

From the Gavel...



The first order of business is to advise you that we will not be meeting at the church hall on the first meeting in April as the hall is unavailable. This means that the club elections will be

pushed back to the 23rd. To ensure you get your ham radio fix, we have organized a field trip to the Hammond Museum in Guelph.

Directions to the museum can be found at <http://www.hammondmuseumofradio.org/visit.html>. The museum was founded by the late Fred Hammond VE3HC, a well known and respected ham who owned and operated Hammond Manufacturing. The company over its 92 year history has built radios, power amplifiers, transformers, racks and other related products.

The museum displays a complete history of amateur radio and broadcast equipment. Its' vintage collection of radios is impressive. My favourite was the spark gap transmitter. This thing could double as a defibrillator and bring back the dead. In fact, it has been rumoured (by me) to be used by Dr. Frankenstein for just that very purpose.

The transmitter was the equivalent to firing off a bank of automotive spark plugs. It didn't use any modulation scheme and while transmitting used the entire RF spectrum. A hand crank was used to charge it up. When discharged with a Morse code key, it could wipe out radios and television sets for miles around if

used today. The blue sparks generated could be heard for nearly half that distance. I could have used one of these transmitters a number of years ago. It would have put an early end to my neighbours ongoing all night pool parties!

I also remember seeing a whole range of commercial radio broadcast transmitter tubes of interesting shapes and sizes. An AM or TV transmitter tube that was nearly as tall as me in the shape of a desert cactus comes to mind. Some of the tubes used in early broadcast days were quite unusual.

While you are there, you will want to check out the ham station. They are using a Trylon tower with a Cushcraft X7 tri-band beam. Not your average home installation. Pictures are available on their website. The site also details the history of Hammond Manufacturing, the museum, early years of commercial broadcasting and Fred Hammond himself. It is a very interesting read.

So, get your car pools organized and clear your calendars for April 9th. For you veteran hams, it will be a trip down memory lane. For the new younger ham, you will be amazed to see how technology has evolved over the years. It is well worth the trip to Guelph and you won't be disappointed. See you there.

73 ... Rick Brown VE3IMG

This Month

2. **Commentary**
3. **Club Calendar**
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5. **The Roving Reporter**
5. **ARES: NVIS AS-2259 Antenna**
8. **RAC Application Form**

Sunday Brunch

Sunday brunches are held on the first Sunday of each month. Time is 9:30AM at Shopsy's, 6986 Financial Drive Unit 5 Mississauga (at the corner of Mississauga Rd and Derry Rd). All are welcome to come out and have an opportunity to chat in an informal setting.

Club Nets

2 Metre Tuesday Night Phone Net Join in on the chatter starting at 8:30PM every Tuesday on the club repeater. Hosted by various net controllers. 145.430MHz Tone 103.5 Minus (-) offset. Contact our VHF Net Manager, **Lorne (VE3CXT)**, if interested in becoming a net controller.

75 Metre Sunday Night Net Starts at 8:30PM every Sunday. Hosted by various net controllers. Contact our HF Net Manager, **Michael (VE3TKI)**, if interested in becoming a net controller.

Commentary



There are two key events in the MARC annual calendar – the Hamex at the end of March and the Field day on the last weekend of June. These two events are coming up very soon and you can tell by all the activity going on.

These are exciting times. The club has 32 volunteers for the Hamex. That says something about us being an active and progressive club. This single event erates more than half our annual revenue. The isers are looking for donations for the club. Look in your shack, basement & garage for anything you that could be sold and you don't need any longer. People are willing to pay good money for what you consider junk. I know because I have bought good stuff at Hamex that I regularly use in my shack. When you are there keep an eye open for interesting stuff. You never know what you will find.

If you have not joined the MARC_Members Yahoo Group you are certainly missing out on a lot of information, humour and notices. It is easy – just get a Yahoo account if you don't already have one. You can safely bet that <your-call-sign>@yahoo.com is available. Then you apply for membership to the group online. The moderator will review your application and grant you access. That's it! From that point on any posting on the group will be sent to your preferred email address – not necessarily the Yahoo email address. If nothing else, you can be assured that the group has a good sense of humour that can lighten your day.

