

**SODOM AND THE AMATEUR BANDS:**

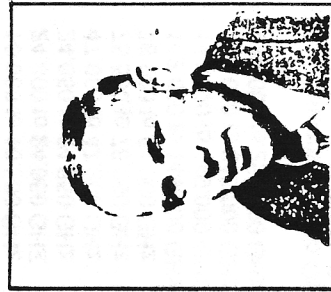
It was Abraham who persuaded God to set aside the Amateur Bands, way back in the early days. God was fed up with all the nasty goings on in Sodom, and he had a mind to destroy the city and all in it. Abe thought this wasn't fair, as long as there were still a few righteous people there. In those days kilohertz, and even kilocycles, were unheard of. There weren't any frequency counters, and the bands were known only by their metres. This was all pre-WARC, and the band plans were less rigid than they are today.

The discussion went something like this: Abe: "Peradventure there be 50 righteous within the city. Wilt thou destroy and not spare the place for the 50 righteous?" God: "If I find in Sodom 50 righteous, then I will spare all the [band] for their sakes." (They both really mean the 49m band). Abe: "Peradventure there shall be 40 found there?" God: "I will not do it for 40's sake."

(He also said he would keep broadcasters out) Abe: "Peradventure there shall 30 be found there?" God: "I will not do it if 30 be found there." (He anticipated WARC by a few thousand years) Abe: "I have taken upon me to speak unto the Lord: God: "Peradventure there shall be 20 found there?" Abe: "I will not do it, for 20's sake." God: "Let not the Lord be angry, and I will speak but this once: Peradventure 10 shall be found there?" God: "I will not destroy it for 10's sake." And the Lord went his way as soon as he had left communing with Abraham. And Abraham returned unto his QTH

THUS IT WAS THAT THE LORD, THE RULER OF THE HEAVENLY SPECTRUM, THE INVENTOR OF THE 11-YEAR CYCLE AND MANY OTHER COSMIC WONDERS, PREPARED THE WAY FOR GENERATIONS OF HAMS TO COME

Let us "shun profane and vain babblings" when we are on the air.



**Fred J. Robinson**  
Associate Broker



Royal LePage Real Estate Services Ltd.

**VE3GCP**

25 YEARS CONTINUOUS SERVICE TO H.A.R.C.  
18 YEARS AS A HAMILTON & AREA REALTOR  
PHONE: OFFICE 387-2424, RES. 575-5197

**The**

**Hamilton**

**Amateur**

**November 1990**

(Established 1932)

**VE3DPC**  
**Frank Gue**  
**Emergency**  
**Planning**

What's happening in the Hamilton-Wentworth Region with the Red Cross and the Ontario Provincial Police  
**Meeting: 21 November 1990**  
**2000 hrs**  
**Nash Auditorium**

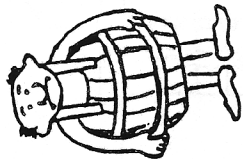
**HARC EXECUTIVE FOR SEPTEMBER 1990:**

PRESIDENT: Jim Walsh 689-6939  
PAST PRESIDENT: Mike Spenuk 529-1603  
VICE PRESIDENT OPNS: Keith Johnson 547-5801  
VICE PRESIDENT ADMIN: Cliff Toohar 628-4131  
SECRETARY: Stuart Fedak 388-2940  
TREASURER: Norm Sanger 547-1960  
MEMBERSHIP: Ron Hattas

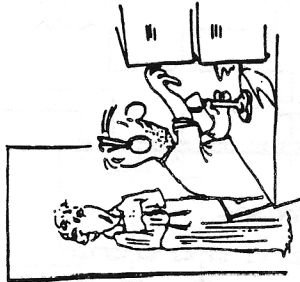
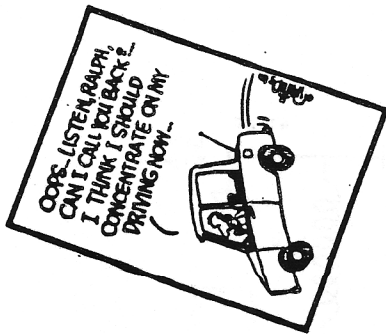
**HARC COMMITTEE CHAIRPERSONS FOR 1990:**

