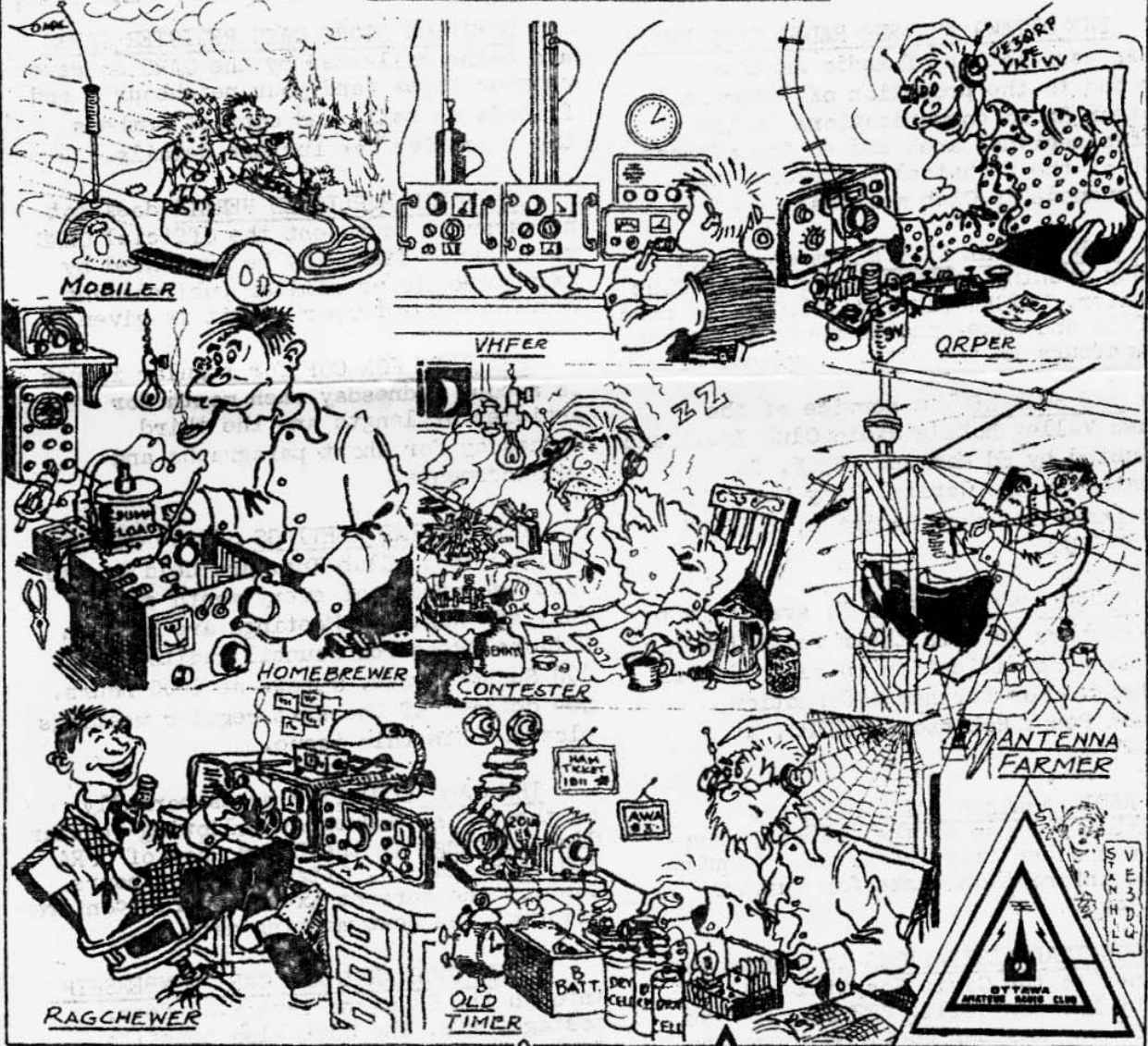




# THE GROUNDWAVE

THE OFFICIAL BULLETIN OF THE OTTAWA AMATEUR RADIO CLUB INC.,  
P. O. BOX 8873, OTTAWA, ONT. K1G3J2



**AMSAT**

Club Call VE3RC



Repeater VE2CRA

--- THE GROUNDWAVE --- OFFICIAL BULLETIN OF THE OTTAWA AMATEUR RADIO CLUB INC. ---

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THE OTTAWA AMATEUR RADIO CLUB INC. is an association of Radio Amateurs devoted to the promotion of interest in Amateur Radio communications in the Ottawa regional area and to the advancement of the technical competence and achievement of Club members.

THE CAPITAL CITY NET meets every Monday evening at 2000 hours on the Club repeater, VE2CRA (146.34/146.94), to pass traffic and make announcements of interest to Amateurs in the Ottawa regional area.

THE SWAP NET, a service of the Ottawa Valley Mobile Radio Club Inc., and conducted by Ed Morgan, VE3GX, is repeated on the Capital City Net. To list items or make enquiries, call Ed at 733-1721.

AN ENGRAVING PENCIL is available to OARC members to mark their valuables for positive identification in case of loss or theft. For further information contact Penny Robinson, VE3ERO, at 225-1276.

RADIO AMATEUR CALL BOOKS are available for use at the Orleans, downtown and other city libraries. Enquire at the information desks for further details.

HOSPITAL VISITATIONS to any Amateur confined to the Civic Hospital will be made by Maureen Neill, VE3FZY. If you know of any Amateur confined there who would appreciate a visit, call Maureen at 725-4748 (233-9941 after 5:30)

SEE YOUR NAME IN PRINT!!! -- In National and International publications. Write an article to be published in THE GROUNDWAVE and then watch it travel! Many local articles have been reprinted in Club bulletins, all across North America.

DOMINION STORE CASH REGISTER TAPES are being collected by the OARC so save up your tapes (and your neighbour's and friends as well) and contact members of the Executive for further details.

