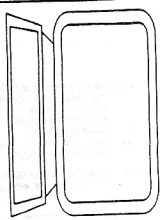


THE HAMILTON AMATEUR RADIO CLUB INC.

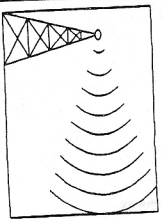


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VE3GFE
HARC COMMITTEE P.O. BOX 253
HAMILTON ONTARIO L8N 3C8

The
Hamilton
Amateur
September 1989
(Established 1932)

CLUB MEETING
20 September 1989
Antennas by Amateurs

Come out and hear how some of
our club members have been
spending their summer days getting
ready for the coming antenna
season

*Cake 10 of \$10.00
10 sides*

HARC EXECUTIVE FOR 1989:

PRESIDENT:	VE3HTC	Dave Rypma	689-3014
PAST PRESIDENT:	VE3OQX	Everett Englett	578-2488
1st VICE PRESIDENT:	VE3JTO	Michael Spenuk	389-1760
2nd VICE PRESIDENT:	VE3JTE	Paul Fleck	Auto Dial 80
SECRETARY:	VE3LMS	Grant Sewell	547-0711
TREASURER:	VE3SRK	Richard Leahl	547-8192
MEMBERSHIP:	VE3JSA	Gordon Murray	575-3647

HARC COMMITTEE CHAIRPERSONS FOR 1989:

AWARDS & CONTESTS:	VE3AAH	Gordon Barber	383-9161
HISTORIAN:	VE3BLG	George Olenick	383-7338
PROPERTY:	VE3ARX	Bill McCaslin	634-5190
BULLETIN EDITOR:	VE3EON	Jim Walsh	689-6839
EDUCATION:	VE3FHO	Glenn Gibson	385-2786
EMERG. COMMUNICATIONS:	VE3ANW	Paul Hazen	664-5247
EMERG. PREPAREDNESS:	VE3NVC	Robert Clarke	547-0711
FLEA MARKET:	VE3LMS	Span Boitbruch	528-4002
HEALTH & WELFARE:	VE3GFE	Michael Spenuk	389-1760
PROGRAMS:	VE3JTO	Fred Robinson	575-5197
PUBLICITY-SERVICE:	VE3GCP	Fred Robinson	575-5197
PUBLICITY:	VE3GCP	Volunteers needed!	
REFRESHMENTS:	VE3DSP	Mike Spenuk	389-1760
REPEATER:	VE3BYM	Ralph Tufts	388-6146
SWAP NET CONTROL:	VE3MWH	Mark Gibson	389-4308
TECHNICAL:	VE3HTF	Paul Fleck	Auto Dial 80
VE3DC LICENCEE:	VE3FHQ	Glenn Gibson	389-2786
VE3NCF LICENCEE:	VE3DSP	Glenn Simpson	389-8418
VE3RFB LICENCEE:	VE3FDK	John Kassay	385-0422
CODE TESTING:	VE3CIB	Bob Wilson	383-2034
	VE3BK	Norm Smith	385-5681

Reflections (Cont'd - Pg 2)

- v) when reading that power meter (calibrated among other quantities, in percent), make sure you subtract the reflected power percentage from 100 to find the usable percentage of transmitted power!

ALL of the above are examples of seriously misdirected concepts held by many amateurs about antenna system SWR and reflected power. It seems like we have been conditioned from our earliest code practice sessions to believe in these concepts. I'll try, without too much math, to lead those true believers to a safer path. Keeping too close an eye on that SWR meter is bad for your eyes. High SWR may harm your psych more than your radio gear! There is, of course, a caveat here: you're gonna need a tuner! Despite all my talk of the relative unimportance of a matched antenna-to-feedline connection, the SYSTEM must be matched in order to allow your transmitter to transfer a maximum of power to that electro-magnetic field leaving your antenna (same goes for transferring energy into your receiver). I'll explain more later, but what you want to achieve is a conjugate match and you want to do it in the comfort of your shack with a tuner (automatic, if you can afford it).

Back in the old days of open wire feedlines, this concept was implicitly applied by all hams; they couldn't care a fig (I must admit they couldn't measure it easily anyway) about the SWR on the line and they sure didn't try to match the antenna to the feedline! Even so, they were able to efficiently transfer power to the antenna. They were practical and so should we be!

