

DECEMBER 1994

THE GROUNDWAVE

*** NOTICE *** NOTICE***

THE DECEMBER 7, 1994,
OARC GENERAL MEETING
WILL BE HELD AT ALGONQUIN COLLEGE
RIDEAU CAMPUS
200 LEES AVENUE



NEXT MEETING WILL BE HELD
WEDNESDAY, DECEMBER 7, 1994

Club Call VE3RC

Repeater VE2CRA



Official Bulletin of the Ottawa Amateur Radio Club, Inc.

The Ottawa Amateur Radio Club, Inc., Box 8873, Ottawa, Ont., K1G 3J2

| | | | |
|-------------------------|---------------------------|----------|----------|
| President | Roger Swickis, VE3BZR | 234-9836 | 228-6310 |
| Vice-President | Richard Hagemeyer, VE3UNW | 225-3275 | 953-0638 |
| Secretary | Larry Woran, VE3WLN | | |
| Treasurer | George Roach, VE3BNO | 234-0885 | 738-2372 |
| Past-President | Paul Coverdale, VE3ICV | 820-6643 | 763-4277 |
| Directors | Paul Griffiths, VE3PGL | 592-6754 | |
| | Ed Sieb, VA3ES | | |
| | Bob Paterson, VE3IDG | 825-7070 | 941-0533 |
| Packet Group Chair | Bob Paterson, VE3IDG | 825-7070 | 941-0533 |
| Repeater Chair | Harrie Jones, VE3HYS | 739-9365 | 738-2372 |
| Net Manager | Wayne Greenough, VE3JSQ | 836-5320 | 724-5464 |
| EMI Committee Chair | Ralph Cameron, VE3BBM | 825-1634 | 225-2850 |
| Membership Chair | Tom Eyre, VE3QDX | 737-5367 | |
| Nat. Cap. Award Manager | Brian Summers, VE3JKZ | 523-1535 | 738-6263 |
| Publicity | Mike Pilon, VE3BUP | 731-1567 | |
| Groundwave Editor | Mike James, VE3PDE | 592-2962 | 995-2730 |
| Graphic Designer | Maria Townson, VE3KIP | 828-9573 | |
| Production Committee | Paul Campbell, VE3CEP | 733-0148 | |
| | Ted May, VE3ADZ | 741-0862 | |
| Delegated Examiners | Richard Hagemeyer, VE3UNW | 225-3275 | 953-0638 |
| | Mike Kelly, VE3FFK | | 788-2600 |
| Coffee Guy | | | |

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 first Wednesday of each month (except July and August) in the Champlain Room (2nd floor of the Old Teacher's College) of the RMOH HQ complex on Lisgar St., Ottawa, at 1915 hours. Further details about each meeting is elsewhere in this publication.

THE OARC EXECUTIVE normally meets on the second Wednesday of each month at 1930 hours. Contact the President to confirm the date of the next meeting.

PACKET RADIO MEETINGS will be held at 7:30 p.m. on the last Thursday of every 2nd month, starting September 1993, at the Museum of Science and Technology. This is an OARC technical meeting open to all who have an interest in packet radio.

DEADLINE FOR COPY is the second Wednesday of each month. Make yourself better known to fellow members and other amateurs, too, by giving us an article, technical or otherwise, relative to our hobby.

MATERIAL PUBLISHED herein does not necessarily represent the official OARC viewpoint. Items may be reprinted by Amateur Radio or other publications provided that proper credit is given to the author and to the OARC, Inc.

JUNIOR MEMBERSHIPS - To encourage young people to join the club and to participate in amateur radio, the club is opening a junior class of membership. Dues will be at a 50% discount but the junior member must pick up his/her copy of the Groundwave (preferably at the meeting).

RADIO AMATEUR CALL BOOKS are available at many local libraries. Ask at the information desk.

SAFETY BELTS AND AN ENGRAVING PENCIL are available for loan to club members. The engraving pencil (to mark valuables for identification in case of loss or theft)

and the safety belts with pole straps are available to any members. For the belts, a refundable deposit consisting of a cheque equal to the replacement value of the belts is required. Contact the President for the engraving pencil; and Paul, VE3ICV, at 820-6643 (West End) or Brian, VE3JKZ, at 523-1535 (East End) for the belts.

