

MOUNTAIN SPARK GAPS

**NPARC—The Radio Club for the
Watchung Mountain Area**



**Website: <http://www.nparc.org>
Club Calls: N2XJ, W2FMI
Facebook: New Providence Amateur Radio Club
(NPARC)**

VOLUME 55 No. 11 Nov. 2022

Regular Meetings

**Second Monday
12/12**

Only one meeting in December

Upcoming Events

**Digital Net Mondays at 9:00 PM
PSK on 80 or 10 meters
CW training Net, Thursdays at 9:00 PM**

Meeting Schedule

Regular Meeting: 7:30—9:00 PM
**2nd & 4th Monday
of each month**
Watch for Emails

Everyone is Welcome

If a normal meeting night is a holiday,
we usually meet the following night.
Call one of the contacts below
or check the web site

Club Officers for 2022

President: W2PTP Paul Wolfmeyer
201-406-6914
Vice President: W2EMC Brian DeLuca
973-543-2454
Secretary: K2AL: Al Hanzl
908-872-5021
Treasurer: K2YG Dave Barr
908-277-4283
Activities: KC2OSR: Sam Sealy
973-462-2014

—On the Air Activities

Club Operating Frequency
145.750 MHz FM Simplex

Sunday Night Phone Net
Murray Hill Repeater (W2LI) at 9:00 PM
Transmit on 147.855 MHz
With PL tone of 141.3 Hz
Receive on 147.255 MHz
Net Control K2AL

Digital Net
Mondays 9 PM
28,084 — 28,086
Will be using PSK and RTTY
Net control K2YG

Club Internet Address

Website: <http://www.nparc.org>
Webmaster KC2WUF David Bean
Reflector: nparc@mailman.qth.net
Contact K2JV, Barry

MOUNTAIN SPARK GAPS

Published Monthly by NPARC, Inc.
The Watchung Mountain Area Radio Club
P.O. Box 813

New Providence, NJ 07974
©NPARC 2010 All Rights Reserved
Editor: K2EZR Frank McAneny
Contributing Editors:
WB2OOO Rick Anderson
W2PTP Paul Wolfmeyer
K2UI Jim Stekas

Unavailable. Rick has ben sick; will return
next month.

President's Column November 2022

It was wonderful to celebrate with Bill Hudzik W2UDT his service to the amateur radio community, the ARRL, and NPARC on November 4 at the DX Association meeting. We had thirteen members who were able to attend; thank you. We presented Bill with his NPARC Honorary Lifetime Membership, which we elected him to in August. Thank you Bill for your many contributions to hamming!

We had elections for 2023 NPARC officers at our annual business meeting on November 13. Congratulations to Jim Stekas K2UI as the 2023 President and to continuing officers: Vice-President Brian W2EMC, Secretary Al K2AL, and Treasurer Dave K2YG. The Activities Manager position for 2023 is vacant at the current time; please consider taking this role on. Our second meeting of the month featured Patrick Bolan KJ7ZSU, the owner of Geochron. The mechanical Geochron clock was introduced in 1965. It is a mechanical marvel, in my view. Patrick has developed and introduced a very impressive digital version with many overlays of additional information. Check out his website at Geochron.com. I have sent out the recording of Patrick's presentation at our Zoom meeting:

https://us02web.zoom.us/rec/share/K78S251Ns01H7uU_00TvPf8ioXPtZYJSzFG811yMYy0SDiqsy3TSwBcKYYSF7ih6.8kt7WubHQI4Lrgny
Passcode: LB*Ysvc5

When you copy the link, be sure to copy all the way through ...4Lrgny --I will keep it posted until the end of December.

Just a note of recognition for taking initiative: Ken W2IOC ran into, by chance, Patrick (who was motorcycling through the US) at a Boonton Dunkin Donuts and took advantage of the encounter to arrange a program. Thanks Ken!

Congrats to Giri (KD2YYO) on his new call AK2I.

A few schedule notes:

Holiday Luncheon December 3 (reservations must be made with K2YG)

December meeting-- December 12 at Salt Brook (with Hybrid option)

There is NO second meeting in December

NPARC Auction at Salt Brook February 25

And, of course, the Sunday (phone), Monday (PSK31) and Thursday (CW)—all at 9 PM.

And dues are due (\$20 check preferred, made out to NPARC, mailed or handed to K2YG)

73 for now, Wolf W2PTP w2ptp@arrl.net 201-404-6914

ANTENNAS FOR POTA OPS

Kevin Glynn, N2TO

It has been a blast running POTA portable from parks in Morris County. In six-months I have worked 47 activations in 6 parks, made 1,109 QSOs, worked 47 states and 24 DXCC entities. Since I run 10 watts out on CW and SSB I wanted the most efficient antennas that would not be complicated to setup. Dipoles were the answer.

