Ottawa Amateur Radio Club

Groundwave

P.O. Box 8873, Ottawa, Ontario, Canada, K1G 3J2

April 2019

As usual there is no formal speaker for the April meeting as this is Homebrew Night. Everyone is encouraged to bring their home-brew projects for show and tell. Se the scoring guide for the competitive section on page 7.

See you at the meeting.

Ian Jeffrey, VE3IGJ
Editor

Check out our Web Page: ***www.oarc.net***

Next Meeting 7:30 pm, Wednesday, April 1oth in the Colonel By Room at Ottawa City Hall

In This Issue....

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Articles may be submitted for use in this publication provided that they portray events or activities that promote Amateur Radio. Letters and comments are also welcome. Submissions may be made by mail addressed to the Editor care of the OARC, or by e-mail to "ve3igj@rac.ca". Deadline for submissions occurs three days after the regular monthly meeting of the OARC.

Please support your local radio organisations. They support you!

Club Information

The Ottawa Amateur Radio Club Inc. is an association of Radio Amateurs devoted to the promotion of interest in Amateur Radio communications in the National Capital Area and to the advancement and achievement of club members.

Regular Meetings of the OARC Inc. are held on the second Wednesday of each month (except July and August) in the Colonel By Room which is on the second floor of Ottawa City Hall, formerly Regional Municipality of Ottawa Carleton Headquarters, on Lisgar Street. Meetings commence at approximately 19:30 local. Further details about each meeting are noted elsewhere in this publication.

Executive Meetings of the OARC Inc. are normally held on the first Wednesday of each month at 19:30 local. Contact the President to confirm the date, time and place of the next meeting.

The CAPITAL CITY FM Net meets every Monday (except some holidays) at 20:00 local on the club repeater VE2CRA (146.940-, 100 Hz) to pass traffic and to make announcements of interest to amateurs in the National Capital Region.

The Rubber Boot Net runs week days at 07:30 local on VE3MPC (147.150+, 100 Hz CTCSS tone) hosted by Mike, VA3TJP. The Rubber Boot net has been running since the early 1980's and is popular for the early risers and the go to work crowd.

The POT-HOLE Net is a SSB/HF net sponsored by the Ottawa Valley Mobile Radio Club and is conducted every Sunday at 10:00 hours on 3.760 MHz**.** All amateurs are welcome to check in.

The POT-LID CW Net is an informal slow-speed **CW** net that meets every Sunday, except during July and August, at 11:00 hours on 3.620 MHz, to promote interest in CW and CW procedures.

The QCWA CHAPTER 70 Net meets every Monday evening at 19:30 local on repeater VE3MPC 147.150+, 100 Hz) You do not have to be a QCWA member to participate.

The Ottawa Valley VHF/UHF SSB Net is sponsored by the West Carleton ARC. Look for it every Tuesday night (except the first Tuesday of the month) around 21:00 local on 144.250, (roll calls after net on 50.150, 432.150, 222.150, and 1296.100.) Horizontal polarization is preferred.

The Phoenix Net meets Tuesday evenings at 20:00 local on VE3MPC (147.150+, 100 Hz CTCSS).

The regular **OVMRC net** meets Thursday evenings at 20:00 local on VE3TWO (147.300+, 100 Hz CTCSS tone) analogue FM.

VE3TEN

Tuning in the beacon so that it makes sense requires you tune to **28.175** on **CW** and read the tone that is there . The spaces between the elements are the higher tone. If that doesn't work, tune to **28.175.28** on **lower sideband** for better results.

The Ottawa Amateur Radio Club bulletin "Groundwave" is published and distributed to club members. Publication dates may vary but it is hoped that the bulletin arrives at its destination before the events listed in it have expired. The bulletin is not published for July and August when meetings do not occur. Every effort is made to provide accurate information in the bulletin, however we are all human and mistakes can be made. The OARC accepts no responsibility for any damages that may result from this. The opinions expressed in this bulletin are those of the author.

