President's Ramblings

The club was very fortunate to have Tim Duffy, K3LR from DX Engineering as our feature presenter on his topic of building antennas. He detailed how much you can get out of a piece of wire for an antenna, even gain! That led on to other types of antennas, beams etcetera. And more importantly, he says don't do anything without modelling the antenna first. He is a huge supporter of "model your design and then build", not the reverse. The record attendance echoed the interest in the subject matter.

While it takes time out of my schedule to dream up discussion topics for the club (which I don't mind doing), I finally found some time to start experimenting with a 49:1 transformer for an end fed antenna, which is my next project with a timeline to get it going for field day. All this based on the fact that the club has appropriate toroid cores in stock to experiment with for a multitude of projects. The cost to club members is: FT 114-43 $1.50 ea. and FT 140-43 $3.30 ea.

Note to OVMRC club members:

- start planning for another OVMRC DIY Field Day. Last minute info during the June AGM

- contact Alan, *(Rambler editor)* va3iah@rac.ca for some guidance in submitting an article for the Rambler.

- to date there has only been one nominee for secretary for election time during the June AGM

- Incumbents will not abandon the club, but new applicants for President, and Vice President are welcome.

Sometimes you may think, what are we going to talk about on the weekly OVMRC two metre, Thursday night net. Then, out of the blue, we are in a deep discussion about what solder do you use? The topic delved deeper and deeper into flux, tin/lead mixes and even solder diameter, what you use, even when was the last time you bought solder and what did you pay for it, and so on and so on. We could probably even prepare a presentation on solder, based on the interest surrounding its application/use. Who would have thought? That's why we have the weekly net!

That's it for my very short May ramblings. (I'm very busy with coax orders and connector installations). Everyone is invited to join the OVMRC May Zoom meeting Wednesday, May 18. Check in will start at the usual ~ 6:45 PM with a start time as close to 7:15 as possible. Anyone not receiving the check in credentials can do so by

Notice of Meeting

Wednesday May 18th 2022
via **Zoom**

Check-in Time 6:45 to 7:15 P.M.

Members and invited guests will be sent an email invitation several days before meeting date with login and password. Others not on our mailing list please contact Norm at: ve3lc@rac.ca for invitation.

Agenda

- Call to Order at 19:15 by Barry, VE3NA;
- Greetings to Guests and New Members;
- **Presentation:** The Queen's Platinum Jubilee Special Call Signs – Jonathan (VE3OTW/VX3OTW)
- **Presentation:** DIY Field Day 2022 - Norm (VE3LC)
- Chairperson Reports;
- Meeting adjournment to be followed by Rag Chew for those interested

OVMRC Executive and Officers 2021-2022

President:
Barry Allison,VE3NA
ve3na@rac.ca

Vice-President:
Norm Rashleigh, VE3LC
ve3lc@rac.ca

Treasurer & Membership Records:
Nicole Boivin, VE3GIQ
nlboivin@sympatico.ca

Corporate Secretary:
Ron Smith, VE3LBU
rjs3.smith@gmail.com

The above four positions are "Directors" and officers in charge of running the Corporate affairs of the Ottawa Valley Mobile Radio Club Inc.

Standing Committees

Club Projects & Bulk Orders:
Barry Alison, VE3NA
ve3na@rac.ca

Radio Course & Accredited Examiner:
Norm Rashleigh, VE3LC
ve3lc@rac.ca

Meeting Reception:
John McGowan, VA3JYK
john.mcgowan1314@gmail.com

Nets & Radio Operations:
Hugo Kneve, VE3KTN
ve3ktn@rac.ca
Nicole Boivin, VE3GIQ
nlboivin@sympatico.ca

Rambler Newsletter Production:
Alan Hotte, VA3IAH
va3iah@rac.ca
Bill Hall, VA3WMH
bmhall@rogers.com

Club Web Site & Social Media:
Darin Cowan, VE3OIJ
ve3oij@amsat.org

OVMRC Repeater Keeper:
Norm Rashleigh, VE3LC
ve3lc@rac.ca

Special Events:
Roger Egan, VA3EGY
va3egy@gmail.com
John McGowan, VA3JYK
john.mcgowan1314@gmail.com

OVMRC Groups.io

Ongoing discussion Group at: https://ovmrc.groups.io/g/main/topics; if you are not a member please subscribe. All radio amateurs are welcome.

Ottawa Valley Mobile Radio Club, Incorporated
PO Box 41145
Ottawa, ON K1G 5K9

www.ovmrc.on.ca

OVMRC Life Members

Ernie Jury, VE3EJJ
Maurice-André Vigneault, VE3VIG
Ralph Cameron, VE3BBM
Doug Carswell, VE3ATY
Doreen Morgan, VE3CGO

OVMRC Repeaters

VE3RAM

Limited coverage to Orleans and East Ottawa

443.700 MHz (+)
DMR CC1 & D-Star
Network connected to Brandmeister

VE3TWO

Limited coverage to East and South Ottawa
147.300 MHz. +, PL 100.0 Hz.
Analogue FM and C4FM

Special Event & Field Day Call Sign

VE3JW

OVMRC Affiliations

Local Weekly Nets
(all check-ins welcome)

• **Rubber Boot Net**, VE3OCE 146.880 MHz (-)136.5 Hz tone mornings at 7:30 AM conducted by Roger, VE3NPO

• **Pot Hole SSB Net,** 3760 kHz, every Sunday morning at 10:00 AM conducted by Ernie, VE3EJJ, or Glenn, VE3XRA.

