Ozark QRP Banner

The Official Newsletter of the Four State QRP Group WQ5RP

August 2020 Edition

Field Antennas: In this issue we are covering antennas that can be used in the field while operating portable or at home if you prefer.
Portable End Fed Zepp, A Lightweight Portable 40 & 20M Trap Dipole, Center Insulator for Portable Antennas, Field Antenna Survey Results, Experimenting with Mag Loop Antennas, End Fed 40-20-10 Meter Antenna

As many operate portable, SOTA, Picnic Table Portable (PTP) or those who would like to operate in the field this edition of the QRP Banner will hopefully give you some good ideas for antennas. Although there are many antennas that are simple and portable enough to use, here in this issue are a few to consider.

Also the results of our in the field antenna survey. This information will give you an idea of what many of the members are using. Thanks to all who responded.

If your portable antenna plans include one of the many fiberglass telescoping poles take a look at the article in the August 2019 QRP Banner by Bryan, KØEMT. Bryan has some great recommendations for you.

Portable End Fed Zepp

de WAØITP

I first saw what I now call the 5 minute - $5 antenna mentioned on a QRP reflector by Peter Millis , M3KXZ. Pete called it the "No Counterpoise" antenna, and he's done considerable EZ-NEC work on it. Additionally he's phased two 20M versions in a vertical configuration.

The No Counterpoise is a neat version of our old friend, the End Fed Zepp..

I've used EFZ's over the years, along with many other cheap and easy wire antennas. Some I've actually called Cheap and EZ's - doublets, really long doublets, dipoles, verticals, long wires, not so long wires, short wires, tall verticals, short verticals, etc. etc.

I have returned often to the EFZ because it seemed like the ultimate multiband Cheap and Easy antenna to me. It's easy to build, easy to erect, easy to tune and easy on the pocketbook. It does require a tuner most of the time, but if it's used for a single band, the radiator and the feedline lengths can be adjusted so a tuner may not be needed.

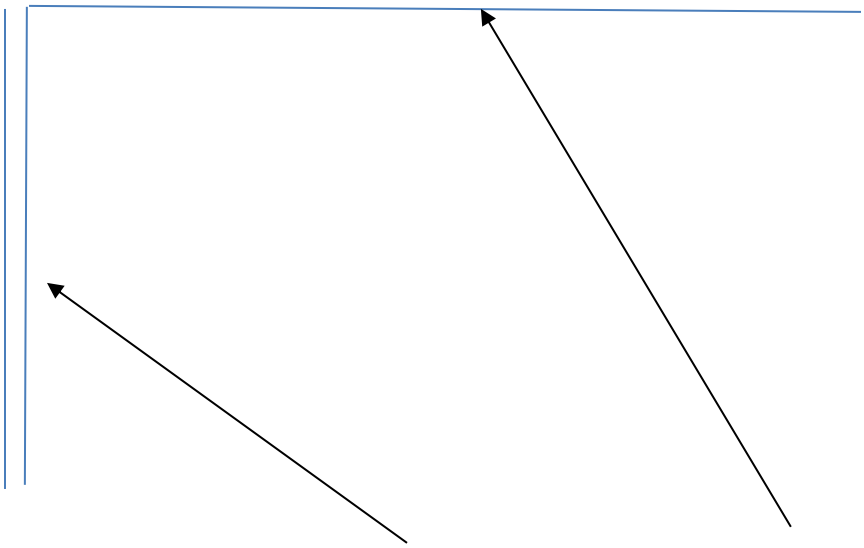
As is common knowledge, a true End Fed Zepp is a half wave radiator and a quarter wave balanced feedline. It has many followers and proponents, at least I hear and see it mentioned often. Maybe not as often as the gold standard dipole or center fed doublet of some length, but often enough. Why do some of us like them? Because they're quick, cheap, easy, and they work. One attribute that is often seen as a negative is actually a positive in this antenna, the feedline radiates. Since it's up in the air that's not a bad thing, especially at QRP levels. Easy to Build … Easy to Erect … Easy to Tune… and Cheap too A few real life examples will help illustrate these points.

Portable Ops. I've been using a 50 foot version of the no counter poise/end fed zepp / end fed random wire/whatever for several years now for portable ops. It's a 25 foot radiator fed with a 25 foot balanced feedline. My BLT matches it well on 40 and up, and it's easy to put up. Just throw the far end into a tree and the feedline end guzzinta the camper or taped to the picnic table. It's seldom been more than 30 feet up, and still works fine. One additional attribute is that it seems to be less succeptible to hand capacitance than a wire and counterpoise. I've put up a 100 footer to cover 80M and up, and it worked well also. So well that I decided to hack my venerable BLT to cover 80M. I wound up using a T-Match to get it, but that's another story..

So what's the 5 minute - $5 thing all about?

As mentioned above, Pete, M3KXZ, called it the "No Counterpoise" antenna. I call my 40M version the 5 minute-5 dollar antenna because I make it from a $5 -50 foot roll of Radio Shack speaker wire, and it takes only about 5 minutes to make. Here's the quick steps, 5 minutes total time - guaranteed…

1. Unroll it
2. Split it back halfway
3. Cut off one side
4. Tie a loop on the end of the single wire
5. Strip and tin the ends of the feedline

