

# Ozark QRP Banner



## The Official Newsletter of the Four State QRP Group

**WQ5RP**

November 2023 Edition

**In This Edition:** Park Boundaries, NFØR Bicycle Rim Mag Loop Antenna, A Multiband Antenna System, Big Brutus Event, 3D Paddles, Syncing Your Computer Clock, Altoids Dummy Load, SLQS Celebrates 35 Years, SLQS Fall Outing & POTA Activation, The Nerp Querper, Considerate Operator's Frequency Guide, Vacationing with POTA and a Hamfest and more...

For the history buffs, Morse operators and WWII enthusiasts, Ray provided this link to a very interesting book.

*I found a very interested book talking about one man's Morse code adventures running around the South Pacific during WW2. Ray - N5SEZ* <https://www.radschool.org.au/Books/Katakana%20Man.pdf>

### NEWS from the 4S Group

- Ron Potter AG1P is currently putting the final touches on the T41 kits and will begin shipping in about 2 weeks.
- The builder's guide is on our website at: <http://www.4sgrp.com/kits/T41/T41-Builders-Manual.pdf>
- Dave, NMØS is putting the final touches on the new HF test set. It should be a great addition to your building bench.
- Another run of Cricket 20's will be released as soon as time allows for kitting.
- We are currently ordering parts for another run of Hilltoppers that were designed by Dave Benson. They will be available for Christmas if everything falls into place. It takes a while to get the boards produced and shipped. We plan on selling them with several band options, 20, 30, 40 Meters, with the addition of 15 Meters. This will be the last run of 100 kits due to some of the parts going obsolete.
- Planning has begun for Ozarkcon 2024. Please watch the reflector and or the website for updates.

**OzarkCon will be on April 5 and 6, 2024. Save the date and mark your calendars.**

## National, State and Local Park Boundaries *from QRPer.com*

de Alan, W2AEW

I don't know about you, but sometimes I find it hard to locate maps for the national and state parks. Some of the parks have good maps on their websites, some do not. Others have maps, but they aren't detailed enough sometimes to definitively determine if you're within the boundary or not.

I've found that one of the best sources for the national, state and local park boundaries is [OpenStreetMap.org](https://www.openstreetmap.org). This is a free mapping site. One missing piece is that it does not map National or State Trails very often. But, for park boundaries, it is great.

For example, [this map clearly shows](#) that most of Barnegat Light State Park ([K-1609](#)) is also within the boundaries of the NJ Pinelands Reserve ([K-6609](#)). From experience, I know that this also falls within the NJ Heritage Coastal Trail ([K-6544](#)) - thus making it a 3-fer. At my early activations from this park, I did not know that it was part of Pinelands and thought it was only a 2-fer.

I have also used an app called "[onX road](#)" on my phone which can show owners of properties, but in order to see that, it isn't free. Just another tool for your toolbox.

Another free app, [Parceled](#), on my Phone to discover the owners of land parcels-it works brilliantly and is free (so far).

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## FT-817

For those who own an FT-817 there is a replacement for your speaker if you have experienced problems. This replacement will most likely work on the FT-818 also. *Provided by Bryan, KØEMT*

<https://www.ph2lb.nl/blog/index.php?page=ft-817-speaker-replacement>

After I found a video on YouTube about replacing the original speaker from the FT817 by a MASSOTH 8241020 speaker I was surprised about the difference. So I ordered the Massoth speaker at my local model railroad supply shop and made the mod myself. And I must admit it was worth it. Too bad the video didn't really catch the increase in dynamic and detail. For example turning the volume way up didn't give any distortion though the camera couldn't handle it.. *de PH2LB*  
There are other good items for the 817 on the website.



# St. Louis Micro Loop Revisited

de Dave Gauding, NFØR

dgauding7@gmail.com



By request here is an update for the St. Louis Micro Loop project. There are several tweaks and a design change to share since I posted the antenna on QRP-L in May 2009.

Assuming a homebrewer is resourceful a micro loop can be built for \$30-50 in an hour or two. At the same time, it is a great way to try out magnetic loops yourself before buying a commercial product.

Fifteen years have passed and the current version of the micro loop now includes 10-40M coverage. Even running QRP it's a capable antenna for indoor or outdoor use. It is good for operating portable and can be built stealthy to avoid attracting the attention of an HOA.

The micro loop is a handy alternative if installing a traditional antenna just isn't an option. It compensates for some of its own limitations by operating on seven HF bands in a very small footprint.

I believe you will be pleased with a micro loop if you decide to build one. Let's put together an antenna that looks like the pictures accompanying this article.

Start with a 26 inch tube-type aluminum bicycle rim. You can buy an inexpensive rim from an internet vendor for \$15-20. Bikes at garage sales can be productive if your not in a hurry. Better yet beg or buy a retired rim from the scrap box of a neighborhood bicycle shop.

An AM broadcast-type air variable capacitor with two sections in series helps keep ohmic losses low by eliminating the two wiper connections. The loop covers 10-30M as built so with Ohm's Law in mind simply disconnect one section to add 40M.

Unless you have an air-variable capacitor with an integral reduction drive or anti-backlash gears you will want to add a Jackson Brothers 6:1 drive or a Japanese drive to improve tuning. Insert an insulated coupling between the reduction drive and tuning knob to minimize hand capacity. This can be a manufactured coupler or a piece of flexible plastic tubing.



The diameter of the coupling loop is 5.2 inches or 20% of the rim diameter. It will need 16.3 inches of wire plus a little extra for connections. #12 or #14 solid insulated wire works well. The feedpoint can be a BNC or SO-239 panel mount connector or a dual-binding post BNC connector.

Suspend the coupling loop with zip ties from the bottom of the rim directly above the variable capacitor. The coupling loop can be bent to follow the curve of the rim. Add a 90 degree connector to the coupler to keep the feedline away from the capacitor.

I prefer RG-174 for the micro loop. It's more flexible than RG-316 or RG-58 and the increased loss is negligible in such short runs. Three feet of coax is fine for operating off a picnic table with the loop standing right in front of you. I use six feet of coax when elevating the loop on a folding stand.



To create the radiator hacksaw through the rim at the pre-drilled hole for the air valve stem. A larger cut would allow the tuning capacitor to fit comfortably between the ends of the loop. Unfortunately, that would remove three important inches from the rim that is only seven feet in circumference. The alternative is to cut an inert pad (wood, delrin, plexiglass) wide enough to hold the rim firmly in place when pulled open by hand.