Voice (VHF) 146.940/146.340 100Hz CTCSS required
(UHF) 443.300/448.300 100Hz CTCSS required

VE3TVA Amateur Fast Scan Television Repeater
Currently off the air and looking for a new home.

IRLP Node 2040 146.940/146.340 (VE2CRA/VE3RC)
(Code 411 for info) (Code 204 for activity)
(Code 88 for time)
For further information please contact the Repeater Chair.

Note: The IRLP link is not connected to ECHOLINK. Please do not try to connect using the alpha keys on your keypad. It just confuses the operator.

Note: The IRLP link is disabled during the Monday night Capital City FM Net from 20:00 to about 21:45 .

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March Minutes

March 13, 2019
19:35 Meeting started by Diane VA3DB

EMRG Exercise (Harrie VE3HYS)
Saturday, June 15. Part of a city-wide exercise. If interested, contact Jeffrey VA3PEW Expect to need 20-25 hams.

Scouts Ham Radio Course (Harrie VE3HYS)
Two weeks into the course. Many thanks to Norm VE3LC and the OVMRC for allowing the use of his course content. Six youth (Scouts) from grades 9-10 plus ~9 Leaders (Scouters) are participating.

CSM (Neil VE3PUE)
Overall: Communications went well despite the main commercial repeater tower collapsing. Only one skier suffered an emergency. Weather was near perfect. Communications were split into two nets: Commercial and ham radio. Most checkpoints and vehicles were on the commercial repeater. Gold camp and checkpoints 8 and 9 were using ham radio repeaters. Photos can be found on Neil's website: https://hambone.ca/index.php/Archived-CSM2019/HomePage

Joe Norton Award (Diane VA3DB)
Presented to Jeffrey VA3PEW. Comments by Roger VA3EGY regarding Jeffrey elmering him. Roger expressed his appreciation for Jeffrey encouraging him to volunteer for net control duties and service events. Jeffrey: Thanks for the award!

Diane expressed her appreciation that Roger has volunteered to be the "coffee guy". He volunteered to help with last nights coffee which was helpful given that Douglas King VE3YDK, our usual coffee guy, was not present.

Womens March (Jeffrey VA3PEW)
~1300 participants, may be the largest turnout in Canada Plans changed about two weeks before. Instead of hams being stationed in their cars, amateurs were assigned as route marshals and more or less paired with non-ham volunteers. Lessons learned: interact more closely with the police to determine their requirements. Try not to replace the event volunteers too much. Jeffrey was told that having hams as neutral assistants were appreciated. Comments from the floor: COLD, COLD, COLD!

Miscellaneous Announcements (Jeffrey VA3PEW)
Several events that Jeffrey is helping organize will be coming up this spring. Please keep in mind: CN Cycle for CHEO in early May, Rideau Lakes Cycle Tour in mid-June ande Lap-the-Gats in late June. It was pointed out that a conflict exists with Lap-the-Gats and Field Day.

Presentation
Ron VE3VN: Chasing 6M DXCC with FT8
Summary: In 2017, FT8 was a novelty on 6m. By the end of 2018, FT8 provided the majority of contacts regardless whether considering CW, phone or digital.
FT8's big advantage: Discovery + Common watering hole: Everyone gathers at 50.313 MHz, built in "skimmer" + If a station is present, you know it immediately; no more scanning and endless knob twirling; no dependence on DX spotting networks. All you have to do is work those stations which requires some skill and a station up to the challenge

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Dates to Remember

2019

Feb. 9-10	Canada Ski Marathon
Apr. 10	Homebrew Night
May 17-19	Dayton Hamvention
Jun. 12	OARC AGM and Elections
Jun. 22-23	Field Day
Jul. 1	RAC Canada Day Contest
Sep. 7	OARC Hamfest
Sep. 21	Radio in the Park
Sep. 30	Membership Renewals Due
Nov. 1	Joe Norton Award Subm. Due
Nov 21-23	Tall Pines Rally
Dec. 28	RAC Winter Contest

mk's Word

A Cow Proof Antenna

A local group of hams has a perfect antenna site. It is often wet, flat, has many buried radials, being a former low frequency radio site, and has fairly good security, being surrounded at a distance by a fence typical of a military installation. There is, however a problem with this idyllic rural piece of turf. Unfortunately, although the military has left, the cattle have arrived.