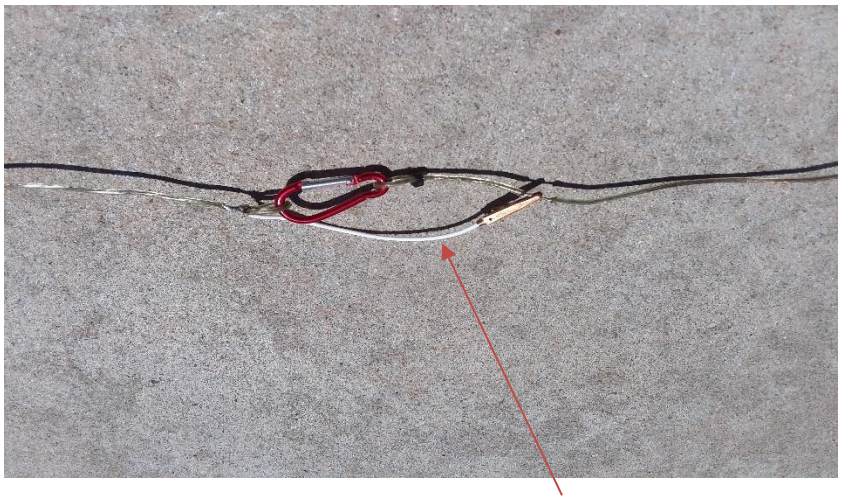


To radio, tuner or balun 25 foot balanced feedline 25 or 50 foot antenna

That's it! Antenna building doesn't get any easier than that. Give this Cheap and EZ antenna a try. It's great for portable ops and it proves my antenna motto: "Try It – It Might Work!"

KCØPP comments:

So what to do with the 25 foot single wire that was cut off? When space allows attach it to the end of the radiator and make a 50 foot radiator.



Jumper

My antenna was built with 16 AWG speaker wire. Smaller wire can be used, this is the size that was in my junk box. *In my previous experiments do not use zip wire or lamp wire (cord). For some reason the insulation on this wire does not work well with higher frequencies.*

Tom, WB8EJN and I did some testing in the field. The antenna at 25 foot in length was set up as a sloper. At 50 foot it was an inverted V. The height at the end of the sloper or at the V was about 25 feet.

First tests were made with the MFJ analyzer. No dips were found on any ham band for 80 meters thru 6 meters. This was with or without a 4:1 balun.

Second the antenna(s) were connected to my KX3. The ATU easily tuned the antenna from 80 meters thru 6 meters with the 25 foot length with or without a 4:1 balun.

At the 50 foot length the KX3 tuner easily tuned the antenna with a 4:1 balun. However without the 4:1 balun the tuner was not as happy tuning the antenna.

These test results will surely vary with your installation whether horizontal, vertical, sloper or inverted V. Put one together for yourself and run your own tests.

So there you have it, a simple and cheap antenna that is perfect for backpacking or any portable operation that's worth a try.

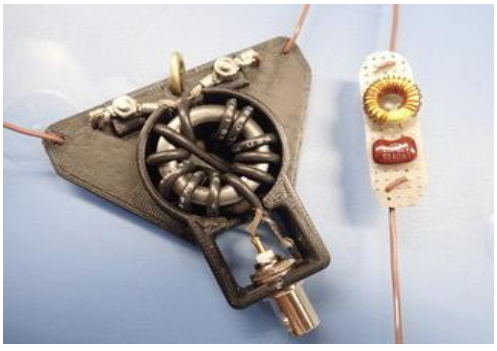
A Lightweight Portable 40 & 20M Trap Dipole

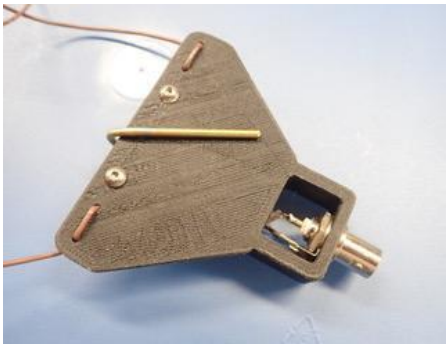
By Larry Naumann nØsa

This is a description of a portable antenna I use in the field, mostly for SOTA ops. This is not a step by step article but enough information is included to allow you to make a similar antenna if you so desire. This antenna is from a progression of designs I have used in the field over time. I started with a 300 ohm window line fed doublet about 66 foot long and using a balun at the feed point. This along with the ATU in my KX2 made an all band antenna. It worked great but was a bit of work to hoist up in the trees. I then switched over to an EFHW antenna with various matching transformers of my own design. This antenna was quite a bit easier to hoist due to not having a center feedline. But I still had to carry a throw/support line along with a weight. Now I am using the antenna I will describe in this article. It is a two band trapped (40-20M) dipole fed with about 25 feet of RG174 coax and a balun at the feed point. I no longer hoist the antenna into a tree and instead use a SotaBeams Tactical Mini push up pole. With the push up pole I no longer have to find a suitable tree for support. The downside is that the center feed point is not quite as high as I normally install my antennas. This was a worthwhile tradeoff in my opinion.

Performance has been quite good. The antenna is installed in the inverted V fashion. The Tactical Mini pole goes up to 19.6 feet in height. On 40M the antenna works close in states due to it's low height, on 20M the pattern is more far reaching, even allowing some DX work. VSWR is low on both bands and no ATU is needed. With a feedline of only 25 feet, even using RG174, coax losses are still quite low.

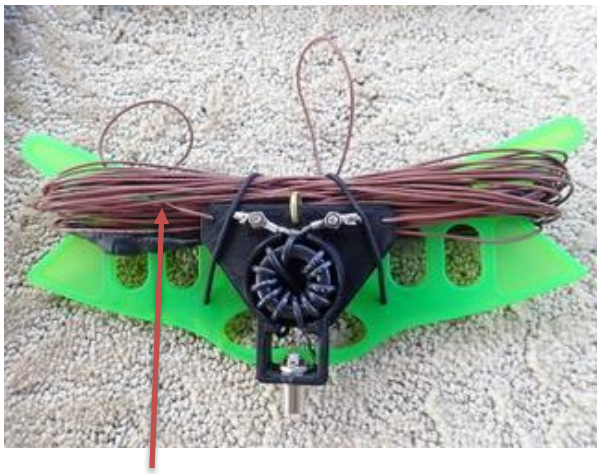
I will start the description at the feed point. As stated earlier I use RG174 to keep weight and size down. I also use BNC connectors for the same reason plus it matches what my KX2 uses. The center insulator is a simple design that I 3D printed. It holds and protects the balun and provides a BNC connector plus wire support and connections. The balun is a simple FT114-43 toroid with 12 turns of RG174.