I had two unused W2DU type 1:1 baluns I bought years ago so I pressed those into service. I used the MFJ balun for my 20 Meter center-fed dipole and The Wireman balun for a 40 Meter -20 Meter center-fed linked dipole. I used 18 ga stranded TFFN for the elements and cut the wires to the standard dipole formula to get me in the ballpark. I purchased inexpensive end insulators from Amateur Radio Supplies. Years ago living in Brooklyn I cut my own from 3/4" PVC pipe. I don't have a bench or a vise so opted to buy them. I no longer trim the ends of the elements to tune. I found a better solution is to foldback the extra wire at the ends and use small 4" cable ties. I setup the antennas as inverted-vees and tie off with white mason line. An arborist throw weight works well to launch a line over a branch. I go with an underhand softball pitch and follow-through. Feed line is RG-8X from Davis RF.

While setting up my 20 Meter inverted-vee a couple of months ago I had a visit from two park Rangers. They did not want me to use the trees to support the antenna. After speaking with them I was okayed to use the antenna that day but did not want to push it going forward. I wanted to make a 20 Meter 1/4-wave vertical that would be a standalone solution with reasonable efficiency. In researching drive over mast supports I discovered the prices are astronomically high. I thought to fabricate one with a wooden plank, PVC flange and pipe but without a work bench that option was not practical. I purchased two fiberglass masts from The Mast Company: 19' and heavier duty 22' that are excellent. I planned to use the 19' mast for the vertical and the 22' for a 44' doublet with ladder line. Flagpole-To-Go sells a drive over support for \$35 and that fit the bill perfectly.

The vertical driven element is very lightweight 16.5' 20 ga red solid bell wire. I made two 16.5' radials with 18 ga stranded TFFN but discovered they are a little heavy. I bought 20 ga stranded hook-up wire from Jameco and use that now. I tie off the radials and element at the top of the drive over support feed point and keep the radials raised. Ideally, I would like them to be a few feet higher to minimize ground losses but that is not practical.

Papers have stated to keep the radials at least 5%-wavelength and others 1/16-wavelength minimum height to minimize ground losses. I am trying to fly under the radar and avoid WHAT THE HELL IS THAT!? from passersby. This too is why I am going with two radials and not three or four. Using Davis RF RG-58 C/U I made a coax choke, 8 turns of 8' at the feed point. Using the vertical in the past month and a half I made 392 QSOs, worked 34 states and 15 DXCC entities. Being on the upswing of the solar cycle certainly helps. I have not observed interaction with the driven element and the mast. I wanted better ignition noise suppression and performance so I replaced the feed line. Using the same model coax I made two 1:1 common mode chokes. The feed point choke is 12 turns on a Fair-Rite FT240-43 and the rig end choke is 12 turns on a Fair-Rite FT240-31. Ignition noise is lessened tremendously and so far it is super-duper.

The next antenna to make is a center-fed doublet inverted-vee with ladder line to work 40 Meters through 10 Meters. I am choosing the 44' doublet that L.B. Cebik W4RNL (SK) wrote so much about. Many years ago I corresponded with L.B., asking him how such a short length would work on 40 Meters. Would my tuner be happy? He told me the plots are predictable, the lobes will work in our favor for these bands my MFJ-901B tuner would be happy. I am planning on using Jameco wire and Davis RF stranded 450 ladder line as feed line. I will make another homebrew true ladder line doublet with PEX tubing spreaders. The plan is to go from ladder line to a Fair-Rite FT240-43 toroid choke as above to my MFJ-929 auto tuner to rig. This will offer 40 through 10 Meters and allow me to follow the Maximum Usable Frequency.

I had a goal to work five activations in the same UTC day to earn the new POTA Rover Wartnog award. I did just that on Saturday, 22/10/22. Thanks goes to all the park-to-park (P2P) activators and hunters who worked me. I worked Forty Meters at the first two parks and 20 Meters the last three. At one park I plugged in my paddles and was about to call CQ POTA on 20 Meters. A hiker saw me and was inquisitive. I told him I am a ham radio operator and would he like to see. I plugged in my mic and heard S53M booming in on 20 Meters calling CQ contest. I called and worked him and explained that he was in Slovenia, how we were able to speak to each other through skip and the gist of propagation. He hung out for almost the entire activation.

A few weeks ago I wanted to work 7 close-in states. They have been in the skip zone so I set out to activate 40 Meters with my linked dipole. I setup the inverted-vee at 13' and it has worked well. I worked six of the needed 7 first time out and I worked Rhode Island a few days ago. Hopefully Hawaii can be worked on 15 or Ten Meters with the new doublet. New Mexico and Wyoming will come along soon. The POTA pool is still warm, jump right in.