AWARDS & CONTESTS: VE3AAH 383-9161  
HISTORIAN: VE3BLG 383-7338  
PROPERTY: VE3ANB  
BULLETIN EDITOR: VE3SON 689-6939  
EDUCATION: VE3EYK 527-7175  
EMERGENCY COORD: Paul Hazen (416) 984-4345  
FIELD DAY COORDINATOR: VE3TJL 547-5801  
FLEA MARKET: VE3NYC 984-4345  
HEALTH & WELFARE: VE3GFE 528-4002  
PROGRAMS: VE3DKJ 560-1960  
PUBLIC LIASON: VE3GCP 575-5197  
HOSPITALITY COORD: SWL 385-2789  
CHRISTMAS DINNER PLAN: VE3OQG 578-1789  
SWAP NET CONTROL: VE3DKJ 529-1603  
REPEATER: VE3OCY 560-1960  
TECHNICAL: VE3OCY 560-1960  
VE3DC LICENCEE: VE3FHQ 385-2786  
VE3NCF LICENCEE: VE3OCY 560-1960  
VE3RCB LICENCEE: VE3NYC 984-4345  
Gordon Barber 383-9161  
George Olenick 383-7338  
Richard Leah  
Jim Walsh 689-6939  
Bernie Granby 527-7175  
Paul Hazen (416) 984-4345  
Cliff Toohar 547-5801  
Stan Bolibruch 984-4345  
Keith Johnson 528-4002  
Fred Robinson 560-1960  
Gerald Crawshaw 575-5197  
Flori Manga 385-2789  
Keith Johnson 578-1789  
Don Graziano 529-1603  
Don Graziano 560-1960  
Glen Gibson 560-1960  
Don Graziano 385-2786  
Paul Hazen (416) 984-4345

**HAM HUMOUR**



But my new rig was the cheapest I could find.



at noisy squawking-  
s up at 3 a.m.



**Notes from HARC - I**

**The November HARC Meeting**

The next club meeting will be held in the Nash Auditorium, Chedoke Hospital at 8:00 pm, on November 21, 1990. The guest speaker will be Frank Gue, VE3DPC. His topic is Emergency Planning, with a focus on what is happening in the Hamilton-Wentworth Region, with the Red Cross and with the Ontario Provincial Police. He will also be making available the circuit diagram of his "Connect Anything to Anything Box" Frank has mentioned he will be using a "Secret Weapon".(???)

Tentatively scheduled also is a short presentation by the committee responsible for the Hamilton Brier 91. They are looking for volunteers to assist with communications for this very impressive event in March 91. Contact Fred Robinson VE3GCP at 575 5197 for

**The Hamilton Amateur  
Advertising Rates - 1990**

Issue	Year	1/4 Page	1/2 Page	Full Page	
\$15.00	\$75.00	\$20.00	\$100.00	\$25.00	\$150.00

Sizes are based on an 8.5 x 11 inch page reduced to 4.25 x 5.5 inches (approx). Arrangements can be made to produce your artwork or you can provide camera-ready copy. Note that there will be extra charges if you provide the paper (Originals are photo-reduced and printed as part of the Bulletin).

**President's Message**

Congratulations to Cliff VE3TUL and his Field Lay crew. Our club stood fifth in Canada with 5258 points, South Pickering with 7432 points gives us something to shoot at.

Last meeting we had a good turn out for our visit to CH&L studio and transmitter sight. I saw quite a few drooling at some of the equipment. What is more important we learned quite a lot.

Recently Paul VE3NYC and I attended a meeting of the Red Cross Emergency Services Committee. We were asked if we could provide a list of amateurs capable of providing translation services if required. Please give your name and language(s) to any member of the executive so we can give this information to Paul to coordinate with the Red Cross.