MATERIAL PUBLISHED HEREIN does not necessarily represent the official OARC viewpoint. Items may be reprinted by Amateur Radio or similar publications provided that proper credit is given.

DEADLINE FOR COPY for regular issues is second Wednesday each month for articles of length and the third Wednesday for short paragraphs and announcements.

THE REGULAR MEETINGS of the Ottawa Amateur Radio Club Inc. are held on the first Wednesday of every month except July and August. Meetings are held in National Research Council Auditorium, 100 Sussex Drive, Ottawa at 2000 hours. See details of the next regular meetings elsewhere in this issue.

THE OARC EXECUTIVE meets normally on the second Wednesday following regular Club meetings in the Board Room of CFRA 150 Isabella St., Ottawa at 2000 hours. Contact the current Executive for confirmation of the next meeting date.

RENEW YOUR ARRL AND CARR MEMBERSHIP through the OARC and save M.O. fees, postage, etc. The Club also benefits. Contact Brian Barsalou, VE3IBX, at 829-7340, for further details or remittance forms.

MINUTES OF THE OTTAWA AMATEUR  
RADIO CLUB, INC. 3 December 1980

The meeting was called to order at 2000 hours by Paul VE3ICV, President. Two visitors were welcomed to the meeting.

The minutes of the November meeting were adopted as printed in the Groundwave on a motion by VE3DQM seconded by VE3ATJ.

The treasurer reported on the status of the finances as of November 30th, indicating that the total funds on deposit were \$3576.82.

The nominating committee announced that nominations were still open.

Fred VE3IO advised the members that the EMI committee now has a TVI kit available for the use of members who may have a requirement for it.

It was announced that there will be a Santa Claus communications project at the Children's Hospital on December 17th and on the repeater on December 24th. Volunteers are needed to assist in this project for both days.

Paul VE3ICV informed the members that the club again placed first in its class on Field Day 1980.

