

# THE HAMILTON AMATEUR

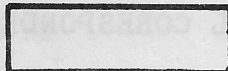
HAMILTON AMATEUR RADIO CLUB INC.  
P.O. BOX 253  
HAMILTON, ONTARIO  
L8N 3T8

FIRST  
CLASS



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HAMILTON - ONT. — HAMILTON - ONT. — HAMILTON - ONT.

Gerald Goldberg VES HLI  
17 Cottrill  
Hamilton Ontario  
L8S 3L5





HAMILTON AMATEUR RADIO CLUB INC.

CLUB STATION...VE3DC...VE3RCB...

2 METER REPEATER...VE3DRW... INPUT: 146.160 MHz  
OUTPUT: 146.760 MHz

1976 OFFICERS and DIRECTORS

<u>PRESIDENT</u>	DAVE E. WALTON VE3FLZ	421 LODOR ST. ANCASTER L9G 2Z9	648-6872
<u>1ST VICE-PRESIDENT</u>	PETE C. WALTON VE3FEZ	421 LODOR ST. ANCASTER L9G 2Z9	648-6872
<u>2ND VICE-PRESIDENT</u>	JOHN DYKSTRA VE3BOY	TALBOT ST. CAYUGA	772-5372
<u>PAST PRESIDENT</u>	Wm. R. McCASLIN VE3ARX	704 CEDAR AVE. BURLINGTON L7T 2R7	634-5190
<u>SECRETARY</u>	GLEN A. SIMPSON VE3DSP	61 BRIARWOOD CRES. HAMILTON L9C 4C3	385-8478
<u>TREASURER</u>	GERALD CRAWSHAW	176 WEST 35TH ST. HAMILTON L9C 5K8	385-2789
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<u>PUBLISHER</u>	MAX PIZZOLATO VE3DNM	65 ELGAR ST. HAMILTON L9C 4E4	385-2530

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COMMITTEE CHAIRMEN

Club Station Licencee (VE3DC)	VE3BKM	VERN HUCKLE	388-6989
RED CROSS STN LICENCEE (VE3RCB)	VE3FHQ	GLENN A. GIBSON	385-2786
REPEATER LICENCEE (VE3DRW)	VE3CFM	BOB MILLER	529-2950
MEMBERSHIP		GERALD CRAWSHAW	385-2789
HEALTH & WELFARE	VE3GFE	STAN BOLIBRUCH	528-4002
PHOTOGRAPHER	VE3FLZ	DAVE WALTON	648-6872
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PUBLIC SERVICE	VE3FHQ	GLENN A. GIBSON	385-2786
PROGRAM	VE3BOY	JOHN DYKSTRA	772-5372
TECHNICAL	VE3DVV	JOHN VANDENBURG	692-3221

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MEMBERSHIP YEAR ..... JANUARY 1ST to the following  
DECEMBER 31ST

MEMBERSHIP FEES ..... \$6.00 per year (all classifications)

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PLEASE ADDRESS ALL CORRESPONDENCE TO THE SECRETARY AT - P.O. BOX 253  
HAMILTON L8N 3T8

## \*\*\*\*\* OCTOBER MEETING PROGRAM \*\*\*\*\*

Date : October 20, 1976  
 Time : 8:00 P.M.  
 Place : Chedoke Continuing Care Centre  
 Topic : Walt Dougherty VE3EIA who will give a talk on Printed  
 Circuit Board; A-Z procedure on making your own etched  
 circuit boards at home.

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EDITOR'S COMMENTS

October is here, with its cooler Wx, Antenna Winter preventative maintenance programs and getting projects lined up for the cold winter months ahead.

Coming up shortly is our annual elections, and I hope you have enjoyed the past years issues of The Hamilton Amateur, as much as I have enjoyed putting it together, However, I have enrolled in a night school course, which prevents me from attending the club meetings, and it would seem unappropriate for me to continue on as Editor, if I can not keep in touch with club activities. Therefore, before our election night, think of a person who would be interested to continue on as Editor of our Club Bulletin.

It is of note, that I mention of Alex Smith VE3BON who is temporarily residing at St. Joseph Hospital, Room 621. All Visitors would be welcome.

Many thanks are extended to our Tech. Committee for the effort put forth on the repeater VE3DRW. Efforts were made and a cavity was installed on the interfering pager's transmitter, which solved our paging interference (after a lengthy time). The narrow band rx is again installed which, hopefully, will eliminate some of the adjacent channel interference we had been experiencing. Our thanks to all concerned, and lets keep VE3DRW out in front on .16 - .76

Remember your membership renewal, fill the Registration form and return to Gerry Crawshaw as all unpaid up members will NOT receive any bulletins in 1977. Four months warning is plenty.

