

The "No Antennas" Antenna

— a coaxial dipole is one woman's solution to problems with pesky landlords

Are you one of the unfortunate few who happens to be an apartment dweller ham? And is your landlord or apartment manager one who forbids outdoor antennas of any sort? If so, this article may be for you. The problem of erecting an antenna in a

"no antennas outdoors" situation is a tricky one, indeed. This limits one to indoor antennas, the logic being that what is not seen will not be noticed.

After experimenting with many different types of indoor antennas, all with disastrous results and much

TVI, I finally came upon a coaxial dipole suggested by a fellow ham friend. This antenna appealed to me because of its greatly attenuated harmonics, thus lessening the TVI problem. Unlike a conventional dipole, this antenna is very broadband, covering from 500 kHz to 1 MHz, depending upon band used, and with an swr under 2:1 at band edges.

Its broadband characteristics are due, in part, to the feedline being matched to the antenna and the electrical incorporation of its own balun, with the result that no add-on antenna tuner or balun is required. The coaxial dipole has a slight amount of gain over a conventional dipole, and since the vinyl jacket covers the entire antenna, it reduces static charge build-up considerably, which causes a popping noise in the receiver when discharged. Thus, the coaxial dipole is a very "quiet" antenna with slightly stronger signal punch than a conventional dipole.

Construction of the antenna is simple. One may use either RG-8/U or RG-58A/U coax, the latter being

lighter in weight and easier to work with. Maximum legal power can be used with either choice of coax. For antenna lengths, see Fig. 1. The 40-meter antenna will be used as an example.

Begin construction by removing 2.5 cm (1") of vinyl jacket (1/2" each side of center) at the center of the antenna. Cut the shield in the center all the way around the coax. Care must be used so that you do not cut the dielectric or the center conductor. Next, form two leads with the shield as shown in Fig. 2. This is the feedpoint of the antenna.

From this center feedpoint, measure out each side of center 5.1 m (16' 9") and cut the coax at that point. Remove approximately 2.5 cm of vinyl jacket from each of the ends and fold back the shield so that the dielectric is exposed. Cut and remove about 2.5 cm of this insulation, being careful not to cut the center conductor. Then twist the shield and center conductor together and solder. This must be done at both ends and forms the 52-Ohm match-

