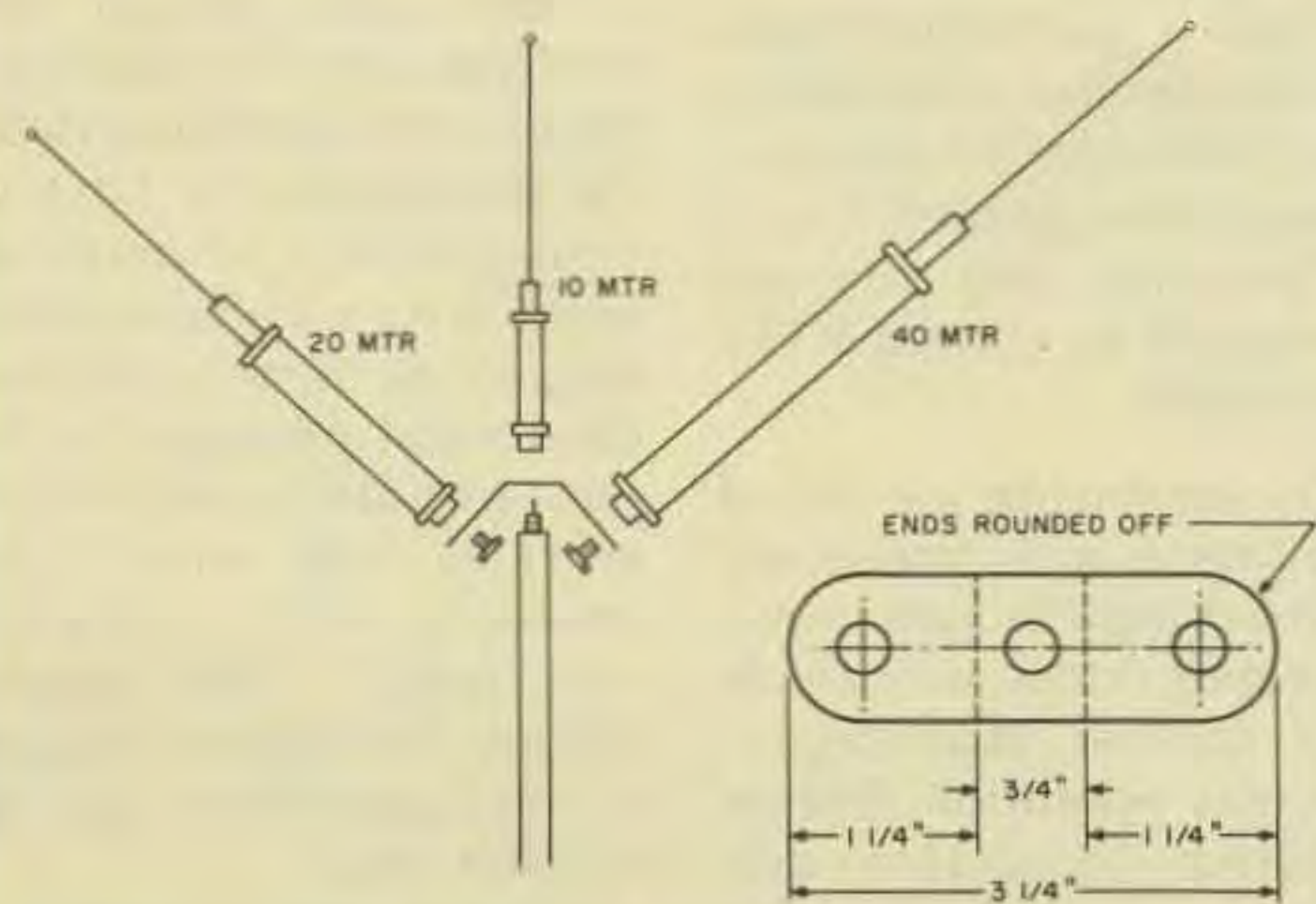


Fig. 1. Four-band mobile antenna construction details.