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A PARABOLIC BEAM for 10, 15, 20 meters

If you are looking for high performance in a beam antenna at a reasonable price, this parabolic beam antenna for 10, 15, or 20 meters might be the answer. It works on the same principle as the corner reflector antenna. Figure 1 shows a 1 in. aluminum tubing configuration shaped like part of a circle. The aluminum tubing is 20 ft long before being shaped as shown in Fig. 1. The aluminum tubing is bent so that 100 degrees appears between points A, B, and C.

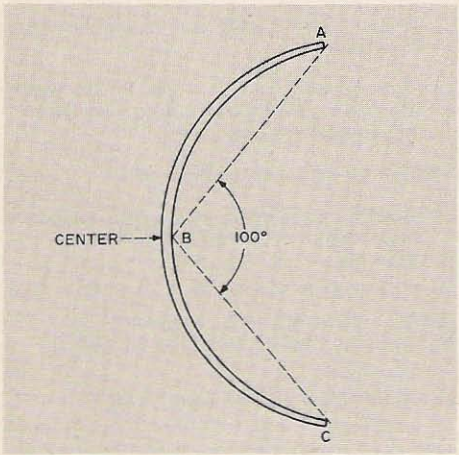

Fig. 1. The curve should be kept uniform.

Figure 2 shows another piece of aluminum tubing bolted at right angles to the original tubing (ABC). This additional tubing is identical to that shown in Fig. 1 and is shown as a straight line (DBE). The aluminum shown in DBE in Fig. 2 is actually bent into the same configuration as tubing ABC of Fig. 1. Bare copper wire is used to strengthen the elements ABC and DBE as shown in Fig. 2. Also, this wire is needed to support the aluminum sheet metal shown in Fig. 3.

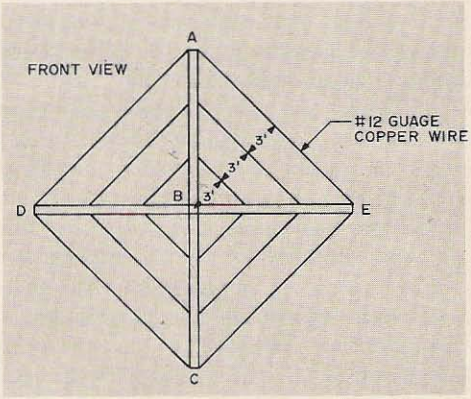

Fig. 2. Copper wire forms the basic framework.

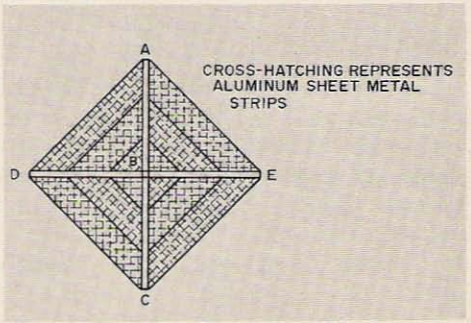

Fig. 3. With the addition of shaped sheets of aluminum, the dish begins to look like an antenna.

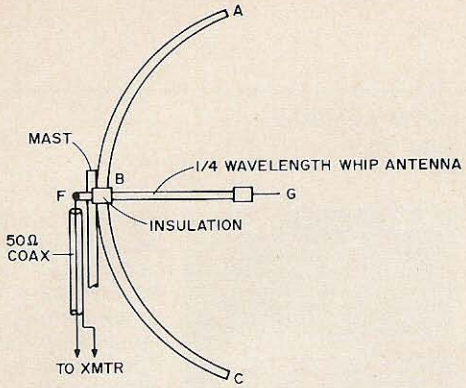

Fig. 4. The driven element can be any good-quality quarter-wave whip. Keep the whip insulated from the reflector and feed it with 50Ω line.

The sheet metal shown in Fig. 3 is approximately 0.04 in. thick. You will need a roll about 80 ft long. This will act as a giant reflector element giving the antenna a 40 dB front-to-back ratio.

Figure 4 shows the driven element FG. This may be any good quality vertical antenna such as the hustler series by Newtronics. It must be resonant on 10, 15, or 20 meters. (Aluminum rod DBE of Figs. 2 and 3 is not shown in Fig. 4.) The driven element (FG) must be insulated from the rest of the antenna system. This may be done with plastic sheets and tape. The driven element (FG) should be kept at least ¼ in. away from the rest of the system at point B of Fig. 4. The antenna is fed with standard 52Ω coax cable. The feedpoint (F) should be bolted and taped carefully. The shield of the coax should be connected to a nonrotating portion of the reflecting segment of the antenna system. Forward gain will vary anywhere from 14 to 25 dB depending on the type of driven element used and the frequency band it is used on. Generally, the higher frequency bands (10 and 15 meters) will deliver improved performance. The dimensions given for the reflecting portion of the antenna may be the same for each band.

Good DX results have been obtained with this antenna with low power and a tower only 20 ft high.

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