Our club reporter has reported that the XYLs of VE3GIV, CZI, DSP, VE3DNM and VE3BOY have been gathering one night each week to get into shape. Now, whether they are going to assist thier OMs in our fine hobby or distract them into other forms of activity, only time will tell!  
 73's Norm Freidin VE3CZI

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 The Lord prefers common - looking people. That is the reason He makes so many of them. ---Abraham Lincoln

AREC NEWS

On Sept. 18/76, communications were arranged for our second year for the Shinarama, operation by the McMaster students, to raise funds for the Cistic Fibrosis Foundation. Poor weather at the start of the day made for a poor turnout of students, so we only needed about one third of the mobiles who had volunteered. Thanks to all who volunteered to assist. Those who participated, stood by, helped at Base, etc., were as follows: VE3DOU/m, DSP/m, IDC/m, EHL/m, BJB, DHJ, BKS/m, CLY, EJD/m, BGF, DQS/m, GYT/m, VE3EVI/m, HLI/m, EEO/m, CJW/m, COV/m, ESN/m. SWL's: Kevin Barker, Gerry Crawshaw, Bruce Simpson, Karen Skewes.

On Sept. 25/76, our local group gave communications to a walk-a-thon, on Hamilton Mountain for students of Calvin Christian School.

With one week notice, I turned the complete operation over to Assistant E.C. VE3GFE Stan. He arranged a Base & scheduled mobiles and all went well. Thanks Stan for setting it up and again many thanks to all who made it a success. Including the following: VE3DTQ/m, HBX, DJF/m, EJD/m, DNM/m, IEI/m, BKS/m, & VE3CLY with VE3GFE operation at Base.

73's

Glenn Gibson VE3FHQ  
Emergency Co-ordinator

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R.S.O. CONVENTION  
HOLIDAY INN

DON VALLEY PARKWAY  
TORONTO

OCTOBER 22, 23, 24

The convention program includes something for everyone. For the homebrew types, there's a session on equipment you can build or modify. For the DXer, there will be help and advice from experts with more than 300 countries confirmed. For the Ladies, there's a varied program including a trip to the beautiful McMichael Gallery at Kleinberg. Among the attractions are; a continuous showing of films and slides on Amateur Radio Topics; a talk by Ed Tilton, W1HDQ, on Propagation; and a Flea Market organized by the Nortown Amateur Radio Club. For Flea Market information, please contact FOUAD, VE3FCN (416) 491-2735 or Tom, VE3FMI (416) 221-3752. For general convention information, questions will be fielded by convention committee members on the CJ Net any evening at 6:30 P.M. on 3790 KHz.

REGISTRATION

R.S.O. Members	\$8.00
Non- Members	\$9.00
Ladies Program	\$6.00
Friday Night Eyeball	\$10.00 each
Saturday Night Banquet	\$15.00 each

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THE PRESIDENTS PAGE

It is my sad duty this month to report on the passing of a long time H.A.R.I.C. member and friend, John Paulowich, VE3EVI, became a silent key on Sept. 26/76. John was a very active club member whenever his health permitted and he will be missed by his many friends. I can't remember a field day in the last 6 or 7 years when John was not present, and he was always a willing helper on club activities. The HARC executive and membership extends sympathy to John's family. Memorial flowers were sent on behalf of the club. VE3FLZ, VE3BOY and VE3GFE represented the club at the service.

The Fall season seems to be well under way now, and amateur activity is increasing. Glen, VE3FHQ, reports that the Shinerama exercise, in co-operation with McMaster University students was successful and he had lots of volunteers to help with that activity. I understand that a recent Bike-A-Thon on the mountain was supplied communications by our AREC group.

Fred Robinson, VE3GCP, became an ambassador for Amateur Radio on Sept. 24 via Tom Cherrington's Talk Show on CHML. I was unable to listen to the show but I listened to tape recordings of it. Fred did a fine job for amateur radio and perhaps more of the public will get a better understanding of what it is all about. I understand that Tom has invited Fred to return next year and the station's management were most impressed with the program. Amateur Radio gets enough bad publicity and our hats are off to Fred for turning the tables and getting out hobby some good press for a change. Perhaps there are one or two more people out there who now know the difference between Amateur and G.R.S. activities.

Quite a few of our members went to the Hamburg International Hamfest recently and reports indicated that it was not quite as big as in previous years. Perhaps that means that there will be some money left to be spent at the upcoming R.S.O. Convention on Oct. 22, 23 & 24, at the Holiday Inn, Don Valley, Toronto. I plan to be there for that weekend and I hope that I will see a lot of HARC members in attendance. This year's convention program seems to present a very good mixture of both technical and social activities, so there should be something for everyone.

