

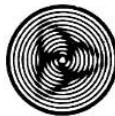
FEB '85

# THE GROUNDWAVE



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 National Capital Area; and to the advancement and achievement of club members.

**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.

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

**THE OARC EXECUTIVE** normally meets on the second Wednesday of each month in the Board Room of CFRA, 150 Isabella St., Ottawa, at 1930 hours. Contact the President to confirm the date of the next meeting.

**DEADLINE FOR COPY** is 4 weeks before the next meeting. Make yourself better known to fellow members and other amateurs, too, by giving us an article, technical or otherwise, relative to our hobby. They may get reprinted in far away places; and the family will be proud of you.

**REGULAR MEETINGS** of the OARC, Inc., are held on the first Wednesday of each month (except July and August) at the National Research Council Auditorium, 100 Sussex Drive, Ottawa, at 2000 hours. A bulletin board is available for posting notices of interest to other members about 1915 hours. Further details about each meeting is elsewhere in this publication.

**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.

**SAFETY BELTS, 2-METER RIG AND AN ENGRAVING PENCIL** are available for loan to club members. The 2-meter rig may be borrowed by members who are hospitalized. 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 member.

A \$100 refundable deposit is required for the belts. Contact the President for the 2-meter rig or the engraving pencil; and Paul, VE3ICV, at 820-6643 (West End) or Brian, VE3JKZ, at 523-1535 (East End) for the belts.

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

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Minutes of OARC meeting, Jan. 2nd, 1985

Following the opening of the meeting by President Joan, an amendment to the minutes of the Dec. 7th meeting was proposed by Dan Holmes, VE3EBI, that: Registration for continuing education courses at Algonquin College may be done any business day until 7PM. Those who need counseling would register on January 22 & 23.

A slide show, presented by Joe Courtemanche, depicted the activities of some club members at the Children's Hospital prior to Christmas, when young patients were given the opportunity of talking by radio to Santa Claus at the North Pole. Warm applause went to the organizers and volunteers.

Dave, VE3GOG, explained the MO for balloting. No further nominations being presented from the floor, nominations were declared closed. The slate of candidates remained as published in the Groundwave with the addition of Bruce, VE3MJV, whose name had inadvertently been left out of the bulletin. Candidates were then presented by the President.

The Treasurer, Bruce, received applause for a well presented overview of the auditor's report and the financial status of the club. Questions from the membership were adroitly fielded. The report is to be published in the upcoming Groundwave. Further clarification of the Joe Norton Trust Fund was given by George, 3BNO. The rules will be in place soon.

VE3UD raised our consciousness by retracing for our delight the conditions under which he had to operate in the old days, circa 1939. Air Canada was then TCA; and to do his job in the company, Bill started with a course by Boeing in meteorology. In his later years with the airline, he had charge, among other things, of a large communications centre at Dorval, consisting of an air/ground radio station and a teletype switching centre with 28 circuits in operation, handling 10,000 messages per day.

George, BNO, requests the help of volunteers to handle traffic for the upcoming Ski Marathon. Dates to remember: February 9, 10, 11. If you have some 2-meter equipment in the 10-watt class, capable of operating on VE2CRA and VE2RM frequencies, as well as 146.52, please contact George. Better still, volunteer.

Ray had some good news: Larry Thivierge will continue as Section Manager for another 2 years; and some bad news: Amateur licence fees will go up to \$20.

Brett welcomed the following visitors: Claude from Vars and Chris, future members of the fraternity, VE3OWE who recently received his call sign, and VE3OSJ from Vancouver.

Mike, VE3LAR, was the recipient of the Certificate of Merit given on behalf of the OARC to a deserving ham. Mike mentioned that he had a certain number of multifunction digital clocks which he will sell for \$30 a piece to members. In his opinion, it is a good piece of equipment to have in the shack.

George, BNO, gave a very informative talk on the repeater. Despite the mix and match appearance, says George, we have a very efficient piece of equipment.

The door prize was won by Mike, LAR.

**From the New President's Desk:**

On being requested to stand for the position of President of the O.A.R.C., it was with some hesitation that I accepted the nomination. Though not being an unduly modest person, I felt that there were no doubt many member of more organizational and technical proficiency than myself. However, I do have an interest in the promotion of Amateur Radio and thus that that perhaps I should put my energies where my mouth is.

