

Hi all, Garry, VE6-TIV here again with another antenna project. I was playing around with an old scanner which I added a discriminator out put on, and some digital decoding software when I decided to see what else was on this old rig. Reading up, I became interested in milsat monitoring. Well, now I have to build an antenna for that band!

I looked up plans, and found some information, but had to figure out most of the dimensions. Out to my favourite place! My stinky, dingy shop!

Looking around, I found most of the materials I would need. Some sheet aluminum, nuts, bolts, wire, and the usual assortment of bits and pieces.

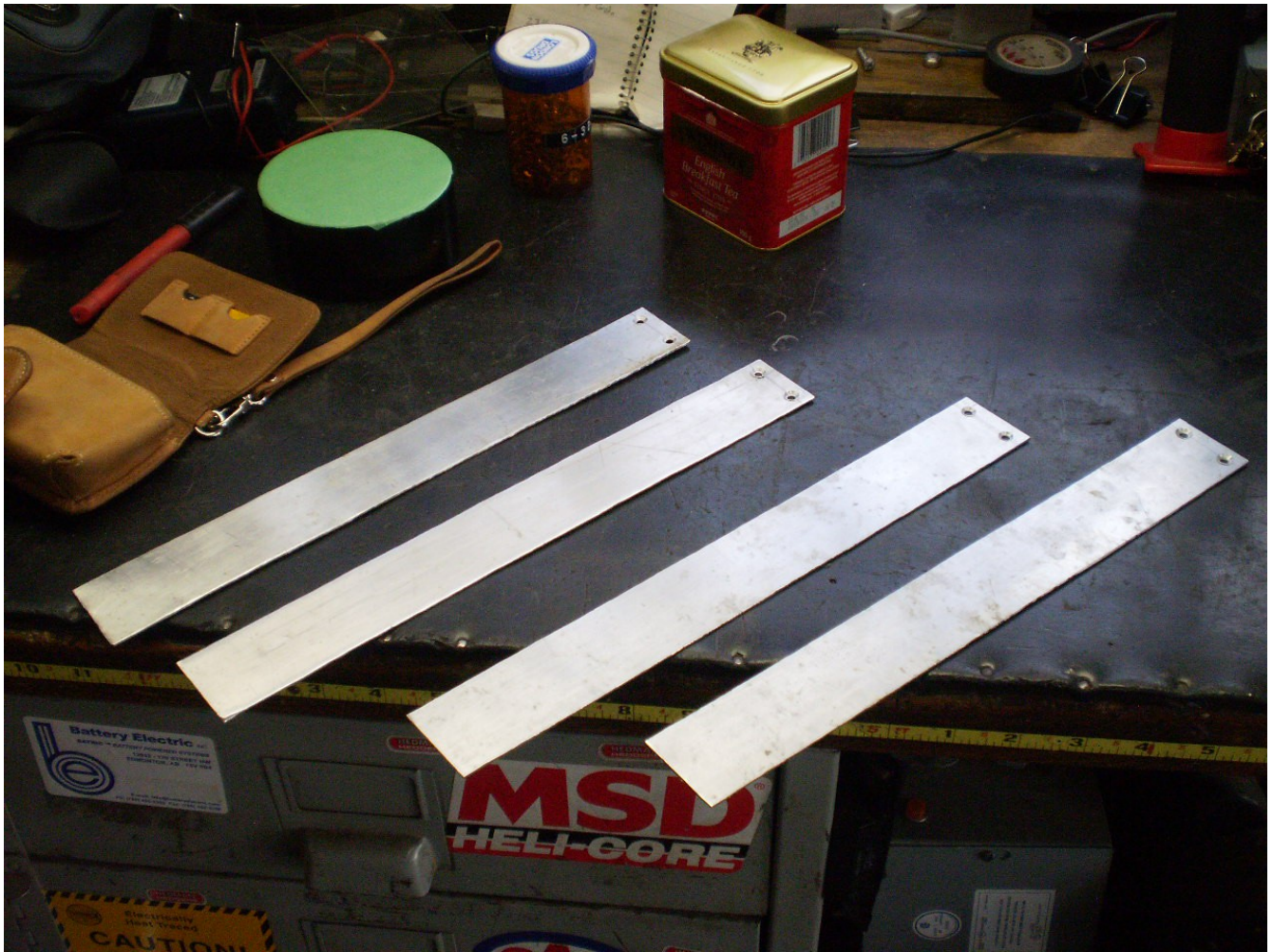
Started out by cutting the aluminum wings for the dipole elements on my band saw.

Measurements were 10" X 1 1/2". and will need 4 of these for the crossed dipole array. They are fed out of phase for RHCP to receive the sats.



