DECEMBER 2023   Volume 12   Issue 12

VE3ERC-LUB

ERC   REPEATERS

UHF 444.700 + TONE: 131.8
UHF 444.700 + TONE: 123.0
VHF 147.390 + TONE: 123.0
VHF 147.255 + TONE: 131.8
EMERGENCY SIMPLEX: 146.550
UHF–IRLP node 2404,ECHOLINK VE3ERC-L
VHF– IRLP node 2403,ECHOLINK VE3ERC-R

**In an emergency, tune
Into our repeaters,
UHF 444.700 or
VHF 147.390 or
HF 3.755 LSB or
Simplex 146.550
For coordination and
assignments.**

Merry Christmas

THE PREZ SEZ!

This club is Radio-ACTIVE

President's Update for December 2023

Take Note of the RAC Canada Winter Contest

In December each year, Radio Amateurs of Canada (RAC) sponsors the Canada Winter Contest. Amateurs all over the world are invited to participate.
Contest Period: 0000 UTC to 2359 UTC on December 30, 2023.
Bands and Modes: 160, 80, 40, 20, 15, 10, 6 and 2 metres, CW and phone (SSB, FM, AM, etc.)
Suggested frequencies: CW – 25 kHz up from the band edge and for SSB – 1850, 3775, 7075*****, 7225, 14175, 21250 and 28500 kHz. Check for CW activity on the half-hour.
*Note: For 7075 kHz please watch for conflicts in the band plan where there are overlaps with other modes of operation.
Exchange: Stations in Canada send RS(T) and province or territory. VEØs and stations outside Canada send RS(T) and a serial number.
QSOs: Contacts with stations in Canada or VEØs are worth 10 points. Contacts with stations outside Canada are worth 2 points. Contacts with RAC official stations are worth 20 points. RAC official stations are: VA2RAC, VA3RAC, VE1RAC, VE4RAC, VE5RAC, VE6RAC, VE7RAC, VE8RAC, VE9RAC, VO1RAC, VO2RAC, VY0RAC, VY1RAC and VY2RAC.
You may work any station once on each of the two modes, on each of the eight contest bands. It is **prohibited** to make CW contacts in the conventional phone sub-bands and phone contacts in the conventional CW sub-bands. Contacts or soliciting QSOs through a repeater during the contest period is not allowed.
Contacts in the RAC Canada Contests also count towards the RAC Canadian Portable Operations Challenge Award. Please see page 62 for information.
Multipliers: Thirteen in total, Canada's 10 provinces and three territories. Each multiplier may be counted once on each mode on each of the eight contest bands.
The multipliers, with their postal abbreviations and prefixes are: Nova Scotia [NS] (VE1, VA1, CY9, CYØ); Quebec [QC] (VE2, VA2); Ontario [ON] (VE3, VA3); Manitoba [MB] (VE4, VA4); Saskatchewan [SK] (VE5, VA5); Alberta [AB] (VE6, VA6); British Columbia [BC] (VE7, VA7); Northwest Territories [NT] (VE8); New Brunswick [NB] (VE9); Newfoundland and Labrador [NL] (VO1, VO2); Nunavut [NU] (VYØ); Yukon [YT] (VY1); and Prince Edward Island [PE] (VY2).
Certain special Canadian prefixes in use at the time of the contest may also apply; however, there may be no more than 13 multipliers on each band/mode. Please use the multiplier abbreviations, in square brackets, noted above.

And don't forget Winter Field Day coming up next month on January 27 and 28.

ERC 2023 Christmas Party

Special thanks to Paul VA3PDC and Tom VE3DXQ for sending the pictures.

CONTRIBUTIONS TO VE3ERC-CLUB NEWSLETTER

Do you have an article you'd like to submit? Or photos? Do you have any comments you'd like to make?

Perhaps you'd like to share a photo of your shack, a   special project you are working on or a special interest!

SEND THEM TO:

Bob bobve3ixx@gmail.com

(519-787-2279)