Bill, the editor of the Groundwave, has asked me to express some ideas that I might have to bring to this position. At the time of writing, I have not had the opportunity of meeting with the new Executive; and so I hope that their ideas and mine might give us some new approaches to club affairs.

I know that it has been an ongoing concern of past executives to keep our club meetings interesting and vital; and I believe this has been done. Speakers have been generally excellent; the meetings crisp and well charied. However, the name of our game is communication. There is radio communication and social, "eyeball" communication.

I have had fascinating conversations with voices out of the "ether"; and these voices have materialized into interesting people at eyeball distance. To this end, I find one of the most interesting parts of the programme - the coffee break. Far be it from me to propose making club meetings into "coffee klatches"; but, for myself, I would like to be able to put faces to the call signs. It is a large club; and there are too many members that I just don't know.

I have been involved in a number of discussions where concern has been expressed over the number of new people entering our hobby, particularly youth. This concern may or may not be valid; but I think that we could well project a more visible presence in the community as a hobby which is in the forefront of the technological parade. We, of course, do participate considerably in the community; but sometimes I feel that the community is not as aware of it as might be desirable. To attract members we have to be visible.

I hope that while I am active on the executive of the club we can continue the same quality programmes that have characterized the past, while perhaps injecting some new ideas that will make them even more interesting.

-Dan, 3EBI

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Since the back page lists the Executive Committee members, as well as the Chairman of the several committees, we won't repeat the election results here. We might just add the the turnout for the election was very poor. No doubt the date was found to be inconvenient for many. Too bad.

Next OARC Meeting: Weds, Feb. 6th/85, 8 PM in the NRC Auditorium, 100 Sussex Dr.

SPEAKER: Larry Kayser, WA3ZAI ---"A PACSAT demo in Hawaii". A report on 3 days at the Pacific Telecommunications Conference, along with additional comments on Amateur Radio's role in International development; and using Amateur Radio for development purposes.

In addition, Keith Bedal, VE3GFI, will make a slide presentation on Arctic Communications". There also will be the usual draw for the door prize, as well as the monthly raffle - greater than Lotto 649!!!

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President Dan is looking for a Public Relations Officer. We need someone who will keep the press, radio and TV mediums aware of OARC activities with the objective of raising the Amateur Radio profile in this area. We hear some hams performing very well on SSB and 2M FM in the presentation of their thoughts on sundry subjects. One of you would be just great for this office.

It takes many talents to help this club to achieve its many objectives, all of which are directed toward enhancing amateur radio's status in this area. Look at the back page of this Groundwave for a list of fellow amateurs dedicated to this objective through their participation in the Executive and as chairmen of the several committees. Please phone Dan and let him know you would like to have your name listed as one of those fine people by volunteering for the PR position.

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The Executive has decided to ease the burden of net managing and emergency coordination by setting up two separate committees for these functions.

Ken Kendall, VE3IHX, will continue as Emergency Co-ordinator; and Dave Goldsmith, VE3GOG, has accepted the task of being Net Manager, effective forthwith. Welcome aboard, Dave.

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Field Day

Field Day this year will be on June 22/23; and we are most fortunate in having persuaded Dave Goodwin-Hill, VE2ZP, to take over chairmanship of the committee. Dave now is looking for committee members to help him in making Field Day another roaring success for the OARC group.

Since one can never make too early a start on planning, Dave would like to hear very soon from those who would like to assist him in the planning and organizing. One feature Dave would like to see implemented is the use of a solar powered rig. Has anyone any useful suggestions to offer Dave? QTH follows:

Dave Goodwin-Hill, VE2ZP  
285 Metcalfe St. Ap't 1, K2P 1R8  
Home phone: 230-3204

The following presentations are available on Beta format videocassettes.

