

Six Meter Antenna Projects by N2KBK

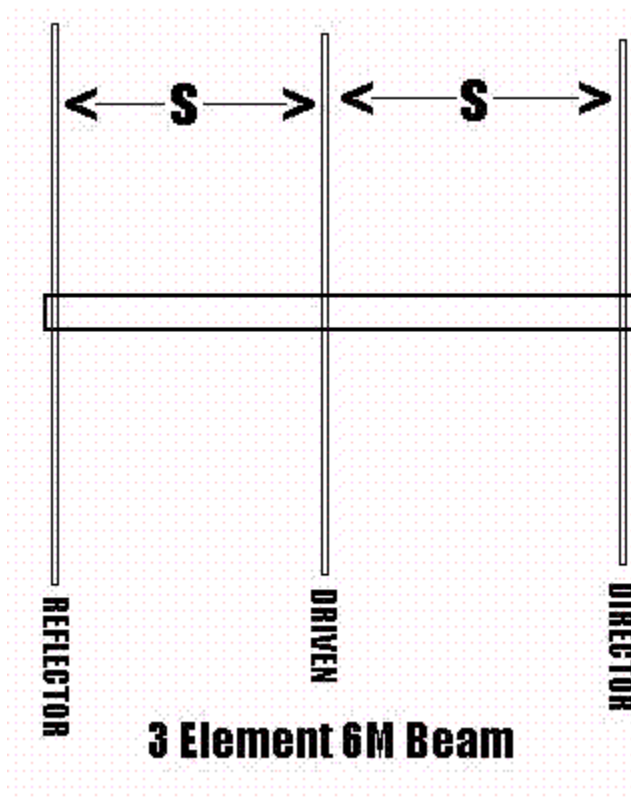
Compliments of N2KBK!

Here you will find 2 simple antenna projects for 6 meter fun designed for easy and inexpensive construction.

The first project is a 3 element 6 meter beam.

The second project below is the 6 meter Halo antenna.

A 3 ELEMENT BEAM



Reflector-----115 and 1/2 inches

Driven-----111 inches

Director-----106 and 1/2 inches

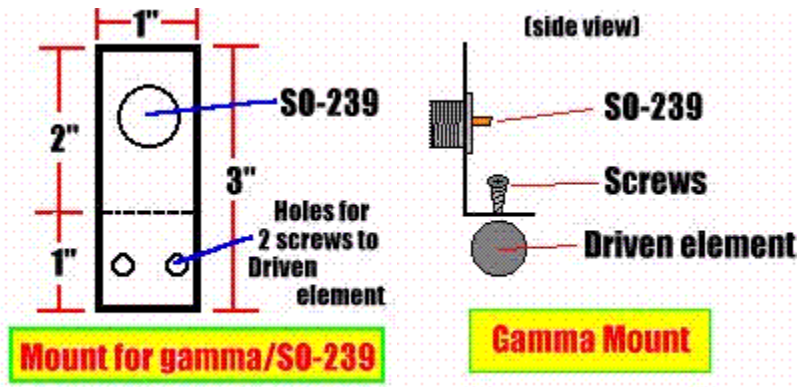
Spacing between elements is 34 and 1/2 inches. The elements are 1/2 inch aluminum tubing of 1/16-inch wall thickness. *(you can cut up an old TV antenna, they work great).*

The Boom length is 72 inches (6 feet). The boom is 1 and 1/4 inch tubing.