Cu sn es 73

Dave Walton VE3FLZ

Pres.

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Be like a duck - keep calm and unruffled on the surface,  
but paddle like the devil underneath.

EMERGENCY PHONE NUMBERS

Should you find yourself involved in distress traffic such as calls for assistance from ships at sea or aircraft; in order to inform official agencies, one of the following Dept. of National Defence Rescue Co-ordination Centres numbers may be called collect.

Such distress traffic must be accurately logged and reported to your nearest DOC office. Hamilton: (416) 523-2301

If you are involved in international emergency traffic such as the Guatemala earthquake, the government contact point for gov't messages or welfare of Canadian citizens abroad in the disaster area is the Dept. of External Affairs in Ottawa. A collect call to the listed number will contact their duty officer.

POLICE: - Emergency ONLY	522-4911	FIRE: Emergency ONLY	522-131
Administration	522-4925	Administration	522-1155
AMBULANCE:	525-6611		
Ont. Prov. POLICE	528-0666		
Ham. Harbour Police	529-3423		
Dept. of National Defence Rescue Co-ordination Centres:			
Vancouver: (604) 732-4141	Victoria	(604) 388-1543	
Edmonton: (403) 475-3611	Halifax:	(902) 426-4730	
Trenton: (613) 392-2811			
Dept. of External Affairs: (613) 996-8885			

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Canadians are generally indistinguishable from Americans, and the surest way of telling the two apart is to make the observation to a Canadian.

.....Richard Starnes

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WATCH THOSE NICADS

Nickel-Cadmium batteries are great for operating our H/T's, pocket calculators, and so on, but let's not forget to heed the warning printed on them -- they can be downright dangerous if carelessly handled or otherwise abused.

In one instance, a man was knocked down and injured by the explosion of the batteries in his pocket calculator when the charging terminals were accidentally shorted by change in his pocket. Similar problems have been reported involving hand-held radios. -- It is most important to avoid all possibility of shorting the batteries -- by bits of wire or wolder or other debris in your H/T, change in your pocket, etc.

(Credit: Squelch Tales)

### BASE STATION ANTENNAS (VHF)

Getting maximum range from low-power VHF transceivers is a never-ending quest for many Amateurs. One way to do this is to use the most efficient antenna installation available. A point to keep in mind is the idea of reciprocity, the idea that gain, impedance, polarization, directivity, radiation angle and other characteristics are the same whether the antenna is used for receiving or transmitting.

When power is fed to an antenna, it radiates two fields of energy, magnetic and electric, which are at right angles to each other. The electric field is always in the same plane as the radiator as far as simple VHF antennas are concerned. Thus, a vertical radiator, such as a mobile whip, will radiate a vertically polarized signal. Also, a radiator with elements parallel to the earth will radiate a horizontally polarized signal.

Notwithstanding the idea of reciprocity, an antenna of one type will pick up signals of the opposite polarization but with a much reduced efficiency (in the order of 20 DB loss). The convention in VHF FM is for vertically polarized antennas to be compatible with vertical mobile whips. Some VHF DX'ers, however, who are not interested in communication with mobiles, continue to use horizontally polarized antennas which are easier to stack and tend to give slightly better results over long-haul paths.

The basic vertically polarized antenna is the quarter-wave ground plane type consisting of a quarter wavelength radiator (vertical) and four quarter wavelength radials mounted horizontally at the bottom of the radiator. The radiator and ground plane are insulated from each other and a coaxial feedline is connected at this point. The feed impedance at this point turns out to be in the order of 25 to 35 ohms and if top efficiency is desired, some means must be provided to match this to the coaxial line being used. (usually 50 or 52 ohm). One method and the simplest, of doing this, is to tilt the radials downward by about 35 degrees. This also induces a slightly lower angle of radiation which in itself is desirable to keep as much RF energy as possible from being lost in the ionosphere.

A vertical radiator has an omni-directional horizontal pattern that is, it radiates, and receives, equally well in all directions. Its pattern somewhat resembles a doughnut. In actual practice, however, the angle of radiation is approximately 50 degrees above the horizontal (the doughnut is "dished" upwards). This is shown graphically in Fig. 1a where the concentric quarter-circles represent signal strength at various angles to the horizon and distances from the antenna.

The quarter wavelength ground-plane antenna is generally inexpensive and easy to match to 50 ohm coax. It is quite often taken as a standard for comparing the performance of other vertically polarized antennas. In this case, it is assigned a gain of unity, or 0 DB, and other antennas assessed accordingly.