Thanks to Rod
VA3MZD

WEDNESDAY NITE NET CONTROLLERS

DECEMBER 6 - TOM VE3DXQ

DECEMBER 13 - TED VE3TRQ

DECEMBER 20 - TONY VE3DWI

DECEMBER 27 - BRIAN VA3DXK

2024 JANUARY 3 - BILL VA3QB

JANUARY 10 - BOB VE3IXX

JANUARY 17 - REG VE3RVH
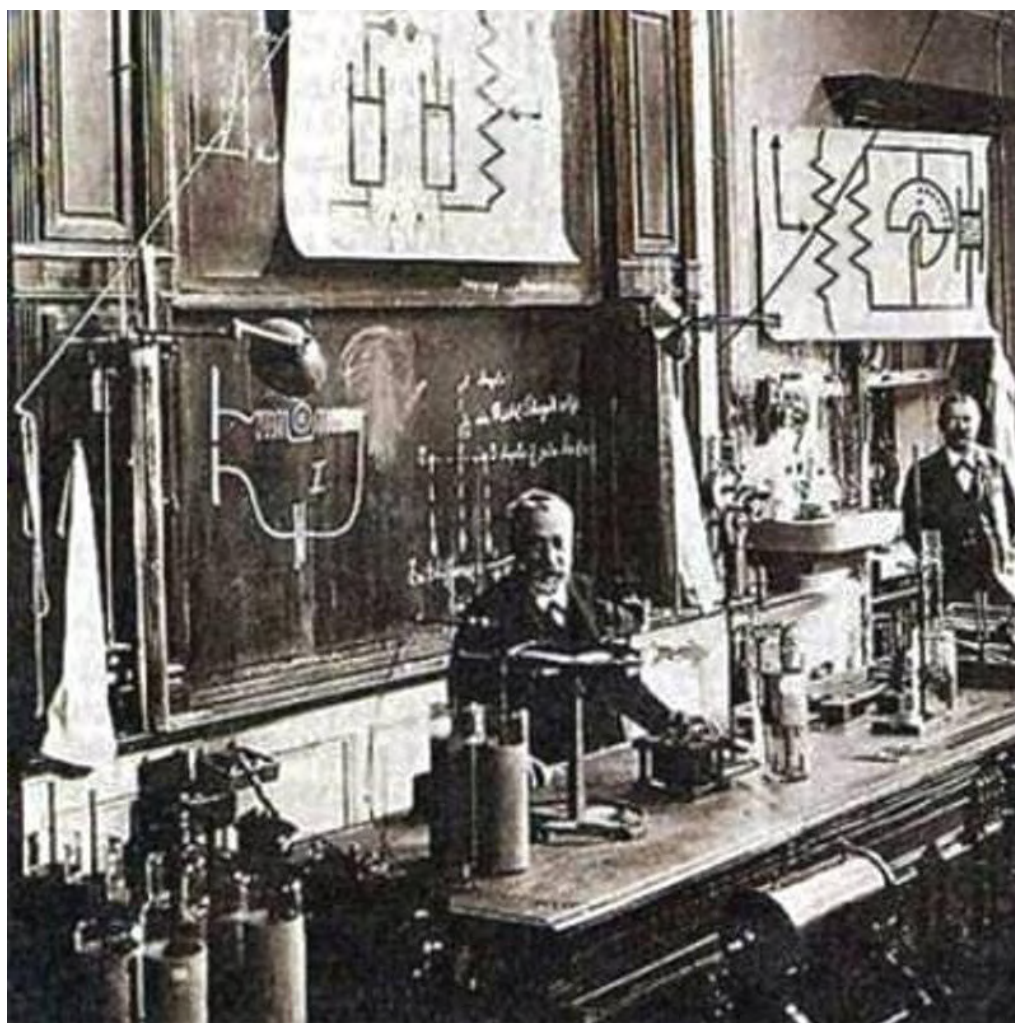
JANUARY 24 - M E E T I N G

JANUARY 31 - FRANK VA3FJM

FEBRUARY 7 - TOM VE3DXQ

BLAST

From the PAST

FERDINAND BRAUN IN HIS LAB CA. 1873; DISCOVERED THE CRYSTAL (SOLID STATE) DIODE.

KF9F RICH 1991

Thanks to Tony VE3DWI for sending this.

Tech Tips

Tony VE3DWI sent the following:

Mike Clip

If you have a microphone with a button on the back like this,

And you don't have a Mike clip like this.

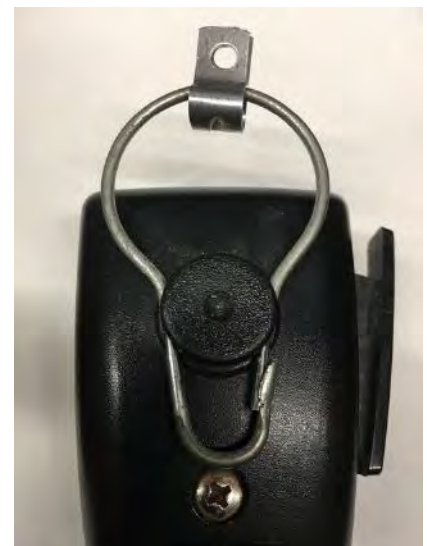Get a a shower Curtin clip like this.