Gamma Match Construction

To attach the gamma rod to the antenna you will need to mount an SO-239 chassis

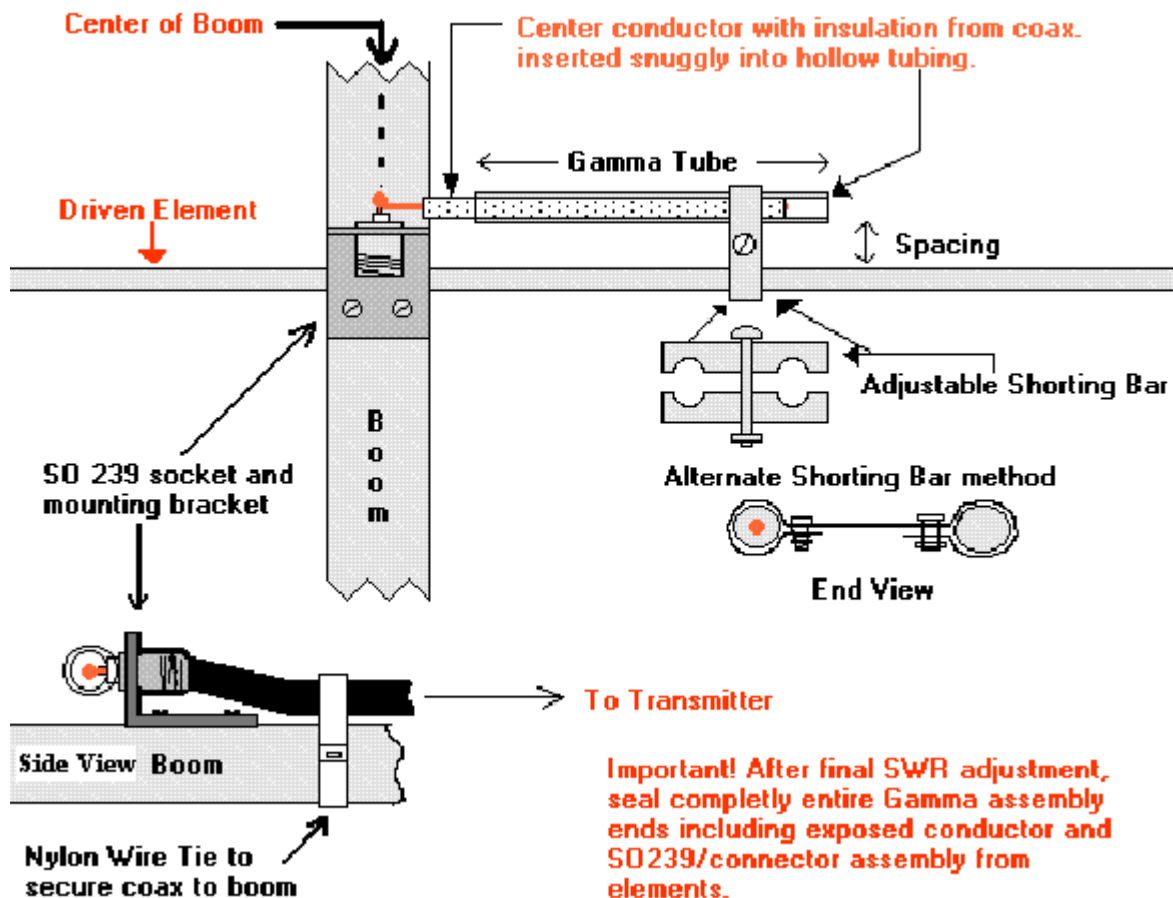
connector to the center of the driven element. This can be made from a piece of sheet metal about 1 inch wide by 3 inches long. (See drawing below) Bend the long side of the sheet metal into an L-shape so that you now have a 2x1 inch surface and a 1x1 inch on a 90 degree angle. Then center punch the 2x1 side and mount the SO-239 connector in the middle. Next bend the 1x1 inch surface onto the center of the driven element and secure it with 2 sheet metal screws.



GAMMA MOUNT BRACKET ASSEMBLY

Now you will need to get some more sheet metal to build the SHORTENING strap of the gamma this may vary in size depending on the tubing size and the space from driven to the gamma match. The gamma match is mounted along the side of the driven after you have soldered the inner conductor of the gamma to the center of the SO-239.

See drawing below for typical gamma match placement and construction.



n4ujw

Typical Gamma Match Construction

The spacing of the gamma match is usually about 1.5 to 2 inches from the driven element (*Does not make much difference*). To make the SHORTENING strap make a 1 inch strip about 6 inches long.

Take this strip and bend it around the driven and over to the gamma. Make sure it folds back over so that you can drill 1 hole at each end. You can use your own construction methods and fabrication.