I used 1/4 x 1 x 24 inch strip wood blanks available from most hobby shops to build up the rim pad and the mounting base using CA cement. The rim pad measures 1/4 x 2 x 3 inches. The base is 1/4 x 3 x 6-1/2 inches. If your portable operating locations tend to be windy

then extensions added to the sides of the mounting base will help prevent tipping.

Attach the capacitor to the rim pad. Most capacitor frames have provisions for three screws. Recess the screw heads so the rim pad lies flush with the mounting base.

The rim is anodized. The oxide layer must be removed before the antenna leads are installed. This means filing or grinding contact surfaces down to bare metal inside and outside of the rim. Brass screws and knurled nuts serving as both loop attachment points and feedpoints should be prepped for soldering the same as the rim. Use the existing spoke holes as guides to drill through the base for the screws.

Solid copper wire or copper foil is suitable for the antenna connections. Copper braid is too lossy to use with a magnetic loop.

Attach the rim pad to the mounting base with screws or CA cement. Pull the rim open so it fits over the rim pad. Attach the rim to the mounting base using the feedpoint screws.

The right-hand lead is soldered to the stator tab of the rear capacitor. The left-hand lead is terminated with a mini-alligator clip and attached to the front capacitor stator. Both stators are used for 10-30M. For 40M the front stator lead is disconnected and grounded to the capacitor frame.

That's it, you're done! The completed micro loop will weigh between two and three pounds depending on your choice of rim and capacitor. It's carried easily by hand, slung over a shoulder or hung from a backpack for the hike to an operating site.

The micro loop is self-supporting so set-up, tuning and breaking down the antenna goes quickly. It takes less than a minute to complete a picnic table installation or two minutes if using a collapsible stand. I elevate the micro loop on the stand to where it is still easy to tune from a seated position. I use thirty inches (table top height) as a realistic starting point when using the stand.

One way to connect a stand to the mounting base is to solder a 1/4 in - 20 brass nut to a metal or pcb tab. Center it on the base and attach the assembly with screws. The base needs rubber pads at the corners to compensate for the projection.



. So how is this antenna doing on the air? Not too bad considering it is a miniature HF antenna. The project started out in 2007 as a passive receiving loop. I built it for a retired ham confined to a care home where stray RF is always overwhelming. Both of us were surprised at how well that loop received after it was installed in his room.

10M through 30M are the most useful bands for the micro loop. 20M is my favorite band especially now that POTA has become popular. 40M is usually open somewhere 24/7. While it's not a stunner on 40M the micro loop gives a pretty fair account of itself elsewhere.

A quick reminder that the micro loop is a narrow band high-Q magnetic loop. It also has bi-directional characteristics. When well-tuned the antenna handles ten watts without issues.

## Random Thoughts

I still don't know who came up with the first bicycle loop antenna but I think it was a good idea then and now. Real ham radio if you will and undoubtedly the work product of experimentation.

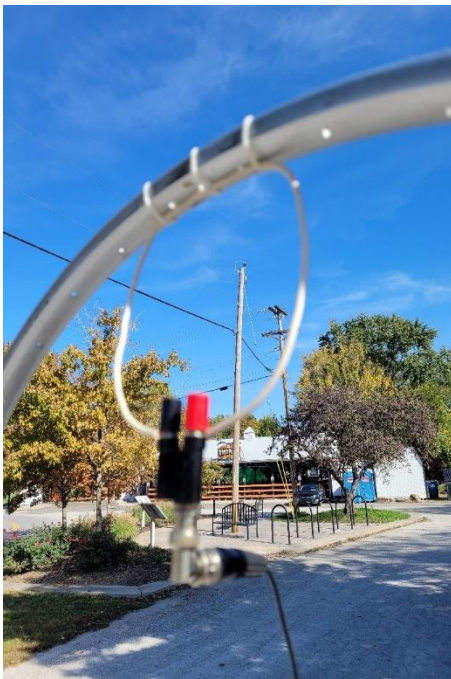
You can also use a modern tubeless bicycle rim that is lighter than a tube-type rim. Some rims are offered in colors and patterns that may help to conceal it.

Reduction drives in series are not always the answer. The finer the tuning the harder it is to find an audible peak or a fast QSY may not be available when you need it.

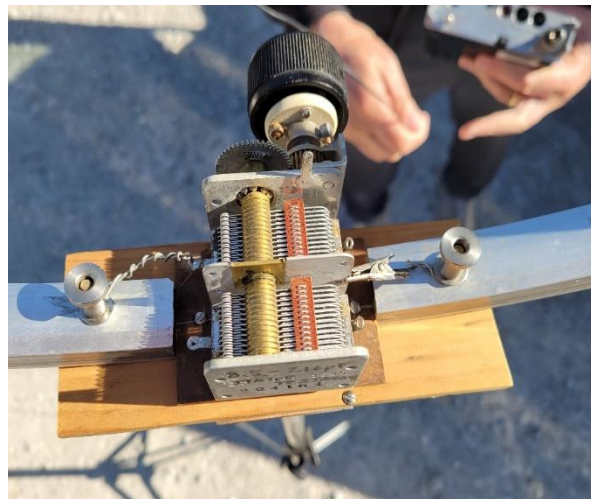
A micro loop has three metal-to-metal connections. If you are not interested in 40M these connections can be soldered in place. That helps to reduce ohmic loss and improves efficiency.

Don't count on long ragchews. The micro loop is a minimalist antenna and sensitive to any change in propagation.

The QRP Column for CQ Magazine in June 2013 by Cam Hartford, N6GA (SK) has a nice article on the micro loop. Back issues can be downloaded on-line at: <https://hamcall.net/cq>



Coupling Loop  
Feed Point Attachment



Tuning Capacitor w/Reduction Drive  
& shaft decoupler

# SLQS Fall Outing & POTA Activation

What a perfect day it was October 17th for the St. Louis QRP Society Fall Outing and POTA Activation. The temperatures started in the upper 50's and reached up to 70 by afternoon with a perfect blue sky and light winds. This is an annual event for the club.