Mount it with the top of the big loop on any surface so that it can swivel a bit back and forth. Like this.
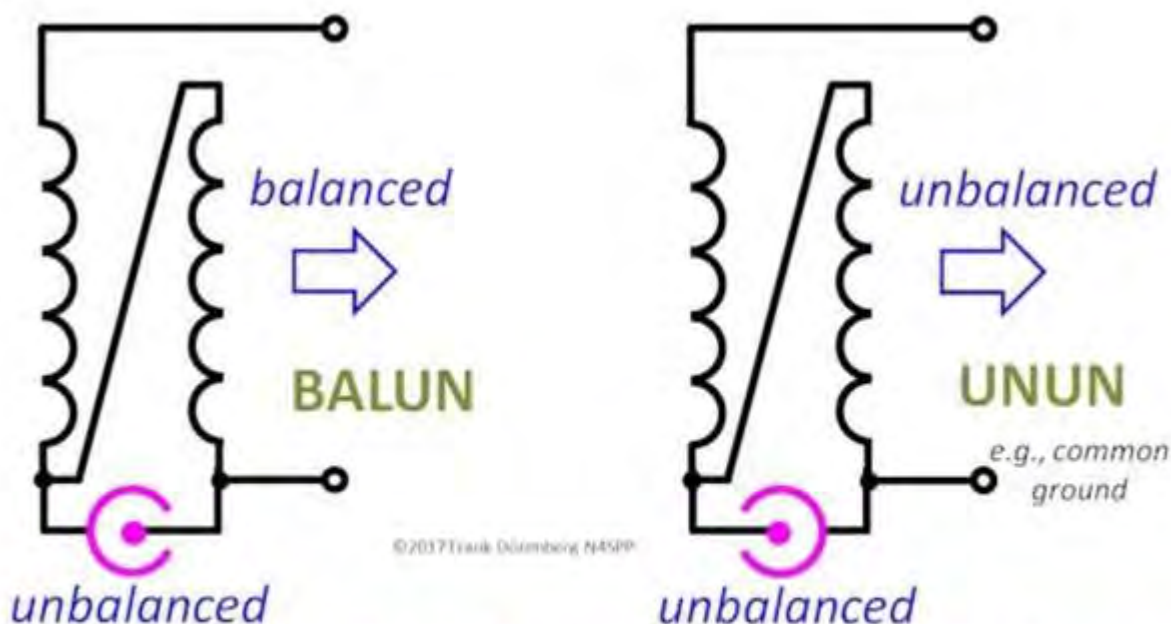
Than you can use it like this.

This will help you in a pinch.

73, Tony VE3DWI.

Figure 26: 4:1 BALUN and UNUN wiring diagram
(note: the only difference is the inverted coax connection!)

An easy way to switch functions.

73' Tony VE3DWI

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TIPS ON LEARNING AND OPERATING CW (Morse Code)

Written by Richard K Leah, VE3YW, Chatham, ON.
Edited, added to, and photos by David McCarter, VE3EI, London, ON
With contributions from Michael Cook, VE3ZMC, London, ON
Michael Cook and David McCarter are ISEDC Accredited Examiners with the London Amateur Radio Club, London ON

This is based upon an article Richard Leah wrote for "the Canadian Amateur" Magazine in January 1992 and also published in Hagal Amateur Radio Magazine in Israel and other countries including South Africa under his former call of VE3ANB. Please feel free to use and publish this if you wish but the authors would appreciate being INFORMED if it is used in another publication elsewhere.

We hope this assists all those wishing to learn Morse Code or even those who wish to hone their skills in this fine art of radio communication enjoyed by millions of hams worldwide.

If you have a Morse key and Sounder, please ask someone to safely LOCK IT AWAY for the time being. Until you learn to understand what CW is supposed to sound like, you will surely not be able to send it properly. A good musician always learns how an instrument is supposed to sound like before they learn how to play it. There will be plenty of time to send later, once you have mastered the rhythm of CW.

The secret to learning CW is to LISTEN, LISTEN and LISTEN. By listening to code sent well, either generated by software on your computer or cell phone, or received off air on the ham bands, you will get a feeling for the rhythm of consistent speed PLUS the consistent gap between each character sent.

International Morse Code represents the 26 letters, 10 numbers and punctuation characters with a pattern of dots and dashes. For example the letter "e" is a single dot and the letter "a" is a dot followed immediately by a dash. To represent a short tone on paper we use the word "dit" and for a long tone we use the word "dah". These dits and dahs make up our alphabet and for the purposes of effective communication, also numbers from 0 -9 and the comma, slash, period and question mark. You will need to know these 40 characters in most CW exchanges.

If someone has helpfully given you a chart showing the alphabet and the corresponding dots and dashes, they have done you a great disservice! Morse Code is an Aural Skill, not Visual!
When used for radio communications Morse Code is really an Aural Language of short and long tones created by the receiver circuitry. Each letter has a unique sound and you can learn to tell the difference with some listening experience. Associating the sight of dots and dashes with letters and numbers creates a visual look up table in your mind. If you then start counting code elements and converting what you heard to a visual memory and then converting to a letter the mental processing time will prevent you from receiving faster than about 5 words per minute. Painfully Slow!

Learn the sound of each character clearly in your mind and very importantly, try to learn each character at a CHARACTER speed of at least 20-25 wpm while leaving a big gap between each character. This method of learning Morse Code is called the Koch Method. Neurological studies show it to be the most effective way to learn. As you progress, you will narrow the time gap between each character WITHOUT changing the character speed. Thus your ability to copy code at the typical speeds used on the air will improve with practice. Indeed, this is the way you learned your mother tongue. Your parents and siblings spoke to you at normal speed, perhaps enunciating each word clearly, but never slowing down like a 45rpm record played at 33 1/3!

Trying to learn at a character speed of 10 or 5 wpm allows you to count the individual Dits and Dahs and look them up in your mental visual memory, a process that takes a lot of precious time. By the time you have decoded and written down the character perhaps another character has come and gone! And then trying to copy later at a higher character speed will result in frustration and it will make you feel like you have to learn all over again at a new speed.

Try to get into the habit of writing down each character as you copy it in LOWER CASE letters rather than capital letters. You will save a lot of time doing this. It takes more pen strokes to write a capital E than a lower case e. There is a limit to how fast you can write letters and numbers, about 30 words per minute, so trying to write everything down creates another speed limit. 30Wpm might seem fast, but experienced CW operators only write down callsigns, signal reports and other short bits of info from a contact, and rely on their ability to hear whole CW words to understand the conversation.