The secret to ignoring high SWR on feedlines is to understand the effects of the high SWR. When we've conquered that phobia, we can deal with the means of coping with the SWR and taming it for our transmitters and receivers. Next month I'll spend some time reviewing the relationship between SWR, transmission line losses, antenna radiation and other components of the antenna system (the system includes everything from the radio to the antenna's near-field environment - rain, trees, roof, etc.). Later, I'll cover the subjects of transmatches, conjugate matching, transmitter output circuits, etc.:

A parting gem: A dipole cut to be self-resonant at 3.75 MHz and fed with either RG-8/U or RG-11/U coax will not radiate significantly more on 3.75 MHz than on 3.5 or 4.0 MHz with any feedline length up to a couple of hundred feet. If the SWR on this arrangement does not rise to around 5:1 at either end of the band, you probably have other losses caused by some faulty component or by poor design. It's true! A piece of old wet coax, for instance, may work more like a dummy load than a transmission line and will mask the true line SWR.

Any effort expended to reduce SWR on a coaxial feedline below 2:1 will be completely wasted.

More next month...

Dave Rypma, VE3HTC

The President's Message - September 1989

Summer is almost gone now and antenna season is almost upon us again. For those of you new to the hobby, antenna season is the time of year reserved for putting up that antenna you always wanted: a prerequisite is cold, wind and maybe some snow or ice! If the job is done in comfort, it's too early in the season.

On a more serious note, the time is rapidly approaching when Amateur Radio will be weathering another WARC storm. During the first quarter of 1992, a World Administrative Radio Conference will be held in Spain to consider frequency allocation in the 2 to 30 MHz, 500 MHz to 3 GHz and 12.7 GHz up ranges. Consider assisting the fight to guard our allocations by donating to the "Defense of Amateur Radio Fund" at Box 56, Arva Ontario, N0M 1C0. I'm going to propose that HARC donate a sum yet to be determined; you, too, can help - it matters. If you have any thoughts on this subject, let me know or come to the next Executive Committee meeting on 27 September at the Red Cross building, 400 King St. E at 1930.

Don't forget the HARC Flea Market: it will be held on Sunday 08 October (day before the Thanksgiving Day holiday) at Mohawk College. For details, see the flyer and announcement elsewhere in the bulletin.

You will have noticed that our repeater suffers from periodic plagues of intermod. Mike, VE3JTG, has tracked one of them down and referred the problem to the DOC; hopefully this one will soon be resolved. With the degree of RF pollution at our repeater site, this type of problem will likely continue to occur unless we take some different steps. The site is good for a transmitter, but very tough for reception, so a reasonable alternative is to use remote 2 m receivers (preferably in quiet locations) and bring the receive audio back on a band less susceptible to interference. We're working on it; if you can help or would like to take the lead in this effort, let one of the executive committee know.

With fall coming on, thoughts also go to Amateur Radio classes: I don't have any details yet, but hope to have an update for the September meeting and the October bulletin. In the meantime, you can call Glen, VE3FHQ to see if he has any further info.

Summer hasn't left all of us as we went into it: We wish Stan, VE3GFE a speedy recovery from injuries he received in a fall last month; to Ralph, VE3BYM and Glen, VE3FHQ our wishes that your wives will speedily recover from their illnesses.

Hope the rest of you had a great summer and are looking forward to a productive upcoming hamming season. See you at the Nash Auditorium on 20 September for the first HARC meeting this fall.

73... Dave VE3HTC

The President,
Hamilton ARC,
Box 253,
HAMILTON, ON, LBN 3C9.

June 30th., 1989.

Dear fellow amateur.

Field Day 1989 has come, and gone. We hope that your club did well in this annual contest. We are writing to you since amateurs may face a problem in the future.


In the early part of the next decade it is anticipated that a World Administrative Radio Conference will be held. All the preliminary signs indicate that, at that WARC, the Amateur band allocations are going to come under attack. The preliminary allocations have been experienced already! Commercial spectrum users are demanding enlarged frequency allocations, the Amateur bands are a quick and simple source.

The international amateur radio community will put up a fight, of course. Unfortunately, this will cost money, a lot of money. The last WARC had a cost to amateurs around two million dollars! Canada will be expected to make a contribution to the next fight. There are 22 000 amateurs in Canada, not all of them are active, not all are in clubs, not all are "joiners". Somehow the message has to be got to these people, and to this end we ask that your club start spreading the word. \$5 from each would let Canada stand proudly when the "roll call" comes.

On a positive note may we ask that your club consider making a donation today. If your members enjoyed field day this year and want to have Bands in which to participate in future years, would your club consider donating \$10 for each transmitter used on field day? Or, what about one cent for every point scored?

