

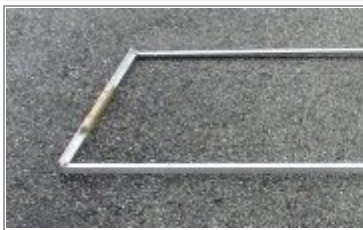
N2MH Information For Rovers

Six Meter Moxon Antenna

Description and photos

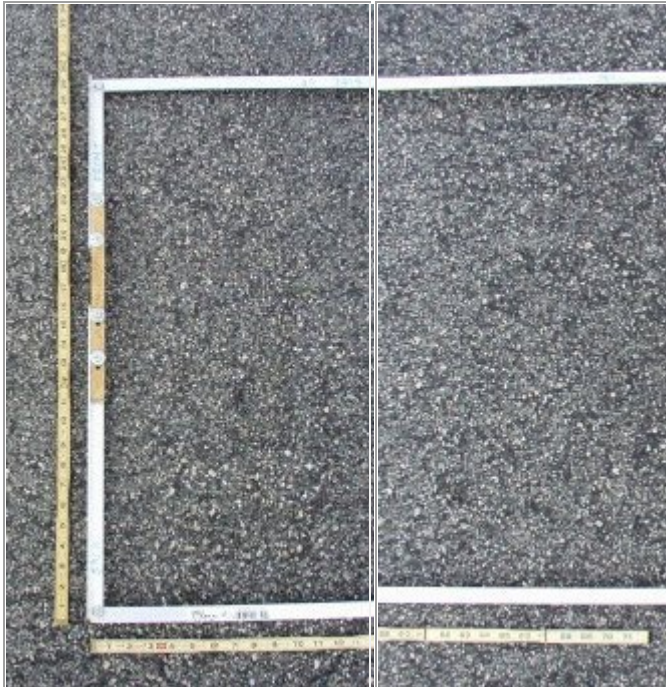
Click on thumbnail to expand.

This is a picture of the whole antenna on the ground in my driveway. The driven element is in front and the reflector is in the rear.



It is constructed of 3/4" by 3/4" aluminium angle stock.

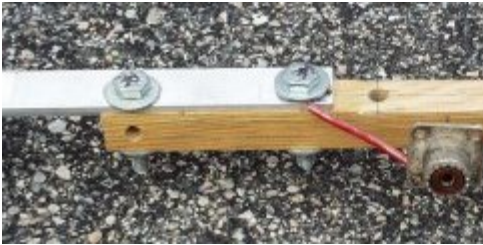
The dimensions are approximately 29 inches deep by just under 7 feet long. Exact dimensions will be given later.



In this antenna, the aluminium angle stock is cut into seven pieces:

- One long piece which forms part of the reflector.
- Two long side pieces which forms part of the reflector.
- Two short side pieces which form part of the driven element.
- Two long pieces which form part of the driven element.

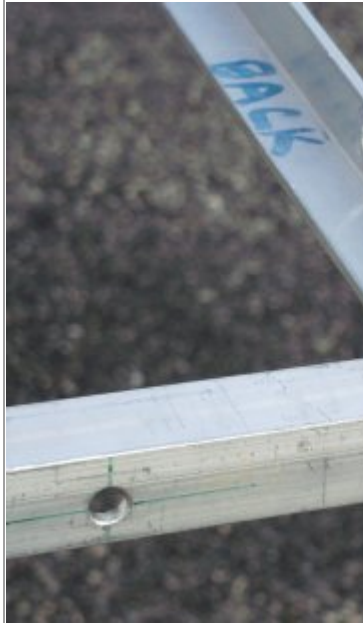
The side pieces are joined together with a piece of 3/4" by 3/4" molding and 1/4 x 20 bolts and nuts. The wood lays inside of the angle stock.



