

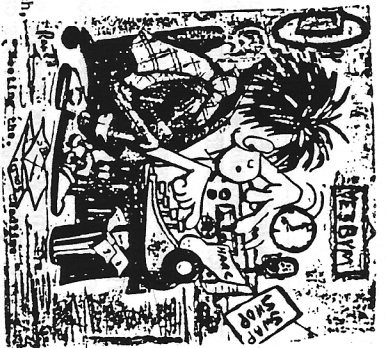
The Swap Shop

by

Ralph VE3BYM

SALE:
Tony
387 1890

-Yaesu 901DM transceiver, manual,
mike, transmatch, speaker patch,
extra 6146 finals \$neg



-Hustler fold-over mast mobile antenna 80/40/20/10 meters
\$1.50

VE3JSL Gord
575 3647 or
442 2900 X288

-Simpson 260 series 3S multimeter \$25
-Powerstat 115V in, 0 - 135V out 7/8" \$20

VE3IUI Al
632 1580

-Drake L7 linear amp 2 kilowatt PEP covers 10-80 m \$1400

VE3IQL Jerry
765 5738

-Realistic Pro2009 programmable scanner \$170

VE3OZY Rick
544 3253

-Healthkit model 10-103 triggered sweep oscilloscope, 5" display,
10 MHz bandwidth, brand new (in kit form) \$275

VE3ITA Larry
549 7393

-Cushcraft DX120 20el collinear 2m beam never used \$50

VE3OQZ Bob
549 6125

-Cordax monitor \$neg (open to trades) \$20
-Motorola 2m transceiver, business type \$40
-Voltage stabilizer 95-130 in, 115V out, 500W, 100% duty \$40
-power supplies (2) out of computer, 20A, 114V + 5V \$30, \$40
-Kenwood TH215A 2m handle, charger, extra p.e., 140-162MHz,
new \$TRADE for 2m mobile unit

-Hamsort ROM cartridge (from Kambionics) \$111 send+receive
Morse, RTTY, ASCII on TR380 computer \$30

VE3WMD Serafino
662 4526

-Kenwood TS820 transceiver, outboard VFO, dc/dc converter,
MC90 mike, all manuals \$625

VE3PMK Earl
426 5424

-switching power supplies (3) 12V +5V \$5 each \$30 each
-monochrome monitors (2) 12" hi-res TTL require +15-24V \$30 each
-2m pwr amplifier Motorola with p.e., manuals, 10W drive/1.50 out
\$neg

VE3PMK John
385 0422

-Yaesu FT208R 2m handle, with charger, TM24A speaker mike,
NC8 desk charger, spare batt, FBAB batt case, used 3hrs \$350
-ICOM H7000 mint V/UHF receiver \$1150 or TRADE for AH2 antenna
tuner + \$difference
-10' satellite dishes (2) ODCW polar mount, j hookup, in box \$400

VE3HOK Joe
685 0058 (St Kitts)

The

HAMILTON

Amateur

November 1989

(Established 1932)

CLUB MEETING

15 November 1989

Elections!

Choose your slate of club officers
for 1990

Cable TV Systems
Rogers Cable (Tentative)

The Art Ferguson
Trophy

Awarded to a member of the club
for meritorious service
(if we have a nominee)

HARC EXECUTIVE FOR 1989:

PRESIDENT:	VE3HTC	Dave Ryman	688-3014
PAST PRESIDENT:	VE3OQX	Everett Englett	578-2458
1st VICE PRESIDENT:	VE3JTF	Michael Spennuk	389-1760
2nd VICE PRESIDENT:	VE3HTF	Paul Fleck	Auto Dial 80
SECRETARY:	VE3LMS	Grant Sewell	547-0711
TREASURER:	VE3ANB	Richard Leah	547-8192
MEMBERSHIP:	VE3JSJ	Gordon Murray	575-3647

HARC COMMITTEE CHAIRPERSONS FOR 1989:

AWARDS & CONTESTS:	VE3AAH	Gordon Barber	383-9161
HISTORIAN:	VE3BLG	George Orenick	383-7338
PROPERTY:	VE3ARX	Bill McCaslin	634-5190
BULLETIN EDITOR:	VE3SON	Jim Walsh	688-6839
EDUCATION:	VE3FHQ	Glen Gibson	385-2786
EMERG. COMMUNICATIONS-VE3NYC	VE3ANW	Paul Hazen	664-5247
EMERG. PREPAREDNESS:	VE3ANW	Robert Clarke	574-3554
FLEA MARKET:	VE3LMS	Grant Sewell	547-0711
HEALTH & WELFARE:	VE3GFE	Shan Bolbrunch	528-4002
PROGRAMS:	VE3JTG	Michael Spennuk	389-1760
PUBLIC-SERVICE:	VE3GCP	Fred Robinson	575-5197
PUBLICITY:	VE3GCP	Fred Robinson	575-5197
REFRESHMENTS:	VE3OSP	Volunteers needed for 1990!	
REPRESENTER:	VE3BYM	Mike Spennuk	389-1760
SWAP NET CONTROL:	VE3BYM	Ralph Tutts	388-6146
TECHNICAL:	VE3MWH	Mark Gibson	389-4308
VE3DC LICENCEE:	VE3HTF	Glen Gibson	Auto Dial 80
VE3FHQ LICENCEE:	VE3FHQ	Glen Gibson	385-2786
VE3OQX LICENCEE:	VE3OSP	Glen Simpson	388-8478
VE3RCA LICENCEE:	VE3JTF	John Kassay	388-9422
CODE TESTING:	VE3CIB	Bob Wilson	383-2054
	VE3BK	Nom Smith	385-5661

QUAKE - 2

Bands about jamming and poor organization. I am happy to tell you that other than the normal RTTY jammers on 21097 (They don't like us there) we were able to move tremendous volumes of messages on HF Packet.

LESSONS LEARNED:

1. You need to have a backup Plan. I list this one first because we had a plan of sorts but had to make a lot of it up as we went.
2. Packet is wonderfully adapted to handling very high volumes of Health and Welfare traffic during emergencies, but probably shouldn't be used for tactical information handling. Voice circuits are better and the packet channels get jammed up with H&W anyway...
3. Because of networking possibilities, packet networks can respond better than any other form of Ham Communications to changes in the emergency situations. We completely rerouted traffic throughout the entire system in less than 3 hours...
4. We need a quicker way to handle network management bulletins. Maybe we need an emergency bulletin designator that EVERYONE supports, but is not used except under extreme emergency.
5. Every ham who uses a packet bulletin board should become familiar with packet NTS procedures. Under circumstances like this you have to get anyone with a TNC involved to handle the traffic. The vast majority of traffic handled locally at N6VV was NOT handled by our normal NTS liaison people. We were recruiting people off the 2 meter repeaters to help. Fortunately we had a file called HOWTO.NTS in the file section that these people were able to download and read. Instant NTS handlers! Many of the regular NTS people were working 24 hours a day in Red Cross facilities or emergency centers and never did check in to a BBS. Even with the thousands of hams in this area, we did not seem to have enough to go around. The emergency sites were recruiting hams from as far away as Sacramento to man sites in Santa Cruz.
6. A major problem we had on this end was the misaddressed or non-addressed traffic that required manual intervention before it would flow thru the automated forwarding system. I only had 3 hours sleep by Friday night and the main reason was fixing this mail. Mail simply addressed NTSCA @ NTSCA with no further information was being received here. Each message like this required us to read them and in some cases to have a USPS ZIP code book lookup to get them on their way. When you are dealing with thousands of messages this can be a tedious job. I actually received personal mail addressed N6VV @ N6VV with a list of 25 friends they wanted me to contact. These BOOK type messages simply DO NOT WORK in the packet environment and require far too much manual intervention at the disaster site.

All NTS traffic here and I thought elsewhere was ZIP code routed. Personal mail is

The President's Message - November 1989

It's election time! The Hamilton Amateur Radio Club will hold its elections for 1990 Board of Directors positions at the November general membership meeting. The list of people who have agreed to stand for election appears elsewhere in the bulletin. If you would like to nominate someone who isn't already on the list, please check with the person and then submit his name as a nominee at the November meeting; you will need a secondder for the nomination. If the person you nominate can't make it to the meeting, make sure you have his written consent to stand for election. Also note that nominators, secondders and nominees must all be current HARC members. If you have any ideas for running the club, standing for election is the best way to see them through. Also, if you currently hold an appointed position as a committee chairperson or committee member, I'm sure the new executive committee would like to have you continue in your duties.