Jim VE3SOB

The Swap Shop: For Sale - 2

VE3MWG ROLY, 547-0546  
 o YAESU FT107 SSTATE HF RIG ALL BAND+WARC, 10 MEM, BUILT IN PS, YAESU  
 MD1 SCANNING MIKE, SP102 SP PHONE PATCH, FV107 OUTBOARD VFO,  
 OP-SHOP MANUALS \$950 WONT SPLIT UP

RED CROSS BLOOD DRIVE

Thursday, November 29 from 6.00 pm to 9.00 pm there will be a training session for the Red Cross Hamilton Branch response team volunteers and those interested in being a member. The team assists the fire department in taking care of fire victims at the time of a fire. Volunteers are needed for night time and/or weekends. Fire training on the 29th will be provided by the Red Cross and the fire department.

If you are interested please call Jessica Brennan at the Red Cross at 522-8485.

//////////

Notes from the Executive Meeting

Four members volunteered to be Deleated Examiners for amateur radio. All were approved for submission to Communications Canada.

The December meeting will be a dinner at the Plainsman restaurant, on Highway 5 west of Highway 6 near Sydenham Road. They have a four course buffet of over 100 items which is considered one of the best. The date is Wednesday December 12 at 6.30 pm. The cost is \$17.65 each including tax and gratuity. We will need an estimate of how many will attend so a show of hands will be taken at the November meeting. If not counted then please phone one of the executive by Lec. 5.

Richard VE3JNE was appointed Property Chairman, he are looking for a Flea Market Chairman, to replace Paul VE3JYC who agreed to be assistant. Paul has reserved the hall for next September.

The club has received some equipment from the estate of Lewis VE3EJO who passed away a few years ago. That can not be used by the club will be listed or the swap net.

16. Make sure that all the wiring is correct and that the PVC tubing is assembled properly. Apply power to the unit and connect a cable from the output connector to a suitable FM receiver. Make a preliminary test to determine that the unit is functioning as intended. Test both modes, if so equipped, before proceeding with the final assembly. If the proper audio null is not obtained, reverse one dipole antenna assembly. The dipoles should be oriented such that the sections are connected to the coax centre conductors are both facing in the same direction, preferably upward when held upright.

17. Apply a small amount of silicone sealer to the ends of the dipole elements to hold them in place. Put the four PVC caps on the ends of the dipole tubes. Make sure that all PVC tubes are firmly seated in their respective connecting fittings. Align the dipole sections so that they are parallel to each other and perpendicular to the cross pieces. Apply a small amount of instant glue to all joints to hold them in place. If alignment is still correct, apply sufficient glue to all joints to provide a permanent assembly. Seal all openings of the aluminum box with silicone sealer to prevent water and moisture from getting in. Pay particular attention to the area around the holes in the PVC Tee and the aluminum box where the dipole feed cables come through. The completed assembly may now be sprayed with a clear acrylic lacquer to provide additional moisture protection. The unit is now complete and ready for use.

PARTS LIST

- |     |   |
|-----|---|
| QTY | ITEM  |
| 1   | 7805 78L05 voltage regulator (any 5v positive 100mA or greater) |
| 1   | 74LS04 TTL hex inverter   |
| 1   | NE555 Timer IC  |
| 2   | 1N914 Silicon high speed switching diodes                       |
| 1   | 1N2069 Silicon diode (any 50 volt PIV @ 100mA or greater)       |
| 2   | 1 K ohm 1/4 watt resistors                                      |
| 1   | 75 M ohm 1/4 watt resistor                                      |
| 3   | 470 pf MICA capacitors  |
| 2   | 0.001 uf 50 volt disc capacitors                                |
| 3   | 0.01 uf 50 volt disc capacitors                                 |
| 2   | 0.1 uf 50 volt disc capacitors                                  |
| 1   | 10 uf 30 volt tantalum capacitor                                |
| 3   | 1 uH RF inductors   |
| 1   | DPDT centre off switch  |
| 1   | 9 volt battery and suitable connector/holder                    |
| 16" | (41 cm) 50 ohm coax cable                                       |
| 4   | #12 copper wire 19.2" (48.75 cm)                                |
| 10' | Aluminum box 2-3/4 x 2-1/8 x 1-5/8" (7x5.5x4 cm)                |
| 3   | (305 Oh) PVC tubing diameter 3/4" (1.9 cm)                      |
| 3   | CPVC 3/4" (1.9 cm) TEE  |
| 4   | CPVC 3/4" (1.9 cm) CAP  |
| 1   | Tube silicone sealer  |
| 1   | Can PVC glue  |
| 1   | Antenna connector (for coax to radio)                           |