• **Pot Lid Slow Speed CW Net**, Sunday night, 7:30 PM, 144.095 MHz., vertical polarization. In response to interest co-controllers Hugo (VE3KTN) and Norm (VE3LC) have kicked off a re-launch of the Sunday evening Pot Lid Net in its 48th season for accomplished and budding CW operators. A permanent net control station is being sought who can dedicate time as a Net Control Station each Sunday night.

• **QCWA Chapter 70 Net**, VE3OCE 146.880 MHz (-) 136.5 Hz tone, Monday evenings at 7:30 PM conducted by John, VE3ZOV

• **Capital City FM Net**,VE2CRA 146.940 MHz -, (100 Hz tone), Monday evenings at 8:00 PM.

• **Champlain Mini Net**, VE3STP 147.060 MHz -, (114.8 Hz tone), held Monday through Friday at 7:00 PM.

• **Upper Frequency Net**, Simplex 144.250 MHz using USB, Tuesday evenings at 9:00 PM conducted by Glenn, VE3XRA. Following check in on 2 m you can check your radios on 6 m at 50.150 MHz and 70 cm on 432.150 MHz as well using USB. All check ins are welcome.

• **Phoenix Net**, VE3OCE 146.880 MHz (-) 136.5 Hz tone, Tuesday evenings at 7:30 PM conducted by Pete, VE3XEM

• **OVMRC 2-Metre Net,** Thursday Evenings**,** 8:00 **PM**, Club Net on FM will be held through VE3OCE 146.880 MHz (-)136.5 Hz tone conducted by Hugo, VE3KTN.

Informal Amateur Radio Restaurant Gatherings
(Many Cancelled until Further Notice)

• **QCWA Chapter 70** breakfast gathering every **Tuesday** morning at 7:30 to 10:00 AM, Summerhays Grill, 1972 Baseline Rd., Nepean - **Restarted**

• **Orleans Coffee gathering** every **Friday** morning at 9:00 AM, McDonalds, 2643 St. Joseph Blvd, Orleans

• **QRP Group Dinner** meeting, **2nd Wednesday** every month, 5:00 PM, Newport Restaurant, 322 Churchill Ave N., Ottawa

• **Phoenix Net monthly Breakfast** gathering, usually the **second Saturday** every month at 9:00 AM, T-Basil Restaurant, 2440 St Joseph Blvd, Orleans. (get on Pete VE3XEM's mailing list for a monthly reminder ve3xem@rac.ca)

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sending an email to Norm (Zoom custodian) ve3lc@rac.ca.

The OVMRC meetings are open for all to attend. Club membership is not required (but of course we would like to have you as a member). Guests wishing to attend can submit a request to the Zoom custodian (see above) and joining credentials will be sent to you.

73
Barry, VE3NA

Meeting Minutes

Date / Time: Wednesday, April 20, 2022 @ 19:15

Location: Via ZOOM on line meeting

1. Call to order:

President Barry Allison, VE3NA called the meeting to order at 19:15. There were 65 official check-ins.

2. Welcome and Guest Greetings:

Barry, VE3NA extended greetings to everyone. New Members attending this meeting included Chad Waite, VE3OUO, Alex Giroux, VE3OYO, Dan Djurasovic, VA3DJU, Andrew Tarswell, Associate Member and our special guest speaker, Tim Duffy, K3LR who spoke on 'Antennas'. Other guests noted on the Sign in Roster included: Wayne Getchell, VE3CZO; Eric Mamczur de Castro, VE3DN; Luc Pernot, VE3JGL; Dave Lapp, VE3LHO; and Robert Hovey.

3. Approval of minutes from previous meeting:

MOTION: Moved by Bill Henderson, VA3HWA and seconded by Fred Crowe, VE3LAF that the minutes of the meeting held Wednesday, March 16, 2022, be approved.

VOTE: No Objections.

CARRIED.

4. Projects, Haves, Wants and Announcements:

A) Haves: Barry, VA3NA reminded members that the club has now received an order of Toroids for purchase.

B) Wants: None noted.

5. Agenda and Meeting Content:

Barry, VE3NA outlined the agenda for the meeting which included:

• Feature Presentation: Tim Duffy, K3LR with DX Engineering – Antennas for the Amateur

Norm, VE3LC introduced Tim, K3LR, CEO of DX Engineering in Tallmadge, Ohio. Tim spoke to us from his home office in West Middlesex, PA. His presentation was largely based on the ARRL Antenna Handbook, including some illustrations and technical specs. As noted on QRZ.com and Tim's website, www.K3LR.com, he has been a ham since 1972. In 1987 he bought an 11 acre, 1860's farm property and immediately started setting up his dream station. Today, it has become one of the number one Multi/Multi contest DX stations on the planet. Tim engineered and built the entire station and its massive 11-acre antenna farm of 13 towers, including Yagi's, directional arrays, and switching systems that give it capabilities that are seldom seen in the amateur world. The operating positions are in the basement of the old farm house and nearly every antenna is fed with 1 5/8 inch hardline in uninterrupted runs that span as much as 1500 feet from the antennas to the shack. Although very expensive new, most of the line Tim used was obtained 'used' as surplus from cellular or two-way antenna companies at a fraction of its original cost. The towers are also from cellular and broadcast surplus sales.

Tim took questions from members which included several mentions about his firm 'belief' that using modelling software for antenna construction, is key to success. His favourite being EZNEC, which is free by W7EL. Tim concluded by referencing a blogsite where great antenna information is shared, onallbands.com.

