



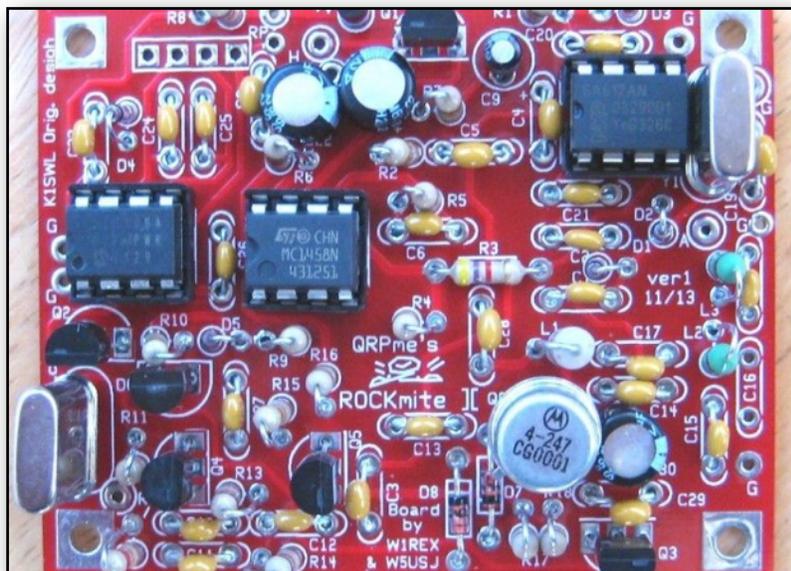
BROOKHAVEN NATIONAL LABORATORY AMATEUR RADIO CLUB

APRIL 2014

NEWSLETTER

NEW BNLARC QRP Group

CW on 40M coming soon! by KD5SFQ

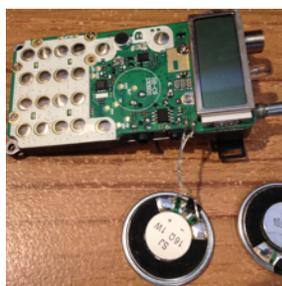


About 10 or more members are going to build this QRP for CW. Join the fun building this kit from qrpme.com. The cost is \$40 plus shipping. The one evening kit will get you on the air quickly. If you don't know CW... No worries. A CW class

meets weekly at BNL or use online resources to gain this valuable skill. We will also be having soldering lessons, keyer building tips and tricks as well as an antenna building workshop.

BoaFeng UV5R Failure by KD5SFQ

So what do you do if your \$30 handheld stops working? If you are like me, you fix it. Recently, one of my UV5R's went silent. The speaker blew out for no apparent reason. The unit still worked fine with the speaker mike but I like using it as a classic handheld. Removing it from this case is easily done by removing



4 torx screws after taking out the battery. Then remove the knob and antenna. Next remove the snap rings on the volume control and antenna jack. Then gently separate it from the case. The replacement only took a few minutes of disassembly, soldering and reassembly. Note that the price of the speaker was 1/3 the price of the whole new transceiver however. Parts came from <http://fleetwooddp.com>

In the Shack

Those onsite may use the shack anytime for DX. We do ask that you are first shown how to operate the DX rig. You can get the key from Nick (X5467) anytime but you have to promise to return it after each use.

Repeater News

If you have not noticed, the station ID has been repaired. Thanks goes to Jon, K11MD.

CW CLASS IN SESSION

It's not too late to join in on all the fun. Contact Nick (X5467) for details.