Ten members attended up for the event in Defiance, Mo. alongside of the Katy Trail, which is also adjacent to the Lewis & Clark National Park Trail as well.

So, we had a Two-fer, two parks activated. Five members successfully activated. After we activated the group went to the local pub next to the park for a few 807's and lunch.

The attendees were:

AEØLZ

WØDCX

KCØPP

NFØR

NØMII

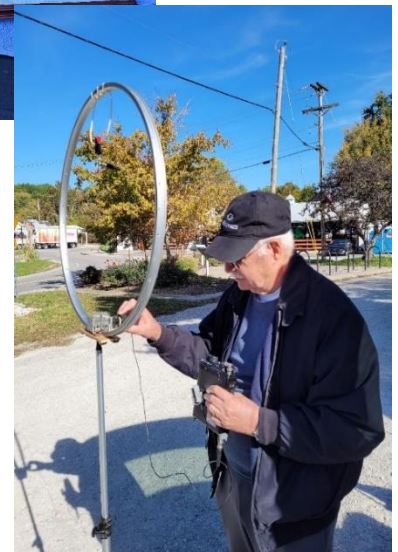
KOØZ

KC9ULA

NØSA

KØFHG

KKØU



# A Multiband Antenna System

by W6BOW

## Overview

A multi-band antenna to "fit" my urban lot, capable of handling moderate power (100W), easily constructed, easily installed, easily serviced, and easily modified, and having low SWR across all bands.

## PART 1: The Antenna System



Figure 1

### Antenna

Total length: 132' ( $\frac{1}{2}$  wavelength 80 Meters).

Height above ground: "A" = 15', "B" and "C" = 10',  
"D" = 25'.

Counterpoise

A 13' Counterpoise (0.5 wavelength 80 Meters) is connected to the antenna feedpoint "A".

20M Trap

A coax type 20 Meter trap is positioned 33' ( $\frac{1}{2}$  wavelength 20M) from the antenna feedpoint "A".



Figure 2



Figure 3

Tuner Transforms the high Z impedance antenna feedpoint "A" to low Z impedance (50 Ohm) TX output.



Figure 4

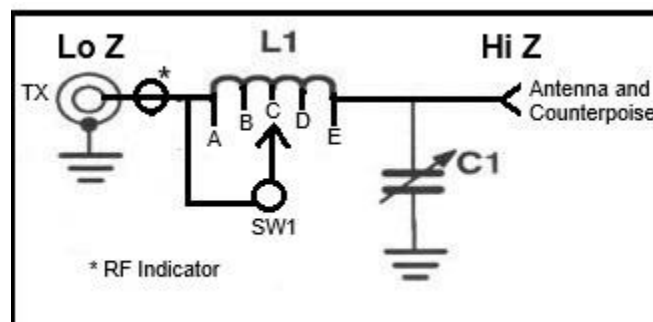
Tuner schematic

Figure 5

Tuner components

C1                    100pf air variable  
SW1                  Rotary Switch  
L1                    28 turns #16 insulated close wound  $1\frac{5}{8}$  inch OD.

| Band     | Tap | Turns |
|----------|-----|-------|
| 80       | A   | 28    |
| 40       | B   | 7     |
| 30       | C   | 6     |
| 20/17/12 | D   | 4.25  |
| 15/10    | E   | 3.75  |

\* RF Indicator See "Build Notes" below.

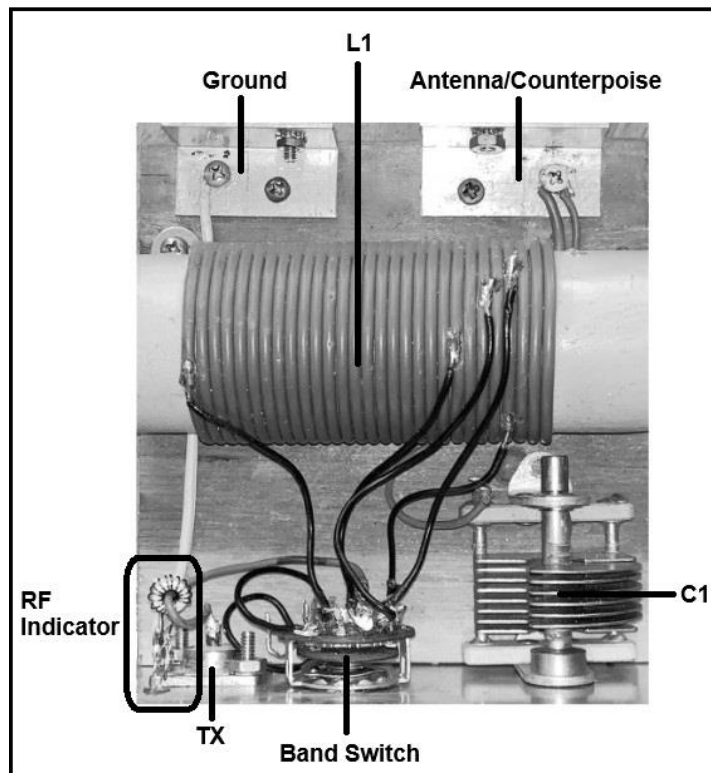
Tuner Component Placement/Wiring

Figure 6

Antenna Performance - SWR

| BAND | FREQUENCY MHZ | SWR  |
|------|---------------|------|
| 80   | 3.7           | 1.5  |
| 75   | 3.95          | 1.35 |
| 40   | 7.1           | 1.5  |
| 30   | 10.1          | 1.15 |
| 20   | 14.1          | 1.25 |
| 17   | 18.1          | 1.5  |
| 15   | 21.1          | 1.5  |
| 12   | 24.9          | 2.0  |
| 10   | 29.0          | 1.2  |

Figure 7

Notes

20M Trap: Required (for low SWR on 20 Meters).

Counterpoise: Required (for low SWR on all bands).

Tuner: "Breadboard" chassis. Aluminum front panel and enclosure. Component power ratings were "guestimated". The unit passed a 100W "smoke test". I do not use this Tuner running in excess of 80W.

**RF Indicator:** LED, 14 turns of enameled copper wire wound on a T-20-6 toroid core. By design it achieves full brilliance at 7W output but easily scalable to higher/lower RF output levels.