Also on the center insulator is a small piece of brass rod that is bent through the insulator and has a tang long enough to go into the end of the top section of the push up pole. It is very simple and works great. This allows me to use the full length of the pole. There are some brands of push up poles that do not have strong enough end sections. The SotaBeams pole is very robust and can carry the weight.

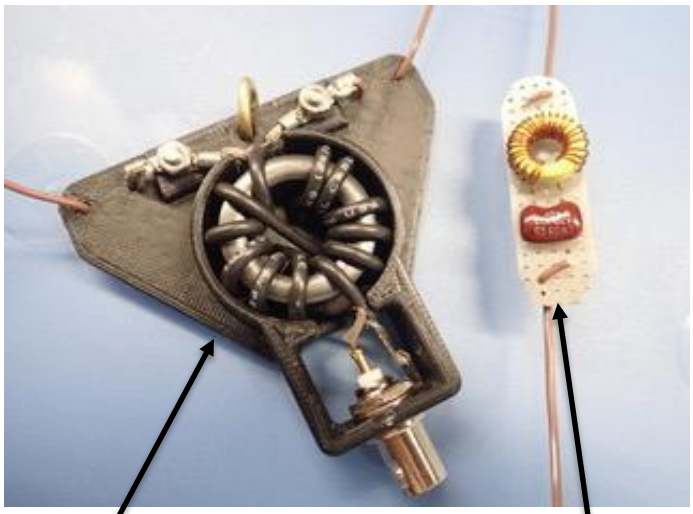
The next section is the actual wire. I like to use a 22 gauge Teflon insulated stranded wire with silver plated conductors. I find it on EBay from surplus sources and it is usually mil spec. I like this wire as it is light and does not kink or get stiff when cold.



Teflon Wire

RG-174

The traps are of course for 20 meters. I tune them just below the band as I only work CW. I set them to about 13.9Mhz. I have read that they are most efficient if they are not tuned too close to the actual operating frequency. These two worked great as after I tuned the antenna for 20M with a long tail for the 40 M section, then when I tuned it for 40M, it had no effect on the 20M tuning, total isolation. I made the traps using what I had on hand. I had two nice 47pF mica caps so I found the proper number of turns needed on a T50-6 core. I used 25 turns to get them to resonate at about 13.9Mhz. The 25 turns gave me a little bit of adjustment up or down by squeezing or spreading the turns a bit. Then I covered in heat shrink. The heat shrink will lower the frequency a tad so that needs to be taken into account. The 47pF value is not critical. The value you use will affect the inductance you will need to resonate plus the more inductance you use the more you will load the 40M section and the shorter the antenna will need to be.



Balun Trap

I could have just used a linked dipole but I wanted to use traps as I would not need to lower the antenna to change bands. Plus all the hardware needed to accomplish the links adds catch points when trying to erect an antenna in the woods.

Next is the mast and supports. As I stated, I use an inverted V configuration with the 19 foot pushup pole in the center. I like to use Nite Ize S carabiners and cord tensioners. They are easy to use and I have never broken one. The S carabiners come in all metal and plastic. I use both and they hold up well. I made a small plastic section that slides down the pole from the top and stops a few sections up from the bottom, this is my mid-point support with three cords attached. I start by extending the pole with the mid-point support over the pole, then attach the top center antenna support. I then install two stakes in the ground about 10 feet apart and attach two of the support cables. Then I simply stand the pole up and pull the two support cords tight, then walk out the third support cord with a stake in my hand and set the third support. All that is left to do is unwind my two end support cords, attach to the ends of the antenna and pull the ends outward and set the stakes. I use Nite Ize cord tensioners as they work great and are very light. When I first assembled the antenna parts I had the tensioners pre-attached to the cords on the mid-point support. They always got frustratingly tangled this way. I found that pre-attaching them to the stakes ended that problem. It's the simple things that get you.

Nothing earth shattering here but it works for me. I am impressed with the quality of the SotaBeams pole. The Tactical Mini will just fit inside my pack, it is strong and fairly light. The Nite Ize products can be found at Home Depot, they are great products. I use the min S-carabiners. I have no connection with either company other than being a happy customer.

Antennas are always a fun project and something almost any ham can and should learn how to construct. Dipoles, in my mind are the workhorse of our hobby. They are hard to beat for simplicity and performance. Cebik wrote an article years ago titled "Why Are We Using Wire?". I know the answer to that, they are cheap, easy and they work great.

Experimenting with Mag Loop Antennas

de KCØPP

Many of us own or have owned Mag Loop antennas. Whether commercial or home brew they all seem to be 10 feet +/- in circumference. Over the years I have built at least five loops of various materials from copper tube to bicycle rims to coax cable. The 5/8 inch copper tube seems to work best but is not convenient to pack and carry around. So my favorites are made with coax cable. The cable that I use must be 100% shield with braid over foil. The St. Louis QRP Society (SLQS) Mag Loop kit uses LMR400 and others that I have made use RG11 (75 ohm) cable TV coax with foil and braid. The impedance of the cable is not relevant for this use.

So why is 10 feet the magic length? Well maybe it isn't. I have studied many articles on Mag Loops. Most start with the magic 10 feet. There is a site that I use with a calculator for Mag Loop antennas. Go to http://www.66pacific.com/calculators/small-transmitting-loop-antenna-calculator.aspx . You can calculate what size is best for the band(s) you wish to operate. The calculator gives the size of the capacitor needed, the efficiency and other good information. You can play with the calculator to find your best design. So now you have a source that will give you recommendations for designing an efficient Mag Loop Antenna.