## FROM THE BULLETIN BOARDS - I

### HR BULLETIN 30 (PACKET CRLE030) FROM CRRL, LONDON, ONTARIO, 1990 OCTOBER 21, TO ALL RADIO AMATEURS

The coax cable used to feed the dipoles can be any 50 ohm type with a smaller diameter being preferable for ease of handling. The important point to remember is that both cables must be identical in length.

When assembling the dipole elements to the cross boom, make sure that they are oriented properly. This means that both sections that are connected to the coax centre conductors must face in the same direction and cannot be reversed from one another.

The electronic switch should be housed in an aluminum box which is firmly attached to the centre of the cross support between the dipoles. The box must be made of a metallic material to provide the required circuit shielding. It should be sealed with silicone sealer at all openings to prevent water from getting in. An appropriate RF type connector (BNC or UHF) should be installed on the outside of the box to allow for connection of the receiver/transceiver transmission line.

The battery used to power the switch can be a small 9 volt transistor radio type. It should be mounted on the outside of the box to allow for simple replacement without the need to unseal the box. This battery, if of the alkaline type, can be expected to provide up to 36 hours of continuous service.

The three 1 microhenry RF chokes can be made by filling up a 1 M ohm 1/2 watt resistor with #28 enameled wire. Spraying with an acrylic lacquer after winding will hold the wire in place. Ferrite beads can also be used of winding your own chokes. Make sure you use enough to equal one microhenry.

An LED pilot light in series with a 4.7 K ohm resistor can be installed if a visual "power on" indication is desired. This feature will however reduce battery life by approximately 10 percent.

The support mast may be made of either metal or wood, depending on what you may have available. It should be long enough to allow the antenna array to be held comfortably above the operators head while in use. If a compass is mounted on the support mast while taking bearings. If a compass is mounted on the support mast for ease in determining bearings, the mast must obviously be made of a non-ferrous material.

#### CONSTRUCTION DETAILS

1. Cut the following lengths of CPVC tubing and set aside for use later.
  - 1 ea. 1-3/4" (4.45 cm)
  - 2 ea. 3-5/8" (9.20 cm)
  - 4 ea. 18-1/4" (46.35 cm)
2. Cut 4 pieces of 19.2" (48.75 cm) long #12 bare copper wire and set aside for use later.
3. Cut the following lengths of 50 ohm coax cable
  - 1 ea. 3-1/2" (8.90 cm)
  - 2 ea. 6" (15.25 cm)

#### Item 1:

The CRRL-CARF Merger Committee met in Whitby, Ontario on October 14. The constitution for the new single Canadian Amateur Radio organization was updated using comments received from both boards of directors. Plans were discussed to hold the 1991 CARF Annual General Meeting and the 1991 Meeting of the CRRL Board of Directors in a common location in June, 1991. These meetings would be followed by a joint meeting of the CRRL and CARF boards of directors. Plans were also discussed to set up committees to advise the new organization's board of directors on administrative structure, field organization, finances, headquarters, staffing, and publications. The Merger Committee will meet again in early December.

