



# FEEDBACK

## The Official Newsletter of the Georgian Bay Amateur Radio Club



April 2021

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## President's Message

John VA3KOT

Let me start by welcoming our latest new member, Joseph Gamble VE3XGA. Joseph used the contact form on the club website and joined up straight away when we contacted him. Welcome to the club Joseph and thanks for joining us.

It is beginning to look like we are getting an early spring this year. Ontario's weather is notoriously unpredictable and we could still see significant snowfall before the season properly gets underway. My rhubarb and my lawn are both growing nicely so I interpret that as a sign from Mother Nature to get outside and inspect my antennas for winter damage.

Of course, we are still subject to pandemic restrictions but who can resist the temptation to haul a radio out onto the deck and operate backyard portable? I had hoped that we would be able to take advantage of the warmer weather and hold our April club meeting outside in Harrison Park. Unfortunately that ambition will have to be postponed at least until May.

We may have to continue to curtail our outdoor meetings and community support events for some time yet. But, we have managed to keep our club spirit alive through our successful Zoom meetings. Both our regular club meetings and our new program of technical presentations are doing well. I encourage every club member to consider signing up for an opportunity to achieve forty minutes of fame by joining our team of presenters. We have opportunities throughout the fall season for anybody who has a topic they would like to present.

### This Month

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### 2021/ 2022 Executive

President ..... John VA3KOT

Vice-President..... Tom VA3TVA

Treasurer..... Bobby VE3PAV

Secretary..... Rob VE3RWY

[Club Constitution](#)

[By-Laws](#)



A new way of recognizing those who contribute to our club will be rolling out soon. Some people in the club work tirelessly to keep things going while others ... well not so much so. There will be incentives so to misquote the late JFK: "ask not what your club can do for you; ask what you can do for your club".

Our fragmented club finances will soon be brought under control. It is challenging to balance the need to keep a tight rein on the club's funds without paying the bank excessive fees. By the fall it will be easier to renew your membership and at the same time relieve the heavy burden of keeping track of renewals presently endured by our stalwart Treasurer, Bobby VE3PAV.

If our political masters allow us to do so I would like to move our virtual hamfest outdoors and make it a tailgate sale later in the spring. Although we are a solvent club we need to raise funds to invest further in things like a paid Zoom account to get rid of the 40-minute limit on our meetings. I urge every member to either donate something to sell or come and buy something. 100% of the proceeds of all the generous donations goes straight to the club to benefit us all.



### Join us for our weekly get together "On the Air"

The club meets each Wednesday evening on VE3OSR 146.940 T97.4 hz at 7:30 pm local time, and on 3.783 Mhz +/- immediately following.

**Net Control Station Volunteers WANTED**

**Send email to** [netmanager@gbarc.ca](mailto:netmanager@gbarc.ca)

## Snap-On Ferrite Tests

Phil Salas – AD5X

Snap-on ferrites are often used to eliminate RF noise on wires and coax shields. I wanted to look at the effectiveness of some inexpensive snap-on ferrites for RFI suppression. And I also wanted to explore the possibility of using them as choke baluns which are often necessary when feeding a balanced antenna (dipole, yagi, etc) with an unbalanced (coaxial) feedline. For these tests, I obtained a variety of inexpensive snap-on ferrites from Radio Dan ([www.radiodan.com](http://www.radiodan.com)).

### Inductive Reactance Measurements

Snap-on ferrites can keep RF from being radiated or picked up by wiring in your home and shack by placing a high blocking impedance to the offending RF on the wires. Popular uses are on telephone and intercom wires, home theater cabling (especially speaker wires), power supply wiring, and



computer interface wires. Remembering that inductance increases as the square of the turns, so for maximum effect you'd like to have multiple turns of wire through the ferrites. However, the resulting inductance can series resonate with the distributed capacitance of the wire in the ferrite resulting in possibly ineffective impedances at some frequencies.