The speaker for the evening was Jim Swail VE3KF who spoke about the aids he uses to enable a blind operator to operate his station.

The meeting was adjourned at 2200 hours.

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LETTERS

AMSAT  
P.O. Box 27  
Washington, D.C.  
20044

Dear Friends:

Thank you very much for your recent \$115.00 contribution to AMSAT. Your donation will help AMSAT meet the continued heavy expenses of the amateur satellite program. It is assistance such as yours that can help make an early launch of AMSAT's next spacecraft possible.

Thanks once again for your help.

Sincerely yours,  
Martha Saragovitz  
Office Manager

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R. Bareham  
Box 30481  
NAIROBI, Kenya

Dear Sirs:

Would you please put a note in the GROUNDWAVE that for those wishing to work Kenya, I monitor 28.52 USB on a continuous basis. I can also usually be found on Mondays around 1830 UTC on 21.235 USB.

73,

Rob 5Z4YW  
(VE3ACY)

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AUDIO RECTIFICATION

This is the first of a series of articles on Radio Frequency Interference announced in the December issue of the GROUNDWAVE. The editor wishes to thank Fred Green VE3IO, Chairman of the EMI committee for finding the various sources of information which will be used in these articles. Also, thanks to the Electronics Industries Association, Consumer Electronics Group and particularly Sally Brown of that organization, for granting us permission to extensively extract information from the "Consumer Electronics Service Technician Interference Handbook" on Audio Rectification and Television interference.

The two booklets are available from:

Mrs. Sally Browne  
Consumer Electronics Group  
Electronics Industries  
Association  
2001 Eye Street N.W.  
Washington, D.C., U.S.A.  
20006

The cost for each booklet is \$1.00 U.S.

The principal interference problem confronting the amateur radio operator is interference with normal operation of electronic equipment used in the home under the broad category of Home Entertainment systems. Interference may also be experienced in electronic organs, language laboratories or schools' Audio Visual or Public Address systems. Problems may also be encountered in audio systems in churches, etc. The amateur may be required to solve interference problems with any of these pieces of equipment.

The most common type of audio interference encountered in the home results from "audio rectification". This is the detection of modulated RF signals by the audio circuits of electronic equipment which are then heard as unwanted or disturbing audio signals. Such interference may be caused by amateur transmitters, other RF transmitters and a wide variety of other electrical appliances (which may also cause problems in amateur receivers).

The basic frequency selective circuits in AM-FM or TV receivers have only moderate protection from RFI in extremely strong RF fields in the vicinity of amateur transmitters. Interference of this type is often difficult to diagnose as it can enter the audio device anywhere between the antenna and the speakers.

Interference may be picked up by long connecting cables or long component leads acting as an antenna

or it may be transferred through AC power lines, especially if the source is in the same or immediately adjacent building.

Interference from Amateur Radio transmitters usually shows up as garbled voices from SSB transmissions. The seriousness of the interference depends on the strength or power of the transmitter, its location with respect to the audio equipment and the shielding properties of the construction material of the building in which the audio equipment is located. These factors are generally unchangeable, so the solution must be found at the audio equipment.

Specific conditions which aggravate interference problems include:

1. Length of connecting cables between audio components such as phono to receiver; tape recorder to and from receiver; and receiver to speakers.
2. Improper grounding of audio equipment (or transmitter).
3. Insufficient shielding of audio reproducing sources such as tape playback heads in tape decks, phono pick-ups in record players and microphones.
4. Inadequate shielding properties of connecting cables used between components. (Look for broken ground connections in shielding.)

It is first necessary to determine that an interference problem is really caused by *your* transmitter. This can be easily verified by ensuring that the interference occurs only when you are transmitting (although it may not necessarily occur all the time when the transmitter is in operation). After determining that the interference is indeed caused by your transmitter, several specific questions should be answered, refer-

NEXT MEETINGELECTIONS

The next regular meeting of the Ottawa Amateur Radio Club, Inc. will be held on Wednesday, January 7th 1981 in the Auditorium of the National Research Council, 100 Sussex Drive Ottawa, at 2000 hours.