If you checked the front page carefully, you may have noticed that Richard Leah has a new call sign! He was VE3SRK but is now VE3ANB. Now that's what I call a dedicated CW op! Richard was having too much trouble with people mistaking that last letter "K" as a turn-over, so he got rid of the K. Hope those lads let you transmit longer now, Richard.

I'd like to publicly thank Gary Ostofi for bringing the Region's Mobile Emergency Command Centre out last month for our inspection and for describing to us the purpose and activities of the Emergency Preparedness Organization. We'll be sending along a letter of thanks as well.

Last month Gord Barber, VE3AAH, stood up and brought the WARC fund to our attention and emphasized the importance of the Amateur community's efforts to defend, justify and augment our frequency allocations. I challenge each of you to follow through with his suggestion and send a donation to the "Defense of Amateur Radio Fund" in line with your benefit from the hobby: he suggested \$1.00 per licenced year up to a maximum of your choice. You might consider a minimum of \$10.00 or \$15.00 if you are a recent licensee (after all, you WOULD like to be able to use all that fancy equipment for many more years to come?).

Christmas is right around the corner and we need to think about our traditional Christmas club meeting. We try to make this a social occasion without any business content. Freddy Robinson and I have been discussing possibilities and thought a private dinner might be a nice idea, time would be somewhere in the 3rd week of December and the cost should be in the ball park of \$10.00 per head. Interested? Got another idea? Please give Freddy or me a call (VE3GCP or VE3HTC).

The November meeting promises to be a busy one with the elections, a talk on Cable TV and the awarding of the Crawford Trophy (assuming we get nominations - see the October bulletin).

See you at the Nash Auditorium on 15 November 1989...

73... Dave Rypma, VE3HTC

Now the problem is to track down where the rectification is occurring. This problem may take a long time to solve; it may never be solved.

Steps taken to resolve the intermod problems:

On October 2, 1989, one of the cavity bandpass filters was removed from the receiver line, returned and placed on the output of the repeater's transmitter. (Once again using the main, duplexed antenna.) The reason for doing this may not be clear. Basically, in our repeater system, any signal received by our antenna travels through the duplexer with little loss (approximately 2 dB feeding loss, and 1.7 dB loss through the duplexer) to the transmitter's Power Amplifier output. This PA operates in Class C mode which is a non-linear amplifier mode. Any signal that the amplifier receives within its passband will be amplified and transmitted. To prevent regeneration and mixing of signals within the PA it is necessary to have a very narrow passband. The cavity bandpass filter provides about 25 dB attenuation of signals beyond 2 MHz from the transmitter's frequency with 1.5 dB insertion loss. The repeater is currently running about 20 watts effective radiated power.

The intermod which includes the repeater transmitter can still be heard at times. This means further isolation is required and a circulator which will provide 20-25 dB isolation should solve this problem.

No action has yet been taken to determine where the other, more annoying intermod is being generated. The main reason for no action during the past 4 weeks is that the weather has been too inconsistent: rain one day, nice the next. This has helped to lessen the occurrence of the intermod. It may not be until next summer that a full scale assault on this problem will occur.

However, work is slowly progressing towards implementing a remote receiver site. We have a site that we can use. The 2m receiver, 440 MHz transmitter and receiver, 2-UHF directional arrays, and feedline have been provided for use by VE3OCY and VE3JTO. Crystals still have to be obtained, packaging must be done, and a small controller must be built. And another VHF antenna must be obtained. This project, along with some other unfinished projects will be carried on throughout the coming months.

In addition, I have installed a CTCSS (PL) decoder board on the current receiver. I would like to implement this device 100 percent of the time, but I know some Club members who use the repeater do not have CTCSS encoders in their radios. I hope that they will obtain these devices in time. For now, the CTCSS decoder can be selectively enabled by any user during times of high intermod activity. Most likely this will be useful to silence the intermod during patches. The enable/disable codes are given below. This feature will be available as long as it is not misused.