The 10 foot loop with the correct capacitor and coupling loop will operate from 10 thru 40 meters. But per the calculator we can see that this length is good/efficient for 15-20 meters. For 30-40 meters, I made my loop 19 feet long with the appropriate size coupling loop. I had to make a different PVC support due to the size. For 10-12 meters I use a 7.8 foot length again with the appropriate size coupling loop. I use the same tuning box for all three antennas. This tuning box is from the St. Louis QRP Society (SLQS) Mag Loop Kit. *Note: The SLQS Magnetic Loop antenna was designed and kitted by NØSA.* The capacitor is a twin 440 pfd that uses both sections for 220 pfd. with a Jackson reduction drive.

So everything looks good on paper. What about performance? Does the size effect the actual on air performance? Let's see. A field test was set up with a field strength meter at one end of the test range and the loops at the other. One at a time each loop was tested. The SLQS 10 foot antenna was the used for the base line. Using the KX3 as my RF source the field strength meter scale goes from 0-5 and was set to 2.5 for reference. The I added a couple of additional loop antennas; the first being an aluminum bicycle rim loop and a 20 meter version on the MJF 9232 loop tuner using a copy of their tuning device. https://mfjenterprises.com/products/mfj-9232 (More experimenting needs to be done) These were tested only on 20 meters.

Band	SLQS Loop	19' Loop	7.8' Loop	Bicycle Rim	MFJ 9232 copy
10m	2.5	----	3	----	----
15m	2.5	----	1.5	----	----
20m	2.5	----	----	.8	1
30m	2.5	5.5	----	----	----
40m	2.5	5.5+**	----	----	----

** pegged the meter

As you can see in the chart the 19 foot 30-40 meter loop blew away the 10 foot SLQS loop. This was also evident on Field Day where we used both loops as our only antennas. I was disappointed to see the 7.8 foot 10-15 meter loops results. Per the design I would have expected better performance. But this is why we do testing and comparisons.

If you have been thinking of making a mag loop antenna this information and the links below should help you out. This antenna is very easy to build, the hardest part is finding a good capacitor which is not impossible, many types are available.

Additional Sources:

https://www.nonstopsystems.com/radio/frank_radio_antenna_magloop.htm

http://brisdance.com/vk4amz/files/Download/UnderMagLoop.pdf

https://www.qsl.net/hb9mtn/index.html

https://www.qsl.net/vk5bar/Small%20Loops%20-%20Mike%20Underhill%20KLT%20&%20BR/small__loop__antennas-Main%20Index.htm

http://www.brisdance.com/vk4amz/VK5KLT.html

The above links provide a lot of additional information on Mag Loop antennas. VK5KLT is an expert and provides a lot of good comments. You can also Google Mag Loop Antennas but be prepared to be overwhelmed with information.

Field Antenna Survey Results

First thanks to the 26 who responded to the survey. There were many interesting comments. Most responded with the antenna they used was easy to install and worked reasonably well.

Antenna	#	Comments
Magnetic Loop	6	Portable Good Performance Easy to use
Vertical	2	Easy to install Reasonable performance
End Fed Half Wave	4	Light and easy to install Can be installed in many configurations
End Fed Random Length	5	Reasonable performance Easy to install Lightweight
Dipole	7	Good performance Not always easy to install
Buddipole	2	OK performance Easy to install and carry

Surprisingly the dipole type antennas were the winner with the mag loop coming in second. Some of the dipoles were resonant others were Center Fed Zepp's, Off Center Fed 135' antennas, Windom and were noted as difficult to install but worth the effort with outstanding results. Dipoles require a center support in most cases. Installed at a lower height, 40 meters works as an NVIS, but at 20 meters they worked both US and DX. Mag loops seem to work DX as well as close in.

The verticals were home brew and required some type of radials.

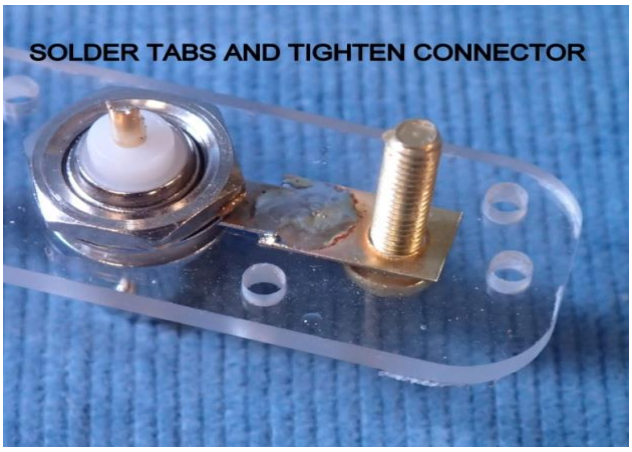
The end fed both half wave or random length were easy to install and could be configured as a vertical, inverted L, inverted V, horizontal; all based on the type of supports available or used at the time.

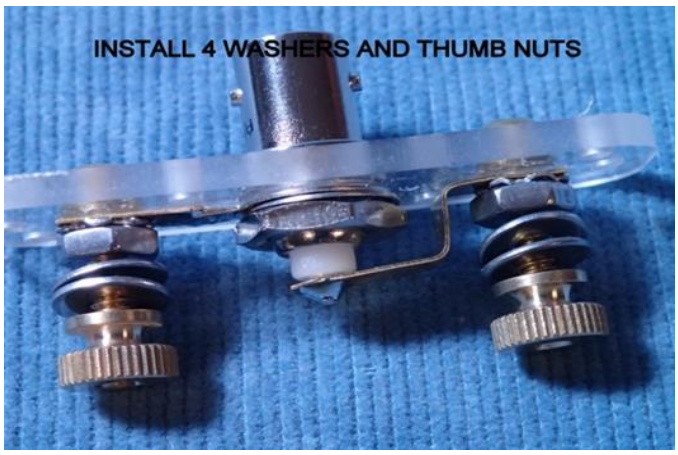
Many of the antennas did not require an ATU. Some used homebrew type ATU's but most used radios with a built-in tuner, so there was not an extra piece of equipment to bring along.

