



**Simi Settlers' Amateur Radio Club**

# **Short Circuit**

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More!

Part 2, just for this month only!

September 2024

## CSUCI Expo - Photos by Joe W6JWP

This was a really nice day, especially due to this being a first time event. Held on the campus of Cal State University, Channel Islands. All local clubs were there showing various goodies or projects. Parks on the Air, Vara FM, FT-8, make a tape measure yagi antenna, see a whole lot of go boxes, radios, antennas, our ACS trailer.... From the Settlers, it was the usual gang like Brian, Ron, Joe, Kerwyn, Donnie (who brought "everything" go).

Orv had a table of Mesh stuff with Dave and others assisting.

Talks were held in the auditorium right next door to the expo site. There was a transmitter hunt, with all the people who just made a tape measure yagi running around.

Tours were given for the CSUCI radio club station.

The usual gang from the other clubs / ACS were also in attendance, including John Kitchens, who gave the ARRL Santa Barbara section meeting.

The best part was being able to walk around and chat without having to SAG, report runners, or ride a bicycle.

Everybody told Keith and theborednet.net guys what a great event this was, and we were coming back next year with MORE stuff.



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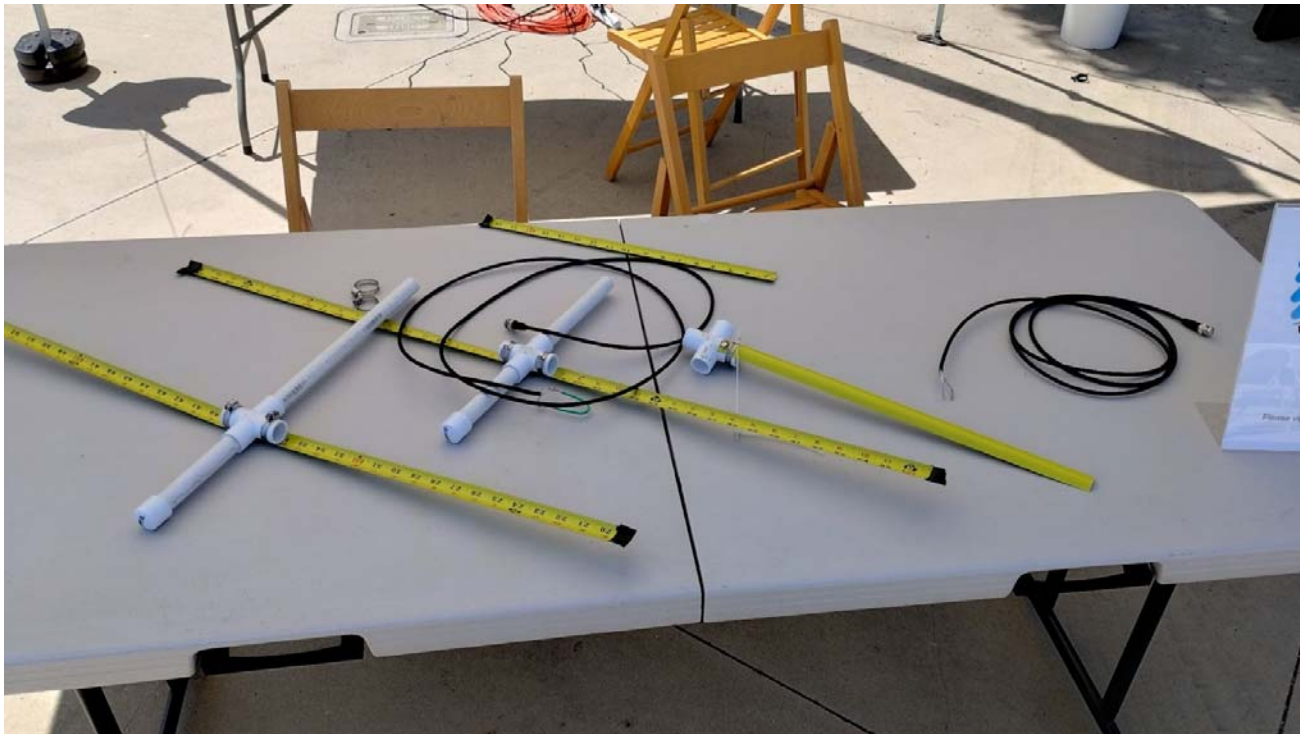