To begin, I measured the inductance of a single pass of wire through the ferrite. Then I wound six turns of wire through each ferrite and checked the inductance and series resonant frequency. Finally I removed wire turns as necessary to keep the series resonant frequency above about 30 MHz. My basic inductance measurements were made with an AADE L/C IIB Digital L/C Meter as shown in Photo A, and then I used an Array Solutions AIM4170B (Photo B) to look at swept measurements across the HF bands. My data is listed in Table 1.

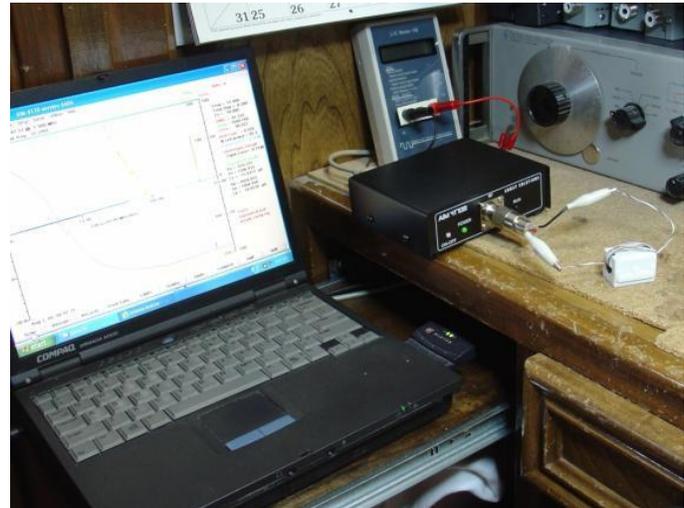


Photo A: AADE Inductance Measurement Photo B: AIM4170B Swept Measurement

Table 1: Inductance and Self-Resonant Frequency Measurements

Ferrite	L@1T	L@6T	SRF@6T	SRF at reduced turns
RCT-2	1.35uH	46uH	16.8MHz	37.9MHz (6.25uH) at 2-turns
RCT-2T	1uH	37uH	24.2MHz	35.2MHz (17.5uH) at 4-turns
RCT-2W	2.2uH	76uH	14.9MHz	56.4MHz (9.5uH) at 2-turns
RCT-3	0.22uH	10.9uH	43.7MHz	
RCT-4	0.48uH	11.4uH	33.9 MHz	
RCT-4W	0.68uH	18.35uH	30.1 MHz	
RCT-5	0.63uH	23.7uH	27.4 MHz	34.4MHz (17.6uH) at 5-turns
RND-5	1.14uH	42.5uH	33MHz	

As you can see from the above data, snap-on ferrites do a good job of adding inductive reactance to cable shields and wires. Remember, the more inductance (the more wire turns) the better, but try to keep the series-resonant frequency above your highest desired frequency of operation.

### Balun Tests

For these tests I built two ~20" loops: one with RG-213 and one with RG-8X. One end of the shield connects to the center conductor of a PL-259, and the other end of the shield connects to the sleeve



(ground) of the same PL-259. In this way I could easily look at the inductance and choking impedance of the coax shield as ferrites were snapped in place. I used an AADE L/C IIB meter to measure the inductance of each loop. The ferrites were clipped on the coax cables and the resulting inductance was measured to give the Coax Inductance/Choke. Next the cable with multiple ferrites was measured with my AIM4170B to look at the impedance at various frequencies.