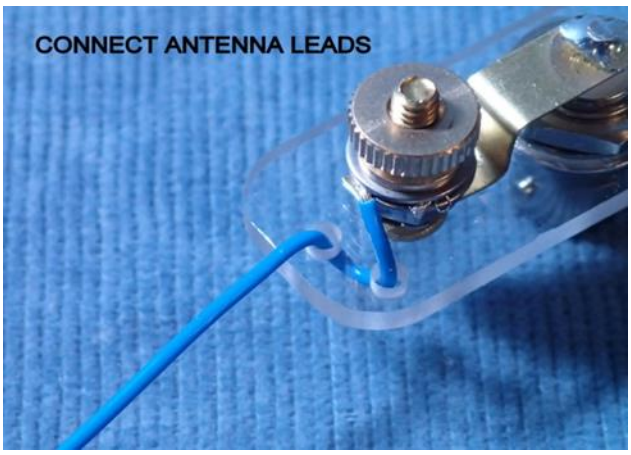
Center Insulator for Portable Antennas

From The SLQS

The photos below will walk you through building a cheap and simple center insulator for your portable antennas. All materials are easily obtainable at your local box store (except for the BNC connector) or maybe from your junk box.







Odds and Ends:

Hams have been using Q signals from the very start. Other radio services have used them even longer.

When you go to the 4 States web page and click on Ozark QRP Banner, have you ever wondered what QUA stands for? Well here is the answer from Wikipedia. There are many Q signals used by other radio services and many are no longer used. Look at the complete list and you will see.

https://en.wikipedia.org/wiki/Q_code

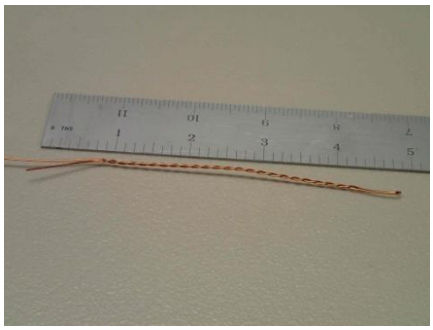
QUA	Have you news of ... (*call sign*)?	Here is news of ... (*WQ5RP*).

Oh, and QSH to all.

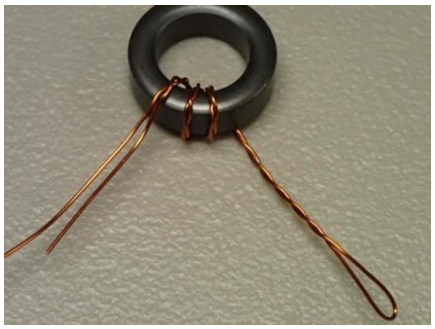
An End Fed 40-20-10 Meter Antenna

From The SLQS

MATCHING TRANSFORMER – T-1



PIC 1



PIC 2

PIC 3

1. Cut a piece of #24 mag wire 36" long then double over 5" and twist the wires together (about 8 twists per inch) as shown in PIC 1
2. Wind 3 turns on the toroid as in PIC 2. Do it exactly as the picture shows so that the wires will come off the toroid at the correct location.
3. Wind 24 more turns around the toroid with the remaining single wire see PIC 3 MATCH BOX

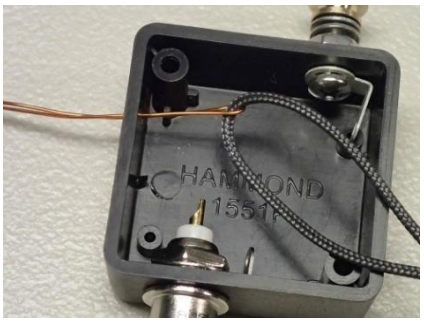
PIC 4

PIC 5

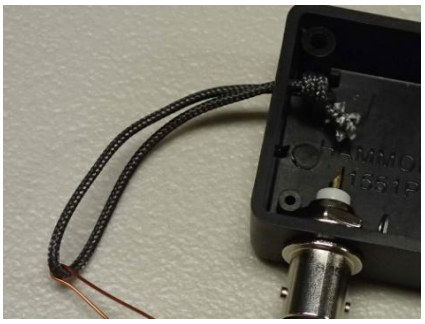
PIC 6

1. Install the hardware as shown in the Pictures. Using the 6-32 hardware. Bend solder lug as shown. Be sure to include the lockwasher.
2. Install the BNC connector in the box and bend the solder lug as shown.

PIC 7



PIC 8

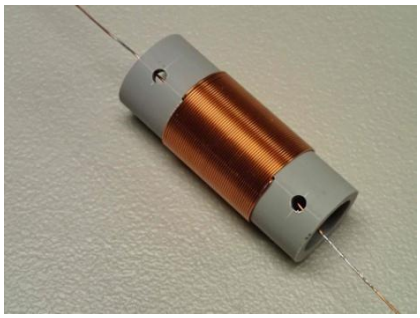


PIC 9

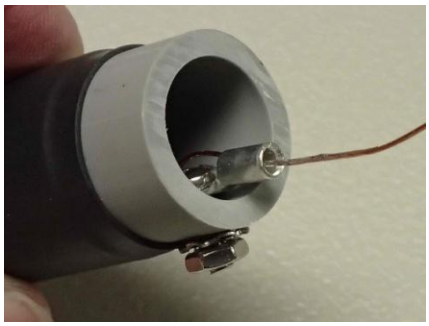
1. Find the short section of cord and tie an overhand knot in the end as shown.
2. Take a small scrap of mag wire and use it to pull the cord through the small hole as shown in PIC 7 & 8
3. Tighten all hardware

1. Install the toroid transformer and 150 Pf capacitor as shown in the above picture. It helps if you cut off the very end of the solder tab on the BNC connector. This gives just a bit more room to fit it all in the case.
2. The doubled up wires go to the ground lug along with one side of the capacitor
3. The single wire from the primary goes to the center of the BNC along with the other end of the capacitor.
4. The far end of the secondary winding goes to the solder lug. This end will attach to the antenna.
5. Make sure it is all well soldered and you can add a bit of hot melt glue to hold the toroid in place and seal the hole for the cord.
6. Install cover with the two flat head screws supplied in a small bag.