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## Summer Antenna Fun - Joe W6JWP

This summer, in addition to my regular antenna and tower maintenance, I decided to replace the N6BT Q52 2 element 5 band compact beam pictured to the right with a Cushcraft A3S 3 element tri-band beam that I had picked up used a few years ago.

I had bought the Q52 back when I was living in Simi Valley and had a very small yard with no room for a tower, so I wanted something that I could put up on my roof. When I moved to Camarillo and a house with a much larger back yard, was able to erect a modest tower (33 foot crank up) with the Q52 at about 36 feet.



Being used, the A3S required some TLC before I could put it up. Most of the TLC involved the fiberglass spacer for the driven element and the plastic spacers in the band traps.

When the A3S was taken down it was not completely disassembled. The long parts of the elements, the boom and the sections of the antenna with the band traps had been kept together. This included the part of the driven element that included the fiberglass spacer. Of course everything had been stored outside exposed to the sun and rain.

I have no idea how long it had been stored that way before I acquired it, but it probably didn't help that it took about five years before I got around to doing anything with it.



As you can see, the spacer was a hairy mess. I started off by disassembling the driven element for a better look.



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After cleaning it up as best I could, it was ready for the next step.



Eric KE6MLF suggested sealing the loose fibers with an epoxy, so I picked up some clear 30 minute cure epoxy, mixed up a batch and slathered it on and smoothed out the fibers, more or less.



I gave it a day to fully cure then sanded down the rough spots before sealing everything with a UV resistant urethane spray.



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That out of the way, I moved on to cleaning up, inspecting and testing the band traps.

As soon as I removed the electrical tape that covered the protective plastic end caps on the traps I knew I had a problem. Now the person who I bought the antenna from had warned me the end caps would need to be replaced and had even supplied me with new caps he'd never got around to using.



But what I wasn't expecting was the condition of the plastic spacers that were used inside the traps.

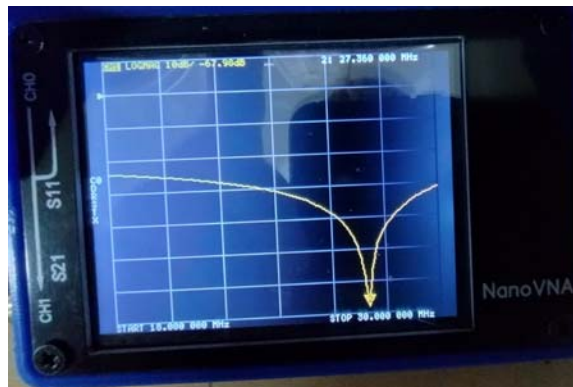
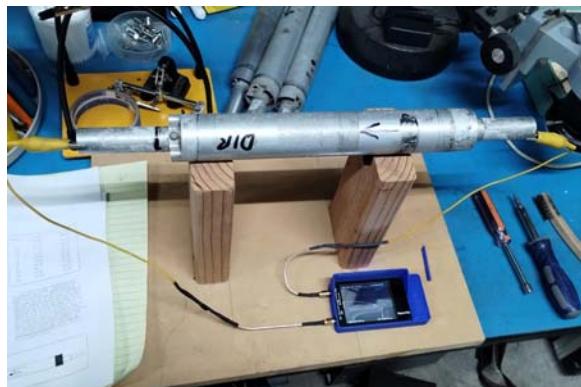


After checking out a couple of web sites and watching a few videos (Google and YouTube are your friends), I decided to try 3D printing replacement spacers and after a little trial and error came up with a design that would do the job. I printed them in PLA and hoped that, since they're inside the aluminum tube, they wouldn't break down or melt. I'll find out next summer how that worked out.