-Gary Stevens
KD5SFQ

First attempt UHF ground plane antenna

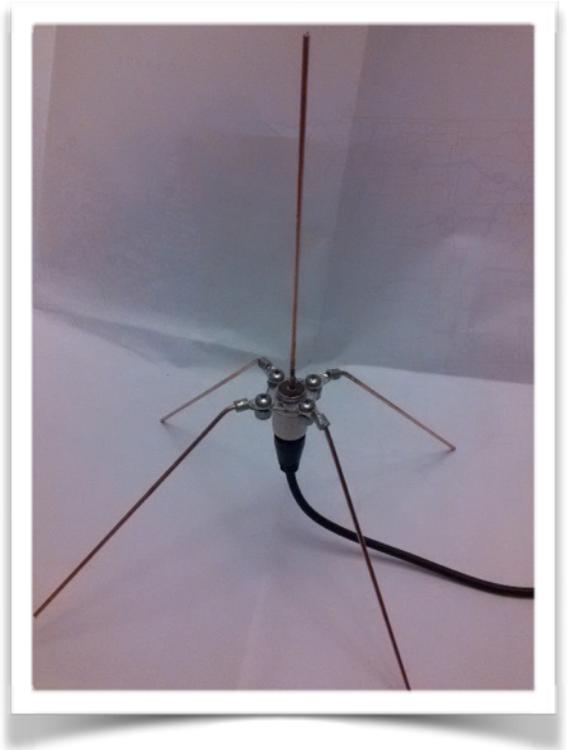
By Joe Levesque
KD2FUB

It was a late Sunday afternoon. The BNL Rag Chew net was scheduled for later that night. My wife left for Manhattan for a week long seminar. The kids are out of the house and the dogs don't want to go for a walk in the nasty weather. So what does one do? If you're a new Amateur Radio operator, your thoughts turn to the air waves to keep yourself out of trouble. Living 10 miles away from BNL's repeater, I wanted to make sure that I could make a solid contact from my house. I had collected a bunch of materials for a ground plane and another set of materials for a J-Pole (also known as a Cactus or end fed Zep antenna). I wasn't sure what should be my first antenna. I finally I set my sites on the ground plane. It looks simpler and the construction was in the introductory packet I received from QST magazine. How could I go wrong?

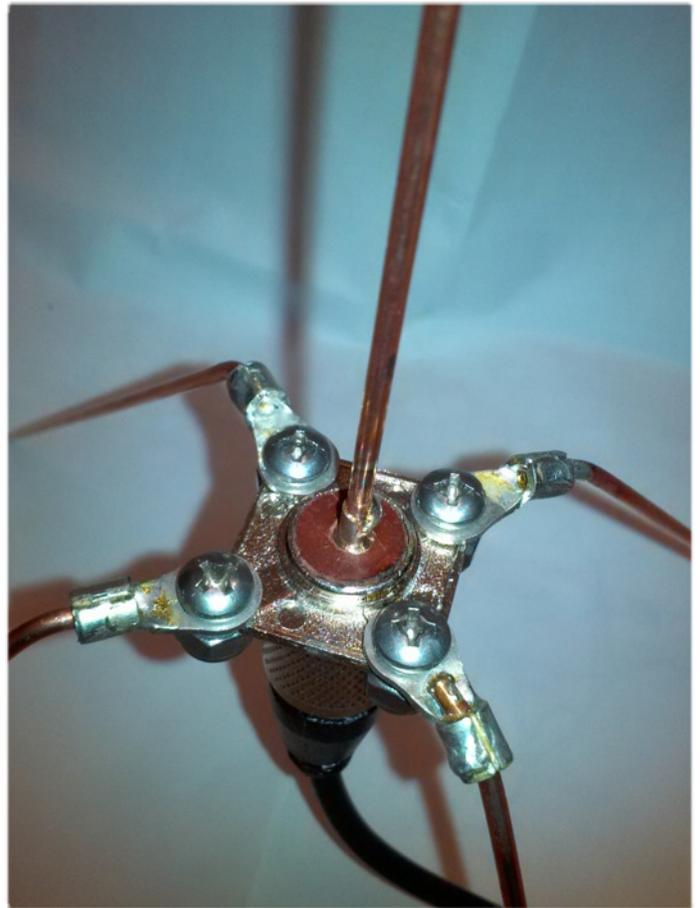
I organized my materials on my work bench. I was going to use copper clad welding rods that I found in True Value Hardware (cost under a \$1 apiece). One rod was sufficient for the one vertical and four radials. I chose the welding rod over the 12 gauge wire since the rod was very rigid. I chose it over the often recommended coat hanger since coat hangers do not solder easy (and try to find a metal one since most coat hangers are plastic now). All my tools were assembled. One new tool for my work bench turns out to be an Apple iPad. The quick searches are invaluable during home projects (just a caution, watch were you put it since it does not take well to drill hitting it or hot soldering slag making contact). After searching the web, I used the UHF measurements I obtained for the ground planes operating around 442 Mhz. The measurements were 6 3/8" for the vertical, 5 3/4" for the radials.