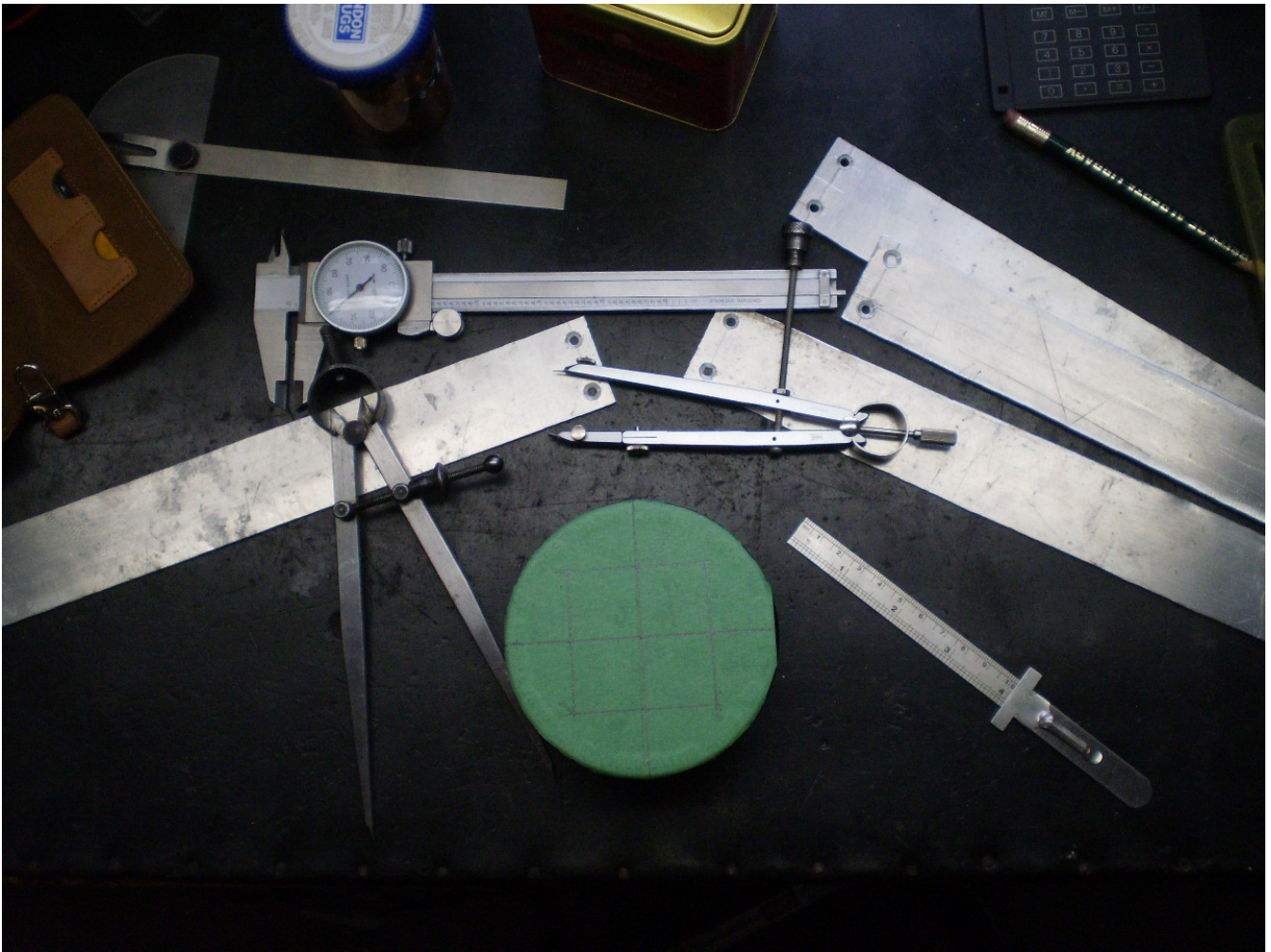
After the pieces were cut, I punched the mounting holes to mount them on the next piece, a 3" ABS plastic pipe cap. About 7 dollars at Home Depot.

Holes were punched with a Whitney punch, but can be drilled out to size for 6-32 bolts.



Well, despite a well stocked junk yard, I mean garage, I did not have a 3" pipe cap. Off to Home Depot!

After acquiring the necessary part, it was time to measure it up to mount the dipoles.