But before I replaced the crumbling spacers I made up a test jig and used my NanoVNA to test the traps. Using information I found online I was able to verify that the traps seemed to be working.



TRAP	OPER FREQ	DIP OSC FREQ
TA	28.60	27.50
TB	21.50	20.39
TC	21.30	20.20
TD	28.00	27.00
TE	28.60	27.60
TL	24.90	24.15
TM	18.11	17.29
TN	21.30	20.20
TK	14.18	12.65

While I had everything apart I gave it a good cleaning with a Scotch-Brite pad and shop cloth and installed the new spacers.



While I was 3D printing things, I designed and printed a little tool that allowed me to mark the assembly points on the traps.



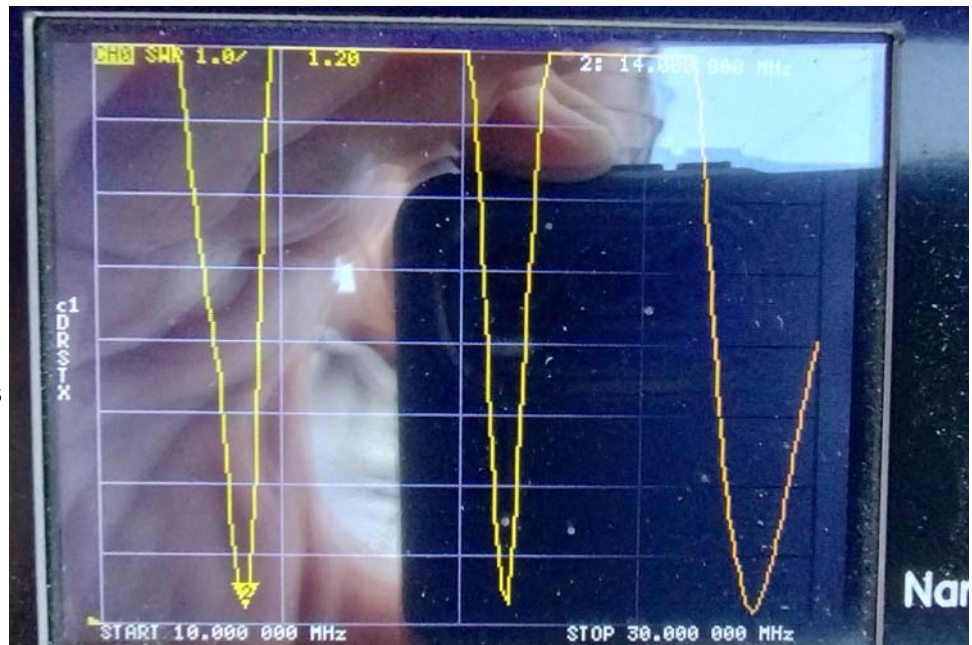
After I finished with the traps I cleaned up the rest of the antenna and assembled it in my backyard..

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Then I tested the final assembly with my NanoVNA. I knew from my research that testing at ground level wouldn't be the same as testing at height, but it would let me know if anything was hideously wrong.



That out of the way, I lowered my tower and removed the Q52 and learned something. Just because someone says something is stainless steel, doesn't mean it is. As demonstrated by the rusted "stainless steel" U-bolts to the right.



Old antenna and rotator removed and new antenna and rotator installed. Please note the red 2x4 that I installed because I had to extend the top section of the tower so I could install the new rotator. I didn't want anything to suddenly move while my hands were inside the tower tightening bolts.



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Now it was time to raise the tower and test my new antenna at height. Unfortunately I had forgotten to remove the red 2x4 before raising the tower to its vertical position and now there was too much weight resting on the 2x4 for me to remove it safely, so down came the tower again.



After removing the 2x4 the tower was returned to its upright condition and extended to its full height.

A final test with the NanoVNA and I was ready for an on the air test.

And the icing on the cake, My first contact was with the 2024 Summer Olympics special event station TM2024OG in Paris, France.

73  
Joe W6JWP

