

Having little space for an antenna can get you down. Here's a multiband antenna that will help you small lot owners enjoy your hobby a bit more. Read about it in W9CRC's article.

# A "Pipe Organ" Multiband Vertical Antenna

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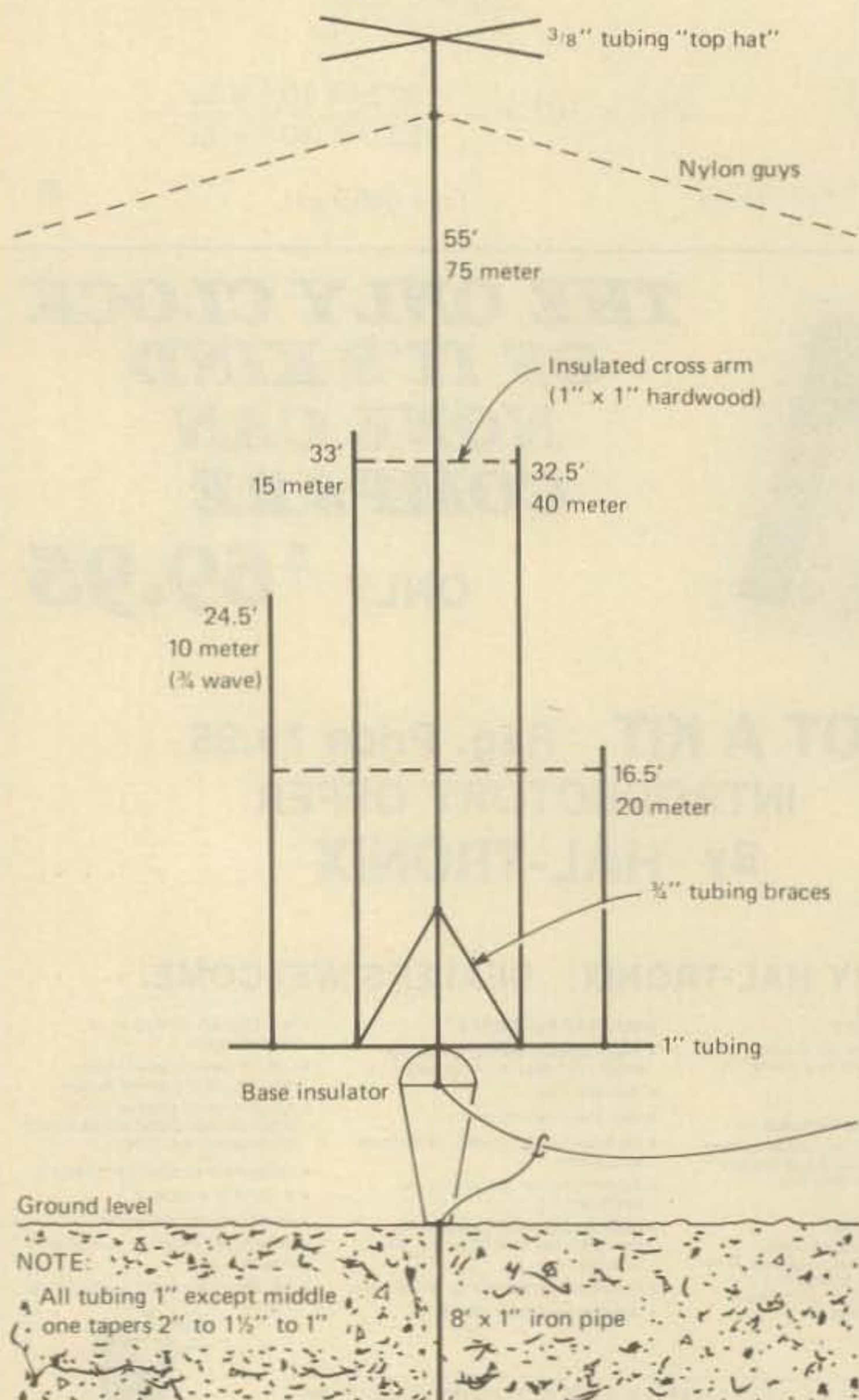


Fig. 1—W9CRC's "pipe organ" multiband vertical antenna.

I have had so many requests from QSOs for more information on this rather unique antenna that I felt some description was due, and perhaps others with limited aerial space, can take advantage of the idea.

There really is nothing mysterious about it but somehow my verbal descriptions over the air always seems inadequate. It's the old multi-frequency half-wave dipole fed in the center with a single coax lead, except I have used vertical quarter-wave elements and the ground reflecting the other quarter-wave.

The center antenna (75 meter) is the tubing from an old 14 AV trapped vertical. All antennas are quarter-wave except the ten meter and it is three-quarter wave. The dotted lines on the drawing represent insulated support cross arms and the tubing is held to the cross arms through hose clamps, left just loose enough to enable the tubes to slide up or down in the final resonant adjustment. The cross arm at the bottom of the system is 1-inch aluminum tubing and here again the verticals are fastened to it through hose clamps which may be loosened for adjusting up or down and then fastened securely when the antenna is in resonance. The little "inverted V" at the base is simply braces to support the cross arm and has nothing to do with the electrical characteristics of the system. The verticals are all eight inches apart but this figure is not critical. The cross arm is about eight inches from the ground level, and this is somewhat critical.

All antennas have excellent s.w.r. over the entire band with the possible exception of 75 meters and it was cut for 3.9 MHz. The s.w.r. rises slightly in the c.w. end of the band. The measurements on the drawing are arbitrary but may run slightly different in other systems depending on what point in the band you want resonance, adjacent objects, etc. I have about 100 buried radials running out from the base and they are of random lengths, depending where the curb is located. I also have a #6 copper wire from the ground system to the copper pipes in the basement. The antenna stands just at the end of the house gable and is supported at the apex (12' from ground) with an insulated bracket to the house. If no house is available I suggest a second set of nylon guys.

Advantages of the "Pipe Organ" ... well besides the obvious one of space requirements, ease of adjustment to resonance, no traps to blow out or hold rainwater, almost a perfect 50 ohm match and wide s.w.r. range across all bands. All that plus the advantage of angle of propagation. □