Norm, VE3LC and Barry, VE3NA both thanked Tim for his presentation and time.

• Nominations for Executive and Chair: available positions will be called for next month, May 2022. Please consider running for office or nominating a fellow club member.

• Community Charity Events for summer:

a) CN Ride for CHEO: Norm, VE3LC and Nicole, VE3GIQ noted the event is open for registration but volunteer needs are unclear at this time.

b) Rideau Lakes Cycle Tour: Harrie Jones, VE3HYS, confirmed that Jeffrey, VE3PUE is looking for volunteers as the event approaches, which is scheduled for June 11 and 12.

c) MS Bike-a-Thon: Nicole, VE3GIQ advised that the MS Bike-a-Thon will be held August

20-21 and will run from Kars to Brockville. The Cornwall location is not available this year, due to Covid.

d) In Summary - Ham radio operators are required for these events to monitor and report progress. Bicycle, walking, and fixed mobiles are needed. Reports will be handled using local 2 metre repeaters. To volunteer, contact Jeff at Jeffrey@va3pew.ca.

6. Chair Reports:

Financial Report and Membership - Nicole Boivin, VE3GIQ:

Highlights of the financial summary include:

$25,816 approximately in the bank account, including cash; 128 Memberships are active. Four of the five budgeted Club donations have been doled out, including DARF, RAC Scholarships, AMSAT and ARISS.

Net Operations: Hugo Kneve, VE3KTN –The latest Nets Summary can be found in The Rambler. Hugo advised the Thursday evening 2 metre net is averaging 15 participants, and the Sunday morning Pot Hole net on 3760 MHz is averaging 10-15 operators. Hugo is monitoring noise on 80 metres and has created a Noise Graph. He is seeing noise patterns affecting the band.

Rambler: Alan Hotte, VA3IAH proposed a searchable 'Rambler Subject Index' for member consideration and feedback. Further to several questions and comments, Allan will review the takeaways from tonight's meeting. Please contact Alan at va3iah@rac.ca.

Testing Continues: Norm Rashleigh VP, VE3LC – Norm continues to administer tests for Basic and Advanced standing. He has recently tested Alex, VE3OYO for his Advanced certificate and Chad, VE3OUO for his Basic with Honours.

7. Upcoming Contests:

For more detailed information on upcoming contests, see the WA7BNM contest calendar: https://www.contestcalendar.com/.

RAC Members can login and go here:

https://wp.rac.ca/amateur-radio-contest-calendars/.

ARRL Members can log in and go here:

http://contests.arrl.org/.

8. Adjournment:

MOTION: Moved by Bill Henderson, VA3HWA to adjourn the business meeting at 20:47.

9. Next meeting:

The next monthly meeting of the OVMRC will be held via Zoom Wednesday, May 18, 2022 at 7:15 P.M.

Minutes recorded and prepared by Secretary Ron Smith, VE3LBU.

Richard (Rick) Bandla, VE3CVG SK

It is with great sadness we report that Rick Bandla VE3CVG passed away unexpectedly at his home in Kemptville April 25 at the age of 75; he had been a radio amateur since 1962. Rick was well known to the amateur community in the Ottawa area for his promotion and leadership on new technology systems for local amateurs to experiment with and utilize; these included the Ottawa Broadband HamNet mesh network and the VA3ODG D-Star repeater system located at the YMCA building on Argyle Street.

Rick's obituary is posted at: https://heritagefh.ca/obituaries/richard-charles-bandla/

Rick was a member of the West Carleton ARC as well as Chapter 70 of the QCWA; there his biography can be read at: https://qcwa70.ca/Bios/VE3CVG.htm

Norm VE3LC

Call for Executive Committee Nominations

The following incumbent Directors of the Club have agreed to offer their services again for the next season and will need to be nominated collectively at the next club meeting, May 18, 2022.

President:...............................Barry Allison VE3NA for a 4th term

Vice President:........................Norm Rashleigh VE3LC for a 4th term

Treasurer:...............................Nicole Boivin VE3GIQ for a 5th term

The Director position of Secretary incumbent will be stepping down and there has been one nominee step forward for the position.

The following incumbent Committee Chairpersons will need to agree to another term should they wish to continue in the position:

Club Projects & Bulk Orders:..............................Barry Allison, VE3NA

Membership Services:..Nicole Boivin, VE3GIQ

Accredited Examiner:...Norm Rashleigh, VE3LC

Reception & Welcoming:.....................................John McGowan, VA3JYK

Nets & Radio Operations:...................................Hugo Kneve, VE3KTN

Rambler Newsletter:...Alan Hotte, VA3IAH

Club Web Site & Social Media:...........................Adam Bird VA3IRD

Special Events:..Roger Egan, VA3EGY

According to the Bylaws of the Club posted on the Club Web Site at:

https://www.ovmrc.on.ca/Rambler/OVMRC_BYLAWS_approved_May_15_2019.pdf, the executive committee is open to nominations from the membership to challenge any of the above Director incumbents by sending the nomination(s) via email to one or more for the members of the executive committee of the OVMRC.

Any such nominations will be reviewed based on the candidate's willingness and eligibility to hold office for a particular position according section 8.2 of the Bylaws. Such nominees determined eligible by a special meeting of the executive committee will be so notified and put on the ballot for a particular position at the June Annual General Meeting of the Club. After election that may be required for any particular position (by a show of hands on Zoom), there will be a motion and vote of acceptance for the entire slate of Directors and Chairpersons to serve your Club next season starting September 1, 2022.