An antenna is not an amplifier, therefore, it cannot radiate more power than is fed to it by the transmitter. However, an antenna can be designed to simulate "gain" by concentrating the radiated energy at a more useful (lower) angle. This is accomplished by lengthening the radiator and Figs. 1b and 1c indicate the radiation patterns of half-wave, and five-eighths-wave antennas respectively. As length is increased beyond  $5/8$  wavelengths, energy in the low-angle lobe drops drastically and much of the energy comes out around 80 degrees, which is not very useful for mobile or ground-wave coverage. Exotic antennas can be designed in lengths of  $1\frac{1}{4}$ ,  $2\frac{1}{4}$ , etc. wavelengths, but that is another story. Feed impedance of  $\frac{1}{2}$  and  $5/8$  wavelengths antennas is also a problem and one must resort to tapped coils or other matching devices which are fully described in any good antenna manual.

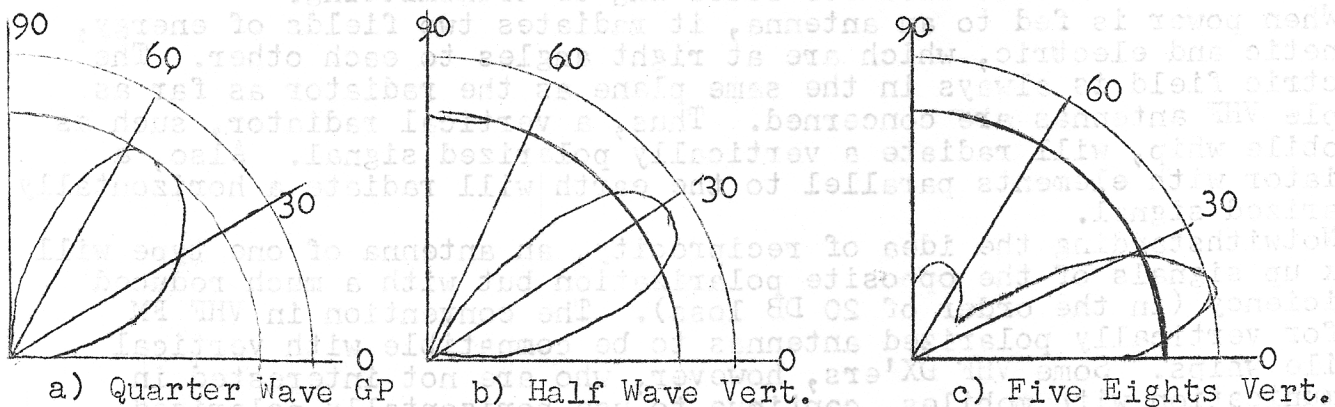
VHF ANTENNAS CONT'D

Fig. 1: VERTICAL RADIATION PATTERNS for three common types of VHF antennas. The  $5/8$  wavelength (c) provides the highest "gain" through its lower angle of radiation.

The most common uni-directional beam antenna is the Yagi configuration and gain is realized by concentrating the RF energy into a signal "beam" which can then be directed to a specific point of area. This type of antenna consists of a half-wave radiator or driven element, a slightly longer reflector, and one or more slightly shorter elements called directors. These directors are on the side of greatest radiation from the driven element. If 360 degree coverage is desired, the antenna must be rotated. Two identical Yagis can be mounted on a boom, side by side, to provide a very narrow beam with a gain of 3 DB over a single Yagi of the same type. Yagis can provide up to about 13 DB of gain depending upon the number of elements and their configuration.

Another type of directional antenna, the phased array, is not found too often as a base installation on VHF although its use is more common on HF. For example, two ground-plane antennas spaced one-half wavelength apart and fed through equal length lines, will radiate two narrow beams at right angles to the plane of the antennas. Other spacings and phasing arrangements can give other results, but, on VHF especially, a Yagi is not too large to be unwieldy, and gives a much better account of itself. We see the phasing of two vertical antennas attempted on numerous GRS mobiles these days but never is the separation sufficient to provide optimum results, and one doubts that a worth while advantage is obtained. However, the method seems practical at VHF freq. for mobile work.

Carefully consider your requirements before selecting an expensive base antenna. Factors to be considered are: desired range, terrain, elevation above ground level, weather condx (icing, wind, etc.) and cost. A simple ground plane will do for local contacts, with a  $1/2$  wave or  $5/8$  wave giving respectively greater range. Use a beam if you want extended range and ability to get into normally "dead" spots. Remember also, if you use a beam and do a lot of monitoring, you may miss an incoming call if the antenna is not aimed in the right direction. Remember also, all antenna work must be done during the coldest, stormiest day in the middle of winter in order to avoid Murphy's Law.