DO NOT translate the character onto paper with dot and dashes (dits and dahs) and then effect the translation. You need to understand the sound of each character and write that on the paper as a letter or number.

Ray Burlingame-Goff, G4FON (SK), wrote an excellent and free Morse Trainer Program that generates aural CW using the Koch method of learning just a few letters at a time, at a reasonable character speed, for example 25wpm, but also spaced out in a controllable way.
When starting out you might chose 3wpm, and as you get familiar with the characters you can pick it

up to 10 or 15wpm. When you have mastered the first two letters, add two more, and keep going un-
til you have all 40. The program is available at: **https://www.g4fon.net/CW %20Trainer2.php**

If you have a short wave or amateur receiver you can tune into W1AW code practice schedules for a
very effective and realistic learning tool. The W1AW code practice times and frequencies can be ob-
tained on their website at **http://www.arrl.org/w1aw-operating-schedule**. When listening to the
W1AW code practice schedules, make a point of listening to transmissions that have a code speed
of 15wpm to 25wpm. Before you say "You're crazy!", you may only be able to pick out one or two let-
ters in each word BUT when they slow down to 10 wpm, you will be pleasantly surprised that you are
copying most letters at that speed. And when they slow it down even further, you will be picking up
most, if not all of the letters giving you a feeling of accomplishment. You may even feel the slower
speeds are agonizingly slow, which means you are making good progress.

You should be prepared to spend about 30 to 40 minutes a day listening. Set yourself a
schedule each day and NO EXCUSES. If you are not prepared to commit the time you are just wast-
ing it and kidding yourself. You will never pass an exam with good marks by not committing to study.

Do not spend more than 1 hour in the learning and listening process as this could result in over ab-
sorbing your mind and like a sponge when wet, you will find that you are not grasping the new stuff
coming at you. If you find this is the case, WALK AWAY and try later. We all have off days, so don't
let it put you off or give up. Many people "give up" out of frustration so it's vitally important that you
end your learning session with a good feeling of accomplishment and feeling good about yourself
and the progress you make in each session.

Once you have a grasp for the characters and their sound, send CW to yourself in your head. eg:
when you see a road sign saying YIELD or STOP, send it verbally to yourself out loud. YIELD....Dah
dit dah dah, di dit, dit, dit dah di dit, dah di dit. STOP.... Di di dit, dah, dah dah dah, dit dah dah dit.
See what I mean? You might get some strange looks from people but hey! who cares? This a great
fun exercise for the Morse Code learner.

ALL OF THE ABOVE DOES NOT REQUIRE THE USE OF A KEY and Sounder.
NOW that you have successfully learned how each character sounds, you have achieved a measure
of success in receiving the code at a reasonable speed, and now is the time to practice sending. The
question immediately becomes "What type of key to use?"

The straight Morse Key is simply
a switch which when pressed
completes the electrical circuit for
short or long periods. A light
finger press on the end pad is all
that is needed to make code! On
this ancient J-38 key there are
two knurled knobs on the rocker
lever that are used to adjust the
gap of the switch, and therefor the
required movement of the knob,
and the return spring tension. The
side slide switch was used in a
land line circuit to close the local
circuit for reception.

Pressing a key rapidly to make Dits and Dahs can soon make an arm sore. Land telegraphers called the injury "a glass arm", what we would call "repetitive strain injury" and "carpal tunnel syndrome". Plus the maximum speed possible is about 15 ~ 18 words per minute, limited by how fast the operator can move her fingers. A better way was developed.
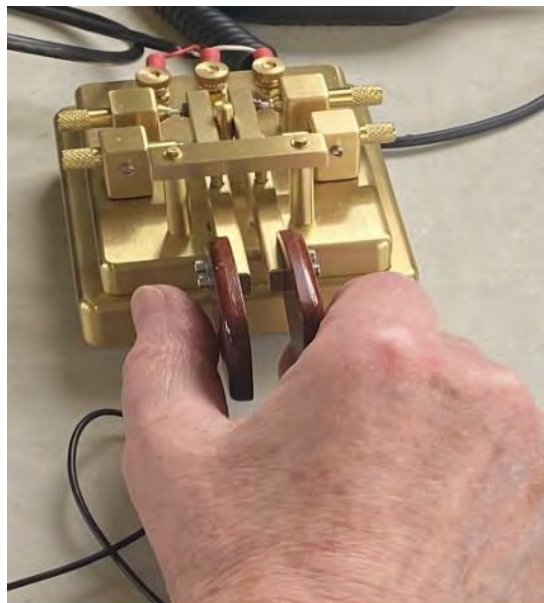
The Iambic or dual action key involves two side by side keys, each connected to an electronic timer or Keyer Circuit that create perfectly timed Dits and Dahs. Usually the thumb key creates the Dits and the finger key creates the Dahs. The operator taps the thumb lever and then the finger lever to create an A, or finger thumb finger to get an K. The hand rests on the table, just the finger and thumb move in a light squeezing motion, there is little chance of a repetitive strain injury, and skilled operators can produce clean 40WPM!

Virtually all amateur rigs these days include a built-in keyer so the code generated is of near perfect shape and far less frustration is experienced when practising sending from the outset. A stand-alone keyer is also a possible additional piece of equipment which is not expensive and would serve the purpose well.

