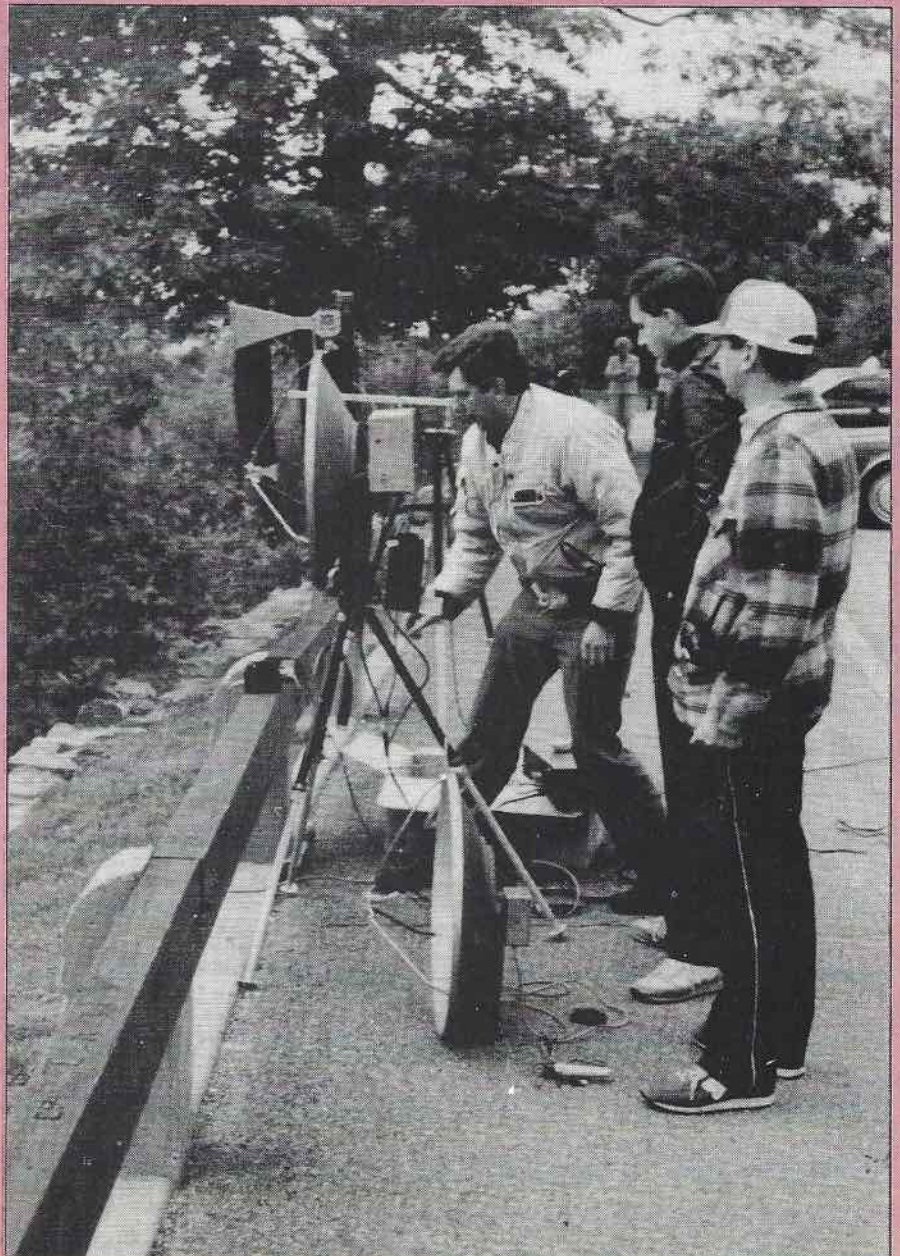


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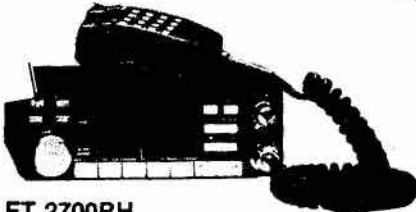


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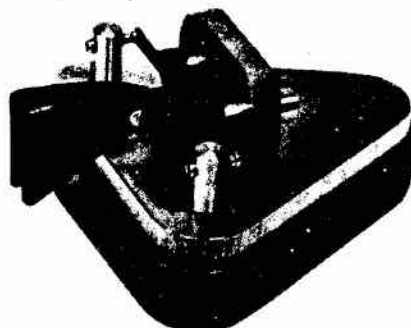


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TCA— The Canadian Amateur is published in Canada 11 times per year to provide Radio Amateurs, those interested in radio communications and electronics, and the general public with information on matters related to the science of telecommunications.