#### Item 2:

CPC (Client Procedures Circular) 2-0-03, Municipal Consultation on Non-Broadcasting Antennas, has already begun to cause trouble. An amateur in Quebec who contacted a local DOC office about a simple address change was told that his licence was "suspended" (not even mobile or portable operation) until he complied with the terms of CPC 2-0-03. The amateur contacted officials of RAQI, the Quebec provincial organization, who contacted DOC in Ottawa. Ottawa officials were astonished to learn that the CPC had been applied in this way, and of course, the amateur is now back on the air. CPC-2-0-03 is so poorly crafted that it lends itself to all kinds of interpretations and arbitrary decisions. CRRL believes that the Amateur Radio community can convince DOC to abandon or extensively modify the CPC, but it will likely take a massive letter writing campaign to the Minister of Communications to do this (no petitions, please--these carry no weight at all). CRRL will publish the full text of the CPC in December QST Canada, along with some guidelines on how to conduct the campaign.

#### Item 3:

ARRL has sent letters to all repeater coordinators --including those in Canada--requesting assistance in updating its database for the ARRL 1991 Repeater Directory. If you live in an area that is not served by a repeater coordinator, please send your repeater information to CRRL. Include name of sponsor, callsign, location, and input/output frequencies. CRRL will act as a clearing house for this kind of information, use it to update its own database, and forward the information to ARRL.

#### Item 4:

A VE7 amateur has determined that the 6-kHz maximum bandwidth allowed by deregulation on 160-12-metres will accommodate 1200-baud packet operation. Officials of CRRL and CARF have been in contact about this proposal. They believe that 1200-baud packet operation on the HF bands could initiate a chain of events that, ultimately, could impact negatively on Canadian amateurs. They are asking that Canadian amateurs not operate 1200-baud packet on the HF bands until the CRRL and CARF form a band planning committee and the matter has been studied. AR



**FROM THE BULLETIN BOARDS - 2**

**COMING EVENTS TO ACCOMPANY BULLETIN 30:**

ARRL November Sweepstakes - phone  
CQ WW DX Contest - CW

November 17-19  
November 24-25

73, DE VE3GRO @ VE3GYQ, CRRLL, BOX 7009, STATION E, LONDON, ON N5Y 4J9

**CARF NEWS BULLETIN 16-90 - 15 October 1990**

Issued at CARF Headquarters P.O. Box 356 Kingston Ontario K7L 4W2  
Editor: Bernard H. Burdsall VE3NB

**ITEM 5**

**CORRECTION - PLEASE NOTE -** Defence of Amateur Radio Fund (DARF) donations should be sent to: Tim Eilam VE6SH, 107 Strathearn Rise SW, CALGARY, Alberta, T3H 1R5. To date there is over \$7,000 in this fund. The ARRL has initiated a fund raising drive to add to their \$600,000 kitty to finance the U.S. Amateur Radio effort at WARC-92 in Spain. It is expected there will be pressure to expand SW broadcasting at the expense of the 40 metre band in our Region 2. Have you donated to DARF? What about your club? It is essential that a Canadian Amateur be sent to WARC-92 and WARC-93 to safeguard our interests and this costs lots of money. Isn't your hobby worth protecting?

**ITEM 11**

**AN EXTRACT from Communications Canada RIC-25, ISSUE 2: Rules and Regulations Affecting the Amateur Service (Provisional) - INTERCOMMUNICATION**

47. No operator of an Amateur station shall

- (a) communicate with radio stations other than stations licensed in the amateur service;
- (b) use a secret code or cipher; or
- (c) transmit
  - (i) music,
  - (ii) commercially recorded material, or
  - (iii) material originating from a broadcast undertaking.

**ITEM 18**

**CARF AID, Schedule II, shows an impressive frequency range: from MF through HF, VHF, UHF, SHF, and EHF, which is available for experimentation and communication.**

**CARF AID**

**RULES AND REGULATIONS AFFECTING THE AMATEUR SERVICE (PROVISIONAL)**

**RIC-25, Issue 2 SCHEDULE II (ss 51-56)**

from the Windsor Radio Bulletin.

**A TWO ELEMENT DOPPLER DF SYSTEM**

If there is ever a need to locate an unknown station, whether it be for fun during a fox hunt, or in a more serious context to find the source of some interference on the amateur bands, a direction finding antenna is a must. The following article describes the construction of a quite sophisticated but inexpensive antenna for this purpose. It is based on a design by Tom Feilerabend for use by the U.S. Coast Guard Auxiliary in finding vessels in distress, modified for 2 metre operation.