Remember, a good method is to again listen to good code and get a feeling for the rhythm and spacing being used. Don't worry about the speed at this stage. Adjust your key for a minimal amount of movement and physical effort. Get comfortable and send code to yourself using a newspaper or magazine as a text source. Pay special attention to the spacing between each character to have each character stand out. Make it enjoyable and feel good about it.

If you are licensed, get a local ham to QSO with you and make a point of having a CW QSO every day. It's a skill and you need to be proud that you can do it. Get on the air and call CQ at your comfort level. Most who respond will match your speed out of courtesy. Try to send at the same speed as your contact. If they are too fast, ask them to QRS (slow down), they will be happy to do this for you.

If you are still going for your license, find a local ham, tell her or him about your interest, and guaranteed they will be willing to help, send you code, and mentor in other ways.

CW uses a lot of abbreviations much like people do when texting on their cell phones. Eg: Thanks (TKS), For (FER), Very (VY), Good (GUD), Your (UR), Weather (WX), Your signal report (UR SIG RPT) is 599 (5NN). Power is 400 watts (PWR is 4TTW). Note that a nine is sent as an N and a zero as a T in the exchange. Hope to see you again soon (HPE CUAGN SN), And is sent as ES, Best regards is sent as 73 NOT 73's!!. You will learn these abbreviations very quickly and use them too. If you make an error, just send a short series of dits and resend the word again. NEVER abbreviate your call sign!

CW is NOT a lost art and can be very enjoyable and EASY. I know hams who choose to use CW exclusively. You will find too that CW has a much more effective way of punching through QRM, QRN and QSB compared to SSB. The author has had many QSO's on CW that could never have had on SSB. Always remember, don't be rushed, be relaxed and always use International Morse Code.

If you have any questions please email the authors. Contact details are on their QRZ page

POTA by Bicycle: A Ham Radio Journey
By Rod Murray VA3MZD

First, some background: I earned my Canadian Basic With Honours Amateur Radio License in February of 2022 as a retirement goal while taking advantage of pandemic isolation time to read and study for the exam. I then chose VA3MZD as my call sign. Back in 2007, while teaching in Australia, my students gave me the Aussie nickname, Mr. Muzzdog, and it stuck. I'm now Victor Alpha Three Mike Zulu Delta.

At about the time I got licensed, I acquired a Yaesu FT-818ND QRP radio. I had read and heard a lot about POTA and was eager to get on the air but also to operate outdoors. Being active in hiking, cycling and paddling, my immediate goal was to activate a local park on one of my outdoor adventures. I learned as much as I could about QRP and POTA from subscribing to Thomas' QRPer Blog as well as numerous other channels. I was thrilled when I made my first HF QSO followed shortly thereafter with my first POTA contact as a Hunter from my QTH. This made me even more intent on activating a Park.

My activation attempts from a local park, however, were unsuccessful. QRP with a compromised, mini loop antenna wasn't working for me. My first successful activation was unique and did not occur until a few months later, far from home.

In May 2022 I traveled to Vancouver, BC to visit family. One of the regulars on my radio club's morning net (The Elmira Radio Club), a long distance Elmer, so to speak, offered to take me to a local British Columbia park and help me make my first activation. Despite having never met, Trevor VE7BM, scheduled a rendezvous east of Vancouver at VE-3304, Castle Park, and in half an hour, we had over 10 QSOs in the log. I was hooked!

My First Activation with Elmer VE7BM at VE-3304, Castle Park, BC

The Elora Cataract Trailway / The Great Trail of Canada VE-5082 near Shands Dam and Belwood Lake

Upon returning to my home province of Ontario, I acquired an EFRW antenna that I eventually tested for the first time on Field Day in June of 2022. The Nelson 9:1 worked well with my FT-818 and I began taking it on visits to my local Conservation Parks and on hiking trips. I made several successful activations with it but I then ordered a much more portable Tufteln QRP EFRW that Thomas had demonstrated on his QRPer channel. It performed very well and became my regular POTA antenna after installing the Nelson 9:1 permanently in the attic.

Having four POTA units close to home, all within 10 km, made it very convenient to make trips by vehicle to activate them. What makes those 4 parks even more interesting from an outdoor activity perspective is that they are linked by a well maintained rail trail, The Elora-Cataract Trailway which just happens to be part of VE-5082, The Great Trail of Canada! The rail trail connection means that all of these parks can be easily accessed on foot or, my preference, by bicycle.

In the westbound direction, The Trailway ends in the scenic and historic tourist town of Elora, and just beyond the town is The Elora Gorge Conservation Area, VE-1392, where the Canadian Heritage designated Grand River cuts a 22 metre chasm through the limestone bedrock.

It has serviced campsites, trails, picnic shelters and tables near mature White Pine trees (Ontario's Provincial Tree) perfect for deploying a wire antenna. I've been fortunate to have met each of these Parks' Superintendents, and have been able to promote Amateur Radio, my radio club, and also received their full support for POTA activations and Winter Field Day.