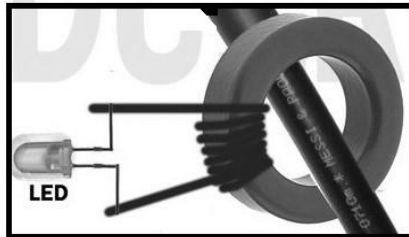


Figure 8

**Grounding:** This system's ground is approximately 18' of 12 AWG bonded to house (copper) water supply. Not the ideal ground but clearly required for low SWR on all bands and common mode mitigation.

**Tuner Operation:**

1. Select band of operation (BS1).
2. Adjust C1 for minimum SWR.

**Resources (Internet):**

- A Simple and Flexible Tuner for QRP by Craig LaBarge, WB3GCK
- Abricon - Antenna Impedance Match Simplified
- Some hints/tips on how to assemble nice COAX TRAPS!
- How to build a Coaxial Trap. Dipole, Vertical or EFHW
- The Coax Trap, A simple device that makes your Antenna Multiband

## Part 2: "Flexible" Labeling.



Fig. 7

The Tuner is compact. Ideal for portable and field use. C1 settings will undoubtedly change per variation in antennas and operating environments. This "Flexible" labeling system was designed with these changes in mind.

### Build Tools, Materials and Procedure



Fig. 8

Windows Paint App

Printer and Printing paper

Clear plastic laminate (Avery Binder Pocket sleeve)

Scissors

Rule

Adhesives

3M Multipurpose (spray) Adhesive

Scotch Double Sided Tape

Dry Erase Marking Pen

1. Design and print label. (I used Windows "Paint".)
2. Apply spray adhesive to label face. (I used 3M Multipurpose spray Adhesive)



Fig. 9

3. Apply clear plastic laminate over the printed, adhesive sprayed label face. (I used a Avery Binder Pocket sleeve for my laminate.)
4. Smooth out any trapped air bubbles.



Fig. 10

5. Apply double sided tape to the reverse side of the label. (I used Scotch Double-Sided Tape.)



Fig. 11

6. Trim label edges.



Fig. 12

7. Apply the prepared label to the enclosure.  
 8. Record settings using dry erase pen.  
 9. Erase old settings with a clean cloth/paper towel.  
 10. Use a dry erase pen to record new settings.

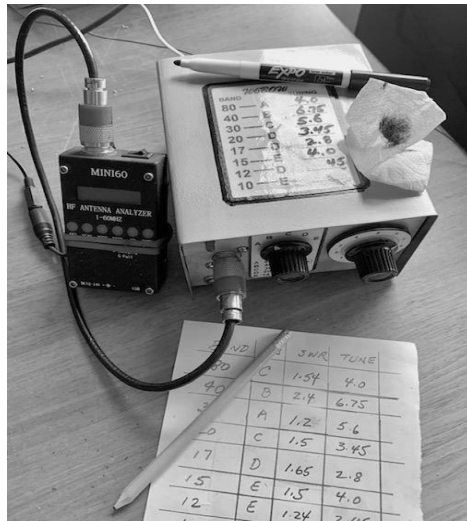


Fig. 13

**Notes** I like to finish my enclosures with a clear acrylic spray coat. However, do not apply any finish over the "Flexible" label. So doing may defeat your ability to write/erase/rewrite as settings change. The clear plastic laminate described above provides the desired protection and appearance.

W6BOW

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9/11/2003

# Taming a 3D Printed Keyer Paddle

by Wes Spence, AC5K



Earlier this year, my XYL and I went to a hamfest where someone was selling 3D printed keyer paddles he made. I looked at one and told her it was "interesting" but decided not to buy. She decided to surprise me and circled back around and bought one. It wasn't very expensive, and I figured I could find some use for it.

Well, when I got it home and tried it, I immediately knew something was seriously wrong. Every time I tried to send with it, it would start sending a constant string of dits or dahs. The dit paddle would start non-stop dahs and the dah paddle would start dits. I was busy at the time, so I set the paddle aside until I had time to do a full autopsy.

When I had a block of time I could spend on the paddle, I first got an Ohmmeter to start trying to figure out what was going on. The first issue was the dit and dah paddles were wired backwards (for a right handed operator). After fixing that, I still had the problem where either paddle would cause the keyer to lock on a constant string of dits or dahs. The design of the paddle is very simple. Screw heads on the paddles contact a copper tube mounted vertically between the paddles. Upon close inspection, I noticed that the copper tube was moving in the opposite direction of whichever paddle was pushed. The problem turned out to be the diameter of the bolt that holds the copper tube was much smaller than the hole in the copper tube, allowing it to move and contact the opposite paddle contact each time a paddle was pushed. Once I figured out this design flaw, the solution was simple. I disassembled the paddle to remove the copper tube and installed heat shrink tubing over the bolt that held the copper tube to take up the extra space. I also added a star lock washer under the head of the bolt that secures the copper tube. Once the paddle was reassembled, it was working 100% with no errors.

I found a use for it as my paddle to use on POTA activations. The minimal investment meant that I did not have to worry about damaging the paddle in field use. To make it easier to use, I needed the finger pieces to be higher off the table than the design, so I mounted it on a piece of marble 'liberated' from an old bowling trophy that my parents won in the 1960's. I hope this helps others that may come across this flawed design.

dit dit

# The Nerp Querper

*an antenna mount for the ages. . .*

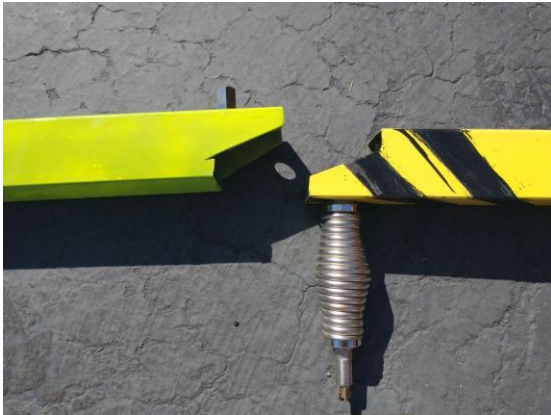
## An Opportunity

As I contemplated building a mobile antenna mount for the 2" receiver hitch of my truck, it dawned on me that I could construct two mounts - one for use while in motion, and one for stationary operations. The mobile mount would be pretty standard, but the other mount should accommodate the tail gate being lowered, so I could operate off the back of the truck. So, with that germ of an idea, I set off to [Shapiro Supply](#) to purchase a 48 inch length of 2" square, 0.062" wall steel tubing.