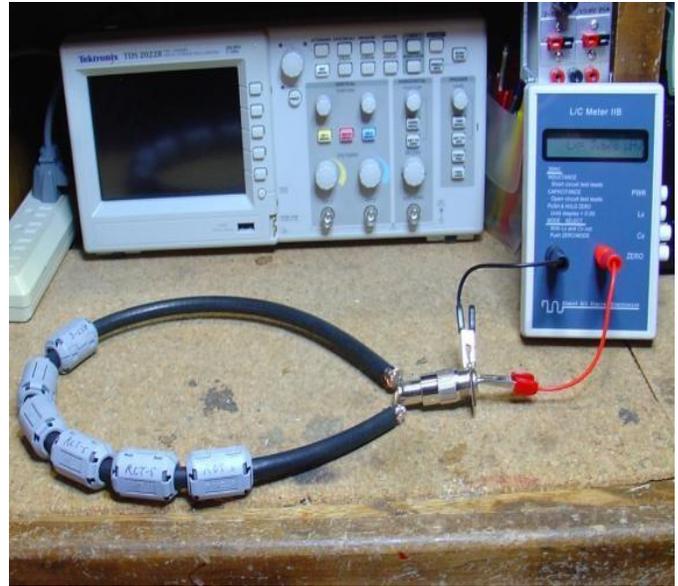


Photo C: Ferrite choke measuring loops

Photo D: Coax Inductance Measurement



Photo E: AIM4170 Impedance Measurement

As can be seen in the data below, the impedance of the loops with the ferrites closely matches the calculated impedance based on the measured inductance.

Ferrite	Coax L/Choke
RCT-2 on RG8X	1 uHy
RCT-2T on RG8X	1 uHy
RCT-2W on RG-8X	2uHy
RCT-3 on RG-213	0.25uHy
RCT-4 on RG-213	0.35uHy
RCT-4W on RG-213	0.8uHy
RCT-5 on RG-213	0.55uHy

Impedance			
40M	20M	15M	10M
-	490	>650	>650 (5 cores)
-	490	637	600 (5 cores)
438	637	>650	>650 (5 cores)
-	-	471	>650 (6 cores)
-	-	-	490 (3 cores)
-	350	553	>650 (5 cores)
-	300	-	600 (6 cores)



RND-5 on RG8X 1uHy

- 400 600 >650 (5 cores)

### 1:1 Balun Recommendations

I believe that you should have at least 400 ohms of impedance on the coax shields in order to have a good 1:1 choke balun. Five microhenries will give about 400 ohms impedance at 14MHz. So you need 5uHy minimum for a choke balun at 14 MHz and above. This can be accomplished with five RCT-2, five RCT-2T, five RND-5, or three RCT-2W ferrites. Five RCT-2W ferrites will make a good 1:1 choke balun on 40 meters and up.

I could not accurately measure impedance at 6- and 2-meters because the loop lengths I picked became series-resonant below these bands (loop inductance plus stray capacitance). Of course, this isn't be a problem on a normal transmission line. However, performance on 6- and 2-meters should be very good with any of these snap-on ferrites. For 6-meters one RCT-2W, two RCT-2, two RCT-2T, two RCT-4W or two RND-5 snapon ferrites should work well. For 2-meters, one of each of the above mentioned snap-on ferrites will work fine. You can also use three RCT-3, two RCT-4 or one RCT-5 snap-on ferrites.

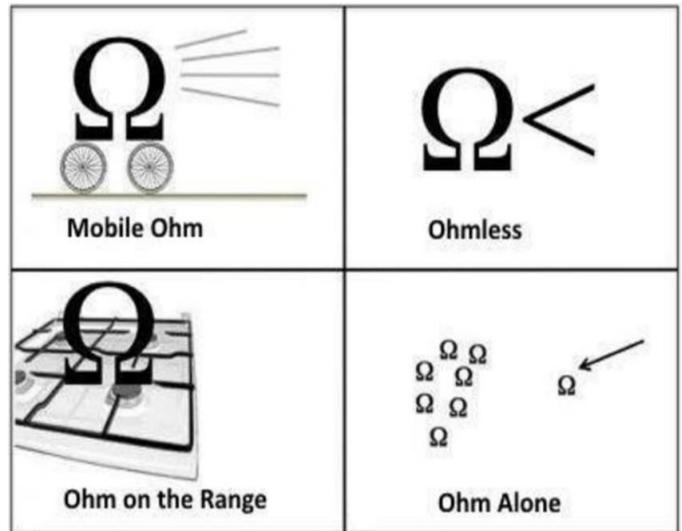
### Summary

While snap-on ferrites are often used for removing noise on wires and cabling, they can also be used as inexpensive choke baluns in many cases. Since you will often not have information on the type of ferrite material that is used in surplus snap-on ferrites, it is always best to measure the inductance as I've discussed to ensure that your snap-on ferrites will be adequate for the job.