Between the two historic mill towns of Fergus and Elora that make up the municipality of Centre

POTA by Bicycle at Belwood Lake Conservation Area – VE-5319/VE-508

Wellington and accessible from The Trailway, stands The Wellington County House of Industry and Refuge National Historic Site, VE-5928. Now renovated to serve as the Wellington County Museum and Archives, the historic limestone building has an interesting, well documented history.

It is perched on the top of a hill overlooking the Grand River, and its grounds, with picnic tables and large pine and spruce trees, are perfect for a POTA activation. I discovered in the late summer of 2022 that it was an ATNO, so I made a point to activate it right away and have made numerous activations since then, many by bicycle.


The Wellington County House of Industry and Refuge National Historic Site – VE-592

There's a 4th POTA unit too, which I've yet to activate due to its limited, summertime only access. Lying just a few hundred metres off The Trailway, The Elora Quarry Conservation Area, VE-5600, is a local swimming hole, as the old quarry is now flooded with aqua blue spring water, perfect for a hot summer's day. My goal for next year is twofold: firstly, to activate the 4th park, and then, departing early one morning, to activate all four parks, all by bicycle, all on the same day! Perhaps I'll plan to end up at the Quarry to cool off after over 50 km of cycling. With the approach of Winter in these parts, that will have to wait until next summer, however.

Thanks to the many hunters and fellow activators I've had the pleasure to contact since my foray into QRP ham radio and POTA. If you are visiting South Western Ontario, make a point of stopping in the area, and exploring our Grand River Conservation Parks and other POTA units, and hopefully make a few activations!

Meanwhile, do you have POTA units accessible by bicycle near your QTH? Why not consider adapting your field radio kit for POTA by bicycle and give it a try?
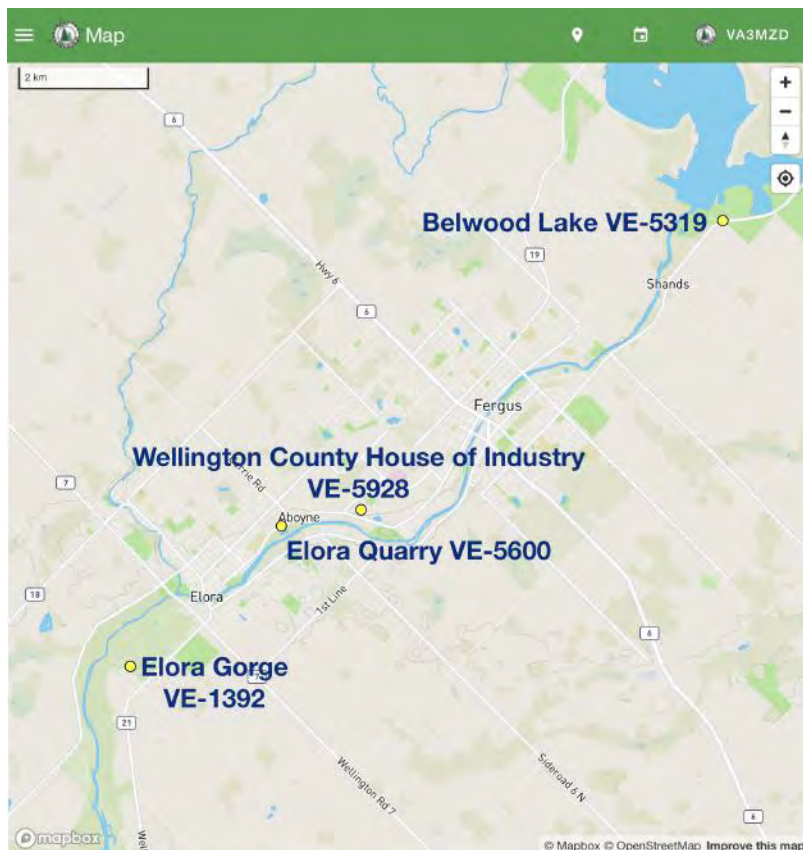
A screenshot of the POTA Map of my local area with the 4 POTA Units connected by The Trailway, which parallels The Grand River.

Rod VA3MZD calling CQ POTA

73 and POTA on!
Rod (VA3MZD)

My POTA Bicycle Field Kit

· Yaesu FT-818ND
· Tufteln EFRW 9:1 Antenna – 41' radiator and 17' Counterpoise
· Bioenno 3Ah Battery
· ATU-10 tuner (sometimes I use an old MFJ-16010 manual tuner)
· 50' RG-58 Coax
· 75' 2mm throw line
· Rite-in-the-Rain logbook and Mechanical Pencil
· Optional – Windows 10 laptop
· POTA by Bicycle Field Kit

CORRESPONDENCE

Terry VE3XTM sent the following stunning photographs along with some explanations.

I am continuing to work on my astrophotography and my images and processing have improved over this past while. We go to Manitoulin Island each year to a friend's cottage and the dark sky there is great for capturing all those ancient photons. Having just turned 80 in October, I can truthfully say that astrophotography is the

only thing that I am getting better at. 🙂
It is a challenging hobby with a very steep learning curve, but I am enjoying it greatly.

Barry Brouseau from the Guelph Amateur Radio Club has asked me to do a presentation on astrophotography for their January meeting and so I have begun working on that now.