Please send your donations to Defence of Amateur Radio Fund, Box 56, ARVA ON N6M 1C0. For simplicity, your cheques can be drawn to D.A.R.F. Thank you for this donation, and for your efforts in spreading word of this project among your members.

Yours very truly,


T. B. J. Atkins, VE3CDM
Trustee


W. W. Loucks, VE3AR
Trustee

FROM THE BULLETIN BOARDS (pg 2)

ITEM 4.

An interesting brochure on the use of Channel 9, the GRS emergency channel, was received from REACT International. Send a SASE to them at Box 942, SUTTON, Ontario, L0E 1R0, for a copy.

ITEM 5.

The first Annual Greenwood, N.S., ARC Ham Flea Market, Saturday 23 September 1989, 0900 - 1600, Gilwell Hall, on Bedford Road, off Ward Road, Greenwood. Talk in: 52SX, refreshments, prizes, admission \$1, tables \$5. Info: Greenwood ARC, P.O. Box 63, GREENWOOD, Nova Scotia, B0P 1N0 or call VE1VAQ (902) 765-4570

ITEM 6.

London, Ontario ARC Flea Market, Sunday 15 October 1989, Pot O'Gold Bingo Palace, Hamilton & Gore Roads. Talk Inn VE3ION 147.66/06, 0900 - 1400, Info: VE3IAE, P.O. Box 82, Station B, LONDON, Ontario, N6A 4V3, Tel: (519) 453-2292. Please visit the CARF table.

ITEM 7.

CARF plans to produce a new up-to-date- Callsign and Address book of Canadian Amateurs in October 1989. More info in future News Bulletins.

ITEM 8.

CARF-D.O.C. Symposium, 21 October 1989, The Wexford Collegiate, 1176 Pharmacy Road, Scarborough, Ontario. 0830-1630, sponsored by the Scarborough Amateur Radio Club. If you are unable to attend you may submit written comment on the following topics:

- Frequency Co-ordination on Shared Bands
- Restructuring
- Amateur Exams - Should the Clubs Run them? - Who Should Set and Mark Them?
- A National UHF/VHF Co-ordinating Committee For Canada
- Callsigns - Where Do We Go From Here? VE3 Near End Of Block
- Basic/Advanced Certification in Restructuring
- Please mail your submissions to the CARF office for forwarding.

FROM THE BULLETIN BOARDS (pg 3)

ITEM 9.

This year the Canadian International Development Agency (CIDA) is again asking CARF to celebrate Development Day. Volunteers are needed to set up stations in public locations and schools to make contact with Amateurs in developing countries around the world. The date is Monday 2 October, 1989. CIDA will provide free QSL cards again this year. For info contact: Gina Watson, Public Affairs Branch, CIDA, 200 Promenade du Portage, HULL, Quebec, K1A 0G4 Tel: (819) 953-6060/E3EB1, CARF Ontario Director (613) 746-0968. Special prefixes for Development Day use only:

- Newfoundland/Labrador - CK1/CK2
- New Brunswick, Nova Scotia, Prince Edward Island - CZ1
- Quebec - CZ2
- Ontario - CZ3
- Manitoba - CZ4
- Saskatchewan - CZ5
- Alberta - CZ6
- British Columbia - CZ7
- North West Territories - CZ8
- Yukon - VX1

ITEM 10.

After a survey of Amateurs regarding separate Callsigns for each of Prince Edward Island, Nova Scotia, and New Brunswick, CARF has proposed to be submitted recommending a new prefix for PEI, and maintaining the status quo for the other two provinces. For the record there were 82 positive responses from PEI, 1 opposed, and no sistically significant responses from the other two. The final decision, whether to proceed, and the actual call to be assigned, now rests with DOC.

ITEM 11.

Kingston ARs United Church, 690 Sir John A. Macdonald Blvd, KINGSTON, Ontario - (across the Blvd from the Kingston Shopping Centre, corner Princess Street and Sir John A.) 0900-1300, talk in 34/94, admome, visit the CARF table, meet your friends, and have an eyeball. Info: VE3NB, (613) 544-4438

ITEM 12.

ATTENTION INSTRUCTORS OF CLUB SPONSORED AMATEUR RADIO CLASSES. Please order your Study Guides and give good discounts for quantity orders.