The main item on the agenda will be the election of your executive for 1981. There will also be a talk by Ken Kendall, VE3IHX on emergency communications.

Although it will not be possible to match the prize awarded last January, there will be draws for three valuable items at the meeting. Bring your 1980 membership card, as these will be used for the draw!

=====  
 ring to the audio equipment itself must be answered:

1. Is the interference noticed in all or only certain modes of operation of the audio equipment?
  - a. Tape mode only?
    - i When playing back home recorded or commercial tapes?
    - ii Home recorded tapes only?
  - b. Phono only?
  - c. Radio only?
    - i AM only?
    - ii FM only?
    - iii Both AM and FM?
  - d. All modes of operation?
  - e. When the set is "off"?
2. Does it occur only when touching a certain part of the equipment?
  - a. Holding a microphone?
  - b. Touching the record player, tone arm or cart-ridge?
3. Does it disappear when you do the following:
  - a. Remove the wall plug while the set is still

playing? Does the interference stop instantly or gradually?

- b. Remove all interconnecting cables one by one. This may give a clue as to the origin of the interference.

4. Does the interference change in intensity when the volume control is turned up or down?
5. Does the interference change in tone when the Tone controls are adjusted?
6. Is the interference noticeable on all channels of the system (both channels in Stereo sets, four channels in Quad sets)?
7. When moving the set to a different room, or a different place in the same room, are there changes in interference, or possibly, does the interference disappear?
8. Is there RF interference on the telephone line? A "yes" may indicate an extremely strong interference field. The telephone company may be able to correct this problem, or wait for a future article on interference with the telephone system.
9. Is the same interference found on other audio or TV equipment in the home or in neighbouring homes?

Interference Correction- External to Equipment

1. Check connecting cables. Replace long ones with shorter ones wherever possible.
2. If RFI is noticed only when the tone arm of the phono is touched by hand, a ground wire between the tone arm and the preamplifier ground is necessary. Use a flexible lead which will not restrict the movement of the tone arm.

--continued on page 8

20 METRES  
AN OCCURRENCE ON 20 METRES

Did you ever get the urge to work CW after a time off that mode? I did and here is what happened.

Twenty metres, I thought, was the place to be. The first few contacts were easy, nice steady sending and good copy both ways. With these few contacts under my belt, I turned the keyer speed control and called CQ. Back came W6??? (who shall be nameless) at about 90wpm. After sending his name three times 'BLCM' (well, that's what I wrote on the pad), it was easy my turn to send.

The only way to finish this QSO, I thought, was to slow my speed down to my usual 12 wpm which I did, and proceeded to send my name, QTH and the usual information. After turning it back to W6??? ... silence ...

QRZ, QRZ, QRZ I called.

After about three attempts at this, a different fist sends ---  
 HE WENT TO SLEEP.

de VE2TY, West Island ARC

REAL HOMEBREW

The following is an excerpt from "Two Hundred Metres and Down, The Story of Amateur Radio" by Clinton B. DeSoto:

At the Midwest Convention, there was brought to light the most remarkable recorded instance of amateur perserverance and ingenuity. A young lad of seventeen, known to possess an efficient spark, c.w. and radiotelephone station, was discovered to be the son of a laboring man in extremely reduced circumstances. The son had attended grammar school until he was able to work and then he assisted in the support of the family. They were very poor indeed. Yet despite this, the young chap had a marvellously complete and effective station installed in a miserably small closet in his mother's kitchen. How had he done it? Even such complex and intricate structures as head-telephones and vacuum tubes were home-

made! Asked how he made these products of specialists, he showed the most ingenious construction of head-phones from bits of wood and wire. To build vacuum tubes, he had found where a wholesale drug company dumped its broken test tubes and where the electric light company dumped its burned-out bulbs, and had picked up enough glass to build his own tubes and enough bits of tungsten wire to make his own filaments. To exhaust the tubes, he built his own mercury vacuum pump from scrap glass. His greatest difficulty was in securing the mercury for this pump. He finally bagged enough of this from another amateur. And the tubes were good ones -- better than many commercially manufactured and sold. The greatest financial investment that this lad had made in building his amateur station was 25 cents for a pair of combination cutting pliers. His was the spirit that has made amateur radio.