Consequently the installation of any sort of antenna is problematical. The local bovine inspectors, being more curious than usually given credit for, have a tendency to push, rub against, chew and generally harass anything new appearing on their grazing lands. If an antenna is going to stay in place during the eating season a substantial installation is in order. Antennas considered, and rejected were:
-The low dipole, as cattle are good at lowing, however they have a different idea about what it means to low.
-An NVIS antenna. If the locals could be convinced that NVIS means near veal antenna system, so much the better. Sadly, they were not amoosed by this.
-The Cowalina Windom was thought to be appropriate as they might be persuaded to leave it alone in appreciation of the name. Once again, not so.
-Camouflaged antennas, of various types, while at first seeming to be a solution, were not likely to be effective. On reflection, it turned out that, even the dumbest of the cattle would eventually realize that it is just an antenna in a cow suit. Such antennas are unlikely to work well as desired in any case, as anything cow sized has to be small compared to a quarter wave at anything below six metres.
-Similarly, beverage antennas aren't likely to last long as cows tend to be very thirsty critters.

Random wire, underground and isotropic gain antennas have been discussed in previous April articles but weren't considered suitable for this situation. Using an electric fence around the antenna might solve one problem but results in two others. The first is the well known QRM problem of electric fences, while the second is that as hams, it wouldn't do to fry the beef, lest they reciprocate some day and try to fry the ham.

So there remain two candidates. The first is the ground(ed) plane vertical:
1. Obtain an aircraft, preferably something with trans-continental range (good for DX), although it need not be in complete working condition at the time.
2. Place said craft on the ground near the spot where the co(w)-ax emerges from underground.
3. Cut a hole in the top of it and erect a suitable vertical in that spot.
This method should be relatively cow proof, as cows tend not to fly, being rather unenthusiastic about the airport security process. (It reminds them too much of a similar system which is their ultimate destiny) As an antenna it should work well, since you can't have a better ground plane than a plane on the ground.

The second, similar antenna for the situation is to use a bus in the same fashion. Who hasn't heard of a ground bus? There is one in every piece of gear in the shack, so how can it fail? With a ground bus, you don't need ground stakes either, although some ground steaks always go well on the BBQ. Although a bus doesn't do as well at DX than a plane, using a bus has a few advantages. It is capable of providing a number of comfortable seats, and a steering wheel to use as a convenient way to rotate the vertical. The field day possibilities are endless. If a bus is unavailable, try to obtain a dump truck, as these machines will enable one to move the antenna in elevation as well as azimuth. Very handy if you use your vertical for tracking satellites. As a bonus, there will be even less chance of a steer messing with the steering by shoving the thing.

The choice of which to install has been left up to those who have been using the site on a temporary basis for a few years now.

I wonder if W1MOO has ever encountered this problem.

73, have a foolish April
mk VE3FFK

A Grape Experiment

Ontario professor's grape experiment met with electrified response online

Liam Casey

Aaron Slepkov and his buddies first tossed grapes into a microwave back in the mid-199os. Within seconds, the fruits sparked like lightning. He was hooked and broke out the trick at parties.

Now, the Trent University physics professor has published his examination of the phenomenon's underlying mechanism in the Proceedings of the National Academy of Sciences of the United States of America. The study went viral.

"The project went from 'WTF' to 'A-ha!' in about five years," Dr. Slepkov said. "It's really discovery science, really curiosity based. Nobody starts a project and gets some undergrad to microwave grapes because they have designs on some big grant somewhere."

Well into his physics education, Dr. Slepkov began thinking more seriously about the grapes experiment.

Later on, he searched for more information on the phenomenon. There was no scientific literature, but he found the trick had gained popularity on YouTube with hundreds of videos and millions of views. YouTubers thought the grapes sparked because of conductivity on its surface, but there was nothing to back that up.