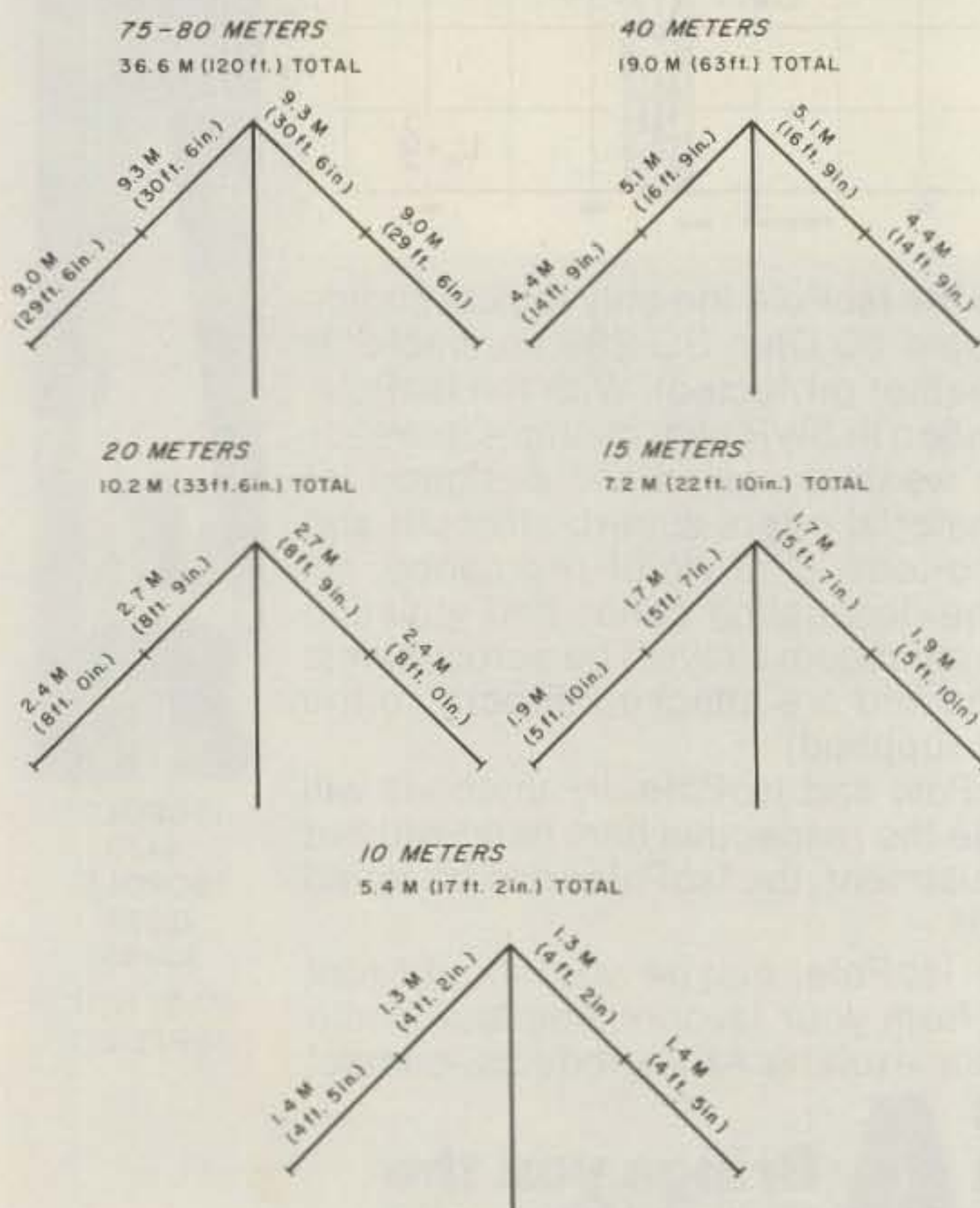


Fig. 1. Antenna lengths.