First I had to determine how to cut the 3/8" copper clad welding rod. My linemen's pliers did not work. The hardened center metal did not budge. This was a clear case for a hack saw. A couple of strokes from the saw made a clear clean cut. I have to note that if I have to trim these rods after the antenna is assembled, it will not be as easy.

I had a SO-239 bulk head connector that would be the center piece of the antenna. After smoothing off the end cut on the rod, the 3/8" rod fits into the center coaxial solder connection perfectly. Now the challenge is to solder the connection to provide a durable, long lasting electrical bond. Grabbing a scrap piece of rod, I took some emery paper to make the copper cladding bright (standard practice for preparing for soldering). Bad news was that the cladding is a very thin coat on the metal rod's base material. The emery paper scratched quickly to the base material, which would not take to solder very well. So I opted to let the rosin do it best to make the surfaces connect. In retrospect, maybe a light brush with steel wool could do the trick. Setting up the SO-239 and the radiator in a vise, I proceeded to light up my propane fueled pencil torch and solder away. Ten seconds later, the connection was cooling and set.



Now on to the four ground plane radials. The instructions from the QST article were to bend the tips of the radial wires at 45 degree so that they could be inserted through the SO-239 holes and soldered to the plate. I bent the tips in a vise and proceeded to consider how to attach them to the plate. In closely examining the SO-239 connector that I purchased on Amazon.com, the metal was cast metal. Not a good surface to solder to. I gave it a try to see if I could tin the SO-239 plate. No such luck. The alternative was to use mechanical connections. I considered bending the welding rod into a tight circle to allow a screw and nut to hold it onto the plate (12 AWG wire would have been easy). But trying to bend the rod that tightly was a major challenge. I also wanted to get this project done in a few hours to try getting onto the Sunday night BNL Rag Chew Net. So I decided on mechanical connections. I had ring type crimp connectors that I could attach with a nut and bolt. The solid rod fit into the ends of the crimp connector, but crimping would not work well with the solid rod (crimp connectors are best for stranded wire since they allow for compression). The 3/8 rod fit nicely into the yellow ring crimp connectors (sized for 12 AWG wire). So out came the pencil torch. The solder flowed easily into the crimp portion of the connector. The yellow insulating sleeves melted, as plastic will, even with the quick heat. I cut the insulated sleeves off since they are not needed with an antenna project.



The radials are now ready for attachment to the SO-239 plate. The flat surface of the ring connector fits neatly in the area of the holes on the SO-239 plate. I used number 6 x 3/8" bolts with locking nuts to secure the ring crimp to the plate. I am unsure about the electrical continuity of the connection since the SO-239 plate is a rough surface with a chrome type plating material. Once I get an SWR meter on the antenna, I might file off the chrome plating and add some electrically conductive grease to the connection (Pentrox) if there is a problem (or maybe just as a test). Likewise, to make the SO-239 connector weather resistant around the radial I want to add some liquid electrical tape to seal it. I don't like to handle RTV and it is not very friendly to shape. Adding the liquid tape to the antenna will be another revision that I plan to evaluate with the SWR meter.

Since the BNL ARC newsletter was approaching its publication deadline, I wanted to send this article out even though I did not have a chance to test out the antenna. What I can say is that the antenna looks good and seems promising. I plan to attach it with a pipe clamp to a PVC pipe and attach it to an old antenna mount on the chimney (hoping the PVC doesn't melt with the oil burner running). If people are interested, I will pass on the results of my planned tests.

A Newbies Quest for a Mobile Rig – Part 1

Keith Radich KD2FFM

After getting my license back in December, I started listening to the BNL repeater on the way to work with the radio of choice for new hams the cheap and easy to get Baofeng. This worked fine for the ride to work and I was going to setup a more permanent mobile rig as others have using the Baofeng. I added the [TRAM](#) mag mount antenna and considered buying a second Baofeng just for the car, with a battery eliminator [adapter](#).