de Western Quebec VHF/UHF ARC

GEMS FROM THE JUNQUE BOX

1. This GEM deals with grommets and tooth paste tops. What have tooth paste tops got to do with ham radio, you say? Well, they make good knobs for electronic equipment controls. How do I attach them to the shaft? That's where the grommet comes in. Just slip a 1/4 inch grommet over the shaft, wind the tooth paste knob on tightly and presto, you have a fancy knob for that control.

2. Swipe a few of the XYL's Clippies. That's the name I hear them referred to around here but it may not be the correct term. I'm referring to those little double pronged, flat clips that women use to give the curls a little more life. Cut off one set of prongs from some of them and presto, you have a good supply of heat sinks for soldering diodes, transistors, etc.

TRAIN DISASTER REVISITED

The Mississauga train derailment provided an excellent opportunity for local amateurs to test their emergency skills and while they more than excelled, it still served to highlight the fact that a lot of us were caught in situations that were a compromise at best. When operating skills cast a little doubt, I feel the equipment situation could be improved. Here are just a few points to ponder:

-Do you have a truly portable antenna?

While a lot of us have magnetic mount antennas, not everyone has. Why not consider building something that could easily be set up anywhere? After all, without antennas, you might as well forget about everything else. You can't always depend on the other guy to have the antenna.

-Do you have an extra feedline?

It is too optimistic to think that your operating location will also be a good antenna site. A length of spare coax is easily stored and the extra flexibility could make the whole difference as to whether your signal is heard or not.

-Is your power supply easily transportable?

I personally found mine to be too awkward and heavy and have since built another one to be as small and light as possible. As well as having the power plug to match my rig, I also included a set of binding posts to allow easy hook-up to anyone's rig.

-Do you have emergency power at home?

While we can't all afford a gas generator, it is possible to run your VHF rig off a car battery for quite a while, especially if you use low power. I managed to secure an old one, at no cost, and I keep it in my ham shack, periodically charging it up (they do discharge eventually if not used.)

-Is your hand-held ready to go?

These units are excellent for

emergency use, but a dead battery doesn't put out much of a signal. A spare battery pack would be a good investment. Since the usual HT antennas aren't the best, it's also wise to have an adapter to allow you to connect up to a better antenna that may be available.

These are just a few of the points I have looked at to increase my emergency preparedness. Each individual who intends to participate in any future incidents should look at his own resources and ask himself "Am I prepared as well as I could be?"

de VE3FOX, Peel ARC

ITALIAN EARTHQUAKE

Rocco Furfaro, VE3HGZ, vice-president of the Guelph ARC, was in daily contact with the stricken areas after the recent earthquakes in Italy relaying information on the safety of relatives to members of the Italian community in the Guelph area.

Rocco, who is fluent in Italian, gave up his ornamental iron business for two weeks in order to devote full time to this task. After hearing Rocco on a radio talk show, a girl in Connecticut called him and was able to get information about her fiancé's parents in Italy. The story received good coverage in the Kitchener-Waterloo Record and the Guelph Daily Mercury.

de Guelph ARC

AROUND THE CLUBS

Windsor ARC placed first in Canada in the 1980 Field Day (Class 8A) and sixth in North America.

Hamilton ARC has distributed the access code for the Amateur/Police repeater link to all members.

Guelph ARC got good coverage in the local newspaper, The Daily Mercury in articles on both the Central Ontario Flea Market and Field Day.

\* See Caution Note.

