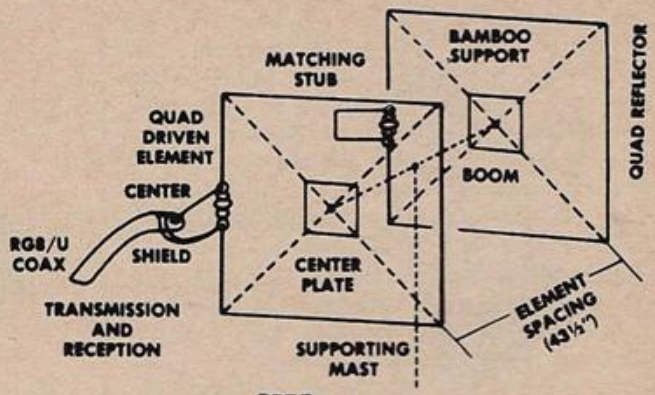
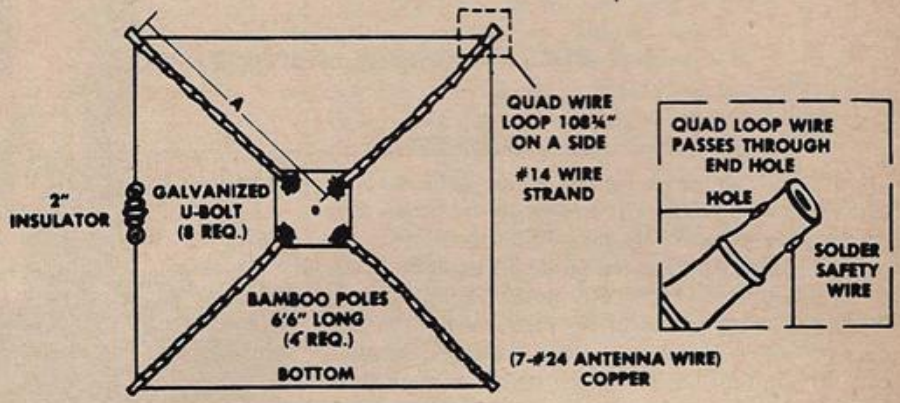
SQUARE DEAL ANTENNA



BUILD THIS QUAD BEAM



NOTE: DIMENSION "A" IS APPROX. 6'5"

One of the least expensive ways to beam your CB signal in one direction is to build your own beam antenna. A quad has always been a popular beam for CB'ers, it can be constructed from materials found around the yard, is very rugged despite what you might think otherwise, and gives a good account of itself in both vertical and horizontal work. As it sits and is described here, it will favor vertical polarization making it fully compatible with mobiles and existing ground plane base stations.

It can be rotated with a standard television rotor, such as the Alliance U-98, although if you have a fair amount of wind in your area, it is advisable to use an Alliance Thrust Bearing assembly to take the torque of the wind driven beam off of the rotor motor.

A Quad beam has been proven over the years in amateur DX work, and it is available commercially from several suppliers.

Gain wise, this Quad design will net you approximately 6 db forward gain which is roughly equal to quadrupling the power output from your transceiver. This is a substantial showing of signal on your behalf.

With the formalities out of the way, let's begin construction!