THE CAPITAL CITY NET meets every Monday at 2000 hours on the Club Repeater VE2CRA (146.34/.94) to pass traffic and to make announcements of interest to amateurs in the National Capital Region.

PACKET RADIO VOICE NET meets following the Capital City Net on VE2CRA at 2040 hours. This is an informal net to answer questions about packet radio, pass along operating hints and provide information for future packet operators.

THE SWAP NET is a service provided and conducted by Ed Morgan, VE3GX. This feature appears on the Capital City Net, noted in the foregoing paragraph. To list items and make inquiries, call Ed Morgan at 733-1721.

POT-HOLE NET is a SSB/HF net sponsored by the Ottawa Valley Mobile Radio Club, and conducted every Sunday at 1000 hours on 3.760 Mhz. All amateurs are welcome to check in. The Swap-Net is a regular feature.

POT-LID CW NET is an informal slow-speed CW net sponsored and conducted by Ed, VE3GX, and meeting every Sunday, except during July and August, at 1100 hours on 3.620 Mhz, to promote interest in CW and CW procedures.

REPEATERS

| | | |
|---------|--------|---------------------------------------------------|
| VE2CRA | Voice | 146.94/34 |
| | | 443.300/448.300 |
| VE3OCR | Packet | 145.01(sx) Inter city links |
| VE3OCR | Packet | 145.07(sx) Local Area net for QSO and Packet BBS. |
| 56 kbps | Packet | 220.55/433.55 |
| VE3XDX | Packet | 145.11(SX) |

For further information, please contact repeater chairman.

***** NOTICE *** NOTICE *****

The December 7, 1994, meeting of the OARC will be held at Algonquin College, Rideau Campus, 200 Lees Avenue - Park at the back. Room B175

The vice president, Richard Hagemeyer VE3UNW, advised that the club sold the Kenwood TS-950S, donated to the club from the estate of VE3FKB, for \$2500 and the ICOM 6 meter transceiver for \$150. The Radio Shack 10 meter transceiver will be used for the ten meter beacon, VE3TEN. Members were also asked to submit any articles for the Groundwave to any member of the executive. A reminder also went out to those who have yet to renew their memberships.

CONTENTS

| | |
|-------------------------------------------------------|---|
| MINUTES OF OARC GENERAL MEETING . . . | 3 |
| mk's WORDS | 4 |
| BALUNS - DO WE NEED THEM? | 5 |
| KANATA FIRE DEPARTMENT LEADS THE WAY | 6 |
| MEMBERSHIP RENEWAL | 7 |
| MAKERS OF ELECTRONIC HISTORY | 7 |
| THE GENESIS OF CW | 7 |
| A SIMPLE TNC TO HANDIE-TALKIE INTERFACE BOX | 8 |
| RADIO AMATEURS OF CANADA | 9 |

Roger, VE3BZR, introduced the evening's guest speaker, Jim Dean VE3IQ. Jim spoke on his experiences as the RAC co-chairman on the RAC/Industry Canada working group. Jim discussed the activities of Industry Canada (IC) with respect to the delegation of functions which have resulted from an internal study by IC, the product of government downsizing. The changes proposed, if accepted by the RAC and IC, will be phased in, with phase 1 (certification of radio amateurs, call sign assignment and documentation) scheduled for December 1995. Jim noted that operation, which would operate separate from RAC and allow the RAC to preserve its advocacy role and its ethical standards operation. IC would have to fund the new organization for an initial period. It was emphasized that radio amateurs and the RAC have been given an opportunity to have input into our destiny and that we should take advantage of it.

MINUTES OF OARC GENERAL MEETING HELD NOVEMBER 2, 1994

The meeting was called to order by the president, Roger Swickis, VE3BZR, at 19:40.

Roger invited guests and visitors to identify themselves and afterwards to sign the guest book. David, VY1DM, was recognized. David is relocating to the Ottawa area from Whitehorse.

Roger VE3BZR, advised the members that due to regional elections our meeting place will be changed for the November and December meetings. The club will endeavour to advertise the locale in the Groundwave and local nets.

Roger thanked Jim for coming to speak to the members and invited anyone to submit any comments they may have to Jim.