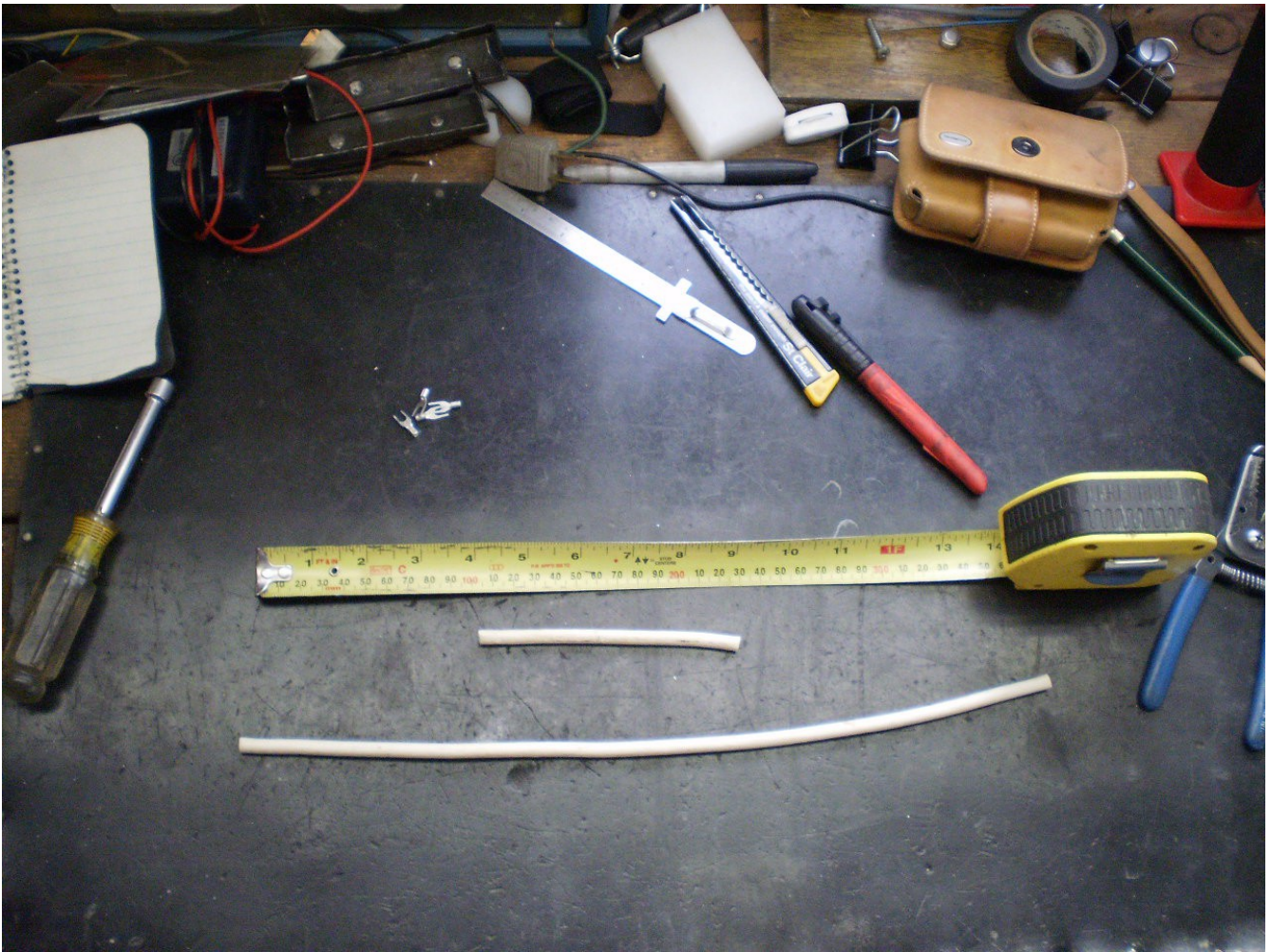


Eight holes had to be drilled for the elements, which are 2" apart from each other. I figured this out by the pictures I got off of the internet. Lots of plans, but no measurements. Most of this project was by deriving measurements from various diagrams. But when all put together, it gave me a very good representation of the diagrams I saw.

Next step was a dry fitting of all the elements to see if they all lined up. So far, so good!



After removing the masking tape, and remounting the elements, it was time to move on to the phasing harness. These measurements were given on a diagram from Chile. They were in MM, but I converted them to inches. The harness is made from 2 pieces of 75 ohm RG 6, or similar cable. One piece 3" long, and the second at 13 1/2". I used some old TV cable from my well stocked junk box.