Unsolicited articles, reviews, features, criticisms, photographs and essays are welcomed. Manuscripts should be legible and include the contributor's name and address. A signed article expresses the view of the author and not necessarily that of C.A.R.F. Publications Limited.

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WHAT IS ?

The Canadian Amateur Radio Federation, Inc. is incorporated and operates under a federal charter, with the following objectives:

1. To act as a coordinating body of Amateur radio organizations in Canada;
2. To act as a liaison agency between its members and other Amateur organizations in Canada and other countries;
3. To act as a liaison and advisory agency between its members and the Department of Communications;
4. To promote the interests of Amateur radio operators through a program of technical and general education in Amateur matters.

EDITORIAL

QUA 

How long will we keep our bands?

description of how Amateurs in Calgary get election results to the returning officer in jig time. If someone in Calgary proposes that antennas should be restricted to one metre above the building, or some such impractical limit, the VE6s won't have to spend a lot of time educating Calgary council about what they do!

Then, in 'From the Clubs,' you will read the story of how these same Calgary Amateurs helped their local utility during a vicious storm last winter. The thread that unites these stories is service.

In last October's *Canadian Amateur*, VE7AHB set out the reason why we retain our immensely valuable spectrum, despite the enormous commercial and military pressure for ever more channels. The reason is set out in the ITU regulations as Resolution 640, where the only reasons for exclusive Amateur bands is given as the service Amateurs render during emergencies.

Every Amateur should understand clearly the intent of Resolution 640, and realize that the glorious fun available on our bands is to be paid for by readiness to help in emergencies.

Our bands are not there just for us to collect pretty postcards, or to see how many other stations we can briefly QSO with on contest weekends, or to talk to some fool who has risked his neck to set up shop on some worthless speck of rock in mid-ocean, or to ragchew by the hour on trivialities. These occupations are immense fun, and are to be enjoyed to the full—but we pay for them every day when we help our fellow-beings out, using our specialized knowledge and equipment.

Suppose you are faced with an emergency, where your knowledge of signalling will be of use. You have a radio: what bands will you choose? What mode?

If you are within range of a repeater and have 2 m equipment, your answer is simple, 2 m and FM phone. If you are not within range of a repeater, or if you do not have a 2 m rig, your choice is one of the HF bands, one in which experience tells you propagation will be favourable. The mode of choice is Morse.

The reasons are, that in the Amateur bands there is no multi-kilowatt QRM, and there is always someone listening. Morse will cover the widest area, and needs only a receiver and a trained ear to copy it.

Read and re-read the four items I have referred to. Here is the definitive answer to the question: "Why do we have to learn Morse?" Here is the reason why taxpayers' money is put out on Senior Citizens' radio clubs. Here is abundant ground to be proud that you are one of that elite group, radio Amateurs.

Review your own emergency preparations. Your mobile needs flares, fire extinguisher, first-aid kit. A club station should have iron rations and drinking water to supply the operators for some hours if disaster strikes. Your repeater should have a big truck battery to keep it going for a day or so if power fails.

If you are instructing a class, make sure you indoctrinate them into this tradition of service. Remember the moment we cease to serve and become a bovine hobby, we shall lose our bands—forever.

BY VE3DQB

This issue of *The Canadian Amateur* carries four noteworthy articles. The first, a news piece, tells how London Amateurs served during the El Salvador earthquake, and how they put into operation a plan derived from their experience during the Mexican disaster.

Our first feature follows this, a review of the need for and a method of implementing emergency packet services. Packet radio is so new on our bands that emergency work has been scarcely thought of—we have been putting into place the equipment needed.

There follows a short

LETTERS

YOU'RE WELCOME, DAVE!

I have just received my plaque for winning the single Operator All Bands class of the 1985 CQ WPX CW Contest for Canada. The plaque is absolutely beautiful! I had it up on the wall within minutes of receiving it. Thanks to CARF for sponsoring the trophy, and to Norm Waltho VE6VW for his work on the CARF Contests Committee.

73, Dave Goodwin-Hill VE2ZP

FROM THE HONOURABLE MARCEL MASSE

Mr. Ron Walsh, President, CARF

Dear Mr. Walsh: Thank you for your letter of October 21, 1986 and your kind words of appreciation.

I thoroughly enjoyed the opportunity to work with the Canadian Amateur Radio Federation and I am very happy to learn that your station met with the success it deserved at Expo 86.

Please extend my best wishes to all your colleagues and to all the CARF members.

