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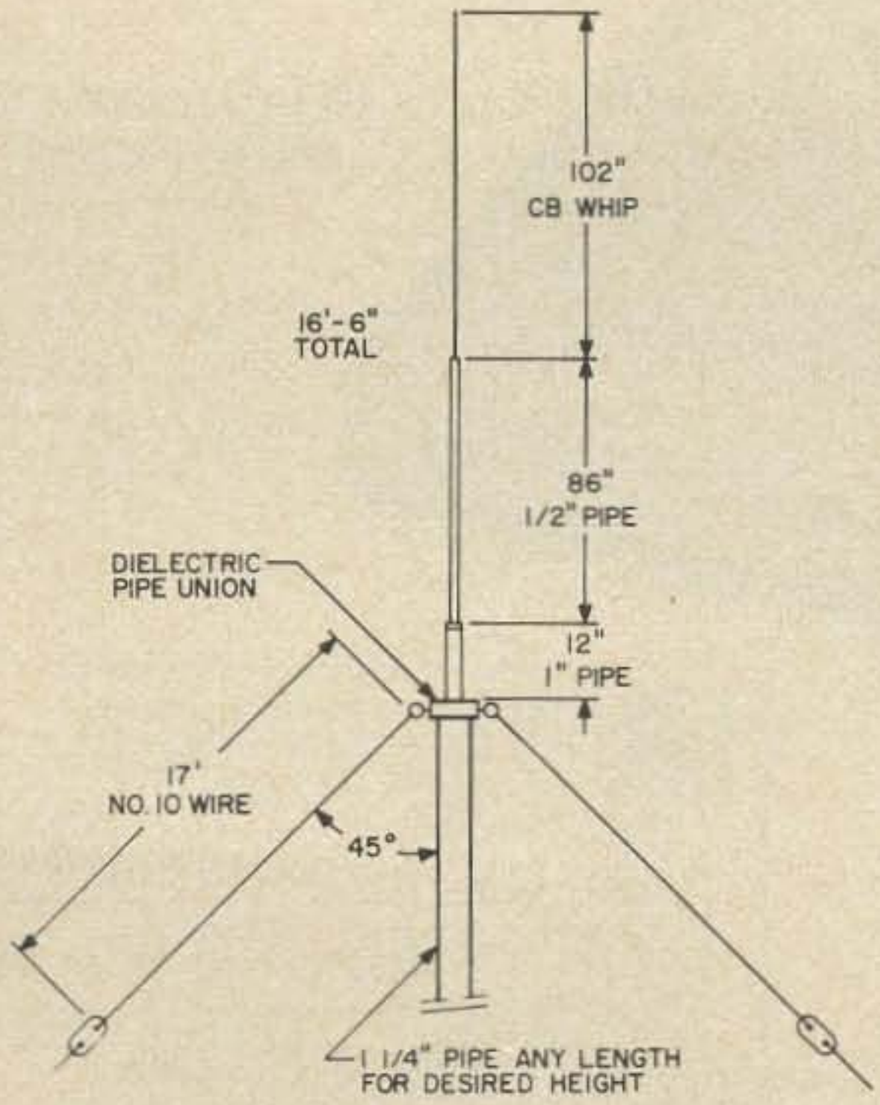
A MULTIBAND GROUND PLANE

The last time strong winds turned my homemade beam and removed the teeth from the rotor gears, I decided it *was* the last time. My financial situation would not permit procuring a good rotor, so an inexpensive homemade multiband ground plane seemed like the answer. Having had good luck with a water pipe as an antenna element and a dielectric pipe union as an insulator, I tried my luck at a plumber's ground plane.

The antenna is simple to construct, with a little plumbing ability or help. The top section is an old CB whip antenna. These are easy to come by. The whip is bolted to a one-half inch pipe cap by drilling a 3/8 inch hole in the center of the cap. This assembly is installed on an 86 inch section of one-half inch pipe. A coupler from one-half inch to one inch pipe is used to add the remaining 12 inch section of one inch pipe. The overall length of the vertical section is about 16 feet, but length is not critical.



LENGTH OF ELEMENTS NOT CRITICAL. FEED WITH 450 OHM OPEN WIRE FOR USE ON 10, 15, 20 METERS.

Prepare the dielectric union by welding four 3/16 inch eye bolts to it for attachment of the ground radials. I also added small eyes to solder the ends of the radials. Another small eye is welded or soldered to the base of the vertical section for the other side of the 450Ω feed line.

The mast itself is 1¼ inch pipe. The higher it is the better. The plane of the radials must be at least ¼ wave length above ground to be a true ground plane. The radials serve as guy wires and should be at a 45° angle to the mast. TV mast brackets were used to hold the mast to the house. The bottom end of the mast is buried and set on a steel plate. If you add some good all-weather paint, the antenna will stand for years.

By feeding the antenna with 450Ω open wire and using a match box and a swr indicator, this antenna will do a fine iob on 15, 10 and 20 meters. My SWR is less than 1.3 to 1 on these bands and the antenna can be used on 40 meters with an SWR of only 3 to 1.

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