The meeting closed at approximately 21:20 and was followed by coffee and a rag chew.

THANKS

The Executive would like to express their thanks to Graham of Bytown Marine for supporting the OARC.

mk's WORDS

Nov 10/94

This month's menu features bits and pieces from here and there.. don't expect consistency.

Even if this is going into the December Groundwave, it's still far too early to think about Christmas...the ground isn't even frozen yet, there's no snow, and the antenna work STILL isn't finished, so not another word about holidays until the end of the column.

At different times this week I was talking to VE3DZZ, Pat and his neighbour VE3JSS, Jeff. Pat was down on the bottom of 40M, explaining that he had borrowed Jeff's paddles, but that he still hadn't replaced the 2 Meter rig stolen out of his car. Meanwhile, Jeff on 2M, told me about how he is going to try CW mobile some day, but was grumbling about how hard it was to get used to working a straight key again after lending his paddles to Pat. The solution seems obvious to me: time for a swap.

I heard an interesting conversation on 2M last weekend. The two stations were talking about when and how they got their callsigns, and one of them said "...that's a nice callsign". That got me thinking... does anyone who has had a callsign for more than a few years not like their own call. I've only heard of one such case, and even then, the owner of that callsign held it until getting a two letter call. To dislike your own call would be about the same as disliking your own name. I guess the callsign as licence plate analogy can only be taken so far.

Before I continue, if you are one of those hams who say "I paid my twenty six bucks to Ick, don't bug me about public service and let me play with my hobby.", then 73 and c.u. next month.

This is my week in the rotation as duty net control station for the Regional Emergency Measures Radio group. That means I have to be able to get a net up and running, on short notice, when ever asked to by the higher ups. In my case, since I don't have a phone line at home, that presents some interesting complications. Even without the notification problem, there are a few twists. To do the duty ncs job, one needs to have available at all times, at least the following: A radio capable of reaching the repeater; a power supply that doesn't rely on the ac mains; an antenna that won't become inoperative due to weather; a pen or pencil that will work when you need it; and some paper. That is the minimum, backups are handy too. Try taking all that shopping sometime. It is also necessary to set things up so you can always be contacted. For most people that means the phone at home and work, and the repeater in between the two. Fine, but what about the times when someone else is on the phone for hours on end? How about when you go out for groceries or a movie? How about your lunch break at work? Even under normal conditions, it looks to me like most people are unreachable for large parts of a day. Staying in touch is something one has to work at. I begin to see why pagers are so popular. Maybe its time to get one of these fancy new rigs with dtmf calling built in. ...On second thought, maybe I should pull that dtmf decoder out of the junk box and make a toy that will plug into the radio and sound off whenever it hears a magic number. With any luck, I'll be able to show it off at homebrew night in April. Note to VE3UNW, re last month's column: "Busticated" is a combination of "busted" (broken) and "masticated" (chewed up), and is a good description of some of the equipment (ab)used at radio station VE3FFK. I'm not responsible for dictionaries that can't keep up with the times. Meanwhile... I hope Santa is kind to you all, and that everyone has a safe and happy holiday.

73.. mk

BALUNS - DO WE NEED THEM?

Most amateur radio antennas are inherently balanced devices and equal voltages exist or should exist to ground from each input terminal.

There are exceptions which include end fed long wires and quarter wave verticals fed against ground. With a balanced feeder the currents on the two wires of the feeder are equal and opposite and therefore cancel out minimizing radiation from the feedline.

It is not possible to connect an unbalanced feeder such as coaxial cable to a balanced antenna and maintain zero potential on the outside of the cable. This gives rise to unwanted radiation from the outside of the cable as the field from the centre conductor is totally contained on the inside of the coaxial cable and thus cannot cancel the field due to current flowing on the outside of the cable.

The existence of the unwanted field around the feeder will modify the antenna pattern and have some bearing on the input impedance of the antenna. RF energy radiated from the feedline may also be a source of TVI or BCI to equipment close to the feedline.

Types of Balun

If it is desired to couple a balanced antenna to an unbalanced feedline, then a choke or transformer can be employed to prevent unwanted currents from flowing back down the outside of the line. Such a device is known as a BALANCED-to-UNbalanced transformer (balun).