Parks on the Air, or
"Every Day can be Field Day"

By Kathleen, VA3WEX

Parks on the Air (POTA) is an amateur radio operating award that developed after a successful ARRL special event by the same name held back in 2016. The event proved to be popular; and the ongoing POTA program was born and is continuously expanding to other countries.

The format involves one Amateur operating from a POTA-registered park *(the "Activator")* and the other operators who make contacts with the Activator, called "Hunters". A successful "Activation" of a park involves the Activator making ten contacts within one UTC day whilst being physically located within the boundaries of the chosen park. The contacts must not involve land-based repeaters, but may involve satellites. A guide with details and rules may be found at https://parksontheair.com/.

Points are awarded to both Activator and Hunter; and there is an elaborate award system for reaching various milestones. Activators need an account with POTA to collect points and also advertise to hunters of a planned activation on the POTA Scheduler. One need not have an account to Hunt *(though you do need an account to see what points you may have accumulated as a Hunter through contact with Activators)*.

A map on the POTA website https://pota.app/#/map shows the locations of POTA-registered parks; there are several in the Ottawa area, including the Rideau Canal (any of the lock stations would count, or operating from a boat), Mer Bleu, Gatineau Park, the Experimental Farm but also all the National Historic Sites of Canada like Laurier House *(4 activations)*, Notre-Dame Basilica *(3 activations)*, the Rideau Hall *(1 activation)*, and the National Arts Centre *(1 activation)*. Parliament Hill is a POTA-registered park, but has never been activated. Note that city parks are generally NOT part of the POTA system. I've now made two "attempts", both at the Long Island Locks (Rideau Canal National Historic Site, POTA park number VE-4882. One resulted in 16 contacts, good enough to qualify for an "activation" but the other only yielded 2 contacts.

If you've not yet tried it, there are three significant inconveniences with POTA, but none insurmountable. First, some of the background material is available only through the Facebook and Slack pages, which makes it inaccessible to those without those social media accounts. However, I've found everything I needed on the main website. Second, Activators must submit proof-of-contact logs in a special "ADIF" format rather than a simple text file or Excel spreadsheet. Fortunately, someone has created a very handy Excel file with the macros necessary to export it to the ADIF format: URL: https://morsel.info/?page_id=967 (Note that Hunters need not submit logs.) Finally, when Activating, you really need to "spot" yourself (i.e. identify that you are now at the park and now active), or be "spotted" by someone else, on the website https://pota.app/ in order to generate Hunter traffic. This is obviously not possible from the park if you don't have a portable computer with internet with you. However, if you can make a first contact, then ask that person to spot you. Spotting generates a surprising amount of traffic from Hunters, as it seems many actually do use the https://pota.app/ website to find Activators. This surprised me: when I am Hunting, I find Activators quite easily just tuning and listening; I never needed go to the website to find anyone. But as an Activator, I found that without a "spot", one can end up calling "CQ POTA" for over an hour, with no responses.

POTA is a very calm and low-key affair: the Activators sound like they are having fun, and often one has time for a very quick rag-chew with the Activator, if the pileup around them is not too bad. The program certainly seems to be very popular; pretty much any time I am operating, there are two or three people calling "CQ POTA".

For new operators, Hunting is an opportunity to practice and get over being "mic shy"; the Activators are pleased to work you and are patient and polite; you have the satisfaction of helping another amateur reach their own goals. As an Activator, POTA provides a good excuse to practice portable operations, essentially like Field Day. It is not particularly physically demanding (unless you want it to be! You can always choose a more remote place within a park from which to

operate and get exercise going to it). Operating amongst the trees and the birds in the sunshine is very pleasant. There is always the challenge of making that perfect antenna deployment amongst unfamiliar trees. So, even if you don't make the ten contacts required to "activate" a park, it's still a lot of fun. Like with fishing, a bad day of radio is still a good day.

