



SQUELCH TALES



Newsletter from the Merrymeeting Amateur Radio Association for October 2017



100-Watt HF Magnetic Loop Antenna from Flea Market Parts

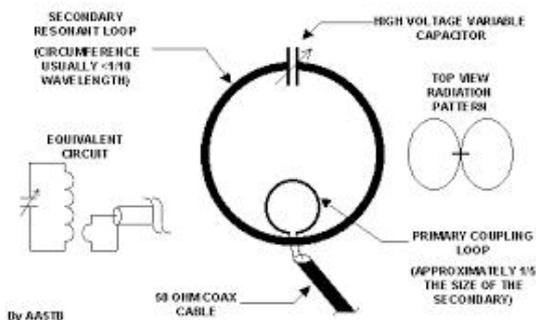
Yet another project by J. Bruce Randall, W1ZE

For many years I have had an interest in the physics of magnetic loop antennas. There is nothing new about the science and they have been around since the early days of radio. As of late they have increased in popularity for folks that need an antenna with a small footprint, exhibit acceptable performance and can be used as a quick setup portable antenna. For this reason mag-loops are very popular with the QRP and backpack folks. Since mag-loops performance in the H-plane (magnetic) they are not as acceptable to atmospheric noise. So as the old saying goes, "if you can hear'em you can work'em."

My first experience with a mag-loop was back in 2009 when I assembled the loop antenna described in QST by Dick Straud, W9SR titled "Six Meters from your Easy Chair." The loop was built from the aluminum tubing salvaged from an old folding chair. It has been on my tower for over eight years and makes a very handy horizontally polarized Omnidirectional antenna for SSB and CW work.

A few years ago I found a posting on the Internet by Howard Kahl, KH6HAK in Honolulu that described a six meter mag-loop using a small vacuum variable capacitor. I set about building one and again I was impressed with its performance.

With my two previous successes with mag-loops I started thinking of building a portable HF version. There are hundreds of sites on the internet describing all shapes and sizes of functional Magnetic Loops. I was interested in building one that would handle the modern HF transceiver that deliver 100-watts. I have been collecting radio parts for years, many from good deals at flea markets, so I started digging through my storage bins. The key to handling 100 watts is a variable capacitor that could handle at least 2.5KV because that is the RF volts that will appear on the capacitor plates at resonance and had a minimum tuning range from 20 to 150pF. I met with success because I found three WWII surplus



transmitter capacitors that had moderately spaced plates and a tuning range of 17 to 174pF. I was off and running. In my junk box search I lucked out and found a Japanese made 3-inch wide vernier tuning assembly that sell for big bucks these days. I remember finding it at Hasstraders about 20 years ago. Eventually all things come in handy :-). I also had a few ceramic insulated tuning shaft U-joints in my boxes of tricks needed to isolate the capacitor from the tuning knob.

How to house the tuning capacitor took some planning. I solved that problem while in the electrical aisle in my local Lowes emporium. I discovered a watertight 6 x 6 x 4.5 inch gray plastic junction box that the capacitor would fit in nicely. The box is stable enough to support a loop element made out of my abundant supply of RG-213/u coax.



The antenna loop is connected to the capacitor tuning box via two SO-239 chassis mount connectors. Antenna radiation comes from the shield of the coax loop but I shorted the center conductor to the shield side of the SO-239s. I then connected on SO-239 to the stator terminal on the capacitor and the other SO-239 to the capacitors rotor connector using copper braid from a six inch length of coax.



Mag-Loop with 10-foot loop

I made a 7" diameter primary coupling loop out of No. 8 solid copper wire soldered to an SO-239 connector. My first coax loop antenna length was ten foot, making a loop about three feet in diameter. Initial antenna analyzer test results let me know my mag-loop was going to work. I achieved resonance from 40 to 17 meters. I was not able to tune the 15 to 10 meter bands with my capacitor range. So I made up a second loop six foot long. With that length I lost 40 meters but gained fifteen and twelve meters. A real plus was with both loops I was able to run a full 100 watts (CW with no arc, spark or smoke. :-)



