

Here are the directions for Building a Tape Measure Yagi

### Parts List

3 feet of ½ inch schedule 40 PVC pipe

2-½ inch schedule 40 cross connectors

1-½ inch schedule 40 T-connector

1-½ inch schedule 50 caps

1 inexpensive tape measure (a 1 inch wide tape is recommended) You can get this at Harbor Freight very cheap or free with a purchase.

4 feet of coax cable with a connector on one end (UHF, BNC, SMA, etc.) and the other end prepared for soldering

6 #12 (11/16 inch to 1 ¼ inch) hose clamps

5 inch piece of solid wire for hairpin tuning component (12 to 18 gauge will work)

### Tools required

Hacksaw or PVC pipe cutter

Soldering iron or gun

PVC cement

Electronic solder

Wire cutter

Hot glue gun

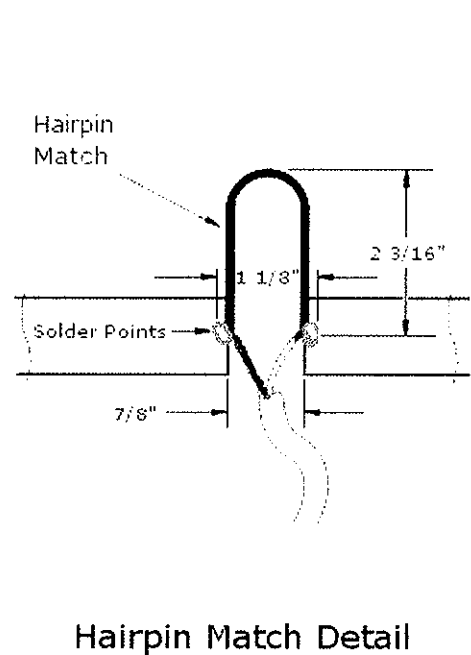
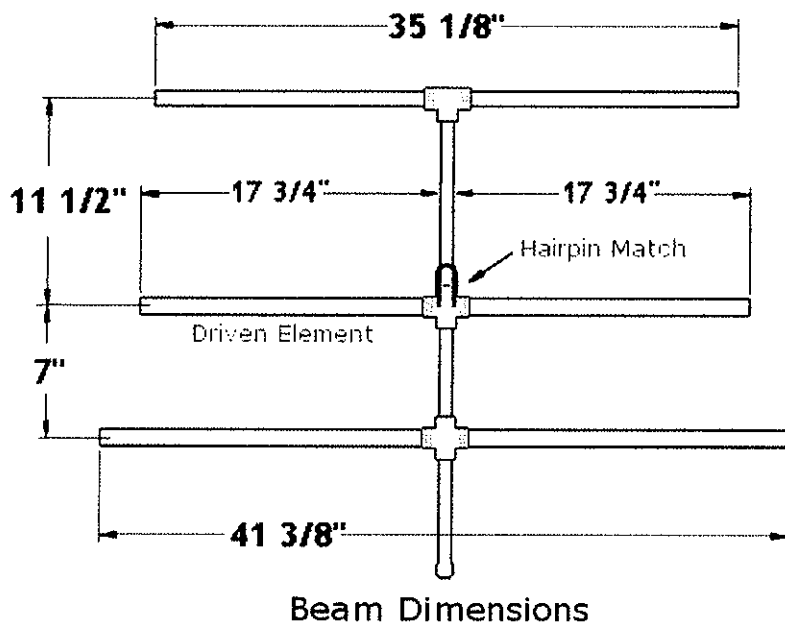
Tape measure

Tin snips

Black indelible marker

Metal file

Flat blade screw driver or 5/16 inch nut driver (to tighten hose clamps)



### Step 1

Cut an 11 ½ inch, and two 7 inch pieces of PVC pipe. Before cutting the pipe, measure and mark the length using a black indelible marker.

## Step 2

Assemble the cut lengths of pipe as seen in the drawings to create the boom of the antenna. Begin by connecting a T-connector to one end of your 11 1/2 inch pipe, and a cross connector to the other. Then add one of the 7 inch pipes to the cross connector. Glue the remaining cross connector to the end of this pipe and connect the last pipe to this cross connector. Make sure that you align the cross connectors. The easiest way to do this is to place them on a flat surface and twist them to be flat with the surface. Finish this step by adding the cap to the open end of the last pipe.

## Step 3

Cut four pieces from the inexpensive tape measure: 41 3/8 inch, 35 1/8 inch, and two lengths of 17 3/4 inches. Be careful not to cut yourself on the sharp corners or ends. Use your tin snips to carefully round off the sharp edges.

## Step 4

Now attach the longest (41 3/8 inch) piece of tape to the cross connector closest to the end with the cap. It will be helpful to mark the center point (20 11/16 inches) with your black indelible marker. Position the tape over the cross connector, so the curve of the tape is similar to the curve on the cross connector. Center and secure the element with hose clamps on each side. Next, attach the next longer element (35 1/8 inch) to the T-connector at the opposite end of the boom in a similar fashion.

Cutting the pvc Partially Assembled hot glue

## Step 5

The next step is to take the 5 inch piece of wire and bend it into a "U" shape about 3/4 inch wide. Then tin the ends of the wire. This will be used to make the "hairpin match." Scrape or file about 1/4 inch of paint off the back side of one of the ends of the two remaining pieces of tape. Tin the bare areas, then attach the hairpin match and coax wire with solder as shown in the diagram.

## Step 6

Next attach this assembly to the boom using the two remaining hose clamps. The soldered joints are then covered with hot glue to seal and help waterproof it. For a balun, 4 or 5 turns of the coax feed wound round the boom should do the trick. Now your antenna is ready for use.

Hairpin Match Side View Fully Assembled

Tape Measure Antenna Schematics

For more information on tape measure yagis, check out the following links:

[ARRL Q&A "How to Build a 2m Tape Measure Yagi"](#)

[Radio Direction Finding Antenna for VHF - Instructables.com](#)

[RDF and Hidden Transmitter Hunting - VE3RRD](#)

[Cheap & Light Portable 2m Yagi - M0RUN](#)

[2m RDF Antenna - KC0TKS.org](#)

[Tape Measure Beam Optimized for RDF - WB2HOL](#)