The Half Sloper Antenna

Here is an inexpensive, compact, and easy to build antenna that's great for DX

Here is an antenna that will cover 160, 80, and 40 meters. It's inexpensive, easy to construct, and will fit on a small city lot. It's also great for DX. It's called a Half-Sloper.

The Half-Sloper (or quarter-wave sloper) has a low angle of radiation and exhibits some directivity in the direction of the slope. The antenna's polarization is vertical. By using the loaded coils described below, a 3-band sloper can be constructed to fit into less than fee of yard space.

Materials

The antenna is constructed of # 14 stranded, insulated wire. The loading coils are made with # 16 enamelled magnet wire on 1 1/2-inch I.D. diameter, schedule 40 plastic pipe. Scrap pieces of 1/4-inch-thick acrylic are used for the insulators inside the coils. You can buy these items in most hardware or electrical -supply stores.

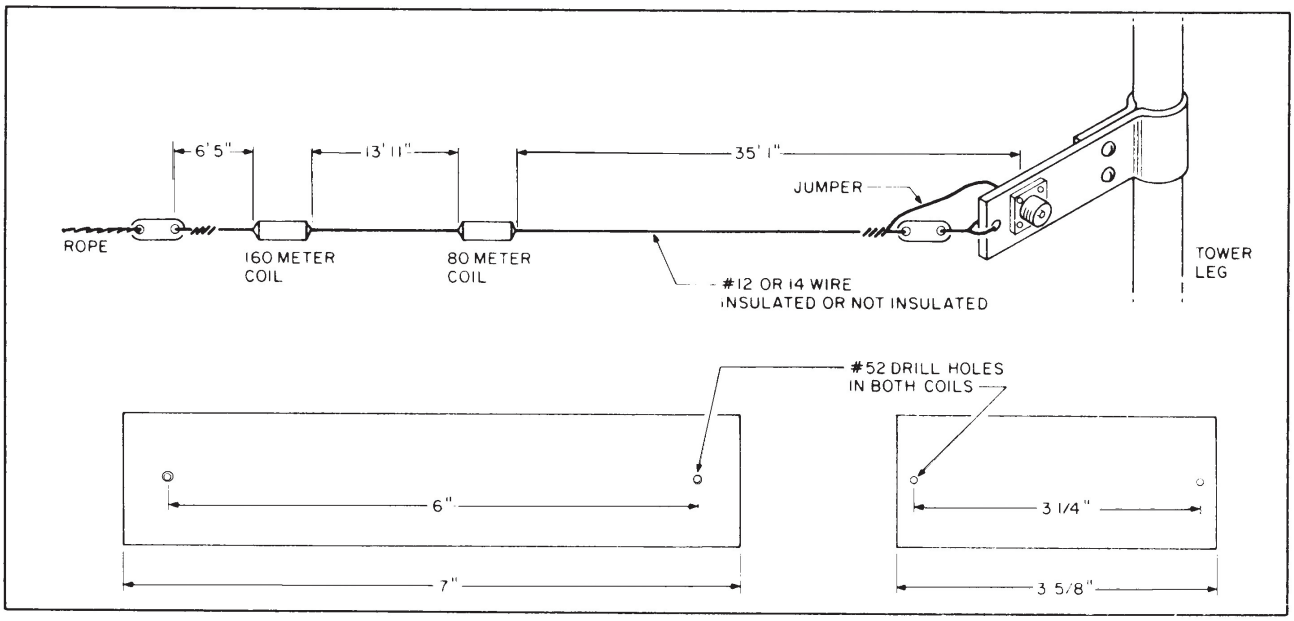

Figure 1. Diagram of the half-sloper showing details of the assembly and coils.

The 7 band sloper described was built by my own club member, Joe Gabor WA8WEQ. Joe is retired and has built a dozen or so of these antennas for members of the Steubenville-Weirton Amateur Radio Club. (Don't you wish you had him in your club!)

Building the Half-Sloper

First, make the loading coils by winding the #16 stranded, insulated magnet wire. Next, fasten the end of the antenna wire coming from the tower to one end of a piece of Acrylic that has been cut to fit inside the 80-
metre coil. Take the other end of this piece of Acrylic and put it through the coil; then fasten it to the beginning end of the 13-foot 11-inch

(continued on page 8)

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(Continued from page 7)

length of antenna. Solder jumper wires from each end of the coil to the antenna (Figure 1).

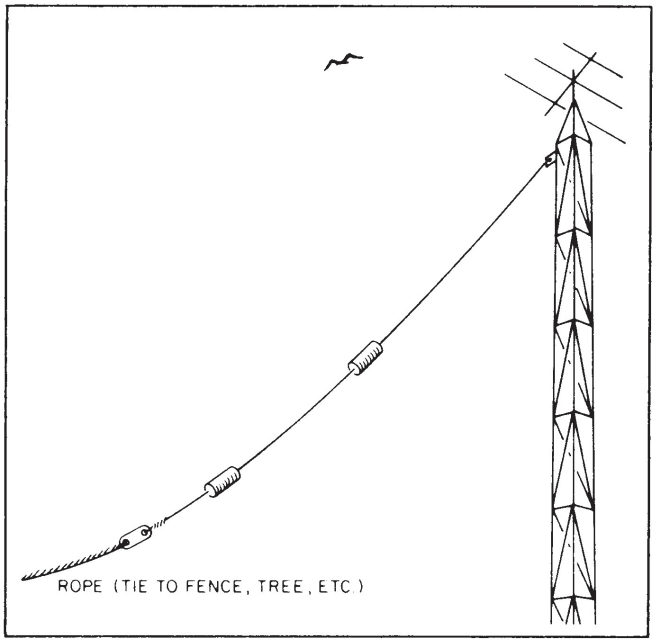

Figure 2. Half-sloper in position on tower.

Now, fasten 13-foot, 11 -inch piece of antenna to the next coil (the 160-meter coil) in the same way, and then fasten last length of antenna to the other end of the 160-meter coil. Make this last piece of antenna a few feet longer than the 6-foot, 5-inch length needed so you have wire to play with when you 9 re adjusting the antenna. Solder jumpers to the coil ends as before.

A piece of scrap aluminium or other metal can be used to fabricate a clamp that can be fastened to the tower leg to hold the antenna and the SO-239 to which the RG-58 feed line is attached. There will be a jumper from the centre of the SO-239 to the antenna, of course.

Operation

Having a sloper makes for some lively discussions on the ham bands. Some swear by them; others wouldn't own one. But it's a great antenna to experiment with.

My sloper angles down from a 30-foot tower (Figure 2) on which are mounted a 4-element tri-bander and an 11-element, two-meter beam. I also have a 160-meter dipole that is only 35 feet at the apex.

While writing this article, I disconnected the sloper from the antenna tuner and connected it directly to my Yaesu 757 to check the swr. I got 1.3 on 1925 kHz, 1.5 on 3860 kHz, and 1.1 on 7150 kHz. The swr changed rather rapidly as 1 changed frequency on 160 and 80 meters, but remained almost flat over the entire 40-meter band. 1 felt these results were to be expected with this length antenna. Received signals, especially in the direction of the slope, the favoured direction, were as good as and often better than they were with my dipole.

All installations are different. Your results could be totally different from mine. Variations in height, grounding, and surrounding objects certainly affect antenna performance. But try it! Experimenting with antennas is part of the fun!

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