At VHF and UHF frequencies, resonant coaxial baluns may be used. These are usable over a narrow band of frequencies only.

Broadband baluns are usually used at HF as coaxial balun lines tend to be rather

long. There are two types of broadband balun; voltage baluns and current baluns.

Voltage Baluns

ARRL Handbook p. 16-8 a,b

Voltage baluns cause equal and opposite voltages to appear at the balanced output relative to the cold (shield) of the unbalanced (coaxial) input.

Current Baluns

ARRL Handbook, p. 16-8 c

Choke or current baluns cause equal and opposite currents to flow resulting in antenna currents being reduced or choked off even if the antenna is not perfectly balanced.

Choke Baluns

ARRL Handbook, p. 16-9

Choke baluns may be made out of a length of coaxial cable of the same impedance as the main feeder. The coaxial cable is wound into a coil and mounted as close to the antenna as possible. A 10 ft. length of RG-58 or RG-213 wound into a coil of 7 turns works effectively over the whole HF range (3.5 - 30 MHz). A more efficient choke balun may be made by slipping 50 ferrite beads (Amidon type FB-73-2401) over a length of RG-58 coaxial cable. The beads are held together and to the coaxial cable by binding tightly with electrical tape. For high power or greater physical strength use 12 beads (Amidon type FB-77-1024) over a length of RG-213.

Questions relating to baluns

- a) Do they reduce antenna currents on the outside of the coax?

Check this by using a diode detector close to the coax shield. Try this with and without the balun. Is there much difference in detected signal?

- b) Is the signal any stronger when using a balun?

Measure received signal with and without balun.

- c) Is the pattern of the antenna distorted when not using a balun? (Skewing of beam antenna patterns)

Check pattern with and without balun.

These tests of the need for using a balun with the antenna are not easy to perform and thus cannot be conclusive. It is still a matter of personal choice whether a balun should be used to improve the performance of an antenna system. Remember that if there is a relatively high SWR at the antenna terminals, a toroidal type balun will introduce extra losses but a choke balun will only introduce minimal losses.

SARC Technical Forum
conducted by Tony Fegan VE3QF/G3TTF

KANATA FIRE DEPARTMENT LEADS THE WAY

The Kanata Fire Department in a precedent setting move has joined forces with local amateur radio operators which will guarantee communications for the Kanata police and fire departments and relief organizations if and when a disaster strikes the area, such as an earthquake, flood, hurricane, aircraft crash, etc. David Guilbault, Kanata's Deputy Fire Chief, initiated the move. Following negotiations with Kanata municipal authorities, Deputy Guilbault contacted the Emergency Measures Radio Group, led by Joe McPherson, to make all the necessary arrangements. The EMRG sponsored the establishment of an amateur radio station in the Eagleson Road fire hall. The station was installed so that if and when a disaster occurs designated volunteer amateur radio operators could proceed directly to the station if they did not have their amateur radio with them and start providing immediate communication assistance.

In addition to the many amateur radio repeaters in the Ottawa-Carleton region, the Ottawa-Carleton Emergency Measures Unit recently commissioned a new amateur radio repeater, VA3EMU, for the exclusive use of the EMRG during an emergency. One of the many features of the new repeater is the ability to interconnect (autopatch) with the local telephone network. This feature will allow volunteer amateurs to communicate with any of the services the City or Fire Department may require in the event of a disaster in Kanata.

The new Eagleson Road amateur station is comprised of a Kenwood 702A transceiver, a Pyramid 22 ampere, 12 volt DC power supply and receiving and transmitting its signal is a Diamond X300 antenna.

Kanata firemen and volunteers from the amateur radio community worked together to install the antenna, cable and radio. A very special "thank you" goes out to Norm Dorion of Dorion Electric Ltd. who supplied the heavy duty concrete drill that was required to cut through the concrete wall at the fire hall.

Deputy Guilbault has stated that Kanata's firemen will, in the near future, be canvassed to determine whether there is sufficient interest among them to arrange for an amateur radio operators course.

Written by Paul Griffiths, VE3PGL
de OVMRC Rambler

MEMBERSHIP RENEWAL

Just a reminder that this will be your last Groundwave if you have not yet renewed your OARC membership. Renewals can be sent to the club box or mailed to:

OARC Membership, Box 334, 1568 Merivale Road, Nepean, ON K2G 5Y7.