ELECTRONIC SERVICE LAB

716Northshore Blvd. E. Burlington, Ontario Canada L7R 1K6
Rae Baker VE3CZM FALL PRICE LIST (416) 632-0344

ITEM	LIST	NET
PYRAMID 25 AMP POWER SUPPLY..PS 25.....	\$ 275.00	\$ 230.00
PYRAMID 12 AMP POWER SUPPLY..PS 12.....	\$ 150.00	\$ 108.00
PYRAMID 5 AMP POWER SUPPLY..PS 7.....	\$ 70.00	\$ 55.00
PYRAMID 3 AMP POWER SUPPLY..PS 3.....	\$ 55.00	\$ 42.50
ALINCO 6.6 AMP POWER SUPPLY..AP660.....	\$ 110.00	\$ 104.00
AZDEN PCS5000 VHF MOBILE 25W 20 MEMORIES..\$ 575.00	\$ 575.00	\$ 475.00
AZDEN PCS6000 VHF MOBILE 45W 20 MEMORIES..\$ 735.00	\$ 735.00	\$ 595.00
ALINCO DR 510 DUAL BAND MOBILE 45W/30W...\$ 995.00	\$ 995.00	\$ 850.00
ALINCO DR 110 VHF 45WATTS.....	\$ 730.00	\$ 629.00
AR3500 RANGER 10 MTRS 100 WATTS.....	\$ 840.00	\$ 730.00
AR3500 RANGER 10 MTRS 30 WATTS.....	\$ 700.00	\$ 555.00
ALINCO DJ500T DUAL BAND PORTABLE.....	\$ 895.00	\$ 760.00
ALINCO DJ100T MICRO VHF PORTABLE.....	\$ 470.00	\$ 395.00
AR900 SCANNER PORTABLE.....100 CH.....	\$ 600.00	\$ 410.00
AR880 SCANNER PORTABLE.....	\$ 350.00	\$ 290.00
AR160 MOBILE SCANNER.....	\$ 380.00	\$ 308.00
GALAXY V 100CH AM/SSB DELUXE MOBILE.....	\$ 500.00	\$ 415.00
GALAXY VI 100CH AM/SSB WITH FREQ.COUNTER..\$ 590.00	\$ 590.00	\$ 525.00
ELH230G VHF 30W AMP.....	\$ 125.00	\$ 117.00
ELH230D VHF 30W AMP WITH RX PRE AMP.....	\$ 150.00	\$ 140.00
ELH260D VHF 50W AMP WITH RX PRE AMP.....	\$ 200.00	\$ 184.00
VALOR AB-5 80 THRO 10 MTRS LIKE HUSTLER..\$ 200.00	\$ 200.00	\$ 175.00
VALOR PAS815 2 MTR MAG NMT 5/8 & 1/4.....	\$ 126.00	\$ 103.00
VALOR CX5814 2 MTR MAG NMT 5/8 & 1/4.....	\$ 83.00	\$ 71.50
MFJ 260 300W DUMMY LOAD.....	\$ 47.00	\$ 43.00
MFJ 1704 4 POS SW /LIGHTNING PROTECTION..\$ 113.00	\$ 113.00	\$ 106.00
MFJ1702 2POS COAX SWITCH.....	\$ 38.00	\$ 34.00
MFJ 949D VERBA TUNER WITH X NEEDLES.....	\$ 243.00	\$ 227.00
MFJ 1270D PACKET TNC.....	\$ 190.00	\$ 173.00
MFJ 941D ANT TUNER WITH STD.METER.....	\$ 174.00	\$ 160.00
BENCHER KEY (BLACK).....	\$ 107.00	\$ 100.00
IC 751A NEW 160 THROUGH TEN.....	\$ 2500.00	\$ 1900.00
KENWOOD 930 160 THROUGH TEN USED.....	\$ 1900.00	\$ 1500.00
PDC-2 SWR-POWER METER 10/100W.....	\$ 60.00	\$ 50.00
POC700 SWR-POWER HOD %.....	\$ 190.00	\$ 159.00
PYRAMID SWR12 SWR METER 10/100W.....	\$ 30.00	\$ 25.00
X50 DIAMOND 144/430 4.5DB BASE ANT.....	\$ 150.00	\$ 137.00
X200 DIAMOND VHF/UHF BASE ANT 6DB.....	\$ 200.00	\$ 186.00
HX72D DIAMOND DUPLXER.....	\$ 70.00	\$ 60.00
GBE2005 MIC PALOMAR (POWER) BASE.....	\$ 170.00	\$ 135.00
AC-750 BASE MIC PALOMAR GOOSE NECK AMP..\$ 150.00	\$ 150.00	\$ 125.00
COAX SEAL.....	\$ 5.00	\$ 4.50
AR1115X MOBILE SPEAKER PYRAMID.....	\$ 22.00	\$ 19.00
CK46 TOWER THRUST BEARINGS HEAVY DUTY...\$ 95.00	\$ 95.00	\$ 70.00
NIKOH DL1 1500W DUMMY LOAD TO 650MHZ...\$ 130.00	\$ 130.00	\$ 120.00
TEN TECH 209 300W DUMMY LOAD.....	\$ 55.00	\$ 52.00
LARSEN MAG MOUNT.....	\$ 36.00	\$ 25.00