FROM THE BULLETIN BOARDS - 2

CRRL BULLETIN 29 ARLC029 FROM CRRL HEADQUARTERS LONDON
ON OCTOBER 23, 1989 TO ALL RADIO AMATEURS

- 1 ERNIE SAVAGE, VE7EB, HAS BEEN RE-ELECTED SM OF BRITISH COLUMBIA. HE HELD THIS POST SHORTLY AFTER WW2 AND HAS BEEN ON THE JOB CONTINUOUSLY SINCE 1960.
- 2 ANDY MCLELLAN, VE1ASJ, IS RETIRING AS ATLANTIC DIRECTOR AND CRRL CENTRAL INCOMING OSL BUREAU MANAGER. MARITIMES, NEWFOUNDLAND SMCARL ANDERSON, VE1YUJ, WILL FILL OUT THE REMAINDER OF ANDYS TERM AS DIRECTOR, WHILE DON WELLING, VE1WF, WILL BECOME MANAGER OF THE CRRL CENTRAL INCOMING OSL BUREAU.

CRRL BULLETIN 30, OCTOBER 29 1989.

- 1 On Thursday, October 19, the new Radiocommunications Act received royal assent. The Radiocommunications Act, which replaces the old Radio Act, contains the enabling legislation that allows the Minister of Communications to make regulations. What will change for amateurs? Virtually nothing at this time. All present regulations remain in effect. One new twist: the Radiocommunications Act allows the Minister to make regulations governing the RF susceptibility of non-radio devices. That means that the Minister could make regulations that would prevent a reoccurrence of something like the Jack Ravenscroft case. CRRL will be contacting DOC to ask that this become a priority.
- 2 About 45 amateurs attended the DOC Symposium sponsored by CARF, the Canadian Amateur Radio Federation, and Scarborough Amateur Radio Club. The Symposium was held in Toronto on October 21. What was earned? Restructuring of the Amateur Service is on schedule. Amateurs who have passed the theory and the regulations examinations for the present Amateur certificate will receive credit in the form of a new Basic certificate when restructuring takes place. In the future, Amateur Radio examinations will be administered by DOC, clubs and specially appointed volunteers. A new RIC-1 will provide the guidelines. DOC values the work of ARES and other Amateur Radio emergency groups, and often mentions Amateur Radiomergency communications capabilities in memos to other radio services. Unfortunately, it was not all good news. In southwestern Ontario, nearly all commercial frequencies below 890 MHz are being used to full capacity. As a result, the Canadian 220-MHz amateur band may come under pressure similar to that in the US.
- 3 To commemorate Remembrance Day and the 50th Anniversary of Canada's entry into World War 2, members of Guelph Amateur Radio will operate special-event station YG3W from McCrae House, Guelph, Ontario, on November 10-12. Guelph is the birthplace of Colonel John McCrae who wrote the famous poem, "In Flanders Fields".

Well it turned out that many months passed before serious experimentation would begin again. From December 1988 through July 1989 little was done except intermittent monitoring. For a three day period in March, for example, continuous tape recordings were made of the repeater. During those three days the intermod was present for less than one percent of the time. On March 21, only 65 seconds of intermod over 9 hours and on during a 9 hour period. On March 28, 10 seconds of intermod over 9 hours and on March 29, 10 seconds over a 12 hours period. There were many other examples of this level of occurrence. But during the summer months the intermod seemed to be occurring more and more frequently. In August, I finally decided that it was time to solve this problem.

I wrote an intermodulation program which would take all the frequencies in use at the site and calculate up to fifth order I.M. products. Some interesting combinations were observed at the fifth order level, but due to the severity of the problem it was fairly clear that the chance of a fifth order problem occurring was quite small. It should also be recalled that two distinct intermod products were previously identified as occurring.

On August 11, 1989, the repeater transmitter's output was removed from the duplexer and redirected to a magnetic mount quarter wavelength monopole mounted on top of the rack cabinet inside the building. The one intermod product was not heard while the transmitter was running on this antenna. The obvious and correct conclusion is that the repeater transmitter is responsible for the intermod with the echo.

On August 14, 1989, perhaps due to the re-routing of the transmitter's output to the secondary antenna, or enhanced propagation conditions, or both, the other intermod product was identified with good certainty. This third order mixing product was also verified as possible with the intermodulation program. The frequencies involved are: 140.160 MHz, 143.685 MHz, and 142.635 MHz. The first two transmitters are co-located on at our repeater site in a multicoupled chain, the third transmitter is located on Concession Street near Upper Sherman Avenue (about 1.6 km from the H.A.R.C. repeater site) and its only user is the Hamilton Wentworth Regional Police.