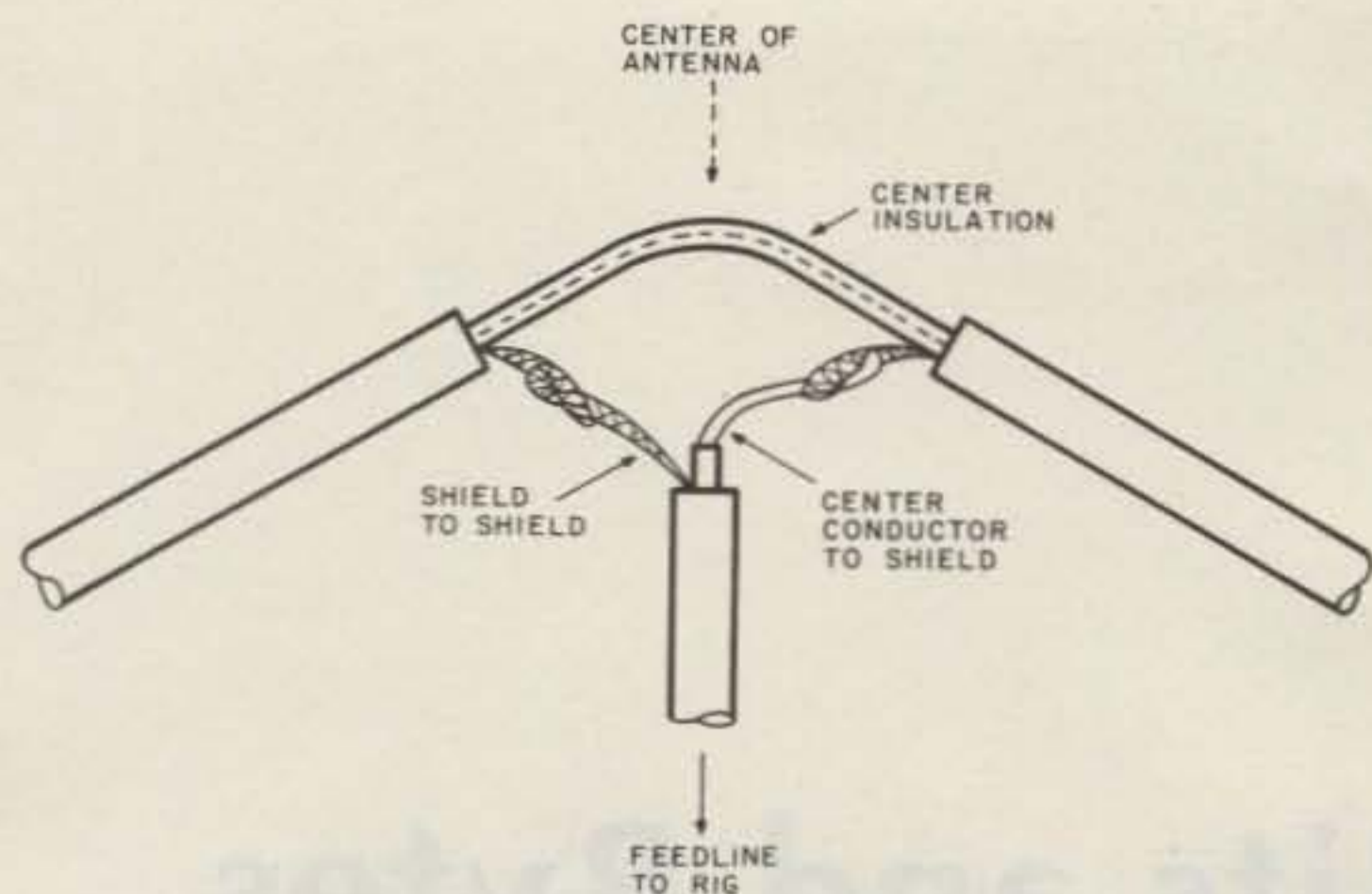


Fig. 2. Feedpoint connection.

ing section and balun.

Next, cut two lengths of coax, each 4.4 m (14' 9") long. Then remove 2.5 cm of vinyl jacket from all four ends, fold back the shield, remove center insulation, and twist shield and center conductor together as before. This forms the end sections of the antenna. Attach one of these end sections to one end of the matching section by twisting together the prepared ends and soldering. In the same manner, solder the remaining end section to the other end of the matching section. Waterproof these joints as best you can. Waterproofing of the ends will be done later, for they may need cutting for tuning purposes.

The next step is to attach the feedline. Any random length of coax will do, but it must be of the same type used for construction of the antenna. Remove approximately 2.5 cm of vinyl jacket from the end of feedline, fold back the shield, and remove center insulation. Form two leads with the shield and center conductor. At the feedpoint of the antenna, connect the feedline by soldering the feedline center conductor to one of the feedpoint leads. Then solder the feedline shield to the remaining lead. You may wish to waterproof this area, making sure that the feedpoint leads do not touch each other and short out. Follow

this procedure for antennas on other bands.

Erecting the antenna is next. If you have access to an attic or crawl space in the roof of your apartment building, so much the better. Using monofilament fishing line as anchor ties, a series of half hitches along the vinyl jacket ends of antenna will do nicely for anchoring the antenna. The monofilament line will bite into the vinyl as it is pulled taut.

If you are not fortunate enough to have access to an attic, the antenna may be stapled to a living room or bedroom ceiling using plastic cable ties or any other non-conducting material as support. Wrap the cable ties around the antenna at intervals and staple the free end(s) of the ties to the ceiling. Do not staple directly through the antenna itself.

This antenna can be used as a dipole or inverted vee. If used as a dipole, try to erect as much of it as possible in a straight line, keeping it as far away from large metal objects as feasible. The ends may hang down as long as they don't touch any nearby metal objects. More than one antenna may be erected in the same area, providing they are run at angles to each other rather than being parallel. The reason for this is that the inactive antenna could absorb some signal from

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the active antenna, thereby attenuating the signal output.'

After erecting the antenna, check swr and trim the ends if needed. Be sure to twist the ends of the antenna as before (shield to center conductor), then recheck swr. The antenna will interact with any hidden wiring in walls, so a considerable amount may have to be trimmed from each end. Once you have gotten the swr down to an acceptable level, solder the ends of the antenna and waterproof them if desired. This completes construction.

Aside from a low-pass filter, no other add-ons are needed, the filter being only a safety precaution. And, since the antenna is basically omnidirectional, orientation can be determined by the space available at your location.

Once you start enjoying the pleasures of operating

from your apartment with this antenna, you will be amazed at what you can work and the signal reports you get with it. I have used coaxial dipoles on 10, 15, 20, and 40 meters from an apartment, and all are stapled to a ceiling in "inverted-U" fashion rather than as an inverted vee. Signal reports received vary from S-6 to 60 dB over S-9. TVI is minimal, considering my TV is only a mere ten feet from the antenna and I run 200 Watts PEP.

With these coaxial dipoles in use for over two years now, I have gotten Worked All Continents, Worked All States, and DXCC with 121 countries worked to date. So there's no telling what you can do with this antenna and you may be pleasantly surprised at the results. It sure beats non-operating just because you live in an apartment! Happy DXing! ■