1984 RSO CONVENTION

<u>TITLE</u>	<u>SPEAKER</u>	
Working Oscar Satellites	John Henry	VE2VQ
Canadians Contribute to Packet Satellite	Dick Atkinsons	VE3JBO
Transmitting Loop Antennas	Jack Belrose	VE2CV
Amateur Television - Your's to Discover	Wayne Getchell	VE3CZO
Putting the RF where you want it - EMI and the Intruder Watch Program	Ralph Cameron	VE3BBM
Towers & Antennas - a Fun Gain Game	Gerry King	VE3GK
Digital Color Slow Scan TV	Bill Westbrook	VE3EKA
VHF/UHF - The World beyond FM	Dennis Mungham	VE3ASO
Radioteletype and AMTOR	Jim Cummings	VE3JPC
Candid Shots	(assorted)	

1979 RSO CONVENTION (B & W)

Field Day Antennas	Jack Belrose	VE2CV
Voice Band Companding	Tom Lott	VE2???
Packet Radio	Bob Rouleau	VE2PY

Contact Brett Delmage, VE3JLG, for further information.

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Home Brew Night:

Takes place at our April 3rd meeting. Get busy now with your projects; and win the admiration of your peers for your skill and ingenuity.

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Please don't forget to sign the register at our meetings. Not only does this give you a chance at the door prize; but you help the executive to measure attendance, identify visitors and determine the extent to which various areas of the National Capital Region are represented at meetings.

## UHF VARACTOR TUNER CONVERTER FOR ATV

Wayne Getchell VE3CZ0

### RECEIVING ATV

There are several simple and inexpensive ways to receive Amateur TeleVision (ATV). Amateur fast scan television transmissions in the 70 cm. band (430 to 450 mhZ.) use the same standards as commercial broadcast TV.

Many recent model televisions and tape recorders incorporate varactor tuned UHF receivers that are capable of tuning below channel 14 at 470 mhZ., down to the 430 to 450 mhZ. amateur band. These sets when used with good low loss feedline and directional gain antennas produce very acceptable results as ATV receivers.

### MITSUMI CONVERTER

If your set won't tune down to the amateur band, a very effective ATV receiving converter can be made from the Mitsumi UHF tuner sold by Radio Shack and several surplus dealers. These tuners, catalog no. 277-220, are currently being discontinued from the Radio Shack produce line, however, there are more than 50 units in the Ottawa area. They have been discounted to between \$18.95 and \$23.95, about 50% off the regular catalog price.

The tuner, when modified, receives signals in the 420 to 460 mhZ. range and converts them to TV channel 2 or 3. The converter, when used with a standard TV allows you to tune in local ATV activity. The tuner modification is very simple. There is no critical wiring or fiddly RF adjustments to make. Most of the effort in making the converter consists of packaging the Mitsumi tuner in an appropriate chassis and supplying bias voltages for it. Here's how to do it.

### TUNER TEST

The first step is to make sure the tuner you purchased works before you modify it. Radio Shack is not likely to refund or replace a modified defective tuner! I don't suggest you solder any wires to the tuner for this prove-in test. Use alligator clip leads or gently wrap a wire around the terminals.

Solder a 15 cm. (6 in) piece of wire to the centre pin of a phono plug to act as an antenna for the tuner input. Connect a small piece of 50 or 75 ohm coax between the tuner IF output and the UHF input of your TV. Connect the AGC (pin 3) to V+ (pin 4), and a 10 k. ohm variable resistor between V+ and ground (pin 2) with the pot wiper to the tuner's V1 terminal (pin 1). Connect a 9 to 12 volt supply between the tuner V+ and ground terminals. Tune the TV to channel 3, apply power, and turn the pot. You should be able to tune in local UHF broadcast stations in the lower part of the UHF band. If not, check your connections or return the tuner.

## VARACTOR TUNER ATV CONVERTER Page 2

## TUNER MODIFICATION

When you're sure the tuner works, it's time to modify it. The modification consists of adding a 10 k. ohm resistor to the varactor bias chain as shown in figure 1a. The resistor is connected between the junction of R21 and C19 to ground. To do this, remove the printed circuit solder side cover from the tuner and install the resistor as illustrated in fig. 1b.