The very next evening it was pouring rain and although all three commercial transmitters were very active there was no interference at all on the repeater receiver. This interference free condition has been observed on numerous occasions (undocumented), but at each time there was a high level of moisture present. It was thought that the moisture had an effect on the VSWR in the multicoupled, co-sited paging transmitter system which stopped the mixing. The other thought was that the mixing was occurring in an antenna structure and the moisture was acting like a conductor and stopping the rectification.

On September 7, 1989, Vince observed that the intermod product could be heard in a parking lot immediately adjacent to the repeater site. This was further confirmation that the intermod was being generated outside of the repeater's receiver.

On September 20, 1989, a meeting between National Pagette, the Department of Communications and myself took place at the repeater site to observe the spectrum of

FROM THE BULLETIN BOARDS - 4

ITEM 5. Are Radio Amateurs in your Province increasing or decreasing? Is there room for improvement?

	OCTOBER 1988	OCTOBER 1989
VE0	165	172
VE1	2105	2158
VE2	4474	4594
VE3	9086	9256
VE4	842	841
VE5	830	826
VE6	2024	2049
VE7	4249	4393
VE8	90	85
VO1	483	499
VO2	32	29
VY1	50	50
VY9		2

ITEM 6. Sixty years ago, on 30 September 1929, the first regular television broadcasts in Great Britain commenced from the Baird studios in Long Acre, London and were transmitted from the BBC station 2LO on a wavelength of 361 metres (831 KHz). Before that time, experimental programmes were transmitted by the Baird Company, using the Callsign 2TV issued in August 1926. Credit! "Radio Communication" magazine.

ITEM 7. Novice licence for United Kingdom. Talks are underway between the RSSGB and the British Government's Radio Communication Divs.) on the proposed No licences. Both require 30 hours of technical study, plus multiple choice exams on licensing conditions, technical matters and operating techniques. Novice A requires 5WPM, Novice B no code. Maximum input to transmitter 5 Watts, no operation on 7, 14, or 144 MHz. A special callsign may also be assigned.

ITEM 8. Presidents' Get Together - The Presidents of B.C. Lower Mainland Clubs have formed an Amateur Radio President's Council to "Observe and Advise" on matters of interest to Amateur Radio. The inaugural meeting was held 28 September '89 in Burnaby, B.C., representatives from twelve clubs attended. Info Hu Reijne VE7CHW.

ITEM 9. & 10. Deleted: out of date...

ITEM 11. Bert Wilson, VE3OBH, the survivor of that dramatic rescue at sea (see September 89 issue of the Canadian Amateur) is now VE1OBH, living in Picton, N.S. Bert is well but needs more therapy to regain use of his badly scarred hands. Good Luck OM.

ITEM 12. The printing machine at CARF HQ is going full tilt getting the Certificate Study guides out to Class instructors. The CARF C.G.S. is a favourite for producing new licensed Amateurs. Order yours today.

ITEM 13. Please send your outgoing QSL cards to Box 66, Islington, Ontario, NOT to Box 356, Kingston. This causes delay to you and extra cost to CARF.

The only way to stop smoking is to just stop, no ifs, ands or butts...

DE VE3VCA

HARC Nominations for Board of Directors - 1990

The following have indicated their willingness to stand for election to the 1990 HARC Executive Committee:

Richard Leah	VE3ANB (Previously VE3SRK)
Jim Walsh	VE3SON
Paul Hazen	VE3NYC
Robert Clarke	VE3ANW
Rick Danby	VE3OZY
Gerald Crawshaw	SWL
Mike Spenuk	VE3JTO

Other candidates may be nominated from the floor. If the nominee is not present, his assent to stand for election must be in writing. The nominator, seconder and nominee must all be current club members.

Dave Rypma, VE3HTC for Fred Robinson, VE3GCP (Nominating Committee Chair)

Reflections - Part III

Because of the wealth of other relevant material available for the HARC Newsletter this month, the 3rd installment of my Reflections and SWR series of articles will not appear this month. Look for Part III in December...

Dave Rypma, VE3HTC

Another note: Thanks to Bill, VE3ARX and Norm, VE3BK for helping out with the coffee preparations. Would someone like to take this on for next year? ***It's IMPORTANT!***

VE3JTO

VE3NCF - 1

Results of the Intermodulation Study on VE3NCF

Michael Spenuk, VE3JTO

The Hamilton Amateur Radio Club's two meter repeater, VE3NCF, has been plagued by intermodulation effects for a number of years. In 1987 I began an investigation as to the cause of the I.M. products. Through the auspices of Bell Cellular a spectrum analyzer was provided for a very short time--a few hours--to determine signal levels reaching the repeater's receiver. It was hoped that the analyzer could be used to provide a clue as to which transmitters were mixing to generate the intermod. This test proved to be academic because the large number of strong signals overloaded the analyzer.