Marcel Masse

(Mr. Masse signed the VE7EXPO licence personally as Minister of Communications. See TCA July's cover— Editor.)

EVERYONE GETS AN A!

I am in agreement with your proposed structure of the Amateur Radio Service in Canada (September 1986), particularly the points about the naming of the certificates, and your suggestion that all Amateurs should be permitted to continue with experimentation and building.

As a former scholar, it makes much more sense that the reward for extra work is an 'A,' instead of everyone gets an 'A,' and if you work really hard, maybe you can work your way down to a 'B' or a 'C.'

In my case, most of my experimentation and building was done during the first couple of years after obtaining my ticket. If I had been forced to purchase commercially built equipment, I rather doubt that I would even have gotten on the air.

73, Paul Henderson VE3DDP

HELP WANTED

There will be a 'Cross Canada' Olympic Torch Relay prior to the opening of the 1988 Winter Olympic Games in Calgary. This run will take almost three months to complete and touch all provincial and territorial capitals as well as many other

communities on its journey across our country.

As I am based in Calgary, I have been asked to assist in co-ordinating the communication side of this event together with Hams all across our land, so this letter is by way of being an introduction from me. At first glance the task appears enormous as it involves arranging for some 80-90 teams of people to provide the mobile day-to-day help needed as well as fixed stations, backup teams and transportation, but given about 12 months in which to prepare I am certain we can fulfill the task.

These first letters are going to each Provincial Organization as well as to the Canadian Radio Relay League and the Canadian Amateur Radio Federation in the hopes that you will pass this information on via your publications to as many Hams as possible. I would also appreciate some direct help in the form of a list of all clubs in your province with their addresses so that I will be able to make direct contact with people who are on or near the route of this torch run for the next stage in this organization.

Any suggestions you may have will be very welcome as we will only have one chance to do this, so we have to do it right the first time. I will, of course, keep you informed of the progress of this undertaking.

Looking forward to hearing from you or, better still, having a chance to meet you in one of my business trips across the country.

Don Cole VE6EY,
923 Whitehill Way N.E.,
Calgary, Alberta T1Y 3G1
403-280-4117 (Recorder)

IF WE COULD BUT SEE...

VE3CES' editorial in the November TCA deserves comment.

During WWII large numbers of soldiers, sailors and airmen were engaged in radio communications, but only a small percentage of these used CW to any extent. In a Canadian infantry division, these would be members of the R.C.C.S. and would number about 500 per division, or about 5000 in the Canadian Army that served in Europe. These operators were that— 'operators'— with little technical training and knowledge as a relatively small crew of technicians were there to maintain and repair their communication equipment but did no operating. The majority of operators, particularly

SILENT KEY

Alexander Gibbons VE1CAZ of Joggins, Cumberland County, N.S. died Thursday October 9, 1986 in Highland View Regional Hospital Amherst, after a lengthy illness.

those "for the squadrons of tanks and infantry divisions" used R/T (or 'phone' as we now call this mode) and this certainly did not give them the necessary knowledge to use when they returned home and became Amateurs. But Canadian Amateur radio went from zero to about 8000 in the five years following WWII so a significant number of war trained persons must have become Amateurs in that period, myself included.

Canadian Amateur radio stumbled along with a slight, steady growth until the early 70s when thousands of citizens became acquainted with the GRS, and its limitations, and became Amateurs to give them greater scope as radio operators. At the same time, DOC changed the content and format of Amateur examinations so that the majority of citizens could qualify after a one-semester (50 hour) course. The number of Canadian Amateurs rapidly grew to over 20,000 but, in 1979, DOC again changed the content and format of Amateur examinations and growth virtually ceased. To illustrate— in early 1986, the Kingston ARC held a 'streamlined' Amateur course of 50 hours classroom instruction, teaching only what was required in TRC-24. Nobody qualified and it was estimated that 80 to 100 hours of instruction would be necessary on future courses.

There does not seem to be any shortage of persons interested in Amateur radio but very few are able, or willing, to spend 80 to 100 hours of their spare time to qualify. The proposed Restructuring, to which both CARF and CRRL agree, takes note of the need to stimulate growth and that the requirements for the Amateur certificate could be acquired by the majority of persons after 40 to 50 hours of instruction (one semester of three hours per week) and certainly does not "reflect the idea that a retiree should be able to pass without much effort."

Growth will not be stimulated by only reducing amount of instruction needed but will also require much positive publicity. At the moment there appears to be two main groups that will have interest in Amateur communications— those nearing

retirement and looking for a worthwhile hobby and those interested in computer communications. The proposed Restructuring should prove attractive to both groups.