LOADING COIL



PIC 10

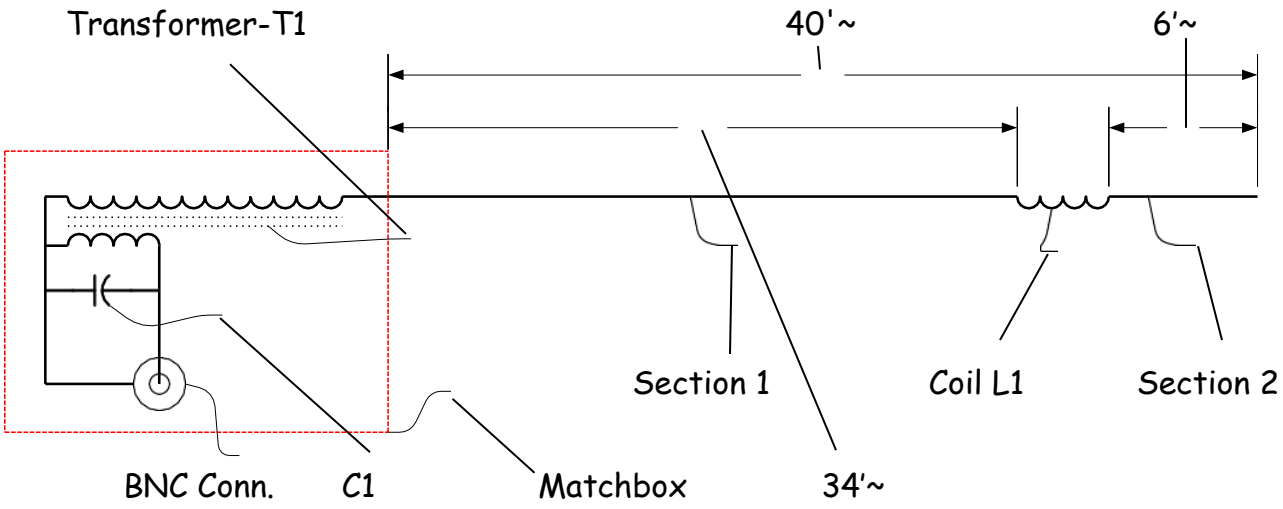


PIC 11

PIC 12

1. Take the 12" of #24 mag wire and insert one end into the small hole in the coil form, bring out through the end of the form. Let about 1.5" hang out the end. See PIC 10
2. Wind 51 turns on the form making sure the windings are tight and closely spaced. Then insert the end of the wire through the other small hole and pull tight. Cut off excess at about 1.5". See PIC 10
3. Tin both ends of the wire to prepare for solder lugs.
4. Install heat shrink tubing to secure turns.
5. Install the solder lugs using the 6-32 hardware provided. As you are putting the solder lug in place you can run the mag wire through the lug making sure to leave a little slack inside the coil.
6. Tighten hardware making sure to install the small lockwasher under the nut. See PIC 12
7. If the antenna wire you plan to use is #16 gauge then the coil wire may not fit inside the lug. In this case just wrap it around the outside and solder when you solder the antenna wire in place.
8. TIME FOR FINAL ASSEMBLY AND TUNING

END FED HALF WAVE ANTENNA 40-20 10 METER BANDS



COIL-L1

51 turns #24 magnet wire on a 0.84" dia. Form

½" PVC conduit

TRANSFORMER-T1

FT-82-43 toroid core, 3 turn Pri., 27 turn Sec.

#24 magnet wire

Pri. & Sec. twisted together, 8 twists/in.

Note: The transformer is 49:1 designed for use with end fed half wave antennas. It can be used with a 66' end fed antenna with good multiband results or other half wave antennas.

FINAL ASSEMBLY AND TUNING

1. Install your antenna wires (Section 1 & Section 2) into the solder lugs on the loading coil and solder. Start with longer wires than listed above, say 36' for Section 1 and 7' for Section 2. This allows plenty of length for trimming.
2. Install the end insulator of your choice at the end of Section 2. I usually just bend over a few inches of wire and tape it. In either case remember you will be adjusting this length in the following steps.
3. Strip off 1" of insulation from the end of Section1 that will connect to the matchbox. Do not install the solder lug yet. Just wrap it around the screw between the two washers and hand tighten the knurled nut.
4. Hand the antenna in the location you have chosen. Try to get it close to it's final position as changing the layout may change the tuning.
5. Try to keep the matchbox at least 3' above the ground and use at least 6 feet of coax to feed the radio. This allows for the counterpoise of the antenna.
6. Connect your radio or antenna analyzer and check for resonance on the 20 meter band. With the extra wire length you should be well below the band. Slowly trim the length of Section 1 by cutting wire from the lower end. You will need to restrip the wire and install under the knurled nut each time.
7. When you fine the proper length for Section 1 on the 20 meter band you can now go to 40 meters.
8. For 40 meters you will trim the length of Section 2 at the far end. After you have the correct length for 40 meters, recheck 20 meters to make sure it has not moved. If all is okay, check the 10 meter band. 10 meters should be good and resonance is very wide. There is no adjustment for 10 meters.
9. Now you can remove the lower end of Section 1 from the matchbox and install the solder lug for a permanent installation.
10. Installation of electric tape or heat shrink over the solder lugs is suggested.

Note: This antenna was designed and kitted by NØSA for the St. Louis QRP Society (SLQS).