We have an interesting line up of speakers this month. On the 12th we have Gino Cunti VA3JUV and his classmates talking to us about his accomplishment building a transmitter and contacting the International Space Station. On the 26th Jim Dean VE3IQ, member of the Canadian delegation to World Radio Conferences (WRC) 2007 talks about Amateur Radio Interests at WRC 2011.

Hope to talk with you at the meetings!

73

Thomas VA3TMB.

Executive Directors

President:	Rick Brown VE3IMG
1st Vice President:	Asim Zaidi VE3XAP
2nd Vice President:	William Bressette VE3WPJ
Treasurer:	Michael Gregory VA3NMI
Secretary:	Dan Goodier VE3NI
Past President:	Dave Harford VA3DFH

Club Managers

Membership Manager	Dave Harford VA3DFH
Education Manager	Earle Laycock VE3XEL
House / Visitor Host Manager	Murray Yewer, VE3JMY
Newsletter Editor	Thomas Bernard VA3TMB
Net Managers HF Net	Michael Brickell VE3TKI
VHF Net:	Lorne Jackson VE3CXT
Repeater Manager	Michael Brickell VE3TKI
Assistant	Dave Harford VA3DFH
Assistant	John Lorenc VA3XJL
Assistant	Bryan Jay VA3BLJ
Assistant	Bob Boyer VE3XBB
Assistant	Lorne Jackson VE3CXT
Assistant	John Duffy VE3DRZ
Assistant	Asim Zaidi VE3XAP
Assistant	Tony Champion VA3QC
Assistant	Robin Stubbs VE3VVS
Assistant	William Bressette VE3WPJ
Club Station Manager	Stefan Bejusca VA3OBR
Assistant	Rick Brown VE3IMG
Assistant	Asim Zaidi VE3XAP
Assistant	Alex Malikov VE3MA
Assistant	Bryan Jay VA3BLJ
Field Day Manager 1	Lorne Jackson VE3CXT
Field Day Manager 2	Thomas Godden VE3TWG
Assistant - Documentation	Tony Champion VA3QC
Assistant - Logging	Jody Levine VE3ION
Assistant - Refreshments	John Duffy VE3DRZ
Assistant - Press and Publications	Reg Vertolli VA3JQA
FSV Manager	Dave Stubbs VA3BHF
Assistant	William Bressette VE3WPJ
Programs Manager	Thomas Bernard VA3TMB
Assistant	Lorne Jackson VE3CXT
Webmaster Manager (Source Code and DB)	Dave Harford VA3DFH
Assistant	Dan Goodier VE3NI
Assistant	Rick Brown VE3IMG
Legal Consultant	Lorne Jackson VE3CXT
Public Information & Media Relations Manager	Tony Champion VA3QC
Photography	Reg Vertolli VA3JQA
Assistant	Dan Goodier VE3NI
Education Basic Theory Courses	Earle Laycock VE3XEL
Basic Theory Courses	Bob Hawkins VE3AGC
Basic Theory Courses	Jody Levine VE3ION
Basic Theory Courses	Basil Burgess VE3JEB
Basic Theory Courses	Michael Brickell VE3TKI
Advanced Theory Courses	Thomas Bernard VA3TMB
Advanced Theory Courses	Basil Burgess VE3JEB
Advanced Theory Courses	Earle Laycock VE3XEL
CW Courses	Frank Lamb VE3HTX
CW Courses	Earle Laycock VE3XEL

Audit Committee

Auditors Coordinator	Basil Burgess VE3JEB
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Public Service

ARES Emergency Coordinator	Dan Goodier VE3NI
Past Coordinator & AEC	Sean Conlin VA3MED
Assistant EC - 1st Day	Michael Brickell VE3TKI
Assistant EC - 2nd Day	John Duffy VE3DRZ
Assistant EC - 3rd Day	Bob Boyer VE3XBB
Assistant EC - 1st Night	Sean Conlin VA3MED
Assistant EC - 2nd Night	Dave Harford VA3DFH
Assistant EC - 3rd Night	Lorne Jackson VE3CXT
CANWARN Manager	Peter Mosher VA3PKM
Special Events / Walks Manager	Bob Boyer VE3XBB