## A Real Cut Up

Observing all applicable safety practices, I wielded my angle grinder and cut the tubing into two pieces. On the right is the mobile mount (upside down, with spring mount for ham sticks), and on the left is the Nerp Querper, right side up.



As I looked at the extended arm of the NQ, I also thought it might be able to support my 40' spiderbeam mast. I didn't think that the 0.062" wall tubing could support the torque of that long a lever arm, so some way to support the mast, and also keep it from torquing the mount too much was needed.

What I devised was using a  $\frac{1}{2}$ " steel rod with spacers that would fit inside the fiberglass mast section. This steel rod would extend through a hole in the mount, and either be driven into the ground, or be pointy enough to sit securely in surfaces like asphalt. To facilitate driving the rod into the ground, I drilled a hole about eight inches from the end where I can slide a screwdriver in and use it as a foot peg to push on.

The spacers were cut with a hole saw from a scrap 2x4. They fit with about an 1/8th inch gap between them and the mast, which works just fine.

## In Action

If you were to be able to make it to our September swap meet, you might have seen the Nerp Querper in action, with my 40' mast supporting **Jeff NØMII's** 40 meter dipole. We worked W1AW/3 handily with a KX2.

As you can see in the final photo, with the Nerp Querper fully inserted into the receiver hitch of my truck, there is still room to lower the tail gate and operate from there. When driven into the ground, the steel rod provides plenty of stability for the 40' mast.

So far, so good. I'll be taking this to some POTA activations this Fall, so I'll report later on how it holds up. One might ask why it's painted Safety Yellow. That's so when you walk past, you see it and don't querp your nerp.



*de KKØU*



## RadioShack's New Owner Plots Old Comeback Strategy

RadioShack has been acquired by El Salvador-based Unicomer Group with a plan to overhaul its website and add new programs driven by its heritage in technological innovation for franchised operators.

Unicomer had become one of the largest independent RadioShack franchise owners in the world, acquiring the El Salvador franchise in 1998 and the rights to the RadioShack brands, intellectual property, and franchise agreements for all of Central America, South America, and the Caribbean in 2015.

Rudy Siman, president of RadioShack International and new businesses, franchises, and trade VP at Unicomer, told the Wall Street Journal that more than 500 new products will be added for sale online and be made available to U.S. dealers. Items will include "more end products than the stores have typically sold, focusing more on cellphone products, headphones, batteries and adapters, for instance."

RadioShack will seek to establish an Amazon.com storefront and revive franchise development. Founded in 1921 to provide equipment for amateur ham radio operators, RadioShack now has The former owner Retail Ecommerce Ventures, which acquired RadioShack in 2020, relaunched RadioShack last year as a crypto exchange called RadioShack Swap as the cryptocurrency market was crashing.

However, RadioShack's return to its traditional focus on consumer gadgets and adaptors means the new owners will have to overcome the problems that led to the first bankruptcy in 2015, including heightened competition for consumer electronics from online players like Amazon and big-box stores such as Best Buy.

Smartphones have taken the place of the multiple consumer gadgets RadioShack used to sell. The influx of cheaper copycat gadgets manufactured abroad also hurt the business. Private label offerings, including drones, headphones, radios, and adapters, were strongly emphasized pre-bankruptcy to offset the margin pressures, a push expected to be continued under the new owners.

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## Sync Your Computer Clock - In the Field Without Internet!

By Jo-Anne "Chris" Spence, KA5P XK

I have become interested lately in doing POTA activations using FT8 QRP. With digital modes, it is essential to keep your computer clock correctly synced to the second. A lot of my activations are done in remote places without access to Internet or cell coverage. I know some use a complicated method of syncing using GPS satellites, but that requires buying extra hardware. There is a better and cost free way to do it.

I have been using an amazing free program called JTSync. It has been a very useful tool for my field FT8 POTA activations. The program will allow you to sync via Internet if you have it, BUT what is so cool about this program is that it will listen to the FT8 signals on your radio and sync your clock to average of the timing of those signals you are hearing. It has been a life saver for me many times. A quick Google search will show you where to get the program.

# Vacationing with POTA and a bonus, Hamfest

de KCØPP

My recent vacation took me through several states, but our goal was to visit; KY, TN, AL, NC, VA, WV about 2800 miles in all. My goal aside from a nice vacation with the XYL was the Huntsville Hamfest and a little POTA activity. I thought POTA activations in this area provided for a onetime experience.

My first activation was Mammoth Cave National Park. We had two cave tours that day, one in the AM and one in the PM. So between our tours and while having lunch I setup the station in the picnic area. I had my usual KX3 and 28' go-to vertical antenna on a 31' fiberglass pole. I setup the antenna and connected the rig. There were a few stations on 20 meters but not a lot of activity. So I pulled out my cell phone to spot myself. Uh-oh, no signal. I walked around the area to see if there was any signal at all, nope-nata-zero.

So I just got on the air calling CQ POTA. The first station that I worked gave me a nice report and I asked him if he would spot me. He agreed but I had no way of confirming it. The contacts were slow coming. Maybe band conditions were not favorable that day for me. I received the usual reports from 52 to 59 and everywhere in between. But it took a lot of work just to make a few contacts. After almost two hours of calling CQ, I ended up with just 8 contacts. Not enough to get credit for an official activation.

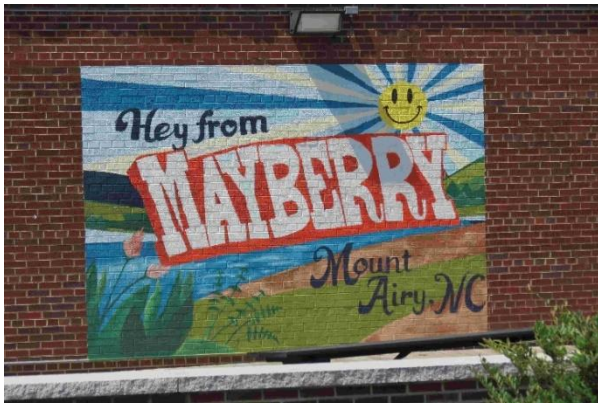
Then it was off to the Huntsville Hamfest.



