

Here's a quick and simple 2 meter quad you can build in an evening

How To Build A 3 Element 2 Meter Quad

BY RUSS RENNAKER*, W9CRC

There have been many articles written about 2 meter antennas, and I make no claims that this is the greatest. However, it is simple to make using readily available material, and it is very effective. I replaced a five-element Yagi with this quad, and it outperformed my Yagi noticeably.

*1011 Linda Drive, Kokomo, IN 46902

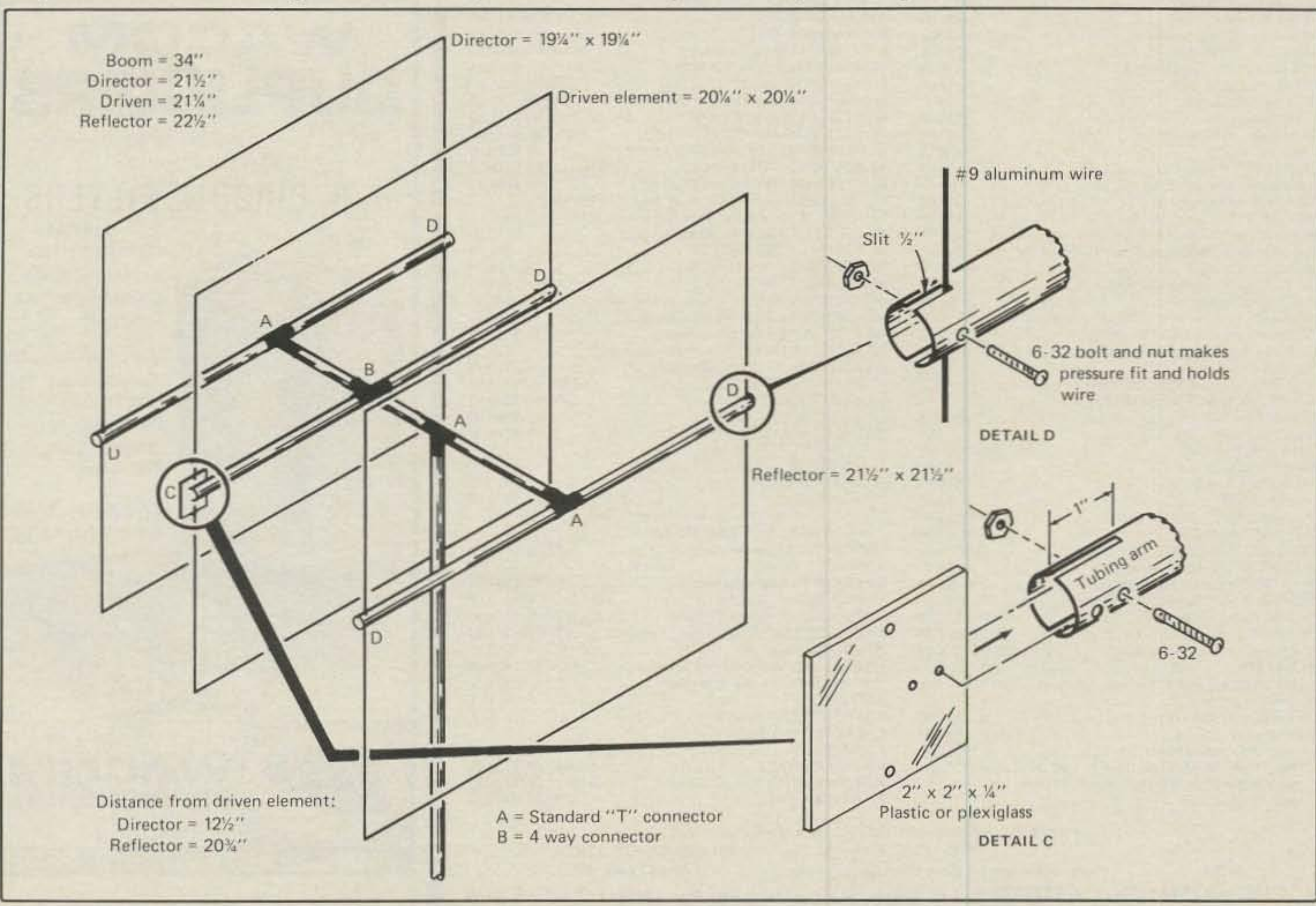
The support frame and the mast are made of $\frac{3}{4}$ " plastic tubing, which is available in any plumbing department. The elements are #9 hard-drawn aluminum wire, such as clothesline wire. Be sure it is not the soft-drawn pliable kind.

The director wire is 80" long. The driven element is 84" long, and the reflector is 89" long. Make the driven element $\frac{3}{4}$ " longer ($84\frac{3}{4}$ "). This leaves $\frac{3}{8}$ " extra on

each end to curl around the terminal bolts. All elements are bent into squares according to the dimensions shown in the drawing.

The tubing connectors at the three A's are standard "T" tubing connectors. The one at B is a four-way connector. The mast connector (between the driven element and the reflector) should be located as near to the balancing point on the

Fig. 1- Mechanical drawing of the 2 meter quad. The PVC or plastic tubing and fittings are available at most hardware stores.