Universality of Murphy's Law

Jim Stekas - K2UI

A law of nature is one that is always true, but most laws apply to a specific domain. For example, Ohm's law is not universal because it applies only to circuits. The laws of thermodynamics, however, *are* universal because they apply in every instance. The Second Law of thermodynamics says that entropy will always increase. A consequence of the Second Law is that heat flows from regions of higher temperature to regions lower temperature regardless of their shape or composition.

Closely related to the Second Law of thermodynamics is Murphy's Law, which states that "*if something bad can happen it will*". (I wish I had a nickle for every PL-259 I soldered to piece of coax without having slipped on the threaded coupler.) Murphy's Law is universal because it will find a way to insert itself in any situation.

My most recent encounter with Murphy occurred while trying to prepare my 2004 Toyota Sienna for sale. Among other problems was a check engine light of unknown cause. A cheap ODB2 reader revealed that the problem was with the "Mass Air Flow sensor" (MAF). The consensus of on-line experts is that the most likely causes are clogged air filters and/or a bad MAF sensor.

Hoping I would get lucky, I ordered a set of new air filters from Amazon. The main filter went in pretty easily, but the cabin filter replacement was complicated by mouse nesting material in the filter compartment. After removal of a large bucket's worth of mouse-nest by hand followed by a few minutes with the shop vac I felt confident enough to replace the cabin filter and close everything up. The engine started easily, but the check engine light still shined brightly in accordance with Murphy.

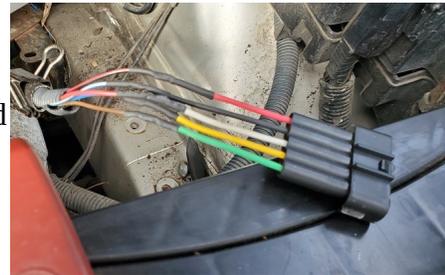
A few days later a replacement MAF arrived in the mail and I opened the hood to put it in. The sensor was located right on top of the engine, secured by 3 easily accessed screws. It wasn't until I went to install the new sensor that I noticed that mice had chewed through the connector wires right at the connector to the MAF sensor. The original connector (right) was not salvageable, so I looked for a replacement that I could solder onto the mouse eaten cable ends.



I ordered a Honda/Toyota replacement MAF cable with connectors on both ends which I figured would save the trouble of soldering a new connector to the chewed wire ends. It was about 24 inches long with a connector that plugged right into my sensor, but it wasn't clear where the other end plugs in. To see how the existing cable was routed I needed to disassemble and remove the plastic housing containing the air filter which was held in place by five bolts. After removing two bolts and breaking the heads off the other three, the housing was removed to reveal that the cable from the MAF sensor disappeared into a wiring harness that terminated in some invisible and unknown location.



I snipped the connector off the replacement cable and spliced it to the chewed off end of the wiring harness. My solder station fit very nicely under the hood and in about 60 min I had restored the MAF sensor wiring. It seemed the light at the end of the tunnel was coming into view!



To remount the air filter housing I needed to extract the fractured bolts. After breaking a few screw extractors I decided to bite the bullet and drill them out. I started with a 1/8" drill bit and slowly drilled completely through the first bolt. I worked my way through successively larger drill bits until there was no bolt left. Peering through the hole where the bolt had been I noticed that the drill had penetrated some sheet metal beneath the bolt and left a clean hole. As Murphy would have it, the sheet metal belonged to the radiator, which now had a nice clean hole in it.

Fortunately my junk box includes a few thousand miscellaneous screws and I was able to find a small sheet metal screw that fit snugly into the hole. The plan was to cover the hole with JB Weld to bond the screw to the radiator permanently. The hole was buried out of the reach of fingers, so prepping the surface required sanding with small pieces of sandpaper held by surgical forceps (Chinese hamfest specials). Finally the screw was slathered with JB Weld and screwed into the hole to patch the radiator (left). Murphy permitting, the patch will outlive the car.



This example of the intrusion of Murphy's law is fairly typical of every one of my projects: repairing radios, servicing my car, hanging wallpaper, fixing appliances, etc. Thankfully, I am not a civil engineer or medical doctor so my flubs don't hurt anyone but me. My guess is that Murphy is the reason that when taking the Hippocratic oath doctors swear to "*first do no harm*" as opposed to "*if at first you don't succeed, try again*", or "*never admit you haven't done this before.*"

If you need some solid mathematical proof of the universality of Murphy's law you need look no further than the insurance industry: auto insurance, malpractice insurance, homeowners liability insurance, and on, and on ... Insurance is the tax we pay to protect us from the worst that Murphy has to offer.