CLUB CALENDAR FOR 2009

March, 2009

01 Sun Sunday Brunch - Shopsy's
05 Thu Exec Meeting
06 Fri ARRL International DX Contest
08 Sun HF - 75/80 Meter Net
09 Mon Advanced Class 9
10 Tue VHF/UHF - 2 Meter Net
12 Thu Club Meeting - Member's night
15 Sun HF - 75/80 Meter Net
16 Mon Advanced Class 10
17 Tue VHF/UHF - 2 Meter Net
19 Thu Radio Night at Club Station
21 Sat Russian DX Contest
22 Sun HF - 75/80 Meter Net
23 Mon Advanced Class 11
24 Tue VHF/UHF - 2 Meter Net
26 Thu Club Meeting - Speaker's night
27 Fri CQ WW WPX Contest
28 Sat Ham-Ex 2009
29 Sun HF - 75/80 Meter Net
31 Tue VHF/UHF - 2 Meter Net

April, 2009

02 Thu Exec Meeting
05 Sun Sunday Brunch - Shopsy's
05 Sun SP DX Contest
07 Tue VHF/UHF - 2 Meter Net
09 Thu Club Meeting - Field Trip - Church not available
14 Tue VHF/UHF - 2 Meter Net
16 Thu Radio Night at Club Station
18 Sat Ontario QSO Party
21 Tue VHF/UHF - 2 Meter Net
23 Thu Club Meeting - Member's night
28 Tue VHF/UHF - 2 Meter Net
30 Thu ARES Meeting

Provisional Schedule Below...

May, 2009

02 Sat ARI International DX Contest

03 Sun Sunday Brunch - Shopsy's
05 Tue VHF/UHF - 2 Meter Net
07 Thu Exec Meeting
12 Tue VHF/UHF - 2 Meter Net
14 Thu Club Meeting
19 Tue VHF/UHF - 2 Meter Net
21 Thu Radio Night at Club Station
26 Tue VHF/UHF - 2 Meter Net
28 Thu Club Meeting - Speaker's Night
28 Thu Club Meeting
29 Fri CQ WW WPX Contest

June, 2009

02 Tue VHF/UHF - 2 Meter Net
04 Thu Exec Meeting
07 Sun Sunday Brunch - Shopsy's
09 Tue VHF/UHF - 2 Meter Net
11 Thu Club Meeting
16 Tue VHF/UHF - 2 Meter Net
18 Thu Radio Night at Club Station
23 Tue VHF/UHF - 2 Meter Net
25 Thu Club Meeting - Pot Luck Dinner
27 Sat ARRL Field Day Contest
30 Tue VHF/UHF - 2 Meter Net
30 Tue RAC Canada Day Contest

July, 2009

05 Sun Sunday Brunch - Shopsy's
11 Sat IARU HF World Championship
25 Sat IOTA

August, 2009

01 Sat North American QSO Party
02 Sun Sunday Brunch - Shopsy's
07 Fri Worked All Europe DX Contest
15 Sat North American QSO

NOTES

1. Meetings start 7:30PM at St. Thomas A Becket Church Hall, 3535 South Common Court unless otherwise noted.
2. Brunch is at 9:30AM unless otherwise noted.
3. Classes are from 7:00PM - 9:00PM at Meals On Wheels at 2445 Dunwin Drive

Visit our website: <http://www.marc.on.ca> for any updates of the calendar.

Cancer fighter John Kanzius, K3TUP, (SK) <http://www.eham.net/articles/17412>

John Kanzius, K3TUP, who was featured in the January issue of CQ magazine, has died. Kanzius, a former TV station owner who devoted his later years to developing new tools to fight cancer after he was diagnosed with the disease, was 64. According to the Pittsburgh Post-Gazette newspaper, Kanzius passed away early Wednesday morning, February 18, from pneumonia that developed as a result of chemotherapy. Kanzius used his ham radio knowledge to develop a totally new means of killing cancer cells -- by "tagging" them with tiny metal "nanoparticles" and then subjecting them to a very strong RF field which heated the cancer cells (but not surrounding healthy tissue) to a point where they could not reproduce. Researchers at the M.D. Anderson Cancer Center in Houston are working to bring the method to clinical trials. Kanzius' technology also showed promise for extracting energy from salt water, something that is being studied at Penn State University. He is survived by his wife, Marianne, two daughters and two grandchildren.

John's story

For most, a cancer diagnosis can be devastating.

But, as CBS News contributor Benno Schmidt reported on The Early Show Monday, for John Kanzius, it was a call to action.