The setup consists of an electronic switch that alternately connects one of two half wave dipoles to a VHF-FM receiver. The switching speed is set to approximately one millisecond. No internal modifications to the receiver are required. The switch effectively moves the antenna back and forth between two locations.

When switched to the antenna closer to the source of RF the carrier frequency appears to increase. The opposite effect occurs when the antenna further from the source is switched in line. This effectively frequency modulates the RF at the rate of the switch, thus generating a 1000 Hz tone that can easily be picked up with a simple FM receiver. When the antenna system is rotated such that each antenna is equidistant from the source, the tone disappears. This will occur when the antenna is at right angles to the source. Rotating the array an additional 90 degrees at this point will cause the signal to be a maximum. The system also functions as a two-element beam with an approximately 5db front to back ratio. Hence the 180 degree ambiguity in source direction can be resolved by looking at relative signal strengths along the line of maximum audio, in both directions. A few experiments with standard sources will enable you to determine which end is front. I suggest you mark it when you find it. Element spacing is not critical. Any value between 1/8th and 1/4 wavelength is suitable. A wider spacing causes a larger deviation and hence a louder tone at the receiver.

A small 9v transistor battery will provide over 36 hours of use and ALL parts are readily available at wops, Radio Shack or hardware stores. If PIN type diodes are used in place of the switching diodes shown, the system may be used for transmitting. The unit functions best if the dipoles are oriented such that the sections connected to the coax centre conductors are both facing in the same direction, preferably upward when held upright.

If use in marine, or all-weather environment is anticipated, it is recommended that the antenna elements be housed in PVC tubing and fittings. Either 1/2" (1.25 cm) or 3/4" (1.9 cm) may be used, but the larger size is recommended for wider spaced units to provide the required rigidity. All fittings should be sealed with PVC cement to prevent moisture from getting in. The instructions below assume this option is being taken.

The dipole elements can be made from #12 - #16 bare copper wire. They are separated by 1/2" (12.5mm) at the point of connection to the coax cable. After soldering the coax to the elements the connection can be waterproofed and held in place by applying silicone sealer around the joint inside the PVC tee.

The Swap Shop: Wanted - 1

- To list items:** VE3NCF (146.76) Tuesdays 8 pm,  
OR Call Ralph (VE3BYM) 388-6146 or Keith VE3DKJ (autodial 19),  
OR leave message on the VE3DC Packet BBS (145.590 MHz).
- VE3ANB RICH, 547-8192**  
o INFO ON TR4-A ROTOR OR ANY 5  
TERMINAL ROTOR
- VE3ITS MIKE, 560-7065**  
o YAESU SP102 OR SP102P SPEAKER
- VE3AOP AL, 416-827-2579 OR 147.015**  
OAKVILLE  
o ACCESSORIES FOR KENWOOD  
TR2500  
o TNC \$REASONABLE
- VE3HPD VIC, 385-2662**  
o 5/8 VERTICAL 2M ANTENNA FOR  
TOWER MOUNTING
- VE3PVB RON, 572-9906**  
o OUTSIDE 2M ANTENNA FOR HIGH  
MOUNTING, LENGTH SMALL DIA.  
RG58 COAX WITH CONNECTORS
- VE3OHG DAVE, 368-0916 TORONTO**  
o KANTRONICS UTU OR XTU FOR RTTY
- VE3ATW ROGER, 388-9142**  
o SM8 OR SM10 MIKE FOR ICOM
- VE3NYX RENZO, 521-1064**  
o DESK CHARGER FOR ICOM 2AT
- VE3UNI JOHN, 575-0784**  
o OLDER MOBILE MIKE WITH DTMF  
PAD WORKING OR NOT  
o HV XFORMER 700 OR 1200V WITH  
TWO 6.3V TAPS
- VE3CRB JOHN, 416-244-1292 DOWNS-  
VIEW**  
o COLLINS ACCESSORIES, FILTERS  
(MECHANICAL, CW, AM, SSB) FOR  
75S3B TRANSMITTER AND 32S1 RE-  
CEIVER  
**JERRY, 544-7770**  
o SUBSCRIPTION CARD TO QST
- VE3EWN c/o VE3GFE STAN, 528-4002**  
o INEXPENSIVE OR DONATIONS OF  
USED CB EQUIPMENT, 23CH OK,  
FOR JAMAICA EMERGENCY USE
- VE3WAK CHRIS, 639-1444**  
o COLLINS KWM-2 RECEIVER
- VE3TNW TONY, 526-6154**  
o ANTENNA NOISE BRIDGE
- VE2 c/o VE3LMS GRANT, 575-7293**  
o ALL BAND XMITTER LIKE DRAKE T4
- VE3LRL LARRY, 574-1805**  
o INFORMAON OR OP MANUALS FOR  
KW108 MONITOR SCOPE OR KW110  
Q MULTIPLIER
- VE3EGT LES, 547-2717**  
o 50' 450 OHM LADDER LINE