A GAMMA MATCH

Gamma Match Arm

Gamma tube 14 inches

Inside conductor of RG-8 15 inches

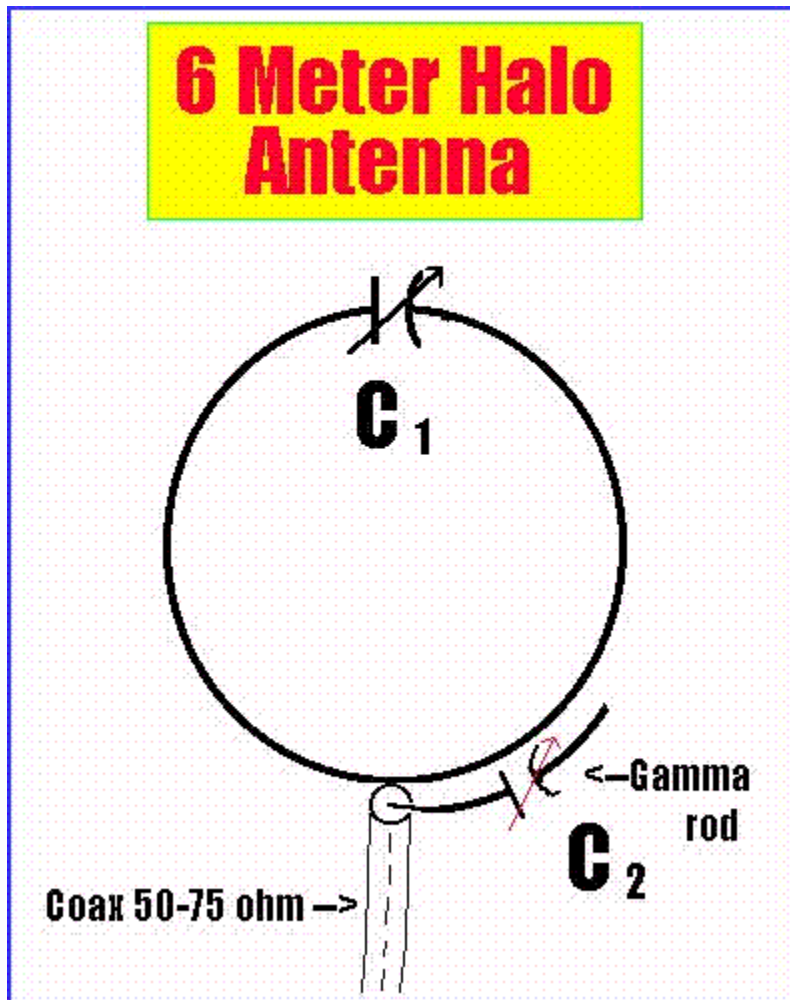
Finished Gamma Match Arm

The gamma match is made from 3/8 inch tubing.

The inner portion is cut from RG-8 coax after you remove the black 'skin' and the copper braid. **You can attach 50 ohm coax to this antenna after you add a gamma match.**

Once you have this antenna put all together you can adjust the match by sliding the shortening strap and the gamma tube in and out (*or up and down however you look at it*) for lowest S.W.R.

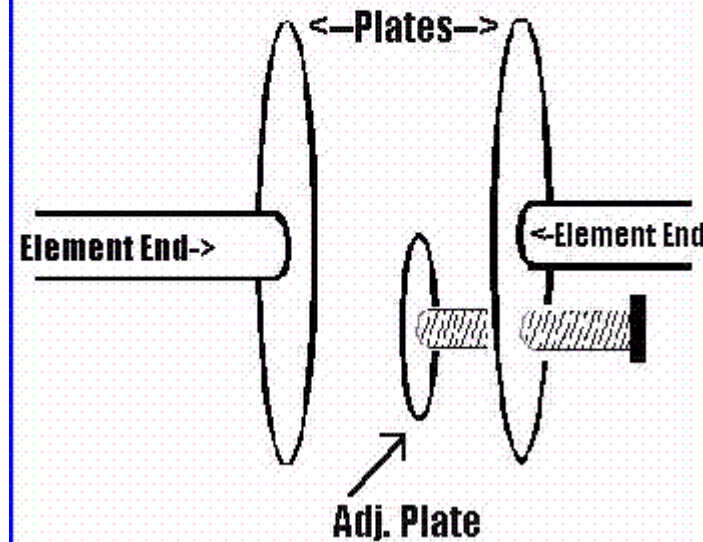
A 6 METER HALO



The 6 meter Halo is a good antenna that can be used for the car as well as the house. This antenna maintains good omni-directional horizontal polarization.

Basically the antenna is a half wave dipole bent into a circle, BUT shorter than a dipole for this frequency. The circumference is 60-70 inches. By using the gamma match (*see above*) you can use regular coax. This is a high- Q antenna, so bandwidth is about 200khz. (*Perfect for 50.100Mhz - 50.200Mhz where most of the 6m ssb activity is*)

C, Capacitor



The 2 large discs can be about 4-5 inches round and the small disc about 1.5 inches. Mount the 2 larger discs at the ends of the halo by screwing end caps to the center of them and then the end caps will go over the ends of the halo.

Next drill a small hole in one of the larger discs and the same size hole in the exact center of the small disc. Put a 2 inch bolt through the center and run a nut up the bolt to lock it in place. Then a nut on each side of the large disc to secure the bolt to the larger disc.

Mount the gamma rod the same as you did on the beam (*see above*), BUT **bend the gamma to match the curve in the halo**. Finally take three 2-3 inch nylon spacers and mount them between the large discs. You should drill 3 holes in a triangle pattern and use 3 nylon bolts and nuts. This will ensure that the ends plates do not move around on you. You can mount this antenna on a mast by making some type of bracket for support. (*Just try to put the bracket by the mount where the coax/gamma is so that the mount should not affect the antenna performance.*)

To match the antenna simply move the gamma around a few times (*move it in small increments is really tough*). Once you get the S.W.R. down below 3:1 then move the small disc by loosening the nut and turning the small disc. (*AGAIN, move it in small increments*)

*Many thanks to the late Robert Cook, WB2OHP for the endless hours of advice, help and lots of radio checks.
He was the person who introduced me to "The Magic Band" - Thanks Bob.*