73 de A. E. Blick VE3AHU

NEW WORLD OF FRIENDSHIP

I thank you very much for publishing my letter and the article by student Robert DeGiorgio in the November 1986 issue of TCA and the evidence you gave with the title 'A New World of Friendship' that I like very much.

The principal of the Fr. Bressani Catholic High School, Dan Di Rocco, was very happy in seeing his students in TCA and asked me to repeat the display next year. I hope I can.

73 and best wishes for a merry Christmas and a happy New Year.

Fr. Eugene Baggia VE3OYT

TO MR. RALPH CAMERON VE3BEM

I read your column in TCA re the problems people had been having with interference on various pieces of equipment around the house and thought that perhaps you might be interested in one that we experienced here this past winter.

My son bought us a two-piece telephone last winter for Xmas. We were away on a trip and it was about the end of Jan. It consisted of a standard phone with some of the new options on it and also a portable remote phone that could be used along with it.

We used this phone a little and then we began experiencing some strange things with it which, at first, we blamed on outside interference from some source remote from our house. Our garage door took to opening on its own at various times and our TV developed the habit of coming ON and OFF at times—once in the middle of the night. When it came on and turned off three times in one afternoon I decided to remove that darned phone. I replaced it with a different model entirely with a remote phone and the problems disappeared.

Frankly, I originally was blaming some local Ham or CB'er or someone in the area with a portable telephone transmitter in his car. I am certain that the first thing that happens when interference develops on someone's appliance in the home is the local Ham is blamed. The cause of over 50% of the complaints registered with the Dept. of Communications turned out to be CB'ers. It does not seem to do much good to try to explain to people that: (a) Interference can be caused by many, many other pieces of equipment now being used by the public and (b) That manufacturers, as

a rule, pay little or no heed to proper shielding or trying to prevent stray signals from getting into the equipment they are selling to the public.

As time goes on I am sure that this problem will get worse until the governments of various countries

establish some fairly rigid rules on how or what manufacturers of equipment for public use must do to try to make their equipment more resistant to interference. VCR's seem to be a good case in point.

Les Nelson VE3BLD



Government of Canada
Department of Communications

Gouvernement du Canada
Ministère des Communications

Mr. Ron Walsh, VE3IDW
President, CARF
P.O. Box 356
Kingston, Ontario
K7L 4W2

Dear Mr. Walsh,

Thank you for your letter of September 18, 1986 in which you enquired about the status of the proposed regulatory amendments to the General Radio Regulations, Part II that would allow the use of the 18 MHz and 24 MHz bands by radio amateurs.

Regrettably, due to other regulatory priorities and limited resources these proposed amendments have not been promulgated. A concerted effort, however, is being made to have the regulations promulgated by April 1, 87. In this respect my officials forecast that this amendment to the regulations will be sent to the Regulatory Affairs Secretariat, who will then forward them to Privy Council Office (P.C.O.), by the end of the calendar year. Since this amendment is routine in nature, we anticipate their quick approval; no longer than three months in the worst case.

You may not be aware that as of September 1 all regulations must be forwarded to the Regulatory Affairs Secretariat and, with few exceptions, must be pre-published in the Canada Gazette, Part I for public comment. This amendment, however, may fall into the exempted category for pre-publication and we will be making representations to have it receive such an exemption. If the exemption is granted the regulatory amendments will be promulgated as soon as they are approved by P.C.O. and signed by the Minister.

Finally, there are no legal means by which amateurs may operate in the 18 MHz and 24 MHz bands prior to the promulgation of these regulations. While we can certainly appreciate that the radio amateurs are eager to use these bands we ask that they be patient and refrain from using them until the regulatory amendments have been promulgated.

I trust that I have addressed your concerns.

Yours truly,

R.W. Jones
Director General,
Radio Regulatory Branch.

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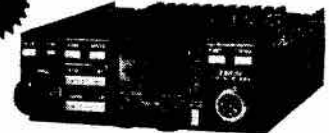
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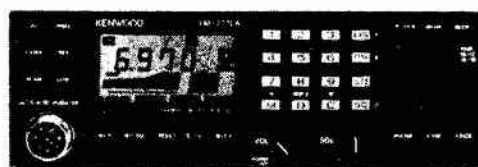
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DOC News

Electromagnetic Compatibility Advisory Bulletin

The DOC's Telecommunication regulatory service published a revised Electromagnetic Compatibility Advisory Bulletin in 1982. This document is frequently referred to in this column and in CROSSWAVES.

The bulletin is too long for inclusion in *The Canadian Amateur*. Here is a summary of the document.