Kanzius isn't a doctor. He doesn't even have a college degree.

Yet, observes Schmidt, the device he invented has impressed a notable researcher and inspired his hometown, Erie, Pa., to the point where it gave him a key to the city in April.

Asked by Schmidt what made him think he could cure cancer, Kanzius replied with a laugh, "What made me think I couldn't cure cancer? Nobody else was doing it!"

A former radio and TV engineer and one-time station owner, Kanzius, who suffers from leukemia, hated his chemotherapy and saw its devastating effect on others.

"I ran into some of the same patients over and over again and, to see their smiles disappear within a few weeks, and then watch their hair disappear and then, clinging to their mothers asking, 'What's wrong with me?' was heartbreaking."

Kanzius, who'd been building radios since childhood, believed radio waves could somehow be harnessed to destroy cancer, without drugs or invasive surgery.

"I envision this treatment taking no more than a couple of minutes or so," he says.

Kanzius hopes cancer treatments could work something like this: A patient would be injected with tiny metal nanoparticles, which would be carried through the bloodstream by a targeting molecule and attach only to cancerous cells. The patient would then be exposed to an energy field created by radio waves, and feel nothing, while the nanoparticles would generate enough heat to destroy their cancerous host cell.

While noting that targeting cancer cells will be the biggest challenge, Kanzius demonstrated just how easily the nanoparticles could be used as receivers.

A lab worker injected carbon nano-particles into a specific spot in a piece of liver, which was then placed into an energy field of low frequency radio waves.

Within seconds, the areas injected with the nano-particles were heated to the point of actually cooking the liver, while leaving the surrounding meat unscathed.

Kanzius' invention has caught the attention of Dr. Steven Curley, a surgical oncologist and cancer researcher at MD Anderson Cancer Center in Houston.

"This has the most fascinating potential I've seen in anything in my twenty years of cancer research," Curley told Schmidt.

Curley has developed current methods of using radio frequencies to attack cancer, but says he looks forward to one day using a non-invasive approach like the one Kanzius is working on.

"This," Curley says, "is what will get into the cancer cells and again ... release heat that will kill the cancer cells."

He wouldn't reveal animal test results on camera, but says he's optimistic that his findings will be announced this fall.

In the meantime, he's joined Kanzius in an effort to raise awareness and funds to expedite further research.

The April symposium at which Kanzius got the key to Erie brought out 700 people who were not only enthused by the prospect of curing cancer, but having their city as the manufacturing hub of the device Kanzius invented.

Former Erie Mayor Joyce Savocchio remarks, "I always say to John Kanzius, he'd better practice Swedish, because I honestly believe he's going to be in Sweden accepting the Nobel Prize!"

Savocchio leads the fundraising efforts in Erie and says, since the machine would be built there, Erie could benefit, big-time.

"The projected income," she points out, "should this be successful, is anywhere between \$2.5 billion and \$10 billion a year."

Experts say human trials using Kanzius' device are at least three years away, but Kanzius is undaunted, telling Schmidt, "I'd like to see the first patient treated while I'm still alive, and to have the doctor tell them they're cured!"

As for Kanzius himself - Schmidt says his health is considered stable, and he continues to undergo chemotherapy for his leukemia.

The Roving Reporter

The Roving Reporter this month took a well deserved break and will be back next month. Watch this space to learn more about fellow hams from the club.

ARES: NVIS AS-2259 Antenna

<http://home.centurytel.net/w9wis/NVIS.html>

I became interested recently with the concept of NVIS (Near Vertical Incidence Skywave) Antennas. The NVIS antenna is ideal for local and emergency communications on HF.

Portability and their unique performance envelope make them worth looking at for any amateur serious about reliable HF communications. Probably the biggest users of NVIS antennas are the military and FEMA.

What is NVIS?

"NVIS, or Near Vertical Incidence Skywave, refers to a radio propagation mode which involves the use of antennas with a very high radiation angle, approaching or reaching 90 degrees (straight up), along with selection of an appropriate frequency below the critical frequency, to establish reliable communications over a radius of 0 - 300 miles or so, give or take 100 miles. Although not all radio amateurs have heard the term NVIS, many have used that mode when making nearby contacts on 160 meters or 80 meters at night, or 80 meters or 40 meters during the day. They may have thought of these nearby contacts as necessarily involving the use of groundwave propagation, but many such contacts involve no groundwave signal at all, or, if the groundwave signal is involved, it may hinder, instead of help. Deliberate exploitation of NVIS is best achieved using antenna installations which achieve some balance between minimizing groundwave (low takeoff angle) radiation, and maximizing near vertical incidence skywave (very high takeoff angle) radiation."