In 2013, a young, keen student pestered Dr. Slepkov to volunteer in his lab. "He was young and untrained, so I certainly wasn't letting him near my expensive lasers," Dr. Slepkov said. "He was so persistent, I said for the cost of a microwave oven of $ioo, put him in the lab and have him microwave some grapes and find out what other conditions it works - other fruits, other shapes, that kind of thing."

That summer, they discovered the grapes didn't need to be cut. "There have to be a pair of spheres or hemispheres - a single grape doesn't spark, it heats up," Then we put two grapes on a concave watch glass so they couldn't roll away, then they spark all the time."

So, he thought, if you don't need the "skin bridge" connecting the grapes, does he even need the skin, or the grapes? "What if a grape isn't a grape?" he thought. "What if a grape to a microwave was just a ball of water?"

So they tested hydrogel beads, the absorptive material found in diapers. "When we dipped them in salt water to make ions that ionize, they spark," Dr. Slepkov said. "We realized it wasn't grapes held together by a skin bridge, this is about balls of water."

The team found that a microwave - with a wavelength of 12 centimetres in air - is the exact same size of a grape in water because of what's known as water's high index of refraction, Dr. Slepkov explained. That's when something interesting happens, he said.

Microwaves accumulate and become trapped inside the grape, he said, and those light microwaves pack themselves in the centre and the grape begins to heat up. When a second grape comes in, or the other half of a cut grape, the microwaves concentrate at the sides near each other creating an intense electrical field.

"The microwave light senses the other grape and wants to move there," Dr. Slepkov said. The electric field becomes so high, he said, that it begins stripping electrons off sodium and potassium molecules, creating ions. "Once you have an ion of sodium or potassium, then all hell breaks loose and the rest of microwave oven is feeding that spark, ionizing the air and turning it into ball lightning," he said.

Dr. Slepkov gives a lot of credit to Hamza Khattak, the final undergraduate student to work on the project who also helped with imaging because of his burgeoning photography skills, along with Pablo Bianucci, a physics professor at Concordia University, both co-

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authors of the study.

The internet loved the team's work, especially its accessible and lively writing. One favourite is the opening line of the paper: "It is a truth universally acknowledged that a pair of grape hemispheres exposed to intense microwave radiation will spark, igniting a plasma." It is an homage to the opening line in Jane Austen's *Pride and Prejudice.*

Up until a week before publication, the article was titled "Grape Balls Of Fire," but the journal balked at it. "The paper was written with a lot of light-hearted humour," Dr. Slepkov said. "We do try to take an attitude of work as play."

He said one potential application is antenna design for cellphones or wireless routers. "We're hypothesizing maybe you can change antenna design because the grapes are acting as a concentrator for wireless radiation or cellphone radiation - affecting how we design antennas to help act as a signal booster," he said.

"This was such a silly project, I didn't tell anyone for the first three years because I thought I'd be laughed at. We do serious research, but it turns out there is some serious science at work here. I have students funded to microwave fruit because our gut tells us the answer will be interesting. And it is."

Globe and Mail, March 11,2019

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+ Propagation is on Es layer
+ Best propagation is from May to August, peaking at the solstice, between 8am to 11pm (local)
+ FT8 is NOT a low power mode. More power, higher elevation definitely helps.
+ Most contacts are on 50.313, but as FT8 gets more popular, QSY'ing to 50.323 is getting more popular.
+ Ron encourages everyone to try FT8. Practice with FT8 before chasing the DX.
+ Use WSJT-X 2.0.0 or newer versions.
+ Suggests a guide by Gary ZL2IFB: http://www.g4ifb.com/

50/50 won by Roger VA3EGY

Pre- and Post-Meeting Announcements
+ April 6: Iroquois Amateur Radio Flea Market
+ May 11: Smiths Falls Hamfest
+ September 7: OARC Carp Hamfest (Note date)
+ May 5: CN Cycle for CHEO. To volunteer, see Jeffrey VA3PEW (jeffrey@va3pew.ca) or Arthur VA3BIT (va3bit@rac.ca)
+ June 1-2 Doors Open Ottawa: Scouts Canada VE3SHQ needs help. To volunteer, contact Thane VA3TTM
+ Greg VE3YTZ has membership badges for: VE3HVB, VA3WTZ, VE3TQY, VA3EGY, VE3PUE, VA3CME, VE3YXY, VA3YXY
+ For sale: VE3DNI Jean has a temperature-controlled soldering iron station to give away!