Mer Bleue Bog Conservation Reserve

VE-1515

MORE INFO
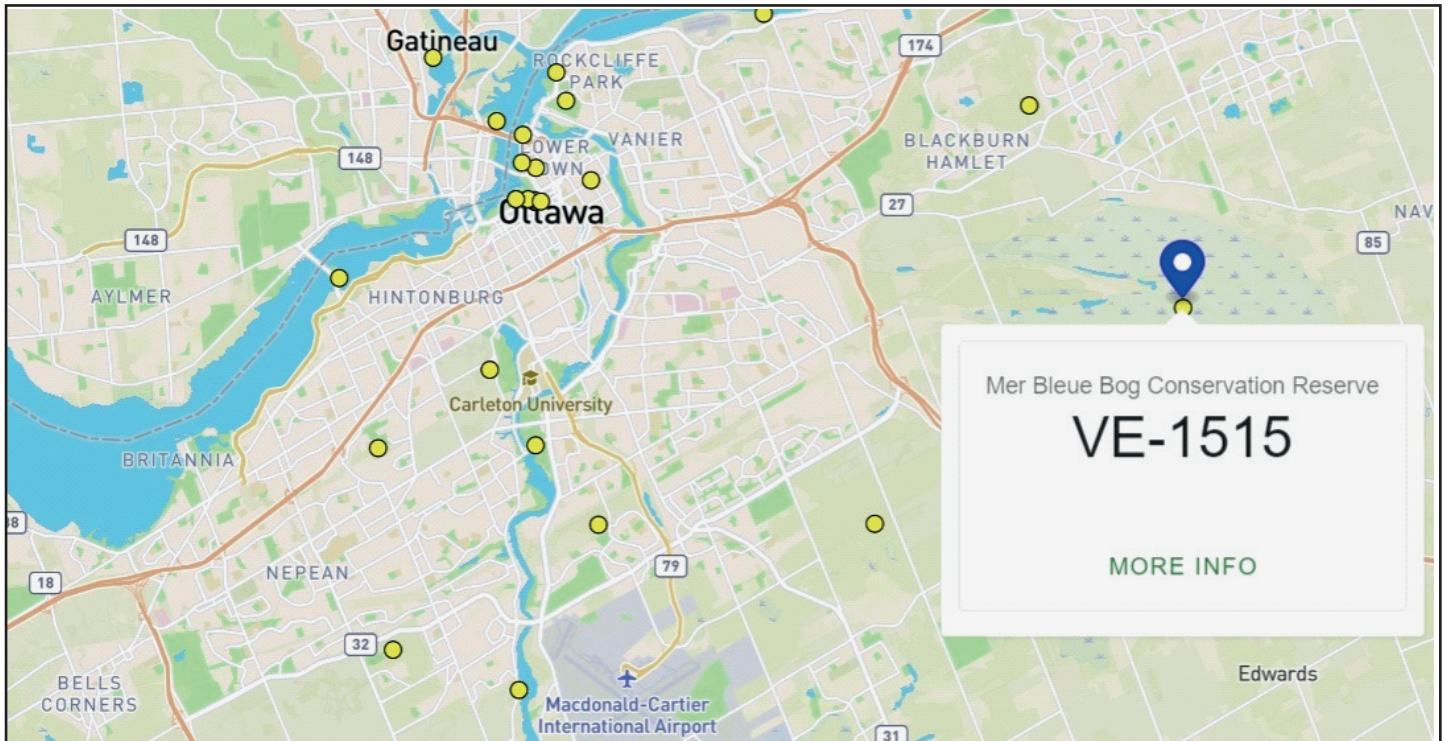
The IBM Model F – Your Keyboard's Grandfather

By Lee, VA3CQD

If you are like most people, you don't give your keyboard a second thought. It is merely an interface appliance that allows you to interact with your computer. The only time most people do think about their keyboard is when some aspect of it is not working. In that case most people usually head down to their favorite electronics store, purchase a new one for $20, go plug it in and then go back to not caring about their keyboard. Keyboards mostly have become a mass-produced and highly dispos-able commodity item. There was a time in the not-too-distant past that this was not the case. The key-

board was a highly durable and easily repaired piece of precision engineering designed for decades of daily use. If you are a PC user, the keyboard which I am alluding to would be the IBM "Model F" and your keyboard is undoubtedly its descendent.

Before we can talk about the IBM "Model F" keyboard, we need to briefly talk about the IBM "Model

M" keyboard. This is the immediate parent to the devices we all use today and in fact the layout we're all accustomed to is directly attributable to the IBM "Model M" due to the popularity of the IBM PS/2 computer and the 101/102 key Model M variant which it was commonly sold with.

The IBM "Model M" keyboard, manufactured between 1985 to

Figure 1: IBM Model M 101/102 Keyboard - Source: Wikimedia Commons

present, is a cost-saving revision to the previous "Model F" design. Both keyboards featured buckling spring keys, however Edward T. Coleman's 1983 patent used a membrane contact sheet instead of individual capacitive plates which effectively halved the manufacturing costs for IBM. Unfortunately for the user, this also meant that the durability of the keyboard was reduced from 100 million key-presses per key, to 25 million key-presses per key. Additionally, the membrane would only support two-key rollover (an industry term for how many simultaneous keys presses can be registered by the keyboard) as opposed to the "Model F's" n-key rollover.
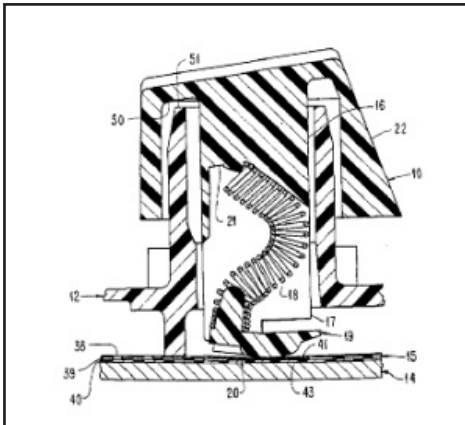

Figure 2: Patent diagram of the membrane buckling spring

Despite this cheapening of the design, an IBM "Model M", compared to today's $20 keyboards, is an incredibly durable design and many vintage "Model M" units are still being used to this day in addition to the new ones still being produced.

The precursor to the IBM "Model M" was the "Model F" which was produced between 1981 and 1994,

however the majority of the keyboard's run was made in the early to mid-1980s. These keyboards were included most notably on the IBM Personal Computer, however other variants were made for more industrial systems such as the IBM 5322 System/23 Datamaster and the IBM 4704 Banking Terminal. Ironically the "Model F" keyboard was also a cost saving design over IBM's venerable 5251 Terminal "Beamspring" keyboard, which leveraged a completely different and much more complex key actuation technology.

Figure 3: IBM 5251 Terminal - Source: Wikimedia Commons

The "Model F" bucking spring designed by Richard Hunter Harris offered two key benefits over older keyboard designs. Firstly, they were much smaller physically taking up significantly less desk space. Secondly, they were low profile which was popular with users as they were far more ergonomic to use.