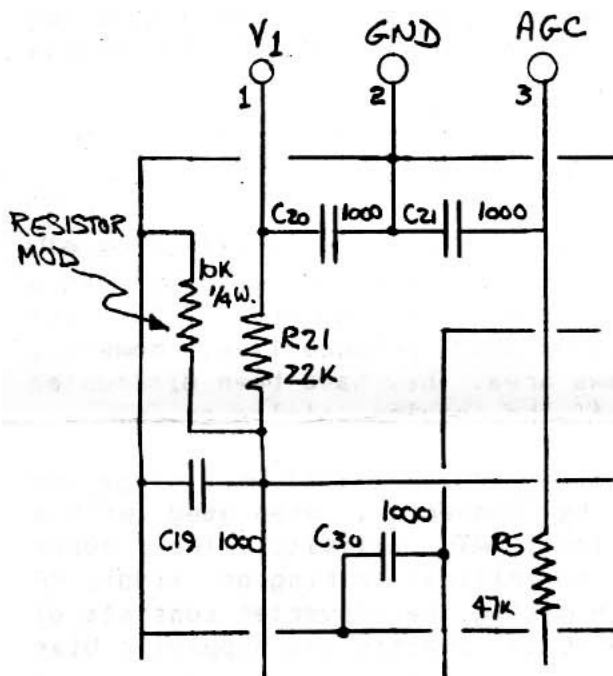


Figure 1a

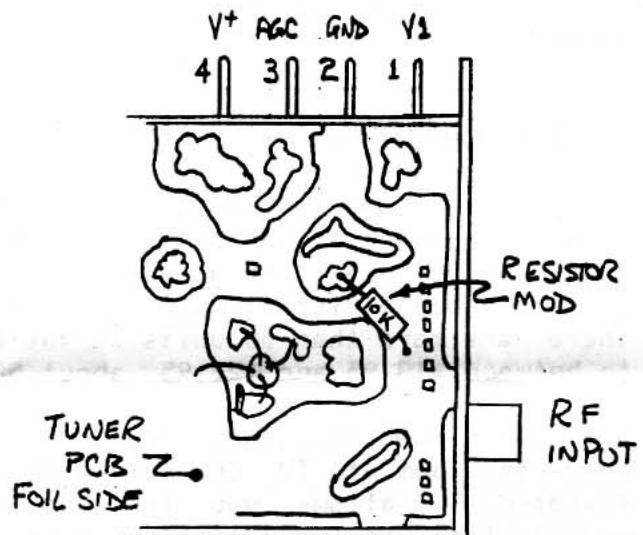


Figure 1b

## CONSTRUCTION

Once the tuner is modified, it's time to build the circuitry around the tuner and put it in a chassis. Figure 2 shows the circuit required to bias the converter. There are no critical components, or wiring required so all components can be assembled on a small perf board using point to point wiring.

A 12 V. supply is required for the converter. This voltage can be derived from a battery for portable operation or an AC wall plug type adapter. The converter will operate from 8 to about 20 volts and is protected against battery reversal by D1.

## VARACTOR TUNER ATV CONVERTER Page 3

**ASSEMBLY**

The tuner and associated circuitry fit compactly in a Radio Shack aluminum enclosure part no. 270-271. The tuner can be mounted horizontally against the bottom of the enclosure. The power switch, LED, RF gain and frequency controls can be mounted on the front panel, the power plug, RF input and Ch.3 output on the rear. Wire the rear panel power jack to the front switch and LED. Connect the RF gain and frequency controls to the perf board and tuner. Maximum RF gain and frequency occur with maximum voltage on the variable resistor's wiper. The converter should be wired so that maximum voltage occurs in the fully clockwise position.

A short piece of 75 ohm coax. should be used between the tuner IF output (pins 8 and 9) and the F61 chassis connector on the rear panel. A length of 50 ohm RG174/U cable can be used to connect the RF input BNC on the rear panel to the tuner RF input. Instead of using a phono plug to connect the RF input to the tuner you can feed the RG174 through the center of the tuner's phono plug and solder the center conductor directly to the post inside the tuner and the ground braid to the chassis frame. Keep the lead dress on the RF and IF coaxial connections short.

**BIAS CIRCUIT DESCRIPTION**

Referring to figure 2, C2 bypasses RF that may be present on the power supply line. D1 prevents damage to the converter if the power supply polarity is reversed. R1 and D4 are used as a pilot light. R2 and D2 provide overvoltage protection for the unit, while C1 provides additional filtering for unregulated or unfiltered power supplies. R3 is an optional RF gain control for the converter. R4 and D3 provide a regulated bias for the tuning voltage, and R5 varies the tuning voltage to cover a 420 to 460 mhZ. frequency range.