If phonograph headshell is bakelite or plastic, a small piece of foil or metal between the cartridge and the headshell, grounded to the tone arm metal or changer metal base will help, if insufficient shielding of the cartridge is the cause.

3. If RFI is noticed only when the microphone is hand-held, a ground wire between the microphone shell and the preamplifier ground is needed \*(See Caution Note). A "buzz" recorded on the tape from a hand-held microphone may also be caused by a defective or poorly shielded microphone.

**\*CAUTION NOTE:** Before attempting to ground the tone arm and/or microphone, one should ensure that there is no AC leakage to the preamplifier ground. If such leakage exists, contact the equipment manufacturer for further instructions. We will try to obtain specific instructions for performing an AC Leakage test from the Electronics Industries Association for a future article.

4. Interference may be due to long speaker cables. In extreme cases of strong RFI, the interference may be noticed when the audio equipment is "OFF". Replacing unshielded speaker cables with shielded ones and/or installing capacitors across speaker terminals and/or winding the leads through a torroid will usually cure the problem. Capacitors should be selected with care, as too large a value could deteriorate the frequency response of the system. Most amplifiers can tolerate fairly large capacitors across the speaker terminals before oscillation occurs. However, it is advisable to check for

for oscillations with an oscilloscope to prevent a case of blown speaker voice coils. This check must be made with the speaker cables connected, or if the cable capacitance per foot is known, a capacitor simulating the cable capacitance must be added.

**\*CAUTION NOTE:** To prevent damage to the output stages, DO NOT operate the amplifier with the speaker cables disconnecte unless you are sure that the amplifier has a load resistor across the output stages.

$$\begin{aligned} C/\text{start of oscillation} &= \\ C/\text{speaker cable} + C/\text{RFI} & \\ \text{filter to be added} & \end{aligned}$$

Once the capacitance at which oscillation starts is known, the TOTAL MAXIMUM capacitance (RFI filter + cable capacitance) MUST NOT be more than HALF of that at which oscillation starts. As the point of oscillation is a fixed value for the individual amplifier, and the length of speaker cable is fixed depending on the installation requirements, the RFI filter is the only variable:

$$\begin{aligned} \frac{C/\text{Osc.}}{2} - C/\text{speaker cable} &= C \\ &= C/\text{RFI filter.} \end{aligned}$$

In the February issue of the GROUNDWAVE, will will examine some methods for curing interference problems which require internal equipment changes. Several filter circuits will be presented, as well as a trouble shooting chart to aid in the localization of offending circuits.

73, VE3JSO

#### CONTEST

As announced in last month's GROUNDWAVE, we are looking for ideas for a new, perhaps simpler cover for our monthly newsletter. We have one entry already--why don't you send your ideas to the editor? The deadline is January 14th, 1981

OTTAWA AMATEUR RADIO CLUB  
P.O. Box 9873, Ottawa, Ontario  
K1G 3J2

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\$5.00  
\$7.00 Family

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- AM \_\_\_\_\_
- VHF/FM \_\_\_\_\_
- CW \_\_\_\_\_
- RTTY \_\_\_\_\_
- SSTV \_\_\_\_\_
- VHF \_\_\_\_\_

PLEASE CHECK APPROPRIATE ITEMS:

I AM A: MEMBER APPOINTEE OFFICIAL  
ARRL \_\_\_\_\_  
RSO \_\_\_\_\_  
CARF \_\_\_\_\_  
RAQI \_\_\_\_\_

I HAVE A GAS/DIESEL GENERATOR \_\_\_\_\_ I HAVE A 2-METRE HAND CARRIED \_\_\_\_\_  
yes/no yes/no

MY MAIN INTEREST IN AMATEUR RADIO IS: ( ) HF ( ) VHF OTHER \_\_\_\_\_

WHAT WOULD YOU LIKE TO SEE THE OARC DO/NOT DO NEXT YEAR?

(Applicant to complete at same time as above)

OARC MEMBERSHIP - 1981

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P.O. Box 8873, OTTAWA, Ontario, Canada  
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