The internal keyboard assembly consisted of metal backplate and a painted metal upper plate. Unlike modern keyboards that simulate curvature by leveraging key caps of varying heights and profiles, the IBM "Model F" keyboard physically curved the back and

upper plates as well as the printed circuit board to achieve this result. This approach allowed all of its keycaps to be the same shape and size, thus easily interchangeable and customizable.

Figure 4: IBM Model F Keyboard Backplate - Source:geekhack.org

The buckling springs with their attached pivot plate assemblies (hammers) are housed in individual barrel modules that slide into slots on the upper plate.
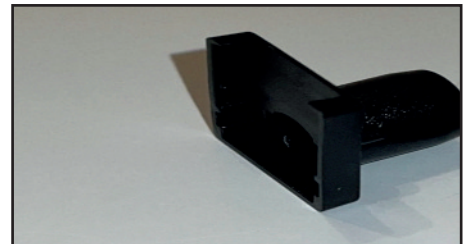

Figure 5: Barrel and Pivot Plate Assembly - Source: Lee Whitehorne

The upper assembly plate is lined on the inside with a layer of foam. The upper and lower plates are held together with a series of interlocking tabs, with one tab from the top plate folded over the bottom plate.

Key caps were single-piece injection molded Polybutylene Terephthalate (PBT) plastic with dye-sublimated key legends. This plastic choice by IBM holds a distinct advantage over most other plastics used in keyboards (such as Acrylonitrile Butadiene Styrene –

ABS) as it will not yellow from UltraViolet light (UV) exposure. Dye sublimation printing provides ultra-crisp text that is extremely durable unlike silk-screening or laser ablation printing that is commonly used today.

Figure 6: "Model F" PBT Key Caps - Source: Lee Whitehorne

The IBM "Model F" originally retailed for $375USD ($1192 in 2022 CDN dollars adjusted for inflation) according to a 1984 IBM pricing list.

The IBM "Model F" and "Model M" keyboards have developed a very significant enthusiast following. Vintage keyboards in good working condition are very sought after and will often fetch hundreds of dollars for "Model M" to over a thousand dollars for

"Model F" keyboards. Those who sing the praise of these keyboards do so because they feel that they offer an unrivalled tactile typing experience of any keyboard. They were designed to last decades, not months, can be easily disassembled and repaired. They have a very unique typing sound as the buckling of the springs during actuation will produce a "singing" of the springs in addition to the satisfying thump when the key is depressed. These keyboards however are not quiet. In a modern office environment, you will likely drive your cube-neighbors mad. Some say this is a small price to pay for the typing experience you receive while using it.

Since 2016 a project has been underway by modelfkeyboards.com to manufacture for sale keyboards with a faithful re-creation of the "Model F" mechanism, completely independently of IBM. The "New Model F" has two variants both of which were inspired by the 4704 Banking Terminal that used "Model F" keys, but with default layouts tweaked in the direction of a "Model M" (notably using an

inverted-T arrow-key cluster rather than the old-fashioned cross layout of the original "Model F's"). This project has attracted over 3000 orders, and began shipping in December 2019. This author being included in that number count!

The 4704 Banking Terminal variants of the IBM "Model F" are the heaviest duty version of the keyboards featuring 100% zinc alloy casing in additional to the metal back and upper plates which increases the weight of the

keyboard just under 4KG (8.8LBS)!

Figure 7: F77 "New Model F" - Source: modelfkeyboards.com

I was lucky enough to receive my "New Model F" keyboard (which I ordered over 3 years ago) just last month, and I can easily say that in my opinion, it lives up to the hyperbole and was well worth the wait. I look forward to typing on this keyboard for decades to come!

1.2 kWatt HF Amplifier Build – PART 2 – Mechanical Elements

By Marc, VE3BOE

In this article I will report on my progress in building some of the mechanical elements of the amplifier and power supply for this build.

Many of the ideas presented in my build came from hours of research on the Web. To start, I want to provide you with the most useful web sources that I found.

www.dxworld-e.com (my source for the amplifier boards and overall design.)

https://youtu.be/4TOoubh5HR8 (video on DX-World's YouTube channel. They have many.)

http://www.w6pql.com (the most valuable resource on amplifiers I found. I used some of his switching relay boards as well. This is one very smart guy.)

www.vk-amps.com (the "Build Photos" section on this web site was very helpful.)

Never ever underestimate the time it takes to build a proper project case. As you will see below, I repur-

posed cases and it still took me many hours of work to construct and assemble the internal case components. Sheet metal and machining work as well as drilling, taping, etc., took many hours. Many of those hours were spent figuring out how to place the components to optimize cooling and inter-component wiring.

In the end, I decided to use two separate cases. One for the power supplies, and a second for the amplifier components. Through my business, I am fortunate to have access to obsolete pieces of electrical equipment. While commercially available project cases are available, for this project I decided to recycle and repurpose cases from decommissioned 10 kW rectifier-inverter modules. They are solidly built, are a standard 3U 19" rackmount, have great cooling fans, contain reusable heat sinks, and have multiple Anderson powerpole connectors. The only downside is that these cases do not have any front panel space for controls. Because of this, I decided to use a remote-control panel head that would be cabled to the main amplifier case.
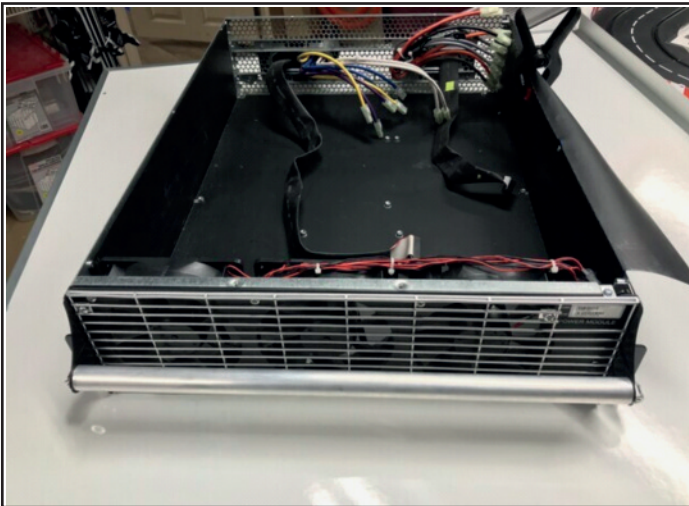