**FIRST TIME USE**

When trying to receive ATV for the first time it is easiest to correlate your effort with someone in the area already transmitting ATV. If this is not possible a simple ATV test signal generator can be built, bought or borrowed to help you receive ATV.

While the converter is very sensitive, it is no substitute for a good quality directional 70cm. antenna and low loss 50 ohm feedline. Because of the wide bandwidth and relatively low power, most ATV stations use high gain directional antennas for point to point communication. It is unlikely you will achieve satisfactory results with an indoor antenna unless you are down the block from an ATV station. A moderate size beam with wide bandwidth, like the J-Beam 70/MBM 48 or KLM 440-27, on a rotator, and good low loss feedline, such as RG8/U or better are good starting choices. Antennas in this area are vertically polarized for ATV. Connect the converter RF input to the antenna and the output to a TV tuned to channel 3. Use a short piece of 75 ohm coax. for the connection between the converter and TV. Apply power and rotate the RF gain control to the fully clockwise position and the frequency pot to about 1/2 full rotation. This should place the converter at about 440 mhZ. with maximum RF gain.

## VARACTOR TUNER ATV CONVERTER Page 4

**PARTS LIST****RESISTORS**

All resistors 1/4 watt, 5%  
unless otherwise noted.

- R1 - 1000 ohms
- R2 - 47 ohms 2 Watts
- R3 - 10,000 ohms potentiometer
- R4 - 2,700 ohms
- R5 - 10,000 ohms potentiometer

**CAPACITORS**

- C1 - 220 uF., 16 V. electrolytic
- C2 - 100 pF., ceramic disk

**CONNECTORS**

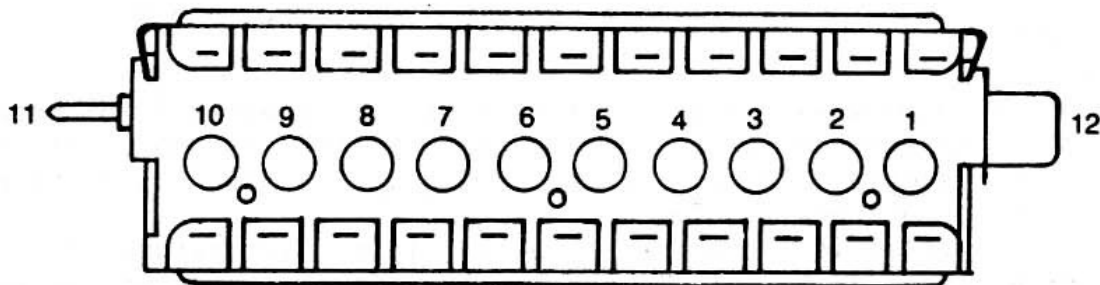
- J1 - Coaxial power jack  
Radio Shack # 274-1549
- J2 - 50 ohm BNC chassis jack
- J3 - F61A 75 ohm chassis jack

**SEMICONDUCTORS**

- D1 - 1N4004
- D2 - 1N4020B Zener 15V. 5 Watts
- D3 - 1N753 Zener 6.2V. 0.4 Watts
- D4 - Light Emitting Diode  
Radio Shack # 276-041

**MISCELLANEOUS**

- UHF Varactor Tuner Radio Shack  
# 277-220 or equivalent
- Aluminum Enclosure Radio Shack  
# 270-271 or equivalent
- 50 ohm coax. cable RG174/U
- 75 ohm coax. cable RG59/U
- Knobs, Wire, etc.