(Credit: VE3BYX via THE OTTAWA GROUNDWAVE)



WHEN YOU TELL SOMEONE that you are a Ham, does he snicker and say something about TVI? What image do you project as an Amateur? A reason to be concerned about publicity is the old adage, "The squeaky wheel gets the grease." Right now the GRS lobby is very squeaky wheel and the talk is that there will be lots of grease coming their way in the form of relaxed regulations. How does a 12 yr. old kid ever find out that there is more to radio than putting "ears" on a truck and cruising around looking for "Smokey Bears" and "County Mounties"? Natural disasters are magnets for newsmen and special events can be an excellent source of publicity and on a local level, publicity can be free. If we don't let people know we exist, we will be regulated out of existence. How about keeping interesting information about members on file so that whenever something newsworthy happens in your club, there will be background material handy to tack on to the story about those Amateurs involved. And a simple idea we can all try comes from W6NAZ: Wear a lapel pin with your call on it at all times. And then when people ask what the heck that nonsense is, be ready to start talking.

(Credit: ARRL Radio Club News)

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WE ARE NOT POLICE!

Recent events warrant a word of caution on this subject. The reporting of a potentially dangerous situation to the proper authorities is usually sufficient. In no way is this a caution against involvement and the performance of one's civic duty. However, the pursuit of an erratic, supposedly impaired driver, leaves ourselves and Amateur Radio open to severe reprimand if a more serious situation should develop from a private attempt at law enforcement. Likewise, a car bearing Amateur License plates and found to be the cause of a serious accident or fatality is a black mark against Amateur Radio as a whole as well as against the actual driver. With privileges come responsibilities and as responsible Amateurs we must consider the effects of any action on the group as a whole as well as on ourselves.

(Credit: The Groundwave)

While on this subject, when driving and maobiling (talking on rig), please try and be alert of what is going on around you. How many times have you heard of near auto accidents due to the fact someone was too busy talking into a mike!!.....Ed.

ODDS & SODS

- WN9VPG is the ~~wall~~ which has been assigned to Neil Rapp, of Vincennes, Indiana. If you should perchance contact Neil, treat him with respect...he is five (5) years old!

-Several Amateurs and clubs have asked CARF to produce an Instructor's package to go with the recently published Canadian Amateur Certificate Study Guide. Such a package is now being developed and will include lesson plans, set of overhead transparencies, written and verbal information (using tape cassettes), etc.

- Dick Van Dyke, the well known TV & Movie personality, has recorded for the CRRL, a group of 20, 30 and 60 second public service radio spots, on behalf of Canadian Amateur Radio. The spots are most informative on the subject of amateur radio and solicit listeners to write to the CRRL for information on how to become a radio ham. These tapes are available, at no cost, from CRRL Headquarters, and anyone in the broadcast field, who can help this service in a positive and constructive manner would appreciate hearing from you.

- ISLINGTON- The Chairman of the QSL services committee, Jean Evans, VE3DGG, has noted that many CARF members are not forwarding their QSL cards for onward shipment through the National QSL Bureau in the proper manner. This is significantly adding to the work load of the Bureau.

QSL's for forwarding to the USA can not be handled due to restrictions imposed by the ARRL Bureaus in the United States. Cards for all other countries should be forwarded to CARF National QSL Bureau, Box 66, Islington Ont., M9A 4X1 and NOT to CARF HQ. Please package your cards in alpha-numerical sequence according to call sign of station to which they are addressed.

This service is ONLY available to CARF FULL members and your Membership Number must be given on the outside of the packet containing the cards. If you have not yet received your Membership Certificate, that gives your number, put the word "Pending" on the packet until such time as your number is known.

- PARKSVILLE, B.C. - The TRANSCAN NET is intended to link Canada from coast to coast, handling general traffic, news releases and bulletins, and page traffic on RTTY. The Net Control Station (NCS) is Dan Robertson VE3FOV, Toronto; Alternate NCS, John Wilkinson, VE6ALR, Calgary. The net operates 3630 KHz at 0300 UTC every Monday at present, using a shift of 170 Hz. There is a real need for more stations to check in, particularly in Sask., Man. and the Atlantic areas.

A PERSONAL POINT OF VIEW

As an XYL, I often find myself listening to many "anti-ham" remarks made by other XYL's, at banquets, conventions, and social events. Granted, there are many "pro-ham" comments, too, but stop a minute and consider what the amateur radio hobby means to you.

Does it mean:

- Countless plates of dinner shoved in the oven to keep warm because "I just have to reach that country - it's one I need."