73,  
Phil – AD5X

## For Sales / Wants

Tom VA3TS (519-371-9805) in Shallow Lake, On  
For Sale: Estate of VA3DST, **VX-150 2 meter  
handy**, wall and vehicle charger, a new FBA-25a  
AA battery case. No manual. Buttons show some  
signs of wear, works ok. Call or email for more  
details Price: **\$25**, this just covers the cost of the  
new battery holder, the rig is basically free.  
[http://www.rigpix.com/yaesu/vx150\\_manual.pdf](http://www.rigpix.com/yaesu/vx150_manual.pdf)



**Net Control Station Volunteers WANTED**  
**Send email to**  
[netmanager@qbarc.ca](mailto:netmanager@qbarc.ca)



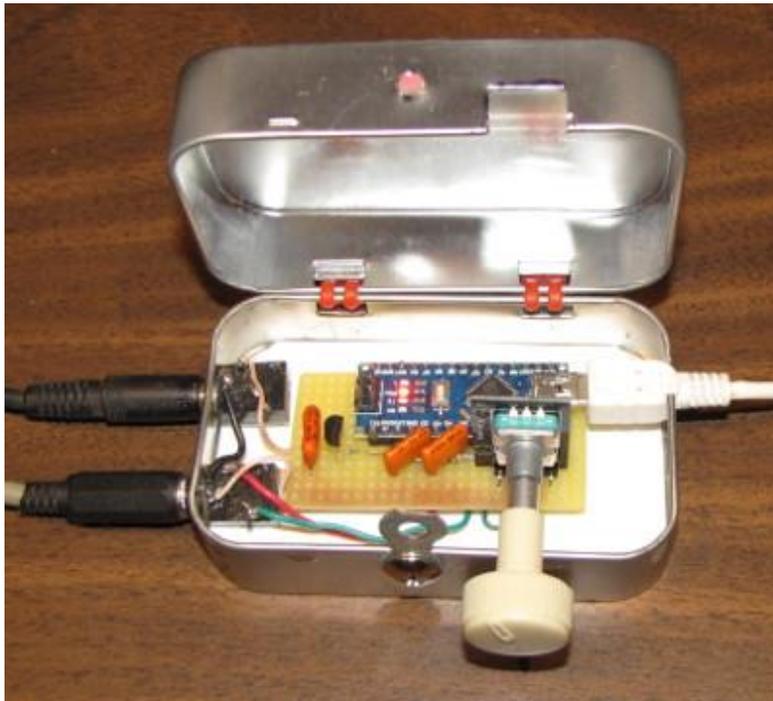
# Builder Project John VA3KOT

Here is an interesting little builder project for CW operators.

It is a CW memory keyer using the cheap and versatile Arduino Nano micro controller. A full description is available online at:

<https://blog.radioartisan.com/arduino-cw-keyer/> so I won't repeat it here. Instead, I would like to describe my build of this great little device.

I wanted something simple that could be built in an evening and could be packaged in the ubiquitous Altoids tin enclosure. My original build did indeed fit into an Altoids tin and was a very basic barebones interpretation of what can be a very complex and capable keyer. The code, or "sketch" as it is called by the Arduino community, was written by Goody, K3NG who also provides prompt, courteous and comprehensive support through a groups.io support group.



My original build had no hardware controls. Everything was controlled by software. My main logging program, CQRLog (a Linux logger), has built-in programmable CW message memories and accepts keyboard entries for sending freeform messages through the keyer. CQRLog also directly supports the K3NG keyer.

After using my keyer for a few months I found one limitation of the barebones build. If I needed to change speed quickly I wasn't able to do so. For example, when running a frequency during a contest, stations responding send at many different speeds. I may have my keyer set to 24wpm but I might also need to QRS down to 12wpm. It is generally considered courteous to match the speed of another station.