I began experimenting with hitting the repeater from my house and the Baofeng was not quite making it even with the external mount. I started looking at getting a mobile rig for the car with more power. Challenge was doing this on a budget. After searching the web I decided I had to set my budget at \$300. You can get a single band 2 meter, 70 cm or 10 meter for around 200, I wanted at least a dual band, links are below for the radios I evaluated.

Options: [AnyTone AT-5888UV](#)
[Yeasu FT-7900R](#)
[Wouxun KG-UV920P](#)
[Powerwerx DB-750X](#)
[TYT TH-9800](#) - Quad Band



All these radios fall into the 300 dollar price range give or take \$50. The Yeasu, Wouxun and TYT coming in at 350 were a bit out of my budget but were attractive, the Yeasu offering a name brand with a good rep, but had the least amount of features. The TYT quad band adds 6 and 10 meters for a great price and this was my first choice, but then I started adding up the cost of a [quad band antenna](#) plus a trunk / bumper mount (quad bands tend to be at least 50" high so are on the edge of mag mount) around an additional \$120 or more. This put it out of my budget plus it only does FM on all bands.

This left the other three Powerwerx, Wouxun and Anytone. All have similar features, looks and ratings. All include crossband repeat (the ability to use them as a repeater, receiving on one band and transmitting on another) a feature which I figured may come in handy. Also all had a generous 50 watts on VHF, 40 on UHF. The Wouxun being a bit more pricey with a few more features.

The Anytone was my final choice giving me a lot of features that the Yeasu did not have (unless you go to the next higher model at the 400 range). The Anytone came in under \$300 which included shipping, head separation cable, programing cable and all mounting hardware and brackets, items that were extras on the other radios.

So far I am very happy with this unit and it works fine from the east end. I would recommend it for a ham on a budget a lot of bang for the buck. I may upgrade the antenna and add a speaker, the picture is of my current install and if get a chance I'll write another article on the installation for a future article.

My Journey of learning CW
Gary Stevens - KD5SFQ

Learning the dits and dahs of Morse code seems to be akin to learning the alphabet. While knowing the ABC's of it all is absolutely necessary, it also seems equally as important to be able to form the alphabet into the words that everyone can understand. It is also important to know about any slang or abbreviations that are often used by those you are communicating with.

I am learning that in CW, abbreviations are commonly used in place of words. This makes perfect sense to me. Not only does this practice save time but it also makes it easier to convey messages with less effort.

Below is a list of abbreviations that are often used.

ADR – address	GN – good night	RIG – station equipment
AGN - again	GND – ground	RPT - repeat
BK – break	GUD – good	SK – end of transmission
BN – been	HI – telegraphic laugh	SRI - sorry
C – yes	HR – here	SSB – single side band
CL – closing	HV – have	TFC - traffic
CLG – calling	HW – how	TMW - tomorrow
CQ – calling any station	K – over	TNX - thank
CUL – see you later	N – no	TU – thank you
DE – from (French)	NIL – nothing	TX – transmit, transmitter
DX – distance	NR – number	UR - your
ES – and (French)	NW – now	VY - very
FB – fine business	OM – old man	WX - weather
GA – go ahead	PSE – please	XYL - wife
GB – good bye	PW – power	YL – young lady
GE – good evening	R – received	73 – best regards
GM – good morning	RCVR – receiver	88 – love and kisses

While this list is not complete, it should give you an idea about the importance of learning some of the more commonly used abbreviations.

Use the table above to figure out my messages.

CQ CQ CQ DE KD5SFQ K

BN GUD WX HR K

SRI UR WX N GUD K

For more information about learning Morse Code, visit:

<http://www.arrl.org/learning-morse-code>

Calendar

April 26th - Marconi Day
 Meet at the Shack for DX fun

May 20th at 12 noon
 Club meeting onsite at the Shack.

June 28th and 29th
 Field Day. Onsite at the Gazebo

Contributors

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YOUR NAME GOES HERE

Let's face it, clubs are more fun when people participate. Share your HAM moments with us by writing a short blurb for the NEWSLETTER. Just send me your article or chicken scratch. It's all good!