Minutes taken by VA3BIT.

April Meeting: Homebrew Night

Come on down and show your handiwork for fun, prizes, and the respect and admiration of your ham radio compatriots.

The competitive portion is scored like this:

Originality (30%)

- 10% – not original, circuits and applications in most amateur publications, kits, existing software.
- 20% – modifications to published circuits and applications, modify existing software, modifications and additions to kits.
- 30% — new original concept and/or application, little or no info in most amateur publications, develop new software, mathematical calculations, not a kit
-

Complexity (30%)

- 10% – simple, few parts/components, dimensions, layout and lead lengths not very critical or easily measured, multimeter instrumentation, make in a day or less.
- 20% - fair number of parts/components, chassis, circuit board, some attention to dimensions, layout and lead lengths, simple software program, use vswr meter, signal generators etc., construction time between one day and a week.
- 30% — relatively large number of parts/components, one or more circuit boards, critical layout,/dimensions, wriye and debug software programs, more advanced instrumentation, time more than a week
-

Craftsmanship (15%)

- 5% – very simple tools, crudely constructed
- 10% – more advanced tools, nicely constructed
- 15% — beautifully made, clean, labelled
-

Presentation (15%)

- 5% – short or rambling presentation, few details or explanation.
- 10% – reasonable explanation about item, how it works and was constructed.
- 15% — very well thought out short and concise description of how item was developed and constructed, handout information available

Wit, Charm, and Eloquence of the Presenter??? (10%)

Paddles from China

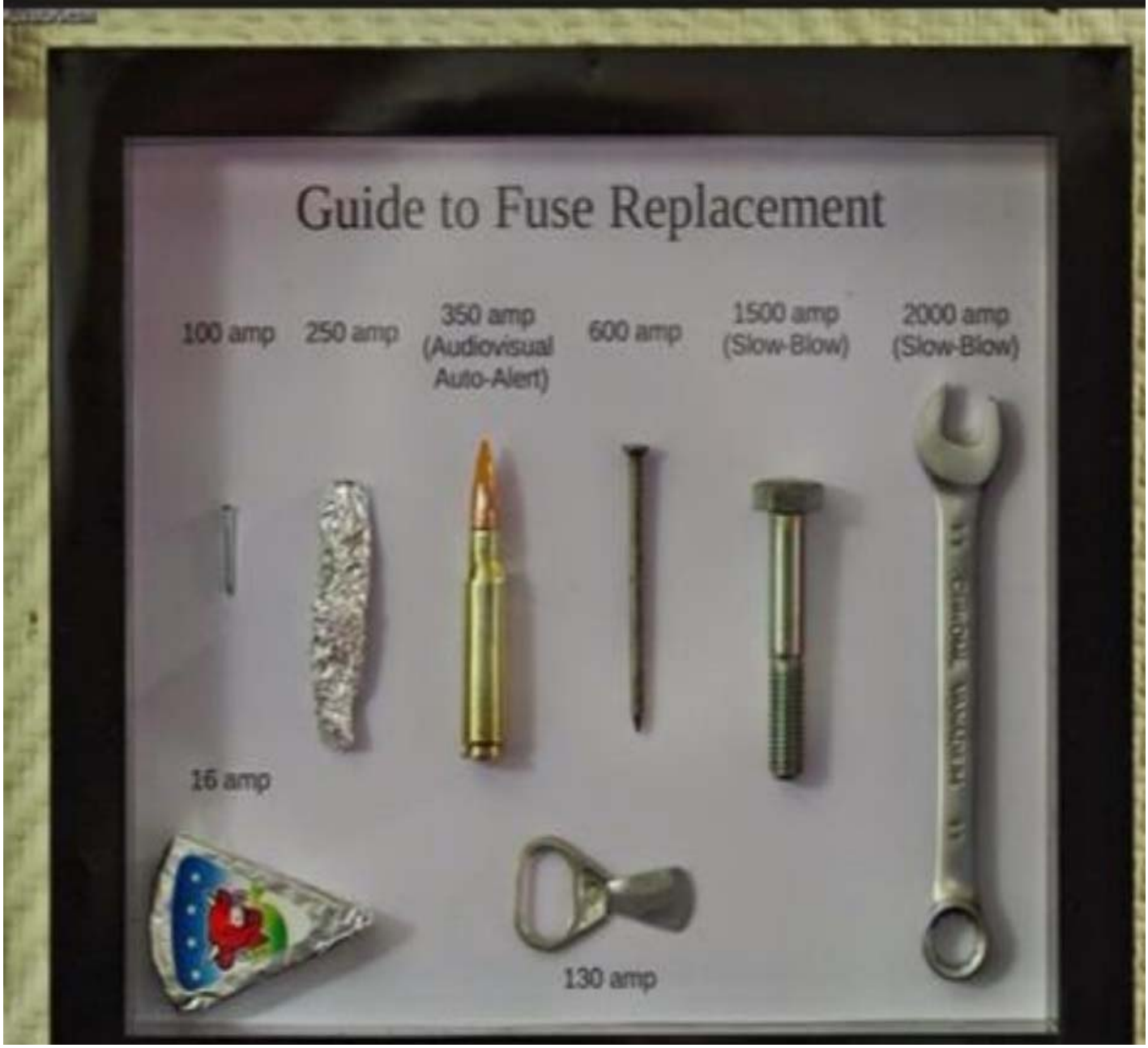
Here is the info on the paddles I showed round at the Mar meeting. They now show a shipping charge to Canada. It was free shipping when I got them. The URL is as follows:

https://www.aliexpress.com/item/1PC-AK02-automatic-key-switch-transmitter-exerciser-oscillator-Morse-code-shortwave-radio-CW-telegraph/32945285461.html?spm=2114.search0104.3.131.192a147ed4yQkm&ws_ab_test=searchweb0_0,searchweb201602_6_10065_10130_10068_10890_10547_319_10546_317_10548_10696_453_10084_454_10083_10618_10307_537_536_10902_10059_10884_10887_321_322_10103,searchweb201603_56,ppcSwitch_0&algo_expid=29a58040-7361-4e59-b9d2-a385fbe53b9c-19&algo_pvid=29a58040-7361-4e59-b9d2-a385fbe53b9c&transAbTest=ae803_4

[*Cut and paste this URL. Do not try to enter by hand! Ed]*

Mike Kelly
VE3FFK

Guide to fuse replacement



2018-2019 **OARC Membership Application/Renewal**

Ottawa Amateur Radio Club Inc., Box 8873, Ottawa, ON, K1G 3J2, Canada

◯ Single $25 ($20 after February 1)
◯ Family $30
◯ Junior $15 (under 18 years of age)
◯ New Ham $0 (licensed in current membership year)

◯ Emailed Newsletter $0 ◯ Mailed Newsletter $10

Name _____ Phone _____

Callsign(s) _____ Year Licensed _____

☐ Basic ☐ Honours ☐ Advanced ☐ Morse ☐ RAC Member

Email Address _____

Name _____ Phone _____

Callsign(s) _____ Year Licensed _____

☐ Basic ☐ Honours ☐ Advanced ☐ Morse ☐ RAC Member

Email Address _____

Postal Address _____

Membership year is September 1 through August 31. Paying members who are in good standing by the December General Meeting will be eligible for a free one-time name badge. Members who wish to purchase additional replacement badges may do so through the club for $10 each. Ordered badges will be available in January. All prices are listed in Canadian Dollars (CAD).

First Name on badge _____ Callsign on badge _____

First Name on badge _____ Callsign on badge _____

Notes _____