**TUNER PIN DESIGNATIONS****PIN DESIGNATIONS**

- 1 = Tuning Voltage, 0 to 28VDC
- 2 = Ground
- 3 = AGC
- 4 = V+

- 8 = IF Output (75 ohms)
- 9 = Ground
- 10 = Test Point
- 11 = AFC
- 12 = UHF Input (75 ohms)



OTTAWA AMATEUR RADIO CLUB INCORPORATED

Statement of Income and Expenditures for the  
Year Ending November 30, 1984

Expenditures

Groundwave (Postage and Production)		\$ 1,232.40
Operating (Room Rentals, Prizes, Trophies, Raffle)		275.92
Directory		1,236.92
Administration (Bank charges, Insurance, Engraving, Stationery Supplies, Licences, P.O.Box, Postage, Awards, Club Album)		4055.28
Other (Field Day Supplies, Teleconferencing Network, GaAsFet Pre-amp)		277.24
		<u>\$ 3,427.85</u>

Revenues

Membership (1983-84)		\$ 1,526.00
Interest (Bank of Montreal Savings Account 1)		74.82
Directory: Sales	\$570.15	
Advertising	<u>\$735.00</u>	
		1,305.75
Insurance Rebate		13.00
Flea Market	Table Rentals 280.00	
	Sandwich Bar <u>151.64</u>	
		431.64
		<u>\$3,351.21</u>

Excess of Expenditures over Revenues for the Year ended November 30, 1984 \$76.64

Note: The Joe Norton VE3PN Trust Fund earned \$242.45 interest during the year, while the proceeds from the disposal of items from the same estate amounted to \$634.00.

C.P Tremblay, CGA  
Auditor

B.H. Lauer,  
Treasurer

OTTAWA AMATEUR RADIO CLUB INCORPORATED

Balance Sheet as at November 30, 1984

AssetsCash

Bank of Montreal Current Account	\$ 2,506.72	
Bank of Montreal Savings Account I	1,048.34	
Bank of Montreal Savings Account II (Joe Norton Trust Fund)	<u>1,477.46</u>	
		\$ 5,032.52

Guaranteed Investment Certificate (Joe Norton Trust Fund)		6,000.00
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Equipment		1.00
Incorporation Expense		<u>680.00</u>
		<u>\$11,713.52</u>

Liabilities

Accounts Payable		\$ 65.00
Prepaid Memberships		744.00
Joe Norton Trust Fund		7,477.46

Surplus at beginning of the year	\$3,503.70	
Less: Excess of Expenditures over Revenues	<u>76.46</u>	<u>3,427.06</u>
		<u>\$11,713.52</u>

C. P Tremblay  
Auditor

B. H. Lauer  
Treasurer

ARCHIV

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V/President	Brett Delmage VE3JLG	304-1330 Richmond Rd. Ottawa, Ont., K2B 8J6	820-3940 592-4164
Secretary	Samson Pierre VE3JSP	Box 909, RR #1 Cumberland, Ont., K0A 1S0	833-2801 745-9411
Treasurer	Bruce Lauer VE3MJV	10 Winlock Crescent Nepean, Ont., K2G 3X4	829-9471 990-8987
P/President	Joan Powell VE3FVO	Box 390 RR #2 Nepean, Ont., K2C 3H1	825-4104
Directors	Russ Lowe VE3LOW Keith Bedal VE3GFI Tom Bristow VE3OFM	44 Herridge St. Ottawa, Ont., K1S 0G9 125 Ridgefield Crescent Nepean, Ont., K2H 6T4 117 Crerar Ave. Ottawa, Ont., K1Z 7P1	237-5093 236-0311 828-1870 998-2234 728-5998 521-8463
Repeater Chairman	George Roach VE3BNO	104 Strathcona Ave. Ottawa, Ont., K2G 3H1	234-0885 233-6242
Custodian & Archivist	Gerry Martin VE3CNJ	1771 Hutton Ave. Ottawa, Ont., K1G 1M1	731-3220
Net Manager	Dave Goldsmith VE3GOG	6250 Fortune Dr. Orleans, Ont., K1C 2B1	824-1505 675-4671
Emgcy Coord	Ken Kendall VE3IHX	777B Springland Drive Ottawa, Ont., K1V 6L9	731-0892
EMI Comittee Chairman	Ralph Cameron VE3BBM	30 St Remy Drive Nepean, Ont., K2J 1A3	825-1634 225-2850
Membership Chairman	Peter Hafichuk VE3LBW	118 Ivy Crescent Ottawa, Ont., K1M 1X6	745-0608 993-1740
Capital City Award Manager	Brian Summers VE3JKZ	2231 Hillary Ave. Ottawa, Ont., K1H 7H7	523-1535 996-7885