In January 1988, two new cavity bandpass filters were installed in series with the existing cavity bandpass filter. This triple bandpass filter yielded in excess of 70 dB attenuation of out-of-band signals, yet produced an insertion loss of only 1.5 dB. However the intermod persisted.

As the year progressed additional experiments were conducted. These experiments involved monitoring the repeater to identify the transmitters involved in the I.M. product, changing repeater receivers to determine if the intermod was created inside the receiver, and changing antennas to observe any changes in the intermod. The result of these experiments supported the hypothesis that the intermod was being generated external to the receiver, but may or may not have been generated within the H.A.R.C. repeater system.

The intermod was observed to have two distinct natures: some of the time there was a distinct echo occurring; the rest of the time there was no echo. Trying to identify the transmitters involved was a major stumbling block as the majority of the intermod would occur Monday through Friday between 9 AM and 5 PM and no one who could listen during those hours was willing to spend time scanning the band.

After a month or two of non-interest in solving the problem I initiated a formal complaint on October 6, 1988 to the Department of Communications (D.O.C.). Before making this complaint however, I analyzed all the experimental results I had made to this point and I was about ninety percent sure that the problem was being generated external of our system. On October 19, 1988, Vince Zvonar and I met to discuss the intermod problem. Actually I asked for some suggestions as to what to do next. He was very helpful, but I was disappointed when he couldn't wave a magic wand and make the problem go away. Unfortunately, the problem did temporarily go away on the days that we were hunting for it.

On November 22, 1988, Vince informed me that he had identified two transmitters that were active when the intermod occurs: 140.52 MHz and 140.16 MHz. At that time, we agreed that no further action on the part of the D.O.C. would occur, but that I would monitor the identified frequencies and try to confirm the correlation.

FROM THE BULLETIN BOARDS - 3

4 Don't forget the CRRL QST QSO Award Parties coming in November, phone on 14.13 and 21.25 MHz, 1400-2200 UTC, November 4 and 5, and CW on the low end of 20- and 15-metre bands, 1400-2200 UTC, November 11 and 12. All eleven CRRL-sponsored "QST" stations should be on the air. Contact any eight of these stations using any mode to earn the Worked QST Award. For your award, send a copy of your log and an SASE or IIRC to CRRL Awards Manager Garry Hammond, VE3XN, 5 McLaren Avenue, Listowel, ON N4W 3K1.

UPCOMING EVENTS:

November 11-12 ARRL Sweepstakes - phone.
November 18-19 ARRL EME Contest.
November 18-19 ARRL 160-Metre Contest.
December 1-3 ARRL 10-Metre Contest.
December 9-10

73 DE VE3GRO

BULLETIN NO. 16-89 15 OCTOBER 1989
ISSUED BY: THE CANADIAN AMATEUR RADIO FEDERATION

BOX 356
KINGSTON ONTARIO
K7L 4W2
613-545-9100
EDITOR: BERNIE BURDSALL VE3NB

ITEM 1. Good News! The Radio Communications Act, Bill C-6, was passed by the House of Commons on Thursday 5 October 1989. This was originally Bill C151 introduced by the Hon Marcel Masse in April '89, and deals with EMI problems caused by radio transmitters to substandard electronic appliances.

ITEM 2. Nominations for three CARF Inc. Regional Directors 1990 -1992. The following positions will become vacant at the CARF A.G.M. in June 1990: Atlantic, Ontario (1 Only) and Pacific. Now is the time for CARF members to nominate a Director of their choice. See page 42, October '89 issue of "The Canadian Amateur" magazine.

ITEM 3. The Kingston A.R.C. has a multitude of Teletype Corp piece parts and maintenance books for all sorts of teletype machines 4 - 35 and Data sets. Yours for a donation to the Kingston A.R.C. repeater fund - any others? Write or call Bernie VE3NB at CARF.

ITEM 4. Second edition of the CARF Callsign and Address book (DOOC correct to Oct 89) is available. In order to keep the price the same as last year the print is slightly smaller.