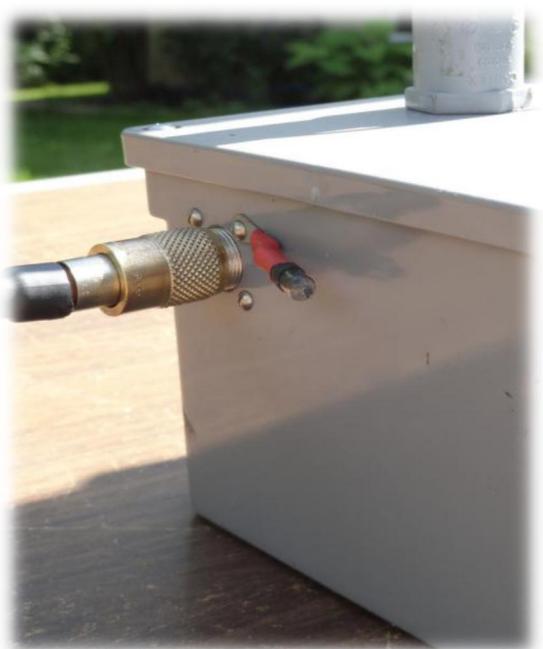
Mag-Loop with 6' loop

The coax loop elements are supported by 3/4th inch PVC electrical conduit and associated PVC T and

cross fittings then fitted to the tuner box with a 3/4" electrical PVC conduit connector.

As a last final touch I soldered both leads of an NE2 neon bulb into a red spade lug and connected it to one of the SO-239 mounting screws on the tuning box. When the antenna is tuned and

reaches resonance the NE2 will illuminate due to



the high RF voltage, just a gadget tuning aid.

This was a fun early fall project for me. It is within the capabilities on most hams and modestly equipped workbench if you want to construct one. I am now thinking of building a copper pipe Magnetic Loop antenna and use a 10 to 150pF vacuum variable and tune it remotely.

So many fun projects, so little time. 73, Bruce



KS1R 444.4 Repeater received final Coordination

Technical Committee Report

A year ago N1TTT and N5AGG took the Associations 444.4 repeater from Topsham to the QTH of Donnie Dauphin, WD1F then put it into the repeater rack and got

it running. Bruce, W1ZE notified the NESMC Coordinator of the move and it was put back into Trial status for one

On September 11th KS1R Trustee Bruce Randall, W1ZE received notification from the NESMC that the 444.4 had been moved from Trial to Final status. It will stay that way until if and when we find all the Association repeater and nodes a new home.



Did you hold a Ham License prior to October 1992?



If you did you too can be a member of the QCWA.

The members of the Maine Chapter, QCWA invite you to join the national organization and the Maine Pine Tree Chapter. For more info on how to become a member, contact Chapter President Bill Crowley, K1NIT at: k1nit@arri.net or Bruce Randall, W1ZE at: w1ze@arri.net.

Even if you are not a member you are still invited to check into the Maine QCWA Pine Cone Net on Sunday at 11:00am on 3942kHz and meet other Chapter members & guests.

<http://www.qcwa.org/qcwa.php>





**OCTOBER 13 & 14th, Deerfield,
NH Fairgrounds.
Come have some
FUN.**



**MARA Members have a good
time at the Windsor Hamfest**

By MARA Photojournalist Marjorie Turner, KX11

WINDSOR, ME: On the morning of October 13th the clouds stopped dropping moisture and a goodly crowd of Maine hams started arriving at the Windsor Fairgrounds for this years Windsor Hamfest, sponsored by the Augusta club.

By 9:00am the attendance seemed up from previous years and a few more folks set up tables to sell, swap and trade their treasures.



Members of the MARA and ARES-CERT team set up their canopy and offered a few treasures for sale but mostly to ragchew with each other and the folks stopping by.



Several sub-group meetings went on throughout the morning and one of the big ones was the Maine Sea Gull Net forum. At the meeting the MARA folks that operate N1TRC at the American Red Cross station in Topsham received an award certificate for high participation in Sea-gull traffic net. If you want more detail you can read the certificate at the N1TRC radio shack at Red Cross HQ.

It was a good chance to visit with many of our ham friends from around the state. All in all a very good time was had by all.