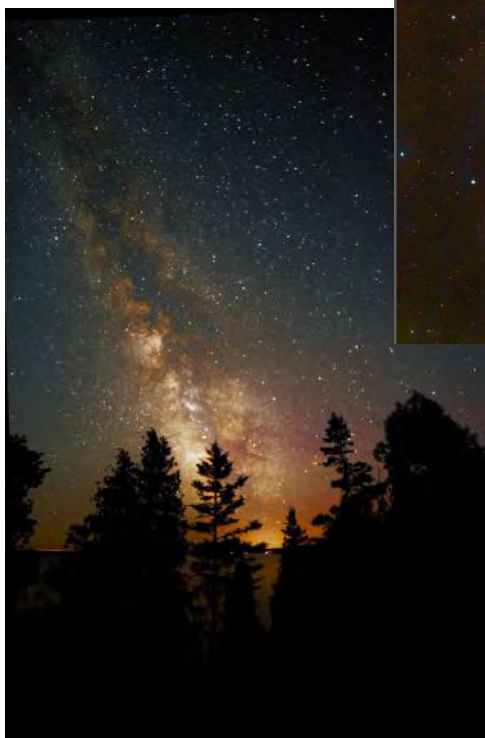Below are a few of my recent images from this year.

All the best
Terry

Bode's Galaxy in our northern sky shot from my home in Guelph

This is a newer version of the Pleiades star cluster. I managed to capture some of the red-brown dust in this one. This star cluster is 444 Light Years from earth, relatively "close" compared to some I have photographed. It is also know as Messier 45 and also The Seven Sisters. The Japanese know it as a six star cluster and call it Subaru. If you remember the Subaru car logo you will recognize it as a depiction of this cluster. I took this photo with an wide field 81 mm refractor telescope from William Optics.

This is the Whirlpool Galaxy, shot this past spring May. I used by Maksutov-Newtonian for this one.
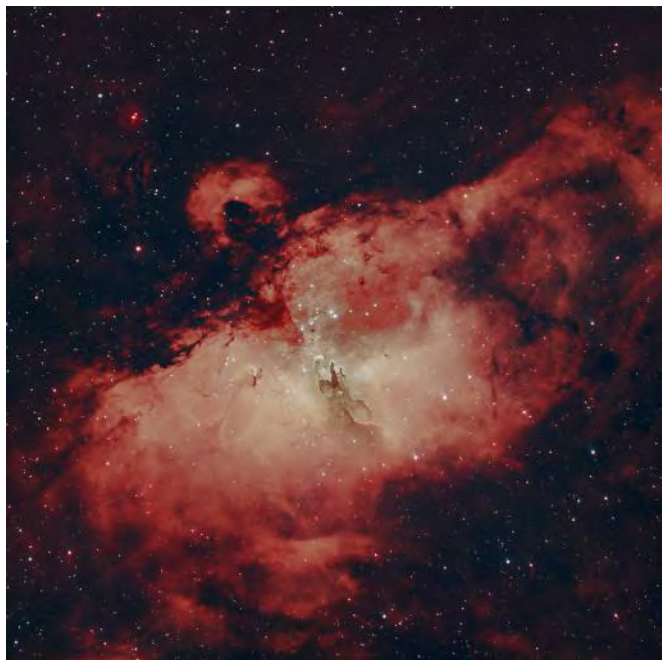
This is a shot of the Milky Way taken from the north shore of South Bay on Manitoulin Island in August of 2023. A true dark zone. It is a thrill to photograph from this location, which we do each year on our annual summer vacation. This one was shot with a Canon 6D Mark II DSLR

This is the Eagle Nebula or Messier 16. At its centre is the "Pillars of Creation" made famous by the Hubble Space Telescope a number of years ago. Below is detail of the pillars. This photo was taken in a darker zone up in Mulmer Township, Dufferin Co. last July. For this shot I used my 152 mm Maksutov-Newtonian Telescope that gives a narrower, but more detailed field of view .

My 152mm Maksutov-Newtonian in my backyard in downtown Guelph.

My 81 mm refractor telescope a William Optics and companion guide scope. It also show the red camera on the back of the scope with an additional guide camera, an electronic focuser and also a small red computer at the bottom that controls the rig from my iPad

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Paul VA3PDC sent the following link. This gives new meaning to "Morse Cat".

https://www.facebook.com/share/r/ovw7tZ6oARsnBX2h/?mibextid=20V84p

Why you need a walkie-talkie external microphone
by Daniel Romila, VE7LCG

One of the right answers is that you will look cool. Seriously, for less than $5 CAD ($3.64 USD), shipping and taxes included in November 2023, you will look cool.

For those of you that want to play with the electric connections for the microphone, speaker and programming, here is the schematic for what one can find on the side of a walkie-talkie, from
https://www.miklor.com/COM/UV_Technical.php

3.5mm Plug

Sleeve	Mic –	PTT	Rx Data	(to the radio)
Ring	Mic +			
Tip	+V		(from the radio)	

2.5mm Plug

Sleeve	Speaker –	PTT	Data GND	
Ring	TX Data	(from the radio)		
Tip	Speaker +			

Connect Sleeve to Sleeve for PTT

3.5mm Plug

Sleeve	Mic –	PTT	Rx Data	(to the radio)
Ring	Mic +			
Tip	+V		(from the radio)	

2.5mm Plug

Sleeve	Speaker –	PTT	Data GND	
Ring	TX Data	(from the radio)		
Tip	Speaker +			

Connect Sleeve to Sleeve for PTT

Many people who downsized and also many people who just started the hobby of amateur radio use a simple walkie-talkie as a base station. Some walkie-talkies produce some noise, if used in the charging cradle when transmitting, but it is not usually very bad. I completely eliminated any power supplying noise by adding a 3300 uF capacitor at the 12 V power plug of the charging cradle, inside the cradle, so nothing is seen outside. Having an external microphone/speaker also allows an easier connection of an external speaker or headphones, because of the dedicated normal audio jack those external microphones include.