VE3JTO

VE3NCF - 3

the two paging transmitters. The following tests were conducted with their results:

1. Spectrum analysis of the output from the 143.685 MHz transmitter. Result--60 watts into multicoupler (measured with Bird Thru-line); no observed signal at 146.160 MHz.
2. Spectrum analysis of the output from the 140.160 MHz transmitter. Result--45 watts input multicoupler (measured with Bird Thru-line); no observed signal at 146.160 MHz.
3. Spectrum analysis of the output from the multicoupled chain at the antenna feedline input. Result--no observed signal at 146.160 MHz.
4. Spectrum analysis of the input to the 146.160 MHz receiver. Result--no observed intermod signal at 146.160 MHz.

Note: The Noise floor of the spectrum analyzer was observed to be -80 to -90 dBm. It was later confirmed that the weakest signal the analyzer could detect was 1 microvolt (-107 dBm). But the configuration that the analyzer was used the weakest receivable signal was probably closer to -90 dBm. The level of the intermod signal is usually at or below 2 microvolts (-100 dBm). Note also that the repeater receiver requires only a 0.2 microvolt (-120 dBm) signal for "full quieting" reception.

5. An Isolator was placed on the 140.160 MHz transmitter. This isolator provides 20 to 25 dB attenuation of signals travelling into the transmitter. Result--no perceptible change in the intermod on the repeater's receiver.
6. The Isolator was then placed on the 143.685 MHz transmitter. Result--no perceptible change in the intermod on the repeater's receiver.

The following week the 142.635 MHz transmitter was checked. Even with the insensitive spectrum analyzer, due to path loss considerations, any signal regenerated by this transmitter on 146.160 MHz should have been clearly observed. There was no signal being generated. It should also be noted that this transmitter was moved during June to a new site located approximately 400 metres west of its original site. A new feedline, antenna structure, and antenna were installed at that time. No significant difference in the level or occurrence of the intermod can be credited to this move.

Therefore it seems clear that the intermod is definitely not being generated at the 142.635 MHz transmitter. It may be generated by one of the paging system transmitters, although because of the design of this system it is not very likely. The important result to remember is that the intermod seems to be present only on dry days and rarely occurs during damp days. The Department of Communications seems to think that the intermod is being generated in an antenna structure. After some thought as to signal levels and the design of the commercial systems at the site, I must agree with this conclusion.

HR BULLETIN 28 (PACKET CRLE0028) FROM CRRL, LONDON, ONTARIO, 1989 OCTOBER 15, TO ALL RADIO AMATEURS BT

- 1 A number of amateurs have contacted CRRL to ask about progress on restructuring. All indications are that things are on schedule. Regulations, syllabus, and questions banks are expected to be ready by next March. The new regulations will be promulgated for several months after that, putting implementation date for the restructured Amateur Service at September 1990.
- 2 Prefix hunters, take note. To commemorate the 350th Anniversary of the first European settlement in Ontario, Ste-Marie-Among-the-Hurons located near present-day Midland, Ontario, amateurs in Ontario may use the special prefix XL3 for one month: October 24 to November 24.
- 3 Congratulations to South Pickering Amateur Radio Club for being first winner of the new CRRL Field Day Trophy by earning the highest score of any Canadian station in this year's Field Day. The South Pickering club earned 9634 points operating in category 6A. Other Canadian top scores: VE7NA (2390, 1A), VE2UMS (3300, 1AB), VE2QST (2200, 1B), VE3OS (3100, 1BB), VE3HK (466, 1C), VE3NUL (996, 1D), VE2ABO (1080, 1E), VE1FO (6506, 2A), VE2JJ (2324, 2AC), VE1ND (6962, 3A), VE2IG (1282, 4A), VE3IC (4290, 5A), VE3OW (9482, 8A), VE3SAU (3250, 9A), VE3WE (4795, 9AB), VE3CHC (4240, 12A), and VE3NAR, Nottown Amateur Radio Club which supplied the new CRRL trophy (6568, 14A).
- 4 The Defence of Amateur Radio Fund (DARF) is growing. The November issue of QST Canada lists over \$1000 in donations received in September. Early this month, the fund received \$500 from Winnipeg Amateur Radio Club. Thanks to all. Please help IARU defend our amateur frequencies at WARC '92 by sending your donation to DARF, Box 56, Arva, ON N0M 1C0.
- 5 Some notes from all over: Nominations are now open for the office of Maritimes-Newfoundland Section Manager. For full details, see October QST Canada. South of the border, a budget bill before US Congress would reintroduce licence fees for US amateurs. Proceedings of the 23rd Conference of the Central States VHF Society, a collection of technical papers of interest to amateurs operating on 50 MHz and above, is now available from ARRL. For those continually in search of the ultimate rig, Kenwood is introducing its new TS-950SD at Amateur Radio dealers this month. Don't forget the World Scout Jamboree on-the-Air, October 21-22. Details in CRRL Bulletin 27.