The paragraph above is an excerpt from an excellent source of technical information on NVIS principles, which can be found here thanks to James Glover, WB5UDE. Another special thank you is due Dr. Carl Jelinek, N6VNG whose NVIS antenna construction article written in 1998 is the basis for this project.

The most famous of the NVIS military antennas... recently in use during the War in Iraq by US Forces... is the AS-2259 NVIS antenna, manufactured originally by Collins Radio (Model 637-K1) and now by Telex Wireless (Model 1990) as well as Harris Communications (Model RF-1936). The most interesting thing about the AS-2259 is that the hollow 1.25" tube that makes up its mast also serves as a low loss feed line. Here is the Army Technical Manual for the AS-2259/GR Antenna.

In the pages that follow I'll walk you through construction of a "homebrew" version of the famous AS-2259!

Build Your Own AS-2259 Type NVIS Antenna

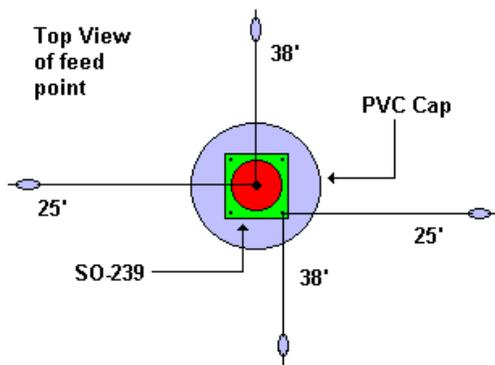
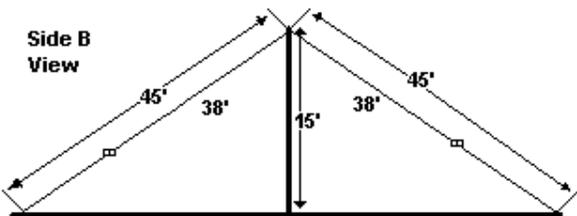
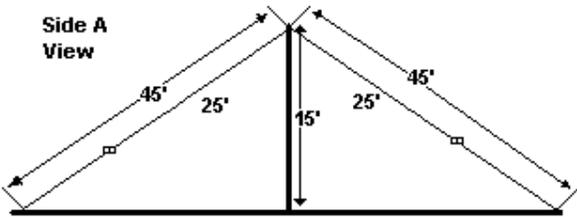
Parts List

- 3 ea 1.5" PVC pipes 5' long
- 2 ea 1.5" PVC coupling
- 2 ea 1.5" PVC cap
- 4 ea egg type insulators
- 3 ea brass round head screws (1/2" 6-32)
- 2 ea brass round head screw (1" 6-32)
- 4 ea lock washers for 6-32 screws
- 6 ea brass hex nuts (6-32)
- 4 ea flat #6 brass washers
- 1 ea SO-239 chassis connector with solder pot center pin

- 1 ea SO-239 coax crimp on type
- 4 ea stakes
- 1 ea round metal stake 3/4" by 18"
- 4 ea heavy solder lugs to fit brass screws (you "could" use crimp on type)
- 4 ea Plexiglas pieces, 1" X 3", hole drilled through each end
- ~150' copper antenna wire (braided/woven type like Davis Flexweave works best)
- ~60' nylon rope (Parachute type cord works great and is inexpensive)
- ~17' RG-58 (coax for center mast feedline)



Fit one end of each wire with solder lugs



Fit the other with the egg insulators and parachute cord or other non-conductive rope, which serves as guy ropes on the ends of the 4 elements. Two guy ropes should be at least 7.5' long for the 38 foot antenna wires and 20.5' long for the 25 foot antenna wires. Locate the 4 Plexiglas pieces and drill 3/8" holes on each end. Slip the guy rope through one hole and tie it to the other. See picture on last page if you have trouble visualizing this... These pieces allow you to pull the Plexiglas piece up the guy to shorten it and adjust the tension of each guy. The total length of each element... wire and guy... is about 45 feet.