LET'S START

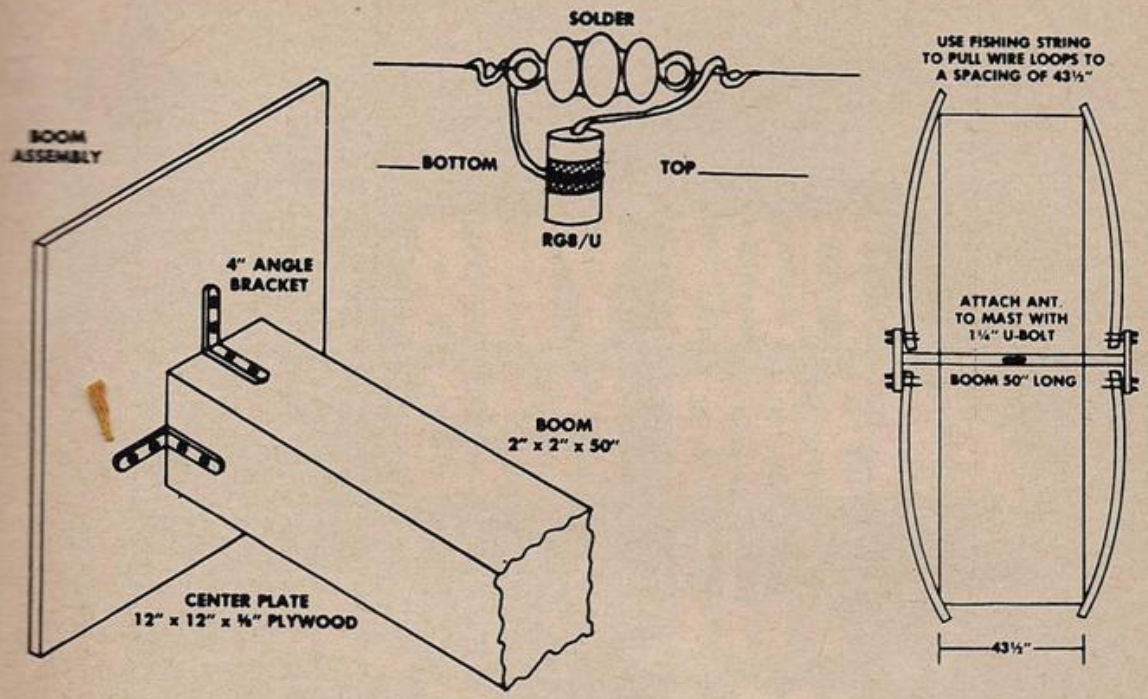
First, cut the two plywood ⅝ inch thick pieces to 12 by 12 inch squares to fabricate the end plates. Take a piece of 2 by 2 inch dry wood and fabricate your 50 foot long boom. Take four of your 4 inch angle brackets and attach them to the 12 by 12 end plates. Now attach the boom to the end plates.

Disassemble the boom and plate assembly by removing the screws from the boom and leaving the angle brackets on the end plates. Take four of your eight bamboo poles and cut them down to 6'6".

Lay poles on one of the two plates with the brackets up on the ground. Mark spots to drill U-bolt holes on the plate and drill the appropriate size holes in the plate. The poles will be on the same side as the brackets.

After drilling holes for the U-bolts, attach bamboo poles, but do not tighten. Measure back from the ends of the poles 2 inches and drill holes for the wires to pass through, following the drawings accompanying this article.

Take approximately 37 feet of stranded antenna wire (copper covered steel preferably) and one insulator. Feed the wire through the holes on the ends of the poles. Bring the ends of the wire to the middle of one side of the loop. Attach the insulator to the ends of the wire as near to the center of that side as possible, for the time beign. Do not tie the wire very tight at this point. Now measure each side of the loop to



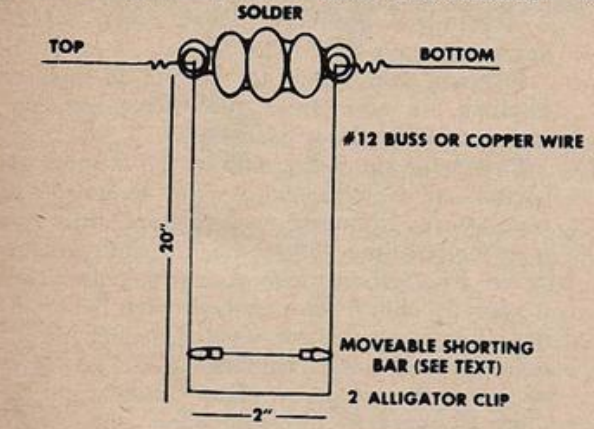
exactly 108¾ inches. Attach the safety wire to the loop at each pole and solder. The side with the insulator is measured and assembled last. This side of 108¾ inches will include the length of the insulator. Since the safety wires have been soldered on the ends of this side, adjust the length by pulling the ends of the wire through the insulator and wrap the wires tight. Do not solder.