MAKERS OF ELECTRONIC HISTORY

BENJAMIN FRANKLIN



Benjamin Franklin, born in Boston, Mass., in 1706, established for himself a secure place in scientific history through his electrical achievements, many of which have played an important part in late radio and electronic developments.

Franklin was the first to suggest that electricity "was really an element diffused among matter", and apparently suspected the existence of some such force as the electron. He was the first to formulate the concept of positive and negative electricity. He also established the electrical nature of lightning, and in 1750 invented the lightning rod. He anticipated the telegraph by almost a hundred years in attempting to establish communication over several miles of wire, but was unsuccessful due to the lack of suitable equipment. He died in Philadelphia in 1790.

Picture - Courtesy RADIOCRAFT de Peel Signal, Bulletin of the Peel Amateur Radio Club

THE GENESIS OF CW

First he made a dot. He looked at it and saw that it was good. But it wasn't good

by itself so he made a dash to go with it and he knew it was complete so he gave it to the man and his mate to name and they called it Morse code and thus began the history of communications. They did it with each other often and it was sooo good! They took it with them wherever they went and they had to move a lot because of that thing with the apple. You know... but false prophets appeared and they spoke like the serpent; they said "CW is too much trouble." They invented other modes and they sneered at the true believers with their bras pump handles. This was not good. Then they hired a tower builder called BABEL to build them a tower so they could have a giant field day. But when they came down from the tower they were angry the Packet people couldn't copy the AM who couldn't understand SSB; it all sounded like DONALD DUCK. So they said, "Count me out; keep your club!"

The snake scorned C.W. saying "who needs it". He even said, "who needs a licence, let's have a Citizen's band of our own", and pretty soon they were all jawing away and no one knew what was said because they were all talking at once..."10-4 good buddy".

Noah tried to stop them. He said, "don't listen to the snake, it's not too late, relearn Morse code and we can get together again. Let's have a field day and we'll talk to each other again." But they paid Noah no heed and soon no one QSO'd Noah anymore. Then it started to rain. It rained and rained.....

When the water started getting dangerously high they called on HIM to save them and he said, "call Noah on your Ham Radio and he will come to save you with his boat," but there was no one left who could send SOS in Morse code and they all perished. Morse code was saved and it flourished again.

Now in the late 20 century governments are trying to legislate CW out of

existence. BEWARE, when the flood comes, be sure you can still call SOS. When it starts to rain it will be too late!

de The Hamilton Amateur

A SIMPLE TNC TO HANDIE-TALKIE INTERFACE BOX

We'll describe a little box that ties together my packet TNC (a BayPac BP-1), a Realistic HTX-202, 2M transceiver, an external microphone, (make unknown), 600 Ohm dynamic), and an a Ohm, 4" loudspeaker. It's all contained within an old Hammond loudspeaker enclosure which sits on the shelf beside the Handie. The parts can be anything you can get your hands on. Because I use my radio for both voice (V) and packet (P) modes, the toggle switch becomes necessary. It switches the radio's external microphone input between the TNC output (P mode) and the external mike (V mode). The switch also adds a 560 Ohm resistor in series with the speaker (P mode). The resistor is necessary because of the high audio level required from the radio to drive the TNC properly (about 2/3 full volume of packet racket!). With this arrangement, the incoming packet data stream is just loud enough to let you know that it's there.

The cables from the TNC (BP-1 colour coding is shown on the schematic) and to the radio enters the box via a rubber grommet.