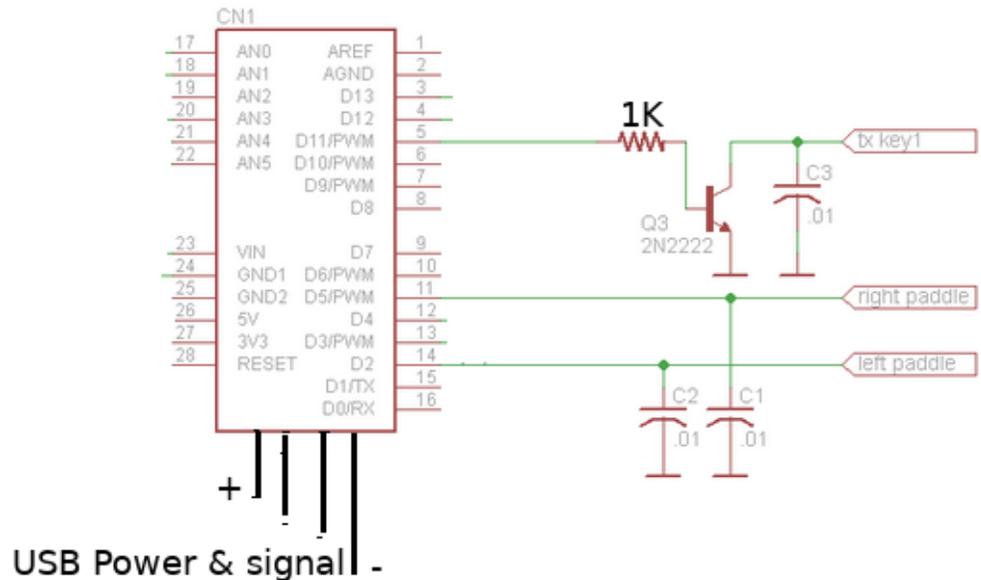
That led me to make an addition to my barebones design. I added a rotary encoder so that I could change speed on the fly. Unfortunately, the rotary encoder is too tall to fit inside the original enclosure so I devised what I have christened the



"Siamese Tins" enclosure. This enclosure provides enough headroom for also adding pushbutton switches later for instant memory keying without relying on software.

So why use an external keyer at all? All my radios have a built-in keyer that I can use. Well, if I leave the built-in keyer turned off I can also use a straight key alongside my paddles when I need to, without changing any radio settings.

It has been an interesting, simple and fun project to build. The keyer is rock-solid reliable and very easy to configure and use.



## Websites of Interest

Copy/Paste the urls below into your browser

### How to protect yourself from scams

<https://www.cira.ca/blog/cybersecurity/what-is-phishing>

### Mini Ring Core Calculator

<http://www.electroniccircuits.com/electronic-software/mini-ring-core-calculator-program>

## Minutes of Meeting

### GEORGIAN BAY AMATEUR RADIO CLUB

Minutes of the Meeting March 23, 2021

Roll Call of Attendees:

VE3BQM Bernie, VA3KOT John, VE3WI David, VE3BAK David, Philip De Kat, VE3MIO Maureen, VE3JMD Jim, VE3PQ Paul, VE3WRF Doug, VE3EAC Janet, VE3VCG Marvin, VA3GUF Frank, VE3PAV Bobbie, VE3FP Adam, VE3RWY Rob, Bob Vy2NX

We have a quorum

President's Report (VA3KOT John)

John mentioned we are a registered Ontario corporation and a non-profit corporation. John will discuss our budget but wanted to let us know in advance we may show a financial loss.



John said we needed more club involvement, especially net controllers. He said he would be away five times this summer and we'll require substitutes. With our current list of volunteers, we rotate every four weeks. Ideally, we could use another four volunteers.

There is a request from silent key Dieter's wife to take down the 50' tower and Yagi located at 122415 Grey Road 5. Weather permitting, a team will be meeting there Saturday morning at 10:00 am. Tom and Frank have volunteered to climb. All are welcome. Please email John if you are interested.

Membership renewals have struggled. The last cheque has just been deposited and it has taken us six to seven months to collect renewals. Tom and John are currently working on an online renewal system that would use PayPal to collect our money. You do not need a PayPal account to do this, only a credit card.

Treasurer's Report (Bobbie VE3PAV)

Bobbie has not been to the bank since February 28. Currently, there is a \$xxxx balance but the RAC insurance has not come out yet. RAC is behind due to Covid. Bobby estimates a balance of just under \$2000 after the RAC deduction. There are no other expenses going out.