WE CARRY MUCH MORE THAN IS LISTED HERE - IF THERE IS SOMETHING YOU NEED WE WILL GET IT FOR YOU...WE DO MAIL ORDER FROM APRIL 1 TO NOV 25 EACH YEAR. WE TAKE TRADES : WE BUY AND SELL USED EQUIPMENT:

REMEMBER WE REPAIR ALL RIGS ALMOST

The Swap Shop - June 1989

Coordinated by Ralph, VE3BYM (Tel: 388-6146)

There are no listings for the Swap Shop for the September bulletin. The Swap Shop will re-appear on the repeater by mid-September and listings will be published next month.

FROM THE BULLETIN BOARDS

CARF BULLETIN 13.89 SEPTEMBER 1, 1989

ISSUED BY:
THE CANADIAN AMATEUR RADIO FEDERATION
BOX 356 KINGSTON ONTARIO K7L 4W2
613-545-9100
EDITOR: BERNIE BURDSALL VE3NB

ITEM 1.

Bert Wilson, VE3OBH, the survivor of the sea disaster (see September 89 issue of The Canadian Amateur) is living in Picton, Nova Scotia. He is receiving therapy for his burns, and is expected to recover fully. Sailors and fishermen in the area of the Azores have been asked to keep a lookout for his abandoned yacht Sadie.

ITEM 2.

Paul Cooper, VE3JLP, CARF's CQ DX Column Editor, has been appointed the representative for CARF to the Land Fixed and Mobile Committee of the Radio Advisory Board of Canada (RABC), which is an association of twenty-eight non-profit organizations concerned with the use of the radio spectrum.

ITEM 3.

Communications Minister, The Hon Marcel Masse, has been invited to deliver the keynote address on the future of Canada's airwaves at the Spectrum 20/20 Symposium - Innovation - Sharing the Challenge - to be held in Montreal 28/29 November 1989. Information: Janet West/Cyr, Chairperson Organizing Committee, CBC, Montreal, Quebec. tel: (514) 485-5560

Reflections

No, I'm not going to take a retrospective look at the summer past; rather I want to look at reflections as they relate to antennas and SWR. As fall comes on and we think about improving last year's antenna, or maybe getting something up for a band we haven't used before, it's appropriate to look at some fact and fiction about Standing Wave Ratio and its relationship to antenna installation and operation. From what I've heard on repeaters and the HF bands in conversations among hams, SWR is still a very poorly understood topic. And most unfortunately, this misunderstanding has a very significant impact on how we put up our antennas.

I'll spread this discussion over the next few months; it's far too much to cover in one or even several bulletins. All of the material I will present here is readily available in the ham literature and is definitely not new to any old students of mine; in the past, I've spent many a classroom hour getting this message across. What is the message, you may ask? In a nutshell, "SWR doesn't matter much in most antenna installations" and "match at the transmitter, not at the antenna". As a corollary: "spend your hard-earned money on antenna systems, not linear amplifiers; every antenna dollar does double duty improving not only the transmitted signal but also the received signal".

If you're a UHF or SHF enthusiast, you're probably wondering what kind of foolishness is this guy disseminating? True, matching starts to matter more as the frequency goes up, but more on that later. The practical engineering logic discussed here is still valid at higher frequencies as long as you keep in mind the effects of frequency on transmission losses.

If you want to read a thoroughly professional and very complete discussion of this topic (in much greater depth than my short treatment), I highly recommend a series of articles by M. Walter Maxwell, W2DU published in QST starting in April 1973 and carrying on through 7 parts by August 1976. I believe there were plans to carry on beyond those first 7 parts. I'll let you know if I find more in a literature search. Much of the material I will present here was taken from that fine series of articles (good for a WEEKEND in the library, I should think!).