Solution: Ask before you dish up, give 5 minutes grace before you explode, then hand him a cold dinner when he appears 15 minutes late

- a Saturday afternoon lost because he and a friend are doing open heart surgery on a dying transceiver.

Solution: On Sunday morning, stay in bed with a cup of tea - you deserve an hour away from the kids, too!

- every first and third Friday at home, because of a Club meeting.

Solution: After the children are in bed, start your "ladies night". Relax and reorganize your mind while immersed shoulder deep in a "bubble bath". Facial, nails and a good book to follow.

- Contest weekends (or Field Day weekend) when you are left alone.

Solution: Stop feeling sorry for yourself and do something special on that weekend. Hire a babysitter and go away to visit a friend or relative. Quite possible if planned and saved for ahead of time, and HE will be glad that you are doing something constructive with the weekend, instead of grouching about his going away.

Perhaps you are a "pro-ham" wife. Then you think it means:

- having a whole night free to sew, read, paint or take-up a night school subject.

- participating in and enjoying ham events, using the opportunity to meet new friends.

- inviting his whole family over, when another ham visits your husband. A social night for everyone, even if it's only the one time.

- being thankful that he is home (in body if not in mind), rather than skiing, out on a golf course all day, or out drinking, all of which cost more in the long run.

- having a home to visit when you are travelling - be it to a Caribbean island or a foreign country. Spot an antenna, knock on the door, and you most always can expect a welcoming word after your introduction.

- thinking that we should be proud that our "hams" are doing their best to promote good words, deeds, and un-prejudiced communication with countries, both free and otherwise.

A toast to our amateur radio operators. CHEERS!!

- An anonymous XYL

(Credit: Nortopics)

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In Canada we have enough to do keeping up with the two spoken languages without trying to invent slang, so we just go rite ahead and use English for literature, Scotch for sermons and American for conversation.....Stephen Leacock.

SWAP SHOP

- VE3IBF Tom Story 844-5943  
- HR-10B Rx, DX-60 Tx & HG-10 VFO c/w T-R Relay \$200
- VE3ISB Blair Macualay 844-7232 (Oakville)  
- Collins KWS-1 1 KW SSB-CW-AM Transmitter  
- " 75A4 Receiver  
- Package \$1200
- VE3DSW Pete 935-6732 St. Cath.  
- Heathkit HW-2021 2 meter portable c/w nicads, T.T. Pad \$230
- VE3COE Don 742-5005 Kitchener  
- Apache Tx with SB-10 Adapter & T-R Relay \$175
- VE3IXD Gunther 578-3318 Kitchener  
- Qty of T.T. KeyBoards \$6.00 ea. needs I.C.  
- IC-230 XCVR 2 meter FM \$450  
- R.F. Engineering Amplifier 10W - 50W \$80
- VE3QM Dan 223-4635 (T.O.)  
- Heavy Duty Power Supply for KW Linear, 2 KV @ 1Amp, choke input, Regulator 300V screen supply, oil filled Caps., Hvy Duty Hammond Xformer \$75.00
- VE3BOL Derek 277-3501 (Mississauga)  
- Hammurand HQ-170A Rcvr. Has intermittant problem on 10 & 15 meters c/w 2 & 6 meter converters \$170
- VE3EC Bill 637-5581  
- Johnson Ranger Tx, 160 - 10 meters, built in VFO, 75 Watts CW input \$125
- VE3IXD Gunther 578-3318 Kitchener  
- Univac Keyboard \$35  
- Bell & Howell 4 track tape recorder \$100
- VE3HZA Ernie 385-2540  
- Syscom Commander I, 2 meter FM rig, c/w AC & DC Power Supply, includes crystals for 6 channels & mobile mike \$100 **SOLD**
- VE3FBU Jim 385-6142  
- Viking II Tx c/w VFO & Manual \$100  
- TH-4 Thunderbird Triband Beam with thrust bearing \$200
- VE3EBF Brian 560-9036 (8 - 5 only)  
Multi-2000 2 meter Xcvr, AM $\frac{1}{2}$ FM $\frac{1}{2}$ SSB $\frac{1}{2}$ CW \$495  
- Viking Ranger Tx \$75  
- HP-10 supply for cheynne or Pawnee rigs \$10.00
- VE3HJU Peter 533-9954 Toronto  
- Heathkit Desk Mike HDP-21A \$45
- VE3FHQ Glenn 385-2786  
- DX-100 Tx with manual \$75
- VE3EGT Les 547-2717 or VE3FHQ  
- G.E. 4 chan. Freq. Deck, Prog-Line \$35.00 Type: PL777G221GC

SWAP SHOP CONT'D

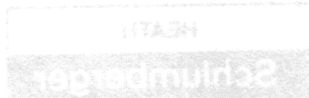
VE3ILK Larry 826-2925 Streetsville  
 -Yaseau FRDX-400 Rx c/w 2 meter converter  
 - " FLDX-400 Tx c/w mike  
 - Package \$850.00

The following items are from the Estate of Arnold Waters. He was an active Amateur, who operated a Radio-TV business in Hamilton. All items are as is, and all pieces of equipment include a manual. If interested, please contact Mrs. Waters 389-8310, Stan VE3GFE or Norm VE3CZI before going to see the eqpt. to avoid a needless trip.