Secretary's Report (Rob VE3RWY)

Rob read the 'new business' items from last month's minutes. Motion to accept by Maureen, 2nd by Frank. Motion passed.

### **New Business:**

Budget (John VA3KOT)

Our estimated income is \$xxxx. John highlighted the RAC insurance benefits. We are not sure of the actual cost for repeater maintenance. It is an old repeater and requires DOS to program. The costs have the potential to be higher than what is depicted in the budget.

The bank charges vary based on activities.

The mailbox rental charges are outrageous. They represent a substantial part of our revenue and we only need the mailbox for renewal cheques and bank statements. If everyone renewed electronically, we could cancel the mailbox. Bobby has a lot of work driving down from Lion's Head just to check the mailbox. Rob suggested a member of the executive use their home address for club mail.

If we had to update equipment we would not have the funds. If we ever had an insurance claim, the deductible is \$1000.

John also mentioned the virtual ham fest is not working so well and maybe we have to make some changes. Since Owen Sound is in the green zone which allows a gathering of up to 100 people outdoors, maybe we might look at an outdoor ham fest, like a tailgate ham fest for example.

Bob VY2NX discussed alternate methods for programming our repeaters other than DOS, CAT, remote, DCM software.



Rob made a suggestion to apply to the Trillium Fund for new repeaters. John is waiting on a quote to upgrade.

Frank made a motion to cancel the mailbox next year, 2nd by Rob. Motion passed.

Marvin asked for our official address:

G.B.A.R.C.  
P.O. Box 113  
Owen Sound, Ontario  
Canada N4K5P1

Meeting terminated by Zoom at 7:40 pm.

## Monthly 2021 Online Meeting

Our meeting schedules are posted on our website at <https://gbarc.ca/meetings.php>

For current information or for updates please go there.

Join Zoom Meeting

<https://us05web.zoom.us/j/87550461553?pwd=Ujlvb0ROaWh5bVdEWTA4RlhCOWtEZz09>

Meeting ID: 875 5046 1553

Passcode: RuyZ7h



## April 2021 Meeting Agenda

1. Call to order at 19:00ET prompt - John VA3KOT
2. Introduction of guests and new members - John VA3KOT
3. President's report - John VA3KOT
4. Treasurer's report - Bobby VE3PAV
5. Secretary's report - Rob VE3RWY
6. SIG (Special Interest Group) reports
7. New Business - all members present
8. Meeting to be closed promptly by 19:40ET (Zoom time limit)



# RAC Advanced Course

for RAC Maple Leaf Operators: Summer 2021

Registration is now underway for the RAC Advanced Course: Summer 2021

<https://www.rac.ca/rac-advanced-course-for-maple-leaf-operators-summer-2021/>

Note: You need to be a RAC Maple Leaf Operator Member (present or future) to register for this course. See below for information.

In response to the global pandemic, Radio Amateurs of Canada is once again offering an online Advanced Qualification Amateur Radio Course so that individuals can upgrade their qualifications while continuing to practice social/physical distancing.

With your Advanced Certificate, you can run higher power, operate a remotely-controlled station, obtain operating privileges when travelling overseas, set up repeaters, be the trustee for club stations and even become an Accredited Examiner (AE).

## The Last Word

A few words of appreciation to those that contribute to this newsletter by submitting news stories or interesting web links or ideas. If you have something then send it to <https://gbarc.ca/mailus.php>, any format, any size, anytime, but if you want it to appear in the current months newsletter, then send it by the 3<sup>rd</sup> Tuesday of the month.



**Help US Out** *Would you like to receive email notifications when this newsletter is posted? Sign up for our mailing list. We only send out a few mailings a month and you can unsubscribe at any time. No ads and no personal information, your email address is never shared with anyone else. <https://www.gbarc.ca/lists/?p=subscribe>*

**Membership** for details regarding membership in the club go to:

<https://www.gbarc.ca/gbarcmembers.php>

*The next newsletter will be in May 2021.*

**Join the Radio Amateurs of Canada**

**Our National Voice** <https://www.rac.ca/>