My next activation was on Mt. Mitchell in NC. This is the highest point East of the Mississippi River at 6684 feet. We found a nice picnic shelter at about 6500 feet. I used the same setup and I was able to spot myself. After setting up the antenna I was off and running. *By the way my XYL doesn't have any interest in my hobby, but lucky for me she likes to read. So while I'm on the air she can relax and read a book.*

It didn't take long to make an easy 10+ contacts. Maybe because of my elevation. By the way, Mt. Mitchell is in the Pisgah National Forest so this was a two-fer, two park activation.

We drove about 90% of the Blue Ridge Parkway in NC. This is a beautiful drive; the road has what I call *character*. A lot of curves and hills. Maximum speed was about 45 mph. So I made this my next activation. Again, I spotted myself and made my contacts in just a short time. Then back on the road.



We spent that night in Mt. Airy, TN. This is the town where Andy Griffith grew up and the town that the show was made after. It was fun to visit if you are in the area.





Our travels took us next into VA and then to WV. In WV we stayed in Fayetteville. This is in the New River Gorge National Park. After seeing a couple of waterfalls, we found a picnic area at the visitor's center. I quickly setup the station, spotted myself and again contacts came in a short time.

This was a nice vacation with Ham Radio mixed in. What else could you want, a Hamfest and portable ham radio (POTA).

Thanks to my XYL for being patient and tolerating my hobby.

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## Important - Four State QRP Group Member Survey

The Board of Directors is looking for input on possible changes to OzarkCon format and content. Please take the survey to help us make decisions.

<http://www.4sgrp.com/interestPoll2023/>

Many Thanks go out to David NA1MH for his hard work developing it.

72 - Ron - AG1P

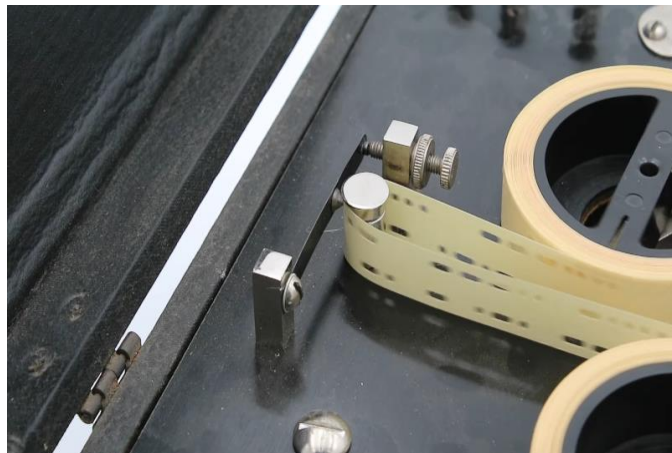
4SQR Volunteer Secretary/Treasurer

4SQR Volunteer Webmaster

# MACHINE TEACHES MORSE CODE

## The Instructograph

If you are a ham radio operator of a certain age, you probably remember ads for "The Instructograph," a mechanical device for learning Morse code. [Our Own Devices] has [an ancient specimen of the machine](#) and shows us how it works in the video below. The machine is a model of simplicity. You wind up a spring-driven motor like you would for an old record player or music box. A slider sets the playback rate, and paper tape starts to spin.



de NØMII

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de Walter, K5EST 

If you built electronic kits while growing up, especially those marketed by HeathKit, chances are you used a small plastic too called a Nut Starter. Did you know HeathKit did not manufacture the Nut Starter? A young man named John Brake sold tools to HeathKit, one of which was the erstwhile Nut Starter. So what happened to John Brake? And the little tool that could and still does? John is CEO of Desko Industries Inc. in Chino, California. RAIN'S Hap Holly, KC9RP, caught up to John to piece together the Nut Starter story. <http://www.mendapump.com/>

<https://menda.descoindustries.com/MendaCatalog/Hand-and-Power-Tools/Small-Nut-Starter/35120/>

35120 - Small Nut Starter

<https://www.youtube.com/shorts/dmE9xlwgro?feature=share>

\$2.38 each

Helps to hold and install small mounting hardware. Holds nut sizes Regular No. 2 through Small No. 4 US nut size dimensions ranging from 3/16" to 1/4" Metric size dimensions ranging from 4.7mm to 6.4mm Four inches long, Material: Polyethylene (LDPE) Made in the United States of America for superior quality.

The originals supplied to HeathKit were **RED**.



Four State QRP

# The Big Brutus Annual Event

West Mineral, KS



The 2023 Brutus Bash was another fun operating event.

It was held on Sept. 8th and 9th 2023.

If you have never been there, make plans to attend next year.

Attendees this year were:

ED MEYER W65F

KAREN MEYER W5KKM

CHARLES POWELL NK8O

TOM SEVART N2UHC

SKYLER SEVART (TOM'S SON)

RAY MCNALLY N5SEZ

WES SPENCE AC5K

JOE PORTER WOMQY (womquee)

AARON SCOTT K5ATG

TIM HARPER W5TAH

BRAD GOINGS KCOHIO

JOHNNY MATLOCK ACOBQ

PAM MATLOCK KE0ZWZ

It began on Friday evening with two brave souls (NK8O and N5SEZ) showing up and camping out overnight.

The rest of the gang arrived on Saturday morning to join the outing events.

Pam and I brought the traditional smoked ribs, baked beans, and tater salad, and numerous side dishes and desserts were served as well.

We had lots of fun visiting and operating, but it's possible that the visiting may have occupied most of our time.

Charles NK8O set up on digital and ended up with many JT8 contacts as well as numerous CW contacts throughout the weekend.

It was a fun time that was enjoyed by all.