*Repurposed 10kW rectifier-inverter UPS module case.*

The first step was to build the internal mounting panels and component mounting points in the case. I fabricated the internal mounting components with 1/16" aluminum sheet and planned my component layout to optimize cooling and airflow through the case.

The next picture shows the final mounting panel layout as well as the amplifier and input attenuator heatsinks taken from the old 10 kW UPS modules. I

tried to use and recycle as many parts from the old UPS modules as possible. Almost all the hardware and DC cabling used in this build come from the old UPS modules.
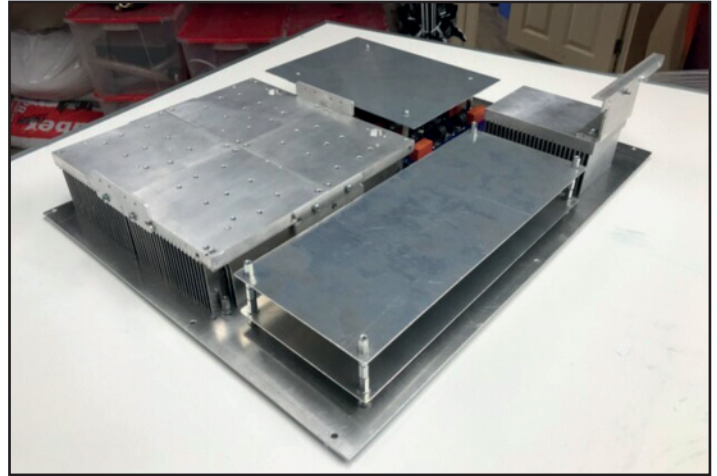
Fabricated internal component mounting panels and heat sink layout for amplifier case.
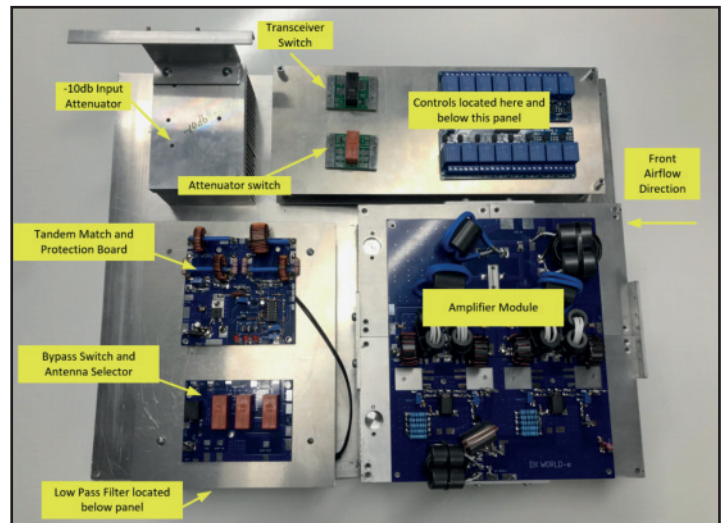
Initial component layout plan. (Note: some changes were made to the final layout)

*Side view of the inner structure of the amplifier module.*

The amplifier project requires 50 v, 24 v, and 12 v DC. DX World recommended that I use a 3000 watt switch mode power supply(smps) to provide the 50 v DC. I have always preferred the premium Mean Well brand of smps's for their quality design and construction and was able to find a new open box Mean Well model RSP-3000-48 on eBay for $200.00 US. There are always some available on eBay. It also came with a high-quality shielded DC power cable that I modified with Anderson connectors for the project. More recycling and repurposing.

The three fans need 24 v DC. At max output, all three fans only require 1.2 amps in total. I decided to use an isolated DC-DC converter (36-75 Vdc in, 24 Vdc out) made by CUI Inc. part# PQAE50-D48-S24-T. This power supply is going to be placed in the amplifier case. The fans will ultimately be variable speed based on heat sink temperatures and driven by a PWM signal derived from the Arduino based controls. More to come on that in future articles.

The amplifier also needs 12 v for the MOSFET bias circuit as well as powering, controls, relays, displays, etc. For this I purchased another dedicated Mean Well model LRS-150-12 smps from Amazon for $50.

I used a second repurposed case to house these power supplies and I was able to reuse the Anderson connectors on the old cases to provide easy connection of the 50 Vdc and 12 Vdc between the power supply module and amplifier module.

