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Title: A Low-Budget, Rotatable 17 Meter Loop

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By Howard Hawkins, WB8IGU

A Low-Budget, Rotatable 17 Meter Loop

Cozy up to your local cable TV company. They'll probably give you the Hardline for this swinging vertical loop.

My continuing interest in loop antennas suspended from trees has led to the development of a 17 meter circular loop. Its construction is strictly low-budget: $\frac{3}{4}$ inch aluminum Hardline that the local cable TV company scraps as "tail ends," a bamboo spreader and dacron string bracing. (See Figure 1.)

I am fortunate to have several support trees available at both my summer and winter homes. I suspend the antenna from a "sky line" between two trees—a simple, inexpensive system. Those with towers could suspend this loop from a 10 or 12 foot nonconductive cross arm. (The nearby tower may affect loop operation; I've not tried this.)

A 1λ loop has a figure-eight radiation pattern with the main lobes oriented perpendicular to the plane of the loop. My "armstrong" rotator consists of attached cords and small stakes.

I calculated the loop circumference as 53 feet ($987/f$, where f is in megahertz) and the length of the $\lambda/4$ matching transformer as 8 feet 8 inches for a center frequency of 18.150 MHz.¹ The transformer's 5 or 6 inch tails (for clamping it to the antenna) are not part of the calculated length. Aircraft-quality stainless-steel hose clamps secure these tails to the Hardline. Spread or narrow the loop-to-transformer connection points to adjust SWR. Once you've set this attachment point, insert a 4 inch section of 1 inch PVC pipe between clamps and around Hardline ends to form a center insulator. Fasten the insulator in place with duct tape or stainless-steel hardware.

A 10 foot length of 1 inch plumber's PVC pipe encloses the top center of the antenna. The PVC provides mechanical

support to help maintain the circular shape of the loop. The bamboo cross piece and dacron strings also help keep the antenna in a roughly circular shape.

I've worked many European stations from my Florida location while adjusting the antenna; the feed point was only about 5 feet above the ground! I urge you to try a circle on 17 meters. Have fun!

Howard Hawkins has been licensed for 27 years and now holds an Advanced license. His Michigan home has many tall trees that are helpful for antenna experiments. Howard has worked over 250 countries on 17 meters with 100 W feeding this antenna, and many countries with 2 W. He's a "snowbird"; you can reach him at 1956 Florida Ave, Englewood, FL 34224, in the winter and 915 Sanford Ln, Au Gres, MI 48703, in the summer.

QST

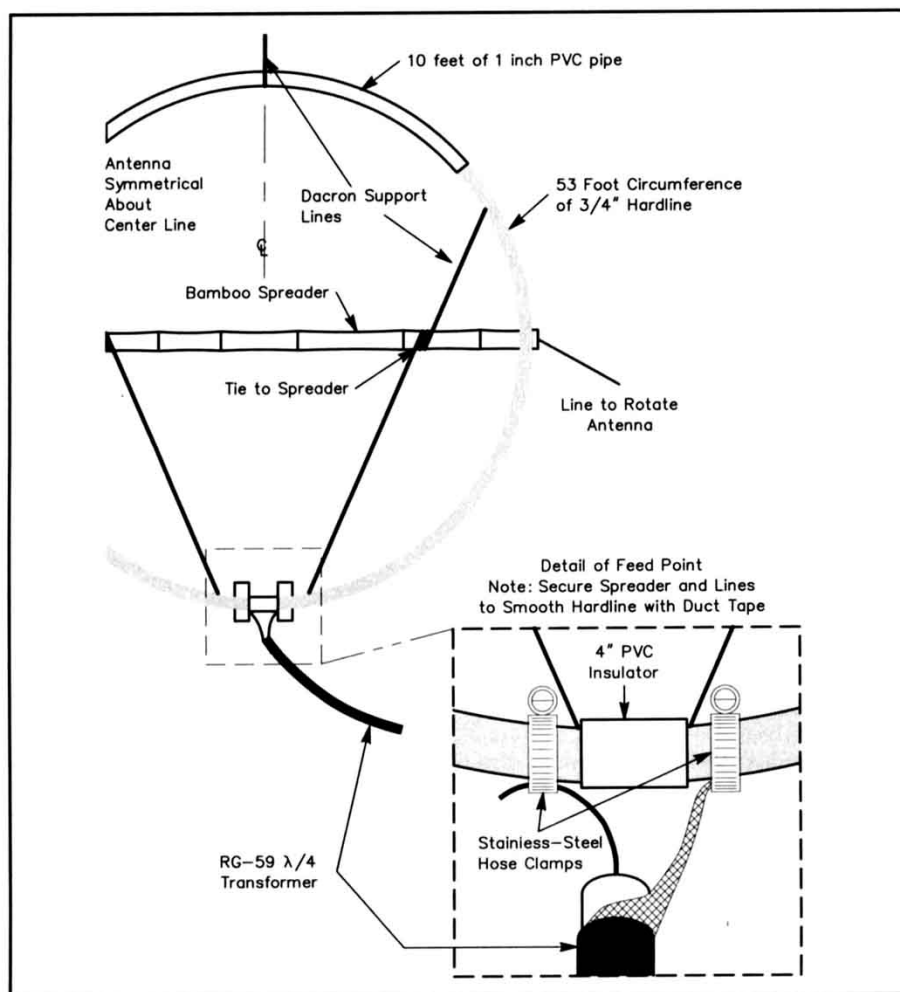


Figure 1—The rotatable, 17 meter circular loop antenna made from surplus Hardline.

¹This formula varies somewhat from that given in *The ARRL Antenna Book* 18th edition. Normally loop circumference is taken to be $1005/f$ (for a wire loop). I have adjusted the formula to account for the Hardline's diameter.