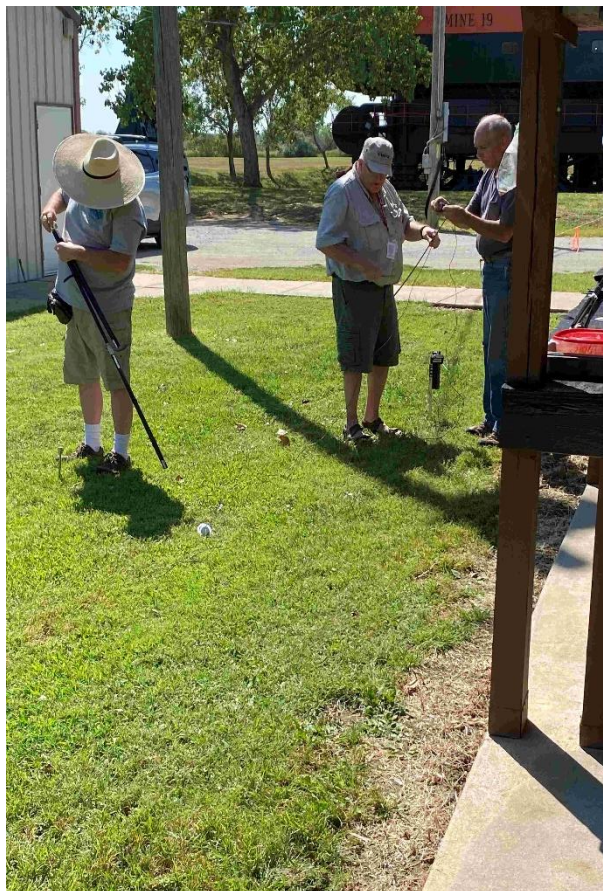
I hope to cu all there next year! The event takes place each year in September

## On the Air



Very nice work

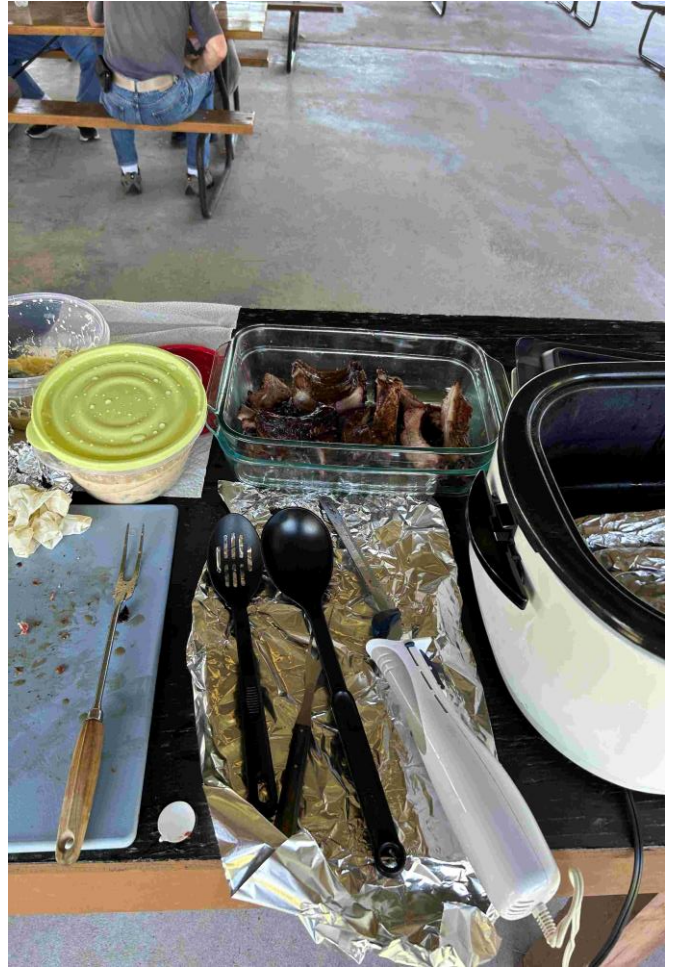
## The Antennas





## Great Food and Socializing





# Build a Classic Altoids Dummy Load

By Wes Spence, AC5K

It all began when my XYL brought me the smallest Altoids tin I had ever seen, and asked me if I wanted it or should she just throw it away. Any person who does home brewing knows that you never throw anything away, so I stored it in a drawer for a while. A few months (years?) later, I decided I needed a dummy load capable of handling the power of my Elecraft KX3 and had found a suitable use for the tin.



I read somewhere about the then new MP820 thick film resistors. These resistors have a package that looks like a transistor, with mounting tabs that can mount to a heat sink. I bought two MP820-100, which are 100 Ohm 20 Watt resistors, to be connected in parallel for 50 Ohms and capable of handling the output of the KX3 with a large safety margin. I added a chassis mount BNC male connector and installed the two resistors so that the Altoids box would serve as a heat sink. I also used heat sink compound between the resistor tabs and the tin for better heat transfer. This was a very simple project, but always gets attention from other QRPers, and of course is also a cool salute to all of the QRP projects that were built in to Altoids tins (and Sucrets tins before that) by QRPers in past years.

dit dit

# St. Louis QRP Society Anniversary Dinner

## Celebrating 35 Years, 1987 - 2023



KØØZ shows off his SLQS Tote Bag

The SLQS celebrates 35 years at their annual anniversary dinner at Mattingly's Grill. About 15 members attended.

**To celebrate 35 years, members received a commemorative tote bag.**



At one time or another we have all seen and hopefully reviewed the *Considerate Operator's Frequency Guide*. Some may call it the Gentleman's Agreement. New operators should review it and try to abide by it. It is also a good idea for seasoned Hams to review it from time to time just as a reminder.

No one operator owns a frequency, but we must be considerate and not interfere with others. Special groups such as SSTV, AM operators, FM operators, Digital, DX Windows and more are important to be considerate of.

Good practice and common sense will help us all share the frequencies.

### The Considerate Operator's Frequency Guide

The following frequencies are generally recognized for certain modes or activities (all frequencies are in MHz) during normal conditions. These are not regulations and occasionally a high level of activity, such as during a period of emergency response, DXpedition or contest, may result in stations operating outside these frequency ranges.

Nothing in the rules recognizes a net's, group's or any individual's special privilege to any specific frequency. Section 97.101(b) of the Rules states that "Each station licensee and each control operator must cooperate in selecting transmitting channels and in making the most effective use of the amateur service frequencies. No frequency will be assigned for the exclusive use of any station." No one "owns" a frequency.