- Two ECHO HS-108 Stereo headsets \$8 - \$10 ea.
- GEM Cubical QUAD, Brand New, was assembled, but accidently had one leg broken, but is repairable \$50.00
- Tapered Delhi M.D. 25 ft. tower c/w Homebrew Rotor & indicator, and thrust bearing on tower. Tower tilts from hinged base. \$50.00
- 2 meter Yagi \$2.00
- Stark Model VT-9 VTVM 9" meter scale, gud for servicing, checks cap., inductance, & current. \$25.00
- Precise universal AF sine-Square & pulse Generator Model 635 \$25.00
- Tenco V.O.M. Model X-120 20K ohms/V \$10
- ITI V.O.M. Model M-430 30K Ohms/V \$25
- Stark Pocket VOM Model PD-3 \$10
- Heathkit VOM Model MM-1 \$5.00
- KEW-6610 multimeter VOM 20K ohms/v in case \$10.00
- Sanwa VOM Type P-3 \$5.00
- Mercury tube tester Model 1100C, in case c/w data \$30.00
- Leader Electronics Color Bar Pattern Generator Model LCG-389 \$150
- Eico Resistance Decade Box Model 1171 \$10
- B&K Model 465 CRT Tester c/w manual \$75.00
- Secore Transit Master Transistor Tester c/w manual \$15 - ~~XX~~ \$20
- Eico Model 944 Transformer & Yoke Tester \$20.00
- Paco Model C-20 Resistance Capacity Ratio Bridge \$35.00
- Stark Model 10A RF Signal Generator, 93 KHz to 144 MHz, \$20.00
- Rider Chanalyst signal tracer \$15.00
- Dozens of speakers, all sizes, shapes \$1.00 to \$5.00 each
- 2 only Superior Stereo Speakers Model S6917 20 watts 8 ohms \$10.00 each
- Various Clock radios and pocket radios. Brand New
- Tenco Model 9070 Dynamic Microphone. Brand New \$15.00
- Dynatronics Model S-824 8 Track Car Stereo Tape Player. NEW \$25.00
- Assorted parts & components, wire, etc. as would be accumulated in an electronics workshop.

Swap Shop WANTS

VE3ISH Dennis is looking for a mic suitable for use on FTDX-400



## NEW HEATHKIT HW-201 HANDHELD TWO-METER TRANSCEIVER — a great value in personal and emergency communication gear



Compare the HW-201 with any other handheld two-meter transceiver. In value and performance, we think you'll agree it's unsurpassed.

A top-mounted knob selects any of five crystal-controlled channels—we even include a crystal for 146.94 to get you on the air fast. And, to save money, a single crystal controls both transmit and receive! A simplex/offset switch and —600 kHz crystal actually give two transmit frequencies for every crystal you buy—just like having a 10-channel transmitter! The transmitter output is one watt minimum with

0.005% (or better) stability. Frequency modulation and a separate built-in mike provide a better signal. The receiver features 0.5  $\mu$ V sensitivity for 12 dB SINAD and a squelch threshold of 0.3  $\mu$ V or less.

The HW-201 comes with built-in nickel-cadmium batteries and a separate AC charger. The battery-saver circuit uses a pulsing technique to extend the battery life by 75% in the standby/receive mode.

To make the HW-201 an even better value, we've included accessories worth up to \$60—a crystal for 146.94 MHz, a —600 kHz offset crystal, a flexible "rubber duckie" antenna plus an output for an external antenna, a built-in nickel-cadmium battery pack and a separate AC charger. And you get them all at no extra cost when you buy the HW-201.

For personal and emergency communication, the optional HWA-201-3 Auto-Patch Encoder accesses telephone lines through repeaters with touch-tone input. The 12-digit keyboard and keying light mount directly on the front of the transceiver. You can add the encoder when you build the transceiver or later.