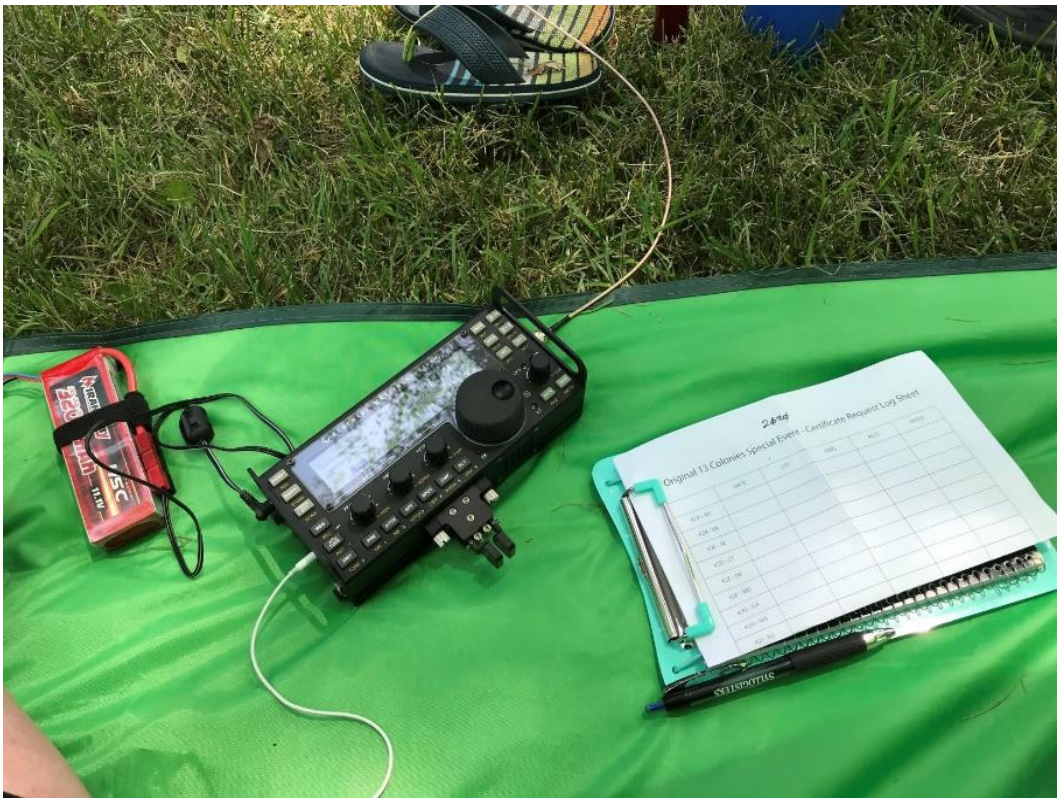
13 Colonies Special Event and FRS fun

I had a fun time chasing the stations in the 13 Colonies Special Event.
8 of my contacts were made while portable in Indiana. It was HOT outside.

I did have some helpers to set up the fly for shade. A 6 year old, and 5 year old twins! Their mother had recently gifted them with FRS radios. I worked with them to get them on the same channel, where the sound comes from (speaker), talk into the hole (microphone), don't yell into it. We also talked about QRM when one of them repeatedly keyed/unkeyed their radio. They learned what happens when multiple people try to talk at once!

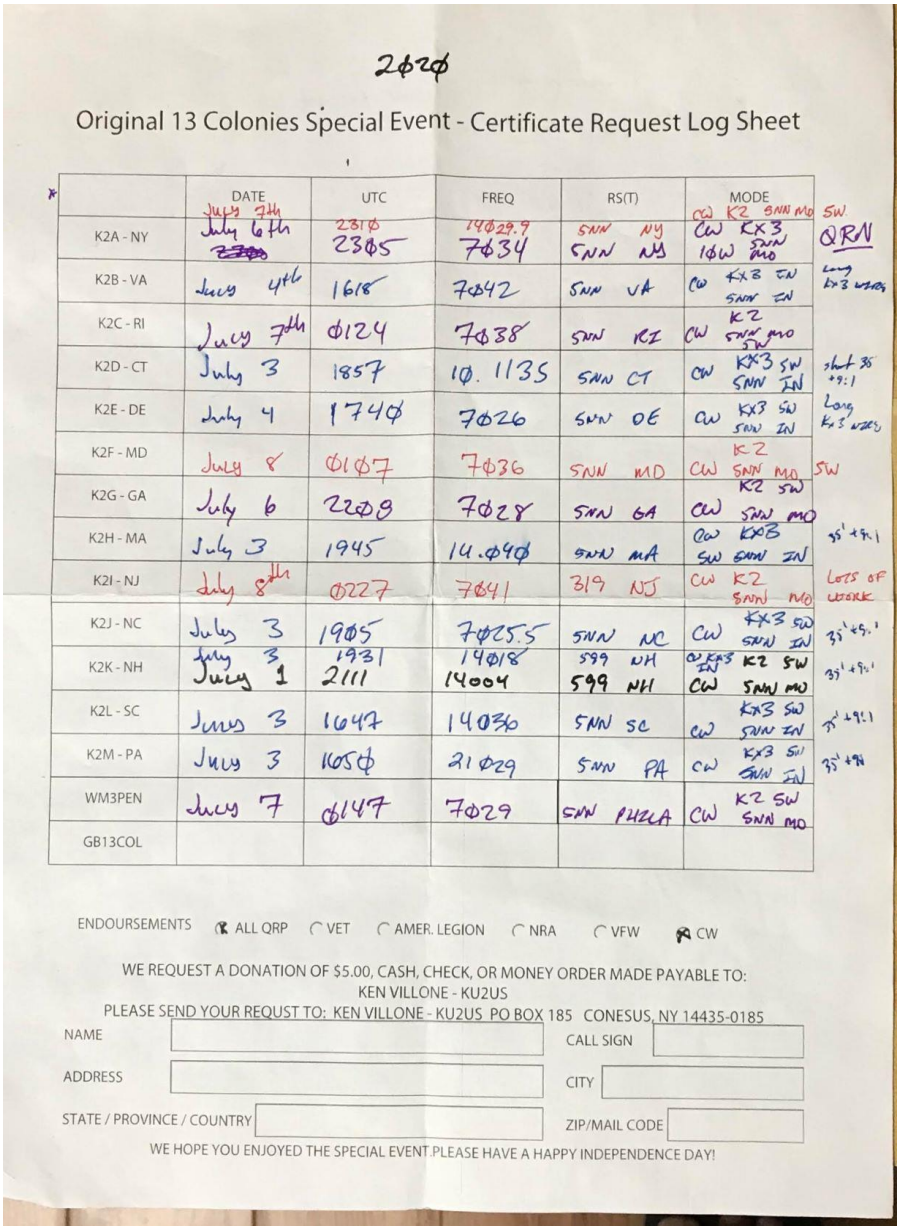
The 6 year old, got antenna orientation in the context of picking up the local WX station. She also asked about why the WX station was only on one channel. So, we got to talk about frequencies and regional overlap. From there they made some of the associations between their radios and the "big" radio set up that I had. Overall, I feel like they learned and will hopefully have more fun with their radios. Maybe, they'll end up in the hobby too?!