- 4 Prepare the ends of the coax cable by stripping off 1/2" (1.25 cm) of outer insulation. Then separate the braid and centre conductor. Now strip off 1/8" (0.3 cm) of centre conductor insulation, twist the wires tightly together and tin the centre conductor. Twist the braid strands together and tin lightly the first 1/8" (0.3 cm). Prepare all cable ends in the same manner. Lay the 3-1/2" (8.9 cm) prepared cable aside for use later.
- 5 Solder one end of a prepared 6" (15.25 cm) coax cable to two pieces of 19.2" (48.75 cm) bare copper wire in such a manner that the centre conductor is connected to the end of one piece of wire and the braid is connected to the other piece. Place the assembly into a PVC Tee so that the copper wires run through the Tee and the coax comes out the centre opening. Now slide two lengths of 18-1/4" (46.35 cm) PVC over the antenna elements and into the openings of the Tee. While keeping the two ends of the copper wire apart by about 1/2" (1.25 cm), apply a small amount of silicone sealer to the junction to hold it in place. Carefully set the assembly aside, making sure that the copper ends are not touching each other. Mark the copper wire that is connected to the coax centre.
- 6 Repeat step 5 using the remaining two 19.2" (48.75 cm) pieces of copper wire and prepared 6" (15.25 cm) coax cable.
- 7 Assemble the switching circuit according to the diagram enclosed.
- 8 Prepare the aluminum box by drilling the required holes for the antenna (receiver) cable connector, switch, dipole antenna cables and mounting screws. The cover of the box should be drilled for the battery holder, if used, at this time.
- 9 Drill the required cable holes, (lining them up with the holes in the aluminum box), in the remaining PVC Tee.
- 10 Mount the aluminum box to the PVC Tee prepared in step 9, using small self tapping screws.
- 11 Place the short, 3-5/8" (9.2 cm) sections of PVC tubing over the ends of the dipole coax feed cables and into the PVC Tee openings of the assemblies completed in steps 5 and 6.
- 12 Feed the ends of the coax cables into the centre Tee and up through the holes in the aluminum box. Solder the cables to the correct points on the switch circuit.
- 13 Place an insulating material (thin cardboard or tape in the bottom of the aluminum box to prevent the circuit board from shorting to the box.
- 14 Lay the circuit board down in the box, being careful to not break off the coax cables just soldered to it.
- 15 Complete the circuit board wiring to the components mounted on the aluminum box.



# THE HAMILTON AMATEUR RADIO CLUB

BOX 253 Hamilton Ontario Canada L8N 3C8.

## CLUB MEETINGS:

8:00pm on the 3rd Wednesday of each month, except for July & August (special arrangements are often made for the December meeting as well), in the Nash Auditorium, Chedoke Hospital. Non-members & friends are welcome - coffee and donuts on the house!

## EXECUTIVE:

Meets at 1930 on the fourth Wednesday of the month, except June & July, in the Radio Room, Red Cross, 400 King Street East.