AR

UPCOMING EVENTS: CRRL "QST" QSO Party - phone - November 11-12

73 DE VE3GRO

VE3ITQ

VE3NCF - 5

The CTCSS frequency chosen is the common frequency tone for the Western New York & Southern Ontario Repeater Council (WNYSORC) Region and will be published in all repeater directories. Eventually, all repeaters will be running CTCSS.

CTCSS 100.0 Hz
 Enable CTCSS: 7911 response: "CTCSS 100 Hz ON"
 Disable CTCSS: 7910 response: "CTCSS 100 Hz OFF"

Finally, I would like to express my appreciation (on behalf of the H.A.R.C.) to Mr. Vince Zvonar and Mr. Ron Wheeler of the Department of Communications for their time and suggestions. Also, the technical staff at National Pageite and General Electric Mobile Radio for their assistance and cooperation.

SAN FRANCISCO EARTHQUAKE LESSONS.

I started to receive messages from several SysOps that they wanted me to stop sending them traffic and one night got a call from Larry WB9LOZ, SysOp at W6PW that he already had 700 NTS messages backed up and could I just stop for a while. I explained to him that the message flow was like a freight train and that we could not just stop at certain points but would have to stop the whole flow. If I stopped forwarding out to the destination BBSs, I would have thousands of messages here and ultimately blow up. We would have to shut it off farther back stream or just shut down the gateways.

We tried to contact KAGETB the NCN Packet coordinator to see if we should send out a national bulletin asking everyone to please slow down the H&W and eventually one was originated. I knew that it would take several days for an @USA bulletin to make it around sufficiently to have any effect so we had no alternative but to keep on forwarding.

We need to think more about this flood problem and figure out a better solution. I am sure we will be discussing it heavily in the future but we did the best we could in the first 3 days after the quake.

One important lesson learned here in the SF area is that packet turned out to be the most efficient means of delivering H&W traffic and while I have not heard the numbers from other gateway stations, I am now over 6000 pieces of traffic since the quake and I am sure the total will be in excess of 10,000 messages handled via packet. This is quite impressive since this is a tremendous increase in normal packet traffic and the software, systems, network and operators were able to respond wonderfully to this flood of traffic.

I have heard horror stories from the guys who were handling H&W on the HF SSB

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.

QUAKE - 3

routed by BBS and ZIP code does not work for it but the NTS ZIP delivery system is well established and each NCPA BBS is provided with a complete list of zip codes for all of northern California and where they are supposed to be delivered.

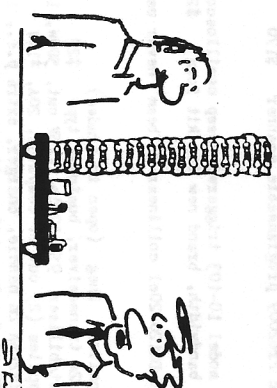
Messages received without ZIP code, die until manual intervention.

These are just some of the lessons which we have learned. I am sure many more will be thought of in our afteraction meetings.

In summary I think that the San Francisco Earthquake was the first great test for this new technology which we call packet and although I'm sure we will be able to find some faults, in general packet performed wonderfully under what at times seemed like an impossible situation. My thanks to all the SysOps around the country who helped...

Lew NGV

p.s. An interesting sidebar. All of these thousand of messages that were delivered were transmitted on 220.90 MHz. I can only hope that UPS will be able to utilize that frequency as effectively as we harrs did during the Quake of '89



I DIDN'T HAVE A 1 OHM RESISTOR, BUT
I HAD TWENTY 20 OHM RESISTORS...

FNDM
TEAM
NEWS LETTER

SAIT:

VE3IU: AJ
632 1550

-circuit diagram for Harconi GIBSA receiver
-ratchet winch