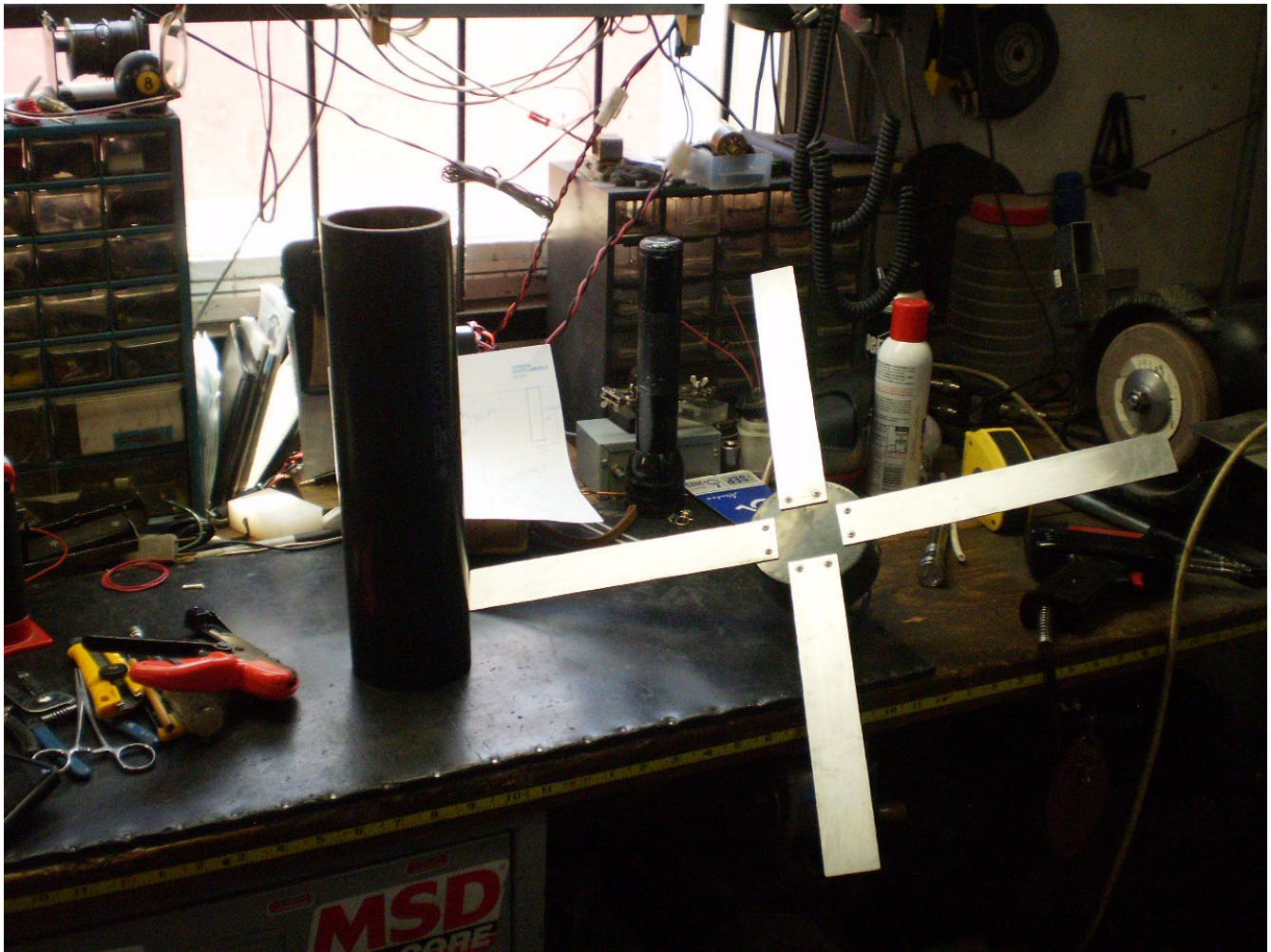


I trimmed the pieces to appropriate length, and put lugs on one end of each piece to accommodate putting them under the nuts that hold the elements in place. I soldered the lugs on, in case of a mistake, I could remove them, and start over (usually happens). After installing the harness, it was time to find a piece of pipe to fit the cap and use as a base.



You will notice that the cable for the harness is black. I started out with the usual cream coloured cable from Radio Shack, but found out that the drain wires were steel and would not take solder. Not only that, but they were brittle, and broke off when I tried to tie them together for the common ground to the connector.

Remember the part about having to start over... well, I found some better cable in my trusty junk box that had a copper shield. Much better!



Time to put it all together. However, I didn't have a piece of 3" pipe for the base. Not to worry, my neighbour is a plumber (yeah, I forgive him, ha ha) so, a call, an exchange of a story about an antenna, and a cold beer, and I received the results I was looking for. Luckily, he had a 1 1/2 foot piece that was scrap, so I got a base for my project. I put it all together dry to see what it looked like, and hoped it worked as good as it looked.



I added a 10 foot piece of RG 58 a/u cable to connect to my scanner through a slot made in the base of the antenna.



After dry fitting it all together, I hooked it up to my receiver, and noticed a considerable improvement in signal strength. Apparently, you can add a reflector made from chicken wire (all us old timers remember what that is, don't we...) to add more gain. Also, if you notice the hole in the bottom of the base cap, that is to mount it on a tripod to aim it south at the satellite belt.

Well, that's it for now, and remember,
KEEP BUILDING !!

Do what you love, love what you do!!

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