The AC input requirements for the power supply is 240 Vac, 20 A. I used a C20 panel Mount receptacle with a built in circuit breaker and switch made by Schurter Inc. # EF11.0035.0010.01 . The C20 receptacle is UL/CSA rated for 20 A at 250 Vac. I mounted this to the rear panel of the power supply case and wired it to the inputs of the 50 v and 12 v power supplies.
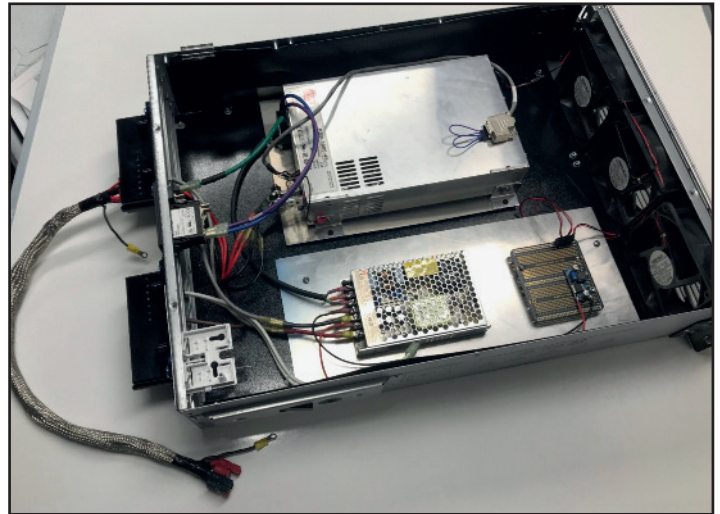
Above picture shows the Power Supply case. 50v supply at top, and 12v supply at bottom of picture. C20 type 240Vac power connector is mounted in the middle top of the left side rear panel of case. The shielded cable will provide the 50Vdc and 12Vdc to the amplifier case.

In the next article, I will provide final details on the interconnection and assembly of the individual components and modules. Many hours were spent soldering and routing cables. It went well.

I will also report on the amplifier controls that I based on the Arduino platform. Many hours of code writing have gone into this effort, and I am starting to have serious doubts about my ability to pull this off. Oh well, I often say that it's all about the journey and not the destination. With spring and summer approaching, this project may get shelved until indoor weather arrives next fall.

I sincerely hope that you have found this article interesting, and I would like to thank Alan Hotte for all of his support and dedication to the OVMRC Rambler.

I can be reached at ve3boe@rac.ca if you have any questions.

OVMRC Net Activity, Check-ins for April 2022.

Prepared by: Hugo Kneve VE3KTN

OVMRC 2 Metre Net: VE3OCE 146.880- 136.5 Hz. tone, Thursdays 8 p.m. local.

April 7	April 14	April 21	April 28
VE3KTN – NCS	VE3KTN – NCS	VE3KTN – NCS	VE3KTN – NCS
New & Visitors	**New & Visitors**	**New & Visitors**	**New & Visitors**
Lee - VA3CQD		Matt - VA3FSB	
General Check-ins	General Check-ins	General Check-ins	General Check-ins
VE3RUU	VE3OKD	VE3RUU	VE3RUU
VA3BGO	VE3ZZU	VA2XC	VE3KAE
VE3NA	VE3NA	VE3NA	VE3NA
VE3LC	VE3LC	VE3LC	VE3LC
VE3LBU	VE3LBU	VE3LBU	VE3LBU
VE3GIQ	VE3BOW	VA3IAH	VA3IAH
VA3IAH	VA3HJR	VA3GPJ	VA3HBL
VE3LAF	VA2OJD	VA3EO	VE3ZZU
VE3ZZU	VA3CQD	VA2OJD	VE2OCQ
VA3GFY	VA3GLB	VE3KAE	VA3FSB
VE3NPO	VE3VIG	VE3NPO	VE3ENU
VE3BOE	VA3EGY	VE3YY	VA3WEX
VA3GLB	VA3HBL	VA3CQD	VE3OTW
VE3KAE	VE3LAF	VE3ZZU	VA3CQD
VE3KJQ		VA3WEX	VE3KJQ
VE3OTW		VE3KJQ	VA2OJD
VA3AL		VA3HJR	VE3NZL
VA3EGY		VE3VIG	VE3BOE
VE3VHU		VE2OCQ	VE3VIG
VA2OJD		VE3BOW	VE3OKD
VA3JPX			VE3IPC
VA3WEX			VE3BOW
VE2OCQ			VE3PUE
VE3VIG			
VE3XEM			
VE3BOW			

OVMRC Pothole Net: 3760 kHz. LSB Sunday mornings at 10 a.m. local.

April 3 SFI:143 A:22	April 10 SFI:107 A:19	April 17 SFI:122 A:8	April 24 SFI:160 A:12
VE3KTN – NCS	VE3EJJ – NCS	VE3XRA – NCS	VE3EJJ – NCS
New & Visitors	**New & Visitors**	**New & Visitors**	**New & Visitors**
Robert – VA2RWN			
Check-ins	**Check-ins**	**Check-ins**	**Check-ins**
VE3EJJ	VE3LC	VE3IVE	VA3BGO
VE3LC	VE3NPO	VE3LC	VA2EV
VA2RWN	VA3PSI	VE3EJJ	VE3KTN
VE3NPO	VE3XRA	VA3BGO	VE3SYZ
VA3EO	VE3YY	VA3PSI	VE3YY
VA3PSI	VE3BOW	VE3YY	VA3PSI
VE3YY	VE3EKN	VE3BOW	VA3EO
VE3SYZ	VA2EV	VE3EKN	VE3NPO
VE3BOW	VE3KTN	VE3NPO	VE3CWM
VE3CWM	VA3BGO	VE3RXN	
VA3PCI		VE3KTN	

The "SFI" and "A" values are the Solar Flux Index and Geomagnetic A-Index respectively as reported on the N0NBH Space Weather web site: https://www.hamqsl.com/solar.html. Values are taken within 30 minutes prior to net start time.