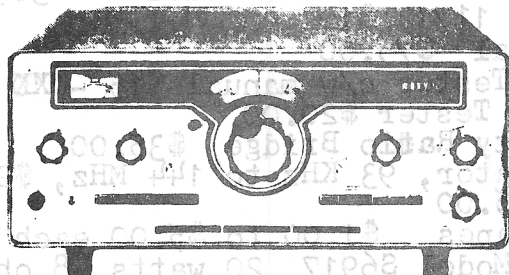
Finally, the HW-201 is both compact and lightweight—it weighs just two pounds, including batteries! The HW-201 and HWA-201-3 are not difficult to build, but, due to compactness, some soldering experience would be helpful. Alignment requires only a VOM or VTVM.

Kit HW-201, Handheld Transceiver . . . . . 239.95

Kit HWA-201-3, Auto-Patch Encoder . . . . . 54.50

HWA-201-2, Carrying Case . . . . . 17.50

## NEW HEATHKIT HW-104 CW/SSB TRANSCEIVER—



The same basic circuitry as our top-of-the-line SB-104. The new HW-104 is 100% solid state—cool and quiet—with an output you can instantly switch from 100 watts to 1-watt. Its coverage extends from 3.5 to 29.0 MHz. And, if you need the top end of 10 meters, add the optional HWA-104-1 accessory. Its coils and filters fit onto the "104's" existing circuit boards and take you up to 29.7 MHz.

The HW-104's performance is superlative. Transmissions are clean and crisp—at 100 watts third-order distortion is 30 dB down and unwanted sideband suppression is 55 dB. In the receiver, broadband design virtually eliminates adjacent signal overload, yet sensitivity is less than 1  $\mu$ V. And because cross-

modulation and intermodulation have been dramatically reduced, signals seem to "pop out" of a quiet background.

15 MHz WWV position on the bandswitch, a 15 kHz per turn spinner, 5 kHz markings on the circular dial, 100 kHz/25 kHz calibrator for accuracy to 2 kHz, 12 VDC powered and the optional noise blanker provides up to 50 dB effective blanking. For base use, buy the optional HP-1144 AC Power Supply. Plug-in electronic circuit boards and two wiring harnesses simplify construction. Alignment requires only a VTVM, mike and dummy load.

Kit HW-104, Transceiver . . . . . 799.95

Kit HWA-104-1, 10-M Accessory . . . . . 27.50

Kit HP-1144, AC Power Supply . . . . . 139.95

Kit HS-1661, Matching Speaker . . . . . 29.95

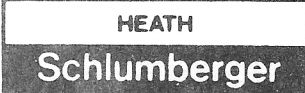
Kit SBA-104-1, Noise Blanker . . . . . 34.50

Kit SBA-104-2, Mobile Mount . . . . . 47.50

Kit SBA-104-3, 400 Hz CW Crystal Filter . . . . . 66.50

**MONTREAL, QUEBEC H2M 1H1**  
795 Legendre St. E. Phone 514-384-91

**OTTAWA, ONTARIO K1Z 5Z6**  
866 Merivale Rd. Phone 613-728-3731



**MISSISSAUGA, ONTARIO L4X 2R7**  
1480 DUNDAS HIGHWAY E., 416-277-3191

**EDMONTON, ALBERTA T5E 4C2**  
12863-97th Street Phone 403-475-9331

**VANCOUVER, B.C. V5R 5J7**  
3058 Kingsway Phone 604-437-7626

REGISTRATION FORM

The Hamilton Amateur Radio Club meets on the THIRD Weds of each month, except July and August, at the Chedoke Continuing Care Centre, in the Cafeteria, at 8:00 P.M.

The Bulletin is published every month except July and August. Deadline for copy is the first Monday of each month.

Requirements of membership: an interest in Amateur Radio

Dues are \$6.00 per year (all classifications) and run from January 1 to December 31 and includes use of the repeater VE3DRW

Please send in this form with your dues.

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HAMILTON AMATEUR RADIO CLUB INC.  
MEMBERSHIP APPLICATION FORM

NAME: \_\_\_\_\_ CALL: \_\_\_\_\_  
ADDRESS: \_\_\_\_\_  
CITY: \_\_\_\_\_ PROV: \_\_\_\_\_ POSTAL CODE: \_\_\_\_\_  
PHONE: \_\_\_\_\_

Class of License:            Amateur  
                                   Advanced Amateur

- \* - \* - \* - \* - \* - \* - \* - \* - \* - \* - \* - \* - \* - \* - \* - \* - \* - \* -

New Member:                 
Renewal Membership:   

Do you need a membership Certificate:    YES    NO

Do you need a Certificate Renewal Sticker:    YES    NO

SIGNED: \_\_\_\_\_ DATE: \_\_\_\_\_

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