In a similar fashion, the two pieces of the driven element are joined together with a piece of 3/4" by 3/4" molding and 1/4 x 20 bolts and nuts. Attached to the inner ends of the driven element pieces is an SO-239 supported by #12 wire.

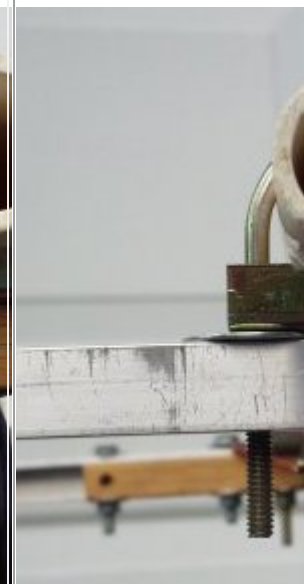
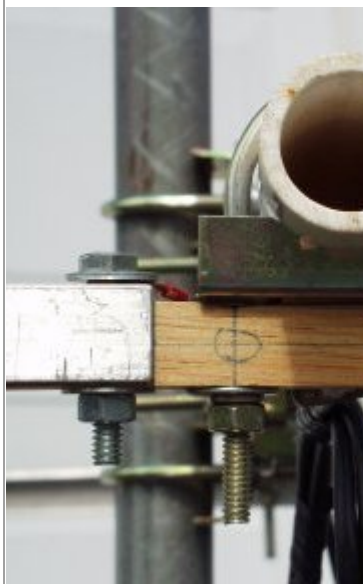
With both sides and the driven element joined together like this, there are now only four sides and four assemblies that have to be bolted together at their corners. Again, I use 1/4 x 20 bolts and nuts.

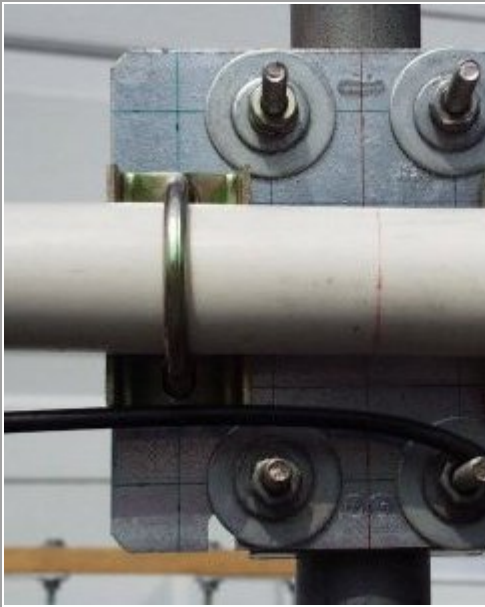
Holes for the screws are drilled approximately 3/8" in from the ends and are centered on the inside of the angle stock. The extra holes in the picture about 3" in from the ends are used when storing the antenna for travel.



Attaching the antenna to the mast is a boom made from a piece of 1" schedule 40 PVC pipe. It is slightly longer than the depth of the antenna.

Radio shack U-bolts with brackets fasten the antenna to the boom. The first picture is how the driven element is done and the second picture is the reflector. On the director U-bolt, do not use fender washers. Just use flat washers - they are not as wide and will not short out the driven element feed. Also, make sure that the connections between the SO-239 and the driven element do not short out to the U-bolt or its bracket.





Holding the whole thing to the mast is a homebrew boom to mast adapter. It is made from a blank steel cover for a 5" electrical box and 4 Radio Shack U-bolts with brackets.

Feeding this whole thing is a piece of RG-58 coiled into a choke balun. There are 3 turns in a 5" diameter coil. The cable is a Radio Shack 6' jumper with a male connector on one end and a female connector on the other.