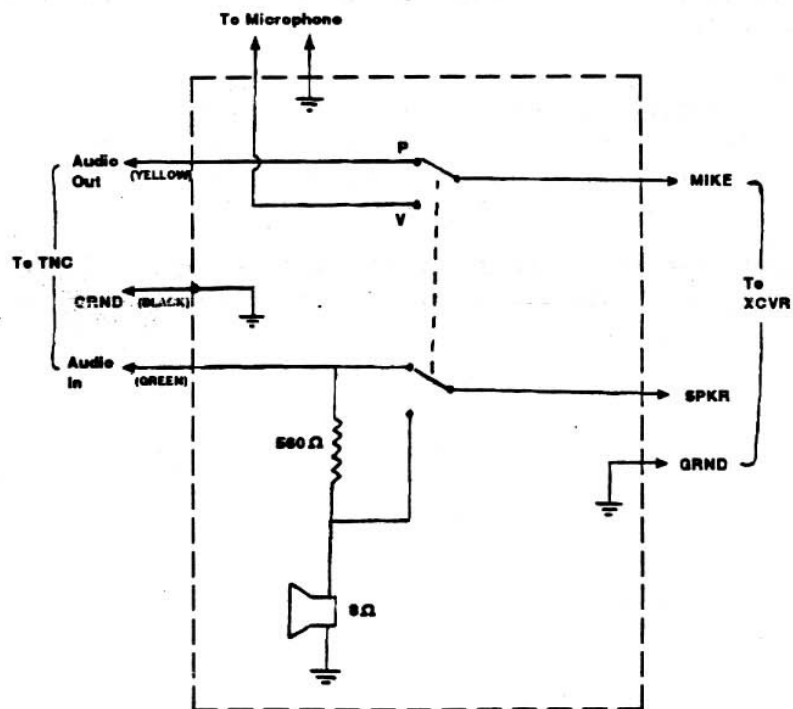
The external microphone plugs in to the box via a 2.5 mm phone plug and jack. By the way, this mike gives lots of audio,

unlike either the built-in or speaker-microphones. If you are going to use a speaker-mike, a pair of jacks (suitably spaced apart) will have to be installed. You could wire the box up to use the speaker-mike's speaker, but I recommend that you use the 4" speaker, as shown. It gives much nicer audio.

The connections to the HTX-202 are made using shielded cable and a pair of 2.5 mm and 3.5 mm phone plugs. I power my radio from an external 13.6 VDC power supply. The RF output power is an indicated 8 Watts on a Daiwa RF wattmeter.

At present, the BP-1 TNC is priced as low as \$79, complete with Baycom software (for an IBM PC) to run the system. The configuration shown here provides an economical and flexible way to get on packet.

Good luck and 73,
R.F. Burns
de SPARC GAP



RADIO AMATEURS OF CANADA

Radio Amateurs of Canada suggests you fill in the following letter and send it to your local Member of Parliament. Remember, no postage is required to send a letter to your MP.

Dear Member of Parliament:

I hold an Amateur Radio Licence issued through Industry Canada.

In early June of this year, Industry Canada released a document entitled, "Criteria for the Resolution of Immunity Complaints Involving Fundamental Emissions of Radio Communications Transmitters". This document, called EMCAB-2, was issued as an Electromagnetic Compatibility Advisory Bulletin.

This bulletin places no onus on manufacturers for any responsibility in manufacturing electronic equipment, when it is used in proximity to radio transmitting equipment. On the other hand, licensed transmitter owners comply with stringent federal regulations for use of the radio spectrum as a resource. It is only prudent responsibility to do so.

EMCAB-2 ignores the inconvenience to the consumer and the transmitter owner when a complaint occurs and obligates them to resolve an issue, when it is clearly the responsibility of the manufacturer to ensure its equipment is properly designed.

EMCAB-2 alludes to international standards which are not yet in effect and simply, by implication, assumes that such standards will come into force. I believe the Advisory Bulletin will be subject to wide misinterpretation. It complicates its actual purpose because it lacks even a methodology of measurement.

You should be aware that the European Community has begun a proper approach to resolving 80% of these problems by mandating that all electronic equipment must meet some specific level of immunity (rejection) of radio transmitter energy. This will preclude importation unless these standards are met. Why should Canadians accept sub-standard designs?

More than 42,000 licensed radio amateurs in all parts of Canada and countless individuals who reside in close proximity to radio transmitters could be affected by EMCAB-2. We request that this document be rescinded and withdrawn and that the first step towards resolving immunity problems be technically addressed by manufacturers. Responsible engineering design by manufacturers would obviate the need for EMCAB-2.

Your attention to this matter would be greatly appreciated.

Yours truly

Name: _____
Call Sign: _____
Address: _____

cc: The Honourable John Manley, P.C.
Minister of Industry
Parliament Building
Ottawa, Ontario