Much conventional (and erroneous) wisdom in the amateur antenna field has led to the following gems of (faulty) logic:

- i) make sure we have a perfect match between the feedline and the antenna!
- ii) lets evaluate the antenna's performance or radiating efficiency based on the feedline SWR - the lower the SWR, the better the performance!
- iii) that dipole must be pruned "exactly" to resonance at the (single?) operating frequency and fed with an exact multiple of 1/2 wavelength coax - no other length works!
- iv) adjust the height of that dipole or perhaps lower the ends to form an inverted "V" so that the resistive component of the feedline impedance is exactly 50 ohms to match that coax line impedance!

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, in the Nash Auditorium, Chedoke Hospital. Non-members & friends are welcome - coffee and donuts on the house!

EXECUTIVE:

Meets 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 January 1. Included is a subscription to the club bulletin. Additional Family Memberships (no bulletin) \$1.

EDUCATION:

Informal meetings are being held in the Radio Room, Red Cross Building 400 King St East on Thursday evenings at 7:00 to help those who want to take their Amateur Licensing tests. Call Bob, VE3CIB (416-383-2054 in Hamilton) or Glen, VE3FHQ (416-385-2786 in Hamilton) 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 Paul, VE3HTF for information.

SWAP-NET:

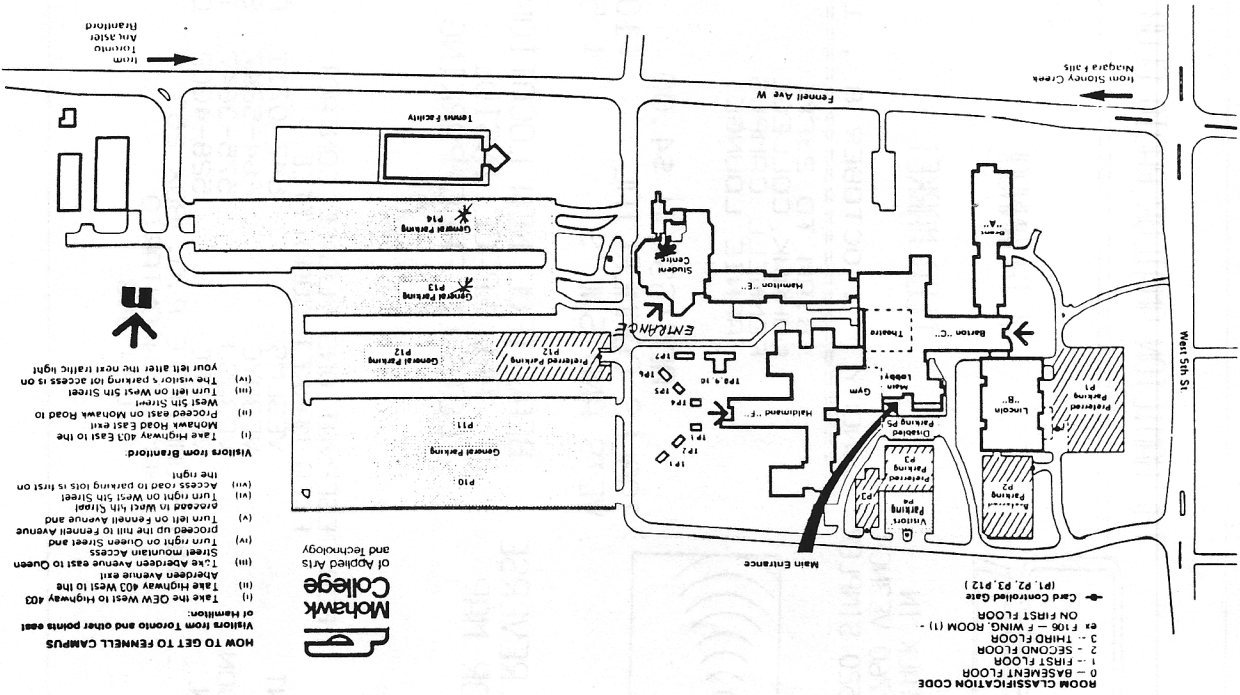
Every Tuesday at 8:00 pm on VE3NCF (146.76/16) except during July & August. Contact Ralph, VE3BYM (388-6146) if you have items to buy or sell.

FLEA-MARKET:

Held during October each year (Thanksgiving Day Weekend).

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). Most bulletin material is also available on the club's packet bulletin board station, VE3DC operated by VE3JSJ, on 145.030 FM.



G-115
G103 Flying