Drill hole in center of second end cap (3/4") and run round steel 18" X 3/4" rod through the center. I purchased the rod at Menard's Home Center and it would also be available at Home Depot, Lowes or similar home centers. This is the bottom section and the center stake helps when setting up the antenna.



Construction Details

Drill a PVC Cap to accept SO-239 (7/8") and 4ea #6 screws, lock washers and nuts.

Make sure to center the SO-239 in the hole before drilling the 4 screw holes. Lock washers go under the nuts. 3 screws are 1/2" and the other is 1".

Cut off the head of a 1" #6 brass screw and solder it in the center post of SO-239.

Cut antenna wires to length plus a little

Drill a 3/4" hole near the bottom of one end of one of the 5' pieces of PVC pipe. After drilling the hole run one end of 17' of RG-58 coax through the pipe and out the hole. Crimp a SO-239 on this end. Crimp a PL-259 on the other end. The long end is run through the pipes before erecting the antenna as a coax feed. Alternately you can just run a long piece of coax to the top but I thought this was quicker

and easier. I leave the coax in the bottom section and feed to the connector in the top when I assemble the antenna. You may find it easier to leave the coax in a coil and feed from the top through the bottom.



out the photos which follow and you'll get a better idea of how to make the Plexiglas guy tensioners. I bought power cord holders at a home center to wrap the wire and guys on and labeled each (38' or 25')... they were 2 for a dollar so it was really a deal. Using these for guy and antenna wire storage really helps things stay neat when I break down the antenna and store it in its bag.

The antenna works NVIS mode from about 3.5 to 11 MHz. It's generally necessary to use a tuner with this type of antenna... then it's useful from 2 - 30 MHz.... the high bands are not NVIS however. If you build this antenna let me know how it works for you. I use a LDG Z-11 auto tuner with my Argonaut V and it works great!

Install pipe coupling to one end of the pipe as seen above. Install a coupling to the remaining pipe as well. The couplings need not be glued... in fact I didn't glue any of the caps or couplings and they seem plenty sturdy for the purposes of the support mast.

Put the top cap with SO-239 on top of what will be the top section of PVC pipe. Attach wire elements to the top cap as shown in the drawings, also illustrated below.



Drive the section with the bottom cap and spike into the ground. Assemble the other two sections together and then hoist onto the lower section. This is MUCH easier with two people but with practice you can assemble it yourself. Just be careful in case it falls over.

Extend the wires as in the diagrams and attach the guy ropes to the stakes. The stakes should be located 42.5 ft from the center mast of the antenna so the wire elements form crossed dipole-like antenna sections. Thread the Plexiglas pieces onto the guy ropes. Snug up the guy ropes to straighten the antenna mast using the Plexiglas pieces you made earlier... they make it easy to adjust the guys. Check



RAC MEMBERSHIP APPLICATION/SUBSCRIPTION TO TCA MAGAZINE

Please enter applicable choice(s) →

COMBINATION PACKAGE: 1 year RAC membership; (includes \$44.95 subscription for TCA) @ \$49.95 *	
1 year RAC membership only; no subscription to TCA @ \$44.95 *	
1 year TCA subscription; no membership to RAC @ \$44.95 * +	
Family membership; price per extra family member @ \$20.00 per year (one TCA per family) * (Does not apply to simple subscriptions.) (\$20.00 x)	
GST: 5%	
*Taxes applicable: 5% GST, 15% HST (NB,NS,NL) not included in the above amounts + Ontario PST of 8% applicable to TCA subscription without membership. PST (if applicable): 8%	

CONTACT INFORMATION

Name: Call sign:	
Address:	
City/Town:	
Province:	Postal Code:
Family Member Name	Family Member Call sign:
If you enter something on line above, a charge of \$20.00 will be added to your membership	
Email:	Phone #:

DONATION OPTIONS

Donation to the RAC Foundation enclosed	\$
Donation to the Defence of Amateur Radio Fund enclosed	\$
Donation to the Youth Education Programme enclosed	\$
Grand Total:	\$

PAYMENT OPTIONS (Cheque or)

Visa/MasterCard No:
Card Expiry Date (MM/YY):
Name on credit card:

Mail to:

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Ottawa, ON K1G 0Z5