It's good practice — and plain old common sense — for any operator, regardless of mode, to check to see if the frequency is in use prior to engaging operation. If you are there first, other operators should make an effort to protect you from interference to the extent possible, given that 100% interference-free operation is an unrealistic expectation in today's congested bands.

| Frequencies    | Modes/Activities                       | Frequencies   | Modes/Activities                       |
|----------------|----------------------------------------|---------------|----------------------------------------|
| 1.800-2.000    | CW                                     | 14.233        | D-SSTV                                 |
| 1.800-1.810    | Digital Modes                          | 14.236        | Digital Voice                          |
| 1.810          | CW QRP calling frequency               | 14.285        | QRP SSB calling frequency              |
| 1.843-2.000    | SSB, SSTV and other wideband modes     | 14.286        | AM calling frequency                   |
| 1.910          | SSB QRP                                | 18.100-18.105 | RTTY/Data                              |
| 1.995-2.000    | Experimental                           | 18.105-18.110 | Automatically controlled data stations |
| 1.999-2.000    | Beacons                                | 18.110        | IBP/NCDXF beacons                      |
|                |                                        | 18.162.5      | Digital Voice                          |
| 3.500-3.510    | CW DX window                           | 21.060        | QRP CW calling frequency               |
| 3.560          | QRP CW calling frequency               | 21.070-21.110 | RTTY/Data                              |
| 3.570-3.600    | RTTY/Data                              | 21.090-21.100 | Automatically controlled data stations |
| 3.585-3.600    | Automatically controlled data stations | 21.150        | IBP/NCDXF beacons                      |
| 3.590          | RTTY/Data DX                           | 21.340        | SSTV                                   |
| 3.790-3.800    | DX window                              | 21.385        | QRP SSB calling frequency              |
| 3.845          | SSTV                                   | 24.920-24.925 | RTTY/Data                              |
| 3.885          | AM calling frequency                   | 24.925-24.930 | Automatically controlled data stations |
| 3.985          | QRP SSB calling frequency              | 24.930        | IBP/NCDXF beacons                      |
| 7.030          | QRP CW calling frequency               | 28.060        | QRP CW calling frequency               |
| 7.040          | RTTY/Data DX                           | 28.070-28.120 | RTTY/Data                              |
| 7.070-7.125    | RTTY/Data                              | 28.120-28.189 | Automatically controlled data stations |
| 7.100-7.105    | Automatically controlled data stations | 28.190-28.225 | Beacons                                |
| 7.171          | SSTV                                   | 28.200        | IBP/NCDXF beacons                      |
| 7.173          | D-SSTV                                 | 28.385        | QRP SSB calling frequency              |
| 7.285          | QRP SSB calling frequency              | 28.680        | SSTV                                   |
| 7.290          | AM calling frequency                   | 29.000-29.200 | AM                                     |
| 10.130-10.140  | RTTY/Data                              | 29.300-29.510 | Satellite downlinks                    |
| 10.140-10.150  | Automatically controlled data stations | 29.520-29.580 | Repeater inputs                        |
| 14.060         | QRP CW calling frequency               | 29.600        | FM simplex                             |
| 14.070-14.095  | RTTY/Data                              | 29.620-29.680 | Repeater outputs                       |
| 14.095-14.0995 | Automatically controlled data stations |               |                                        |
| 14.100         | IBP/NCDXF beacons                      |               |                                        |
| 14.1005-14.112 | Automatically controlled data stations |               |                                        |
| 14.230         | SSTV                                   |               |                                        |

ARRL band plans for frequencies above 28.300 MHz are shown in *The ARRL Repeater Directory* and on [www.arrl.org](http://www.arrl.org).

## Four State QRP Comfortable Nets

Meet each Wednesday night beginning at 20:00 Central Time. Add anything to the exchange that you wish, temp, rig, ant, etc.

Checking into all sessions is encouraged. We call it the "Clean Sweep".

8:00 pm Central time - 40 Meter Net on 7.122 +/- QRM ACØBQ/NCS

8:30 PM Central time - 80 Meter Net on 3.564 +- QRM ACØBQ/NCS

9:00 pm Central time - DMR Net on Talk Group 31654 NØYJ/NCS

NO dIGITAL Net currently.

All are welcome!

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## DMR Voice Net

Wednesday evening DMR Voice Net will be at (Thursday) 0300 UTC (9:00PM Central Time Wednesday/) Four States QRP has a Brandmeister DMR Talk Group (TG31654). Join us to discuss QRP, ask questions, or just ragchew.

The Wednesday net is a directed net but any other time you may use the Talk Group to chat with other QRPers. Net Control operator is Bert NØYJ.

For information and help, check out the DMR subgroup on 4sqrp.groups.io

<https://4sqrp.groups.io/g/DigitalFM>

## Second Sunday Sprint

Occurs on the second Sunday of each month, 7 to 9 PM Central

Any mode, any band (except WARC & 60 mtrs) -

- Suggested frequencies: standard calling freq. plus 7122 and 3564 (CW), and 3985, 7285, and 14285 (SSB).  
as well as the usual QRP watering holes.

QSO's with the same station on different bands are allowed. CW and SSB portions of a band count as two bands.

- Calling CQ is suggested to be "CQ 4S"
- Exchange is "RST, SPC, member number (power if non-member)"
- 5 Watts max CW, 10 Watts PEP max SSB.

The station with the most contacts each month will be emailed a certificate. Furthermore, the top three stations with the most SSS contacts during the year will also receive certificates via email.

Scores are submitted via the [grpcontest.com/4sgrp](http://grpcontest.com/4sgrp) website (compliments of W8DIZ).

For full details, please download the [complete rules \(PDF\) here](#).

For questions, please contact **Walter (K5EST)**:

[SecondSundaySprint@4sgrp.com](mailto:SecondSundaySprint@4sgrp.com)

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## Thursday Morning

The Four State morning net has been convened for members who like to start the day on the air.

We meet each Thursday morning at 8:00 AM Central on 7122 kc. 7122 has become the Four State 40M hangout frequency, and often members can be found there on any morning.

## Editor's Note:

Articles are needed to make every Banner issue successful. If you have something of interest, please send it to the editor at the email address below. You do not need to send a finished article. You can send some comments, notes, etc. and I can put it all together for you. Pictures are always of interest. I prefer Word format, that works the best, but I will work with what you have as I can. Some of the items of interest would be outings and /or operating events by yourself or a group, construction whether equipment, antennas, accessories, QRP Field Day, SOTA, etc. Anything QRP is welcome.

de KCØPP

[editorqrpbanner@gmail.com](mailto:editorqrpbanner@gmail.com)



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