What you see in the left picture is a fake connector. I opened the case, and there was no complete connector there. This is what you might find inside a less than 5 CAD external speaker microphone. I took the pictures, after opening the case.

The most annoying thing is not the phoney connector for the headphones, but the very small hole for the microphone. The microphone itself is a big capsule and of a good quality.

I tried it and the voice sounded weak. I verified by listening to myself on a repeater connected to Echolink. Enlarging the hole was not enough, so I unsoldered the microphone capsule from the PCB, attached two wires which I braided, and made the hole on the plastic case big enough to be able to mount the microphone directly on the case. I glued the capsule inside the case, for a stable position.

I am very happy with the result. Other radio amateurs helped me with practical radio tests, in which I compared the original microphone from the walkie-talkie with this new external one. All worked very well.
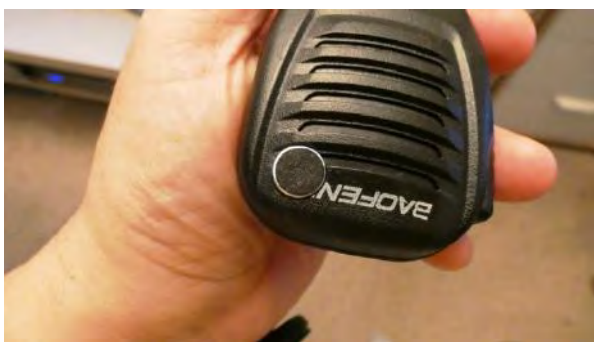
You will need a mono audio connector. If a stereo headphone is connected there, only the LEFT side of the headphones would produce sound in it. It is bearable, but it can be solved with a dedicated MONO headphone.

Anyhow, it is much preferable to connect a speaker/headphone here, instead of attaching directly into the walkie-talkie, because the plug for audio is shared with data. (See the above schematic.)

Another use of an external microphone, is to separate my own body from the walkie-talkie itself when looking for a good radio spot on my balcony looking for a future antenna installation. I keep the external microphone in my right hand, so I have the speaker from this external device close to me. In the left hand I have the walkie-talkie and I "walk" with it to find an ideal spot. In my case, living in an a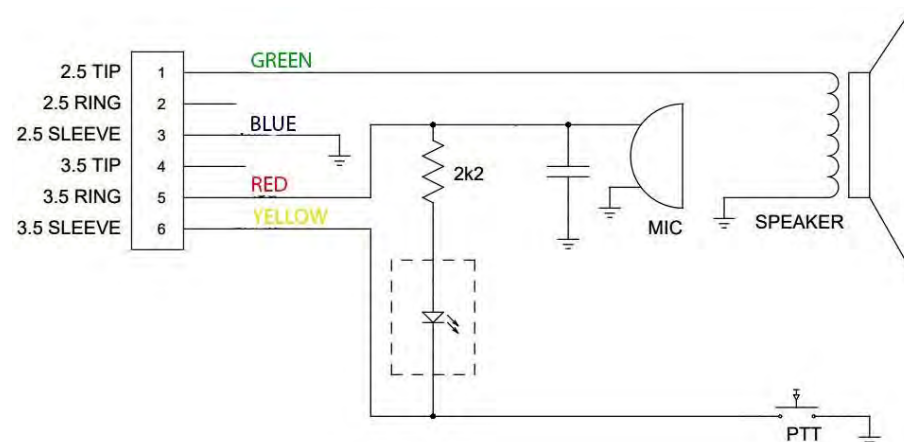partment building, it is very important to find a sweet radio spot, and even 20 centimeters left or right from the optimum position can bring a "miss" of a desired repeater.

My modifications worked so well I replaced the phoney headphone connector with a real one.

This required 2 more holes on the PCB and wiring modification. In the schematic I show the colors as I found them in my microphone:

You see that the speaker from the external case is permanently connected between the blue wire and the green wire. The green wire is connected with nothing else. If you also decide to replace the fake headphones connector with a real one you need to disconnect the green wire from the PCB and pass it through the switching part of the real connector you install there. Perhaps it is not worth the effort for a less than $5 device. The screws require a special screwdriver.

There is a youtube video which even shows how to replace the electret microphone capsule inside with a bigger one. To be honest, there was no significant difference difference in that video after the modification, and never felt that the electret capsule from the original was too small, taking in consideration the FM allowed for radio amateurs is not a music quality FM.

https://www.youtube.com/watch?v=4rEYs8qXPDA

A shorter simple review of a Baofeng external microphone/speaker unit can be found at:

https://www.youtube.com/watch?v=OeyQGXYUybk

This all made an interesting job for me and I enjoyed modifying it.