I used a KX3 in the field with a 3200mAh LiPO. I think the battery wasn't even down to nominal voltage at the end of the second day. First day's antenna was a 35.5' wire with 9:1 vertical, second days was 58' wire with 9:1 sloper. I think I had about 17' counterpoise for both. I used a 6' long run of coax to connect the radio to the unun. I used a pair of earbuds and the matched paddle for the KX3. All stations were worked with 5W CW. (I had one initially at 10W, within the event definition of QRP. I later worked them at 5W.)



I didn't do as well on the 4th. Fewer stations on the air that I hadn't already worked. More ops trying to work those fewer stations? Band conditions too? At home I used the K2 or KX3 to get the remaining stations. Home antenna ~58' wire with 9:1 unun, sloper configuration. I made all of the antennas and ununs.

Getting the last station was tough. 40m with lots of QRN. The op stuck it out, gave me a real report of 319 vs the cookie cutter 5NN. We went around a couple times to confirm both my call and state.



2020

Original 13 Colonies Special Event - Certificate Request Log Sheet

	DATE	UTC	FREQ	RS(T)	MODE	
K2A - NY	July 7th July 6th	2310 2305	14029.9 7034	5NN NY 5NN NS	CW K2 5NN MO CW KX3 5NN MO	SW QRN
K2B - VA	July 4th	1618	7042	5NN VA	CW KX3 IN 5NN IN	Long KX3 work
K2C - RI	July 7th	0124	7038	5NN RI	CW K2 5NN MO SW	
K2D - CT	July 3	1857	10.1135	5NN CT	CW KX3 SW 5NN IN	short 35 +9:1
K2E - DE	July 4	1740	7026	5NN DE	CW KX3 SW 5NN IN	Long KX3 work
K2F - MD	July 8	0107	7036	5NN MD	CW K2 5NN MO	SW
K2G - GA	July 6	2208	7028	5NN GA	CW K2 SW 5NN MO	
K2H - MA	July 3	1945	14.040	5NN MA	CW KX3 SW 5NN IN	35' +9:1
K2I - NJ	July 8th	0227	7041	319 NJ	CW K2 5NN MO	LOTS OF WORK
K2J - NC	July 3	1905	7025.5	5NN NC	CW KX3 SW 5NN IN	35' +9:1
K2K - NH	July 3 July 1	1931 2111	14018 14004	599 NH 599 NH	CW KX3 IN CW K2 SW 5NN MO	35' +9:1
K2L - SC	July 3	1647	14036	5NN SC	CW KX3 SW 5NN IN	35' +9:1
K2M - PA	July 3	1105	21029	5NN PA	CW KX3 SW 5NN IN	35' +9
WM3PEN	July 7	0147	7029	5NN PHILA	CW K2 SW 5NN MO	
GB13COL						

ENDOURSEMENTS ☒ ALL QRP ○ VET ○ AMER. LEGION ○ NRA ○ VFW ☒ CW

WE REQUEST A DONATION OF $5.00, CASH, CHECK, OR MONEY ORDER MADE PAYABLE TO:
KEN VILLONE - KU2US
PLEASE SEND YOUR REQUST TO: KEN VILLONE - KU2US PO BOX 185 CONESUS, NY 14435-0185

NAME _____ CALL SIGN _____

ADDRESS _____ CITY _____

STATE / PROVINCE / COUNTRY _____ ZIP/MAIL CODE _____

WE HOPE YOU ENJOYED THE SPECIAL EVENT.PLEASE HAVE A HAPPY INDEPENDENCE DAY!

I also made use of the iOS app "DX Watch", the DX Summit website, and the Reverse Beacon Website to watch for stations I needed.

Pile up strategy employed was; XIT above or below, timing immediately after end of CQ or take a beat and send full call sign once. Time box it. If no luck, move on to another needed station and come back around.

72 de Bryan, k0emt

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".

- **20:00 CT ... 40M CW Net on 7122 - WQ5RP/ACØBQ/KV6Z NCS**
- **20:30 CT ... 80M CW Net on 3564 - WQ5RP/WAØITP NCS**
- **21:00 CT ... 80M PSK Net on 3580.5 - WQ5RP/NØTGR NCS**

All are welcome!

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 N0YJ.

For information and help, check out the DMR subgoup 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 (SB).**
  as well as the usual QRP watering holes.

QSO's with the same station on different bands are allowed. CW and SB 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 SB.**

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 qrpcontest.com/4sqrp website (compliments of W8DIZ).
For full details, please download the complete rules (PDF) here.
For questions, please contact John (AA0VE): SecondSundaySprint@4sqrp.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.

Editors 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. 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