## STATION:

An emergency radio station is maintained in the RED CROSS, HAMILTON BRANCH (400 King East).

## MEMBERSHIP:

\$25.00 per year with a common renewal date of September 1. Included is a subscription to the club bulletin. Additional Family Memberships (no bulletin) \$1.

## EDUCATION:

Informal meetings may be held in the Radio Room, Red Cross Building 400 King St East to help those who want to take their Amateur Licencing tests. Call Bernie, VE3EKY, for more information.

## REPEATER:

VE3NCF. Located on the Hamilton escarpment it is available for use by any amateur. Input: 146.16 Mhz. Output: 146.76 Mhz. Part of the VE3RPT Link system. Contact a member of the Club Executive for information concerning Emergency use, Autopatch, Mail-boxes, Links etc.

## FIELD-DAY:

HARC operates a multi-station site during Field-Day. Contact chairman Cliff Toohar for information. His number can be found on the front page.

## SWAP-NET:

Every Tuesday at 8.00 pm on VE3NCF (146.76/16) except during July & August. Contact Keith, VE3DKJ if you have items to buy or sell. Swap Shop listings are also available on the club's packet bulletin board station VE3DC operated by VE3JSJ on 145.590 FM.

## FLEA-MARKET:

Held during September each year at the Ancaster Fair Grounds. The date this year is 15 September. Note that the flea market will be both indoor and outdoor.

## BULLETIN:

"The Hamilton Amateur", the official news bulletin of the club, is published 10 times a year and sent to all full club members (family members share a bulletin) during the first 2 weeks of the month (except July and August).

## FROM THE BULLETIN BOARDS - 3

### FREQUENCY BANDS AND BANDWIDTHS FOR USE BY AMATEUR STATIONS OPERATING IN CANADA AND IN REGION 2

Item	Column I Frequency Band	Column II Maximum Bandwidth	Column III Operator Qualifications
1.	1.800 to 2.000 MHz	6 kHz	B and 5, B and 12
2.	3.500 to 4.000 MHz	6 kHz	B and 5, B and 12
3.	7.000 to 7.300 MHz	6 kHz	B and 12
4.	10.100 to 10.150 MHz	1 kHz	B and 12
5.	14.000 to 14.350 MHz	6 kHz	B and 12
6.	18.068 to 18.168 MHz	6 kHz	B and 12
7.	21.000 to 21.450 MHz	6 kHz	B and 12
8.	24.890 to 24.990 MHz	6 kHz	B and 12
9.	28.000 to 29.700 MHz	20 kHz	B and 12
10.	50.000 to 54.000 MHz	30 kHz	B
11.	144.000 to 148.000 MHz	30 kHz	B
12.	220.000 to 225.000 MHz	100 kHz	B
13.	430.000 to 450.000 MHz	12 MHz	B
14.	902.000 to 928.000 MHz	12 MHz	B
15.	1.240 to 1.300 GHz	Not specified	B
16.	2.300 to 2.450 GHz	Not specified	B
17.	3.300 to 3.500 GHz	Not specified	B
18.	5.650 to 5.925 GHz	Not Specified	B
19.	10.000 to 10.500 GHz	Not Specified	B
20.	24.000 to 24.050 GHz	Not Specified	B
21.	24.050 to 24.250 GHz	Not Specified	B
22.	47.000 to 47.200 GHz	Not Specified	B
23.	75.500 to 76.000 GHz	Not Specified	B
24.	76.000 to 81.000 GHz	Not Specified	B
25.	142.000 to 144.000 GHz	Not Specified	B
26.	144.000 to 149.000 GHz	Not Specified	B
27.	241.000 to 248.000 GHz	Not Specified	B
28.	248.000 to 250.000 GHz	Not Specified	B

"B"

means a Radio Operator's Certificate with Basic Qualification

"5"

means a Radio Operator's Certificate with Morse Code (5 w.p.m.)

"12"

Qualification

means a Radio Operator's Certificate with Morse Code (12 w.p.m.)

Qualification effective 1 October 1990