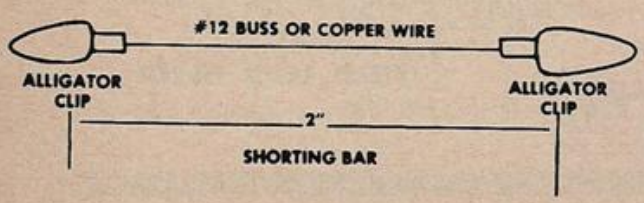
After measuring all sides and attaching the safety wires, take up the slack by extending the poles and tightening the U-bolts. This construction procedure should now be repeated for the second loop.

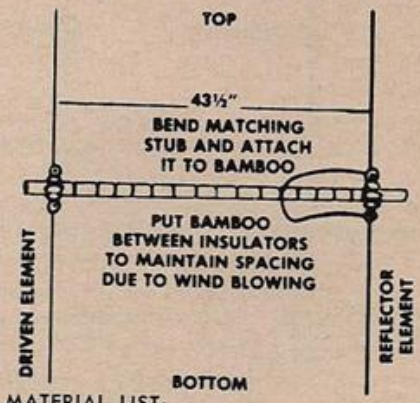
THEN

Now, reassemble the plates on the boom. At this point paint the plate and boom with outside house paint. Also add a coat of shellac on the bamboo poles.

Lay one loop on the ground with boom up and the other loop above ground. Take some strong fishing line (15 pound test or so) and attach one end to the end of a pole. Pull the







MATERIAL LIST:

- 8—10' bamboo poles cut to 6'6"
- 1—75' roll of strand #14 copper wire
- 2—12" x 12" x ⅝" plywood plate
- 8—4" galvanized angle bracket
- 1—50" x 2" x 2" dry lumber
- 2—2" class or ceramic insulator
- 1—45" length of #12 buss or copper wire
- 2—Alligator clips
- 16—Galvanized "U" bolt, nuts and washers

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opposite pole on the opposite loop until the two loops are 43½ inches apart. Repeat this on the three remaining corners, re-adjusting the entire spacing after completing the four sets.

THIRD

Take one of the cuttings from one of the poles and attach it to the two insulators with string. Make sure the spacing remains at 43½ inches. Take a piece of number 12 buss or solid copper wire and make the matching stub following the diagram. Bake the stub a little longer than the 20 inches shown so there will be enough to attach it through the insulator and around the wire loop. Solder this connection. Bend the stub in a slight curve and attach it to the pieces of the bamboo pole between the two insulators, with string.

The matching stub insulator and driven element insulator is one one side of the driven element loop (i.e., it matches to a side of wire that the perpendicular to the plane of the ground below the erected beam) to give the antenna vertical polarization.

This is very important since most CB activity is vertical. The antenna's tuning is also affected by this procedure.

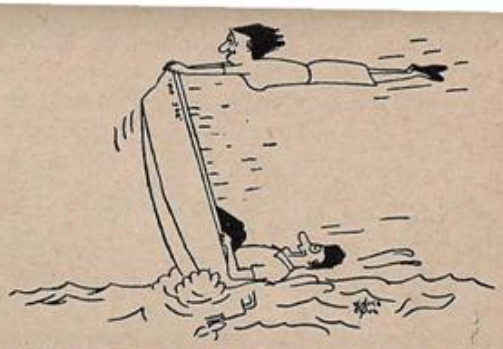
NOW—attach the coaxial feed line (RG-8/U). Put the center wire to the top of the insulator and the shield to the bottom. Solder this connection. Be sure when running the coax over to the mast that you do not pull the front loop out of plane with the back loop.

Find the center of the boom and mark holes for a 1¼ inch television mast U-bolt. Attach the antenna to the mast and connect the other end of the coax to your rig.

Put the antenna at least a few feet above your roof (the higher the better).

Check the VSWR. If the SWR is high, adjust the shorting bar back or forward until the lowest SWR is obtained. The antenna dimensions given are correct for channel 11.

And now—good CB beaming!



SURE BEATS CB RADIO, EH HONEY??