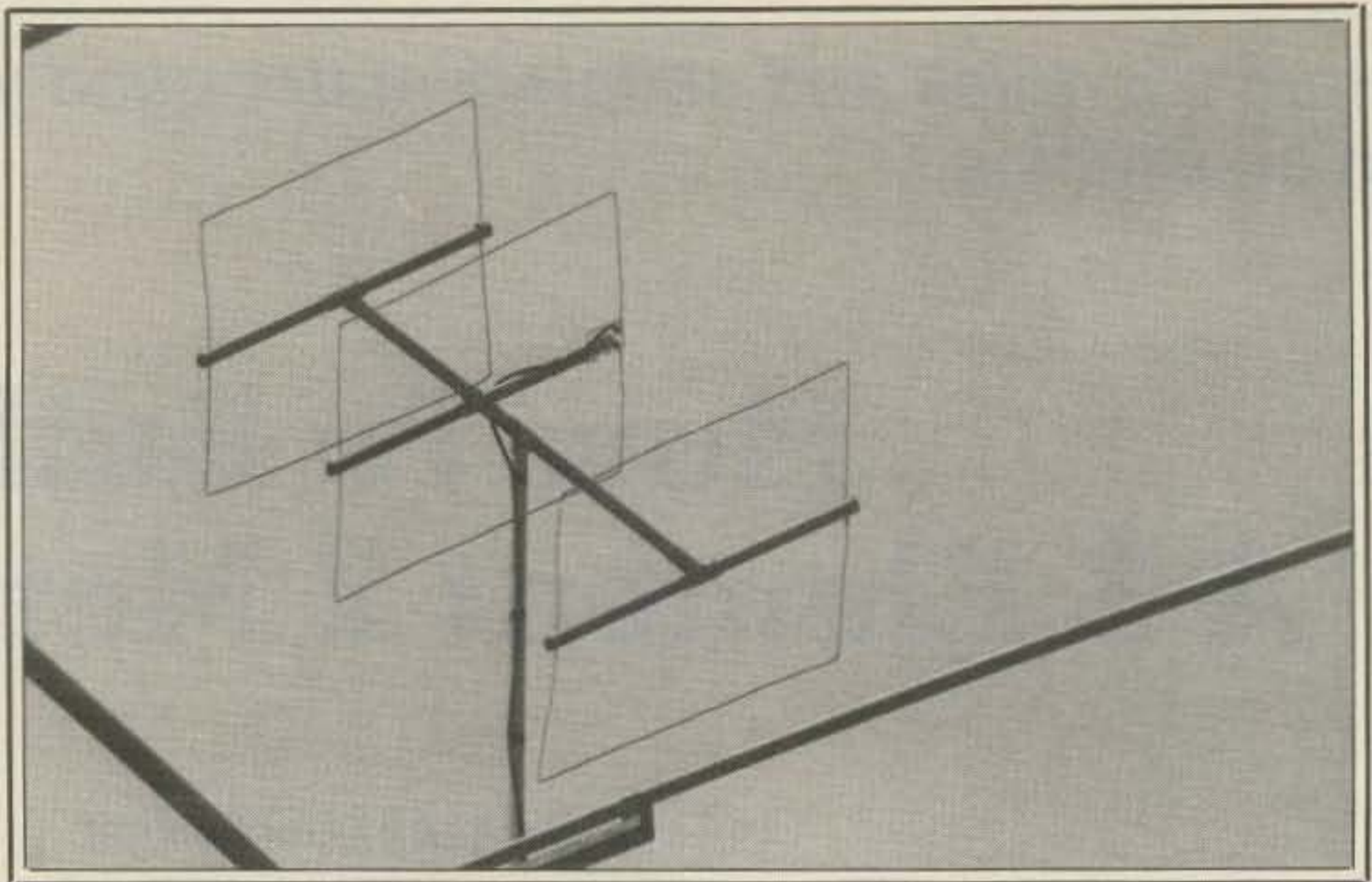


boom as possible. One way to do this is to place all three elements on the boom and locate the point of balance by suspending the whole thing over a thin piece of wood (or your finger) to find the center of balance. Then cut the boom at that point and insert the connector. Be sure to subtract the length of the connector from the length of the boom so it is still 34" long with the connector installed.

Drill out one section of the four-way connector at B so that it slides over the boom tubing. Then adjust the location of the loop for lowest SWR before cementing to the boom. I got mine down to 1.1:1 at 144.91, our repeater frequency. Secure all the "T" connectors with the cement. Be sure they all are lined up correctly, because when the cement sets they will be unmovable.

Drill a 1/8" hole 1/2" from the end of each cross arm (except the driven element arm at C). Saw a slit from the end of the tubing to the hole. Be sure the slit is at right angles to the boom. When you have formed the squares for the loops, press the wire through the slit to the hole. Secure with a 6-32 bolt through the tubing between the wire and the end (see D).

We need to attach the terminal block C to the other end of the driven element cross arm. Saw a slot back 1" from the end of the tubing and secure the terminal block in the slot with two 6-32 bolts (see C in drawing). The 8-32 bolts are for attach-



The finished product sits on top of W9CRC's triband beam.

ing the #9 wire and the coax leads. Curl the wire around the heads of the bolts (remember that we added 3/8" to each end for this). Secure with a nut on the opposite side. Use two washers and a second nut to secure the coax leads to the terminals.

For the supporting mast we used 3/4" plastic tubing. It is pretty flimsy, however, so we inserted a 1/2" dowel rod in the tubing to stiffen it. You may have other ideas,

but the mast should be of a non-metallic material. It should extend well below the elements. I made mine 5 feet long and placed it on top of my triband beam.

My quad has withstood some very high winds, ice, and birds, all of which were hazards with the Yagi I previously used. The front-to-back ratio is excellent, and the range is better than the Yagi by a good 10 percent. M

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