Dimensions

Using [Cebik's](#) nomenclature, and diagram (used with permission :-)

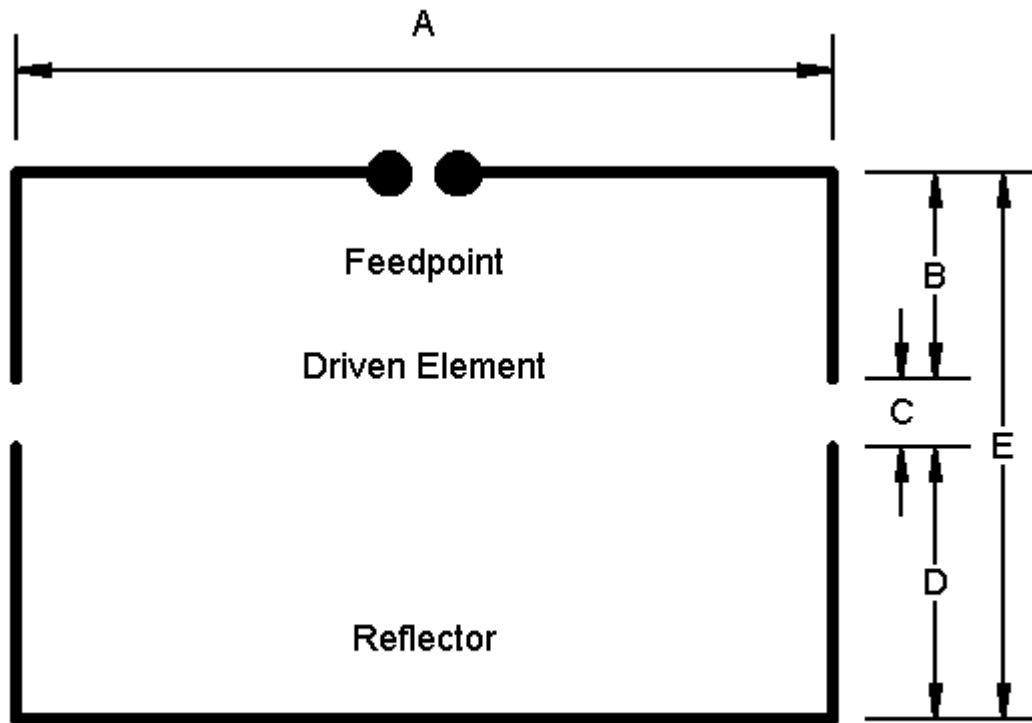


Figure 5

Moxon Rectangle Outlines

- $A = 80 \frac{9}{16}$ inches
- $B = 10 \frac{1}{4}$ inches
- $C = 3 \frac{1}{4}$ inches
- $D = 15 \frac{3}{8}$ inches
- $E = 28 \frac{13}{16}$ inches

Driven element dimensions not shown on the drawing

- Feedpoint to outer edge: $38 \frac{11}{16}$ inches
- Feedpoint gap: $2 \frac{15}{16}$ " (This dimension is not critical like the side gaps. Use whatever you need to clear the U-bolts, brackets and washers.)
- The total of twice the feedpoint to outer edge plus the feedpoint gap should equal "A"

Please note that with the exception of the gaps, the dimensions shown are from end to end on the aluminium angle.

Modeling this antenna with software

If you want to model this antenna, here are a couple of hints:

- Try modeling the elements with an effective diameter of 1" or even a little more. The effective diameter might just be close to the diagonal between ends of the angle stock.
- Try sizing the elements based on the four corner screws, not the end to end dimensions.

Using the dimensions shown, my antenna resonated at approximately 50.200 MHz.





Bob gives us a close-up of the antenna itself.

W3BBO Photo

Bob used a different approach to connect the boom to the mast. He reports: "I'm real proud on how I solved the antenna to mast connection. I used a 1" Tee on the boom and another one to slip on to the 1 1/4" mast. Makes a nice tight connection and eliminates the mounting plate and additional u-bolts. The attached picture shows this a bit clearer. A tee [on the mast] isn't needed but I had one on hand and that saved a trip to the store to buy a coupling, which would have worked just as well."

KC9ECI