Electronic equipment in an urban environment may be expected to encounter radio emissions from authorized transmitters. The emissions span the spectrum from 0.014 MHz (yes, 14000 Hz) to 10,000 MHz.

The power radiated by these transmitters ranges, according to the Bulletin's table, from 11 dBW to 97 dBW. (dBW is the power radiated referred to a 1 watt transmitter. 11 dBW represents about 12 watts ERP, 97 dBW just under 10000 watts ERP—the power of a large radar installation.)

Curiously, the table assumes all Amateurs use powers of 40 dBW, or 10 kW ERP, which is probably the exception rather than the rule.

The field strengths to be expected from these authorized transmitters, allowing for the usual separation of distances, varies from 0.1 to 90 volts per metre.

From this date, the Bulletin derives three grades of radio environment immunity, grade 1 at 1 V/m, 2 at 3 V/m, grade 3 at 10 V/m throughout the spectrum to 1000 MHz, above which grades 2 and 3 rise to 5 and 30 V/m respectively.

The implementation of the Bulletin's recommendations is left to industry. Measurement methods are left to CSA and CISPR, the international body.

The Department stresses that if Canadians are to enjoy effective use of the radio spectrum and satisfactory performance from electrical/electronic equipment simultaneously, there is a real need to have electrical/electronic devices to be immune to the radio environment.



Government of Canada
Department of Communications

Gouvernement du Canada
Ministère des Communications

Ronald E. Walsh, VE3IDW
Canadian Amateur Radio Federation Inc.
P.O. Box 356
Kingston, Ontario
K7L 4W2

November 4, 1986

Dear Ronald,

Thank you for your letter dated October 16, 1986 informing us of illegal use of amateur radio frequencies by Alaskan fishing vessels and CARFs offer to assist in resolving situations of this nature.

I have notified the FCC Treaty Branch and requested our Pacific Regional office to monitor this situation.

We welcome CARFs offer of assistance and invite you to report any observations of illegal activity or intrusions into amateur radio frequency bands, such as the Alaskan fishing vessel situation, to any of our offices listed in IRC 66.

All reports should provide specific information such as: date/time, name(s) of persons or vessel(s), frequency, modulation and any other pertinent details (QTH, call signs...etc). The precise report format I will leave up to you.

Should you have additional information regarding the fishing vessels situation, please contact Merle Styles, Spectrum Control Regional Manager Pacific region or any of our Spectrum Control Standards officers at 990-4745.

Peter Dalton
Spectrum Control
Standards Officer

THE CANADIAN AMATEUR RADIO REGULATIONS HANDBOOK AMENDMENT #4

Pages 78-80 Schedules IV, V and IX
Items 10, 16 and 23 respectively
(902.000-928.000 MHz)

amend Column to read— "A0, A1, A2,
A3, A4, A5, F1, F2, F3, F4, F5."

NOTE: The D.O.C. Document SP
300.89 authorizing the above change
reads in part:

"3.4 Industrial, Scientific and Medical

The 902-928 MHz allocation is designated for industrial, scientific and medical (ISM) applications. Radio services operating within this band must accept harmful interference which may be caused by ISM applications.

"3.5 Amateur Service

The amateur service will continue to have secondary status in the band 902-928 MHz throughout Canada. After promulgation of the appropriate enabling regulations, amateur licensees may use any of the following emissions: NON, A1A, A2A, A3E, A3C, C3F, F1A, F1B, F2A, F2B, F3E, F1C, F3E (the equivalent former emission designators are: A0, A1, A2, A3, A4, A5, F1, F2, F3, F4, F5). The regulations will include a requirement to consult with the Department before operating in this band to ensure interference will not be caused to other services operating in the band as per Section 45 of the General Radio Regulations Part II."

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Not A Rerun

BY FRANK SALTER VE3MGY —

It occurred to me that I should call this short article 'Lessons of October,' but unfortunately the title was once used by Lenin in a completely different way, and the article has nothing to do with politics. Besides, it wasn't a revolution that caused all the action in October, it was the earthquake in El Salvador.

Our lessons came when we tried to coordinate health and welfare traffic during the period after the earthquake in Mexico. Our experience during that period indicated that we could do things more efficiently. After the earthquake in Mexico, about five Amateurs in London consistently handled traffic, with minimum coordination between the stations that were operating. We discussed the form of operation later and decided that there may be a better way.

From the discussions which were initiated by ARES and the London Amateur Radio Club, it was decided that if another occasion such as the earthquake occurred, we should have a central telephone number for people to call, use a central station for sending and receiving messages and attempt to use persons who speak the target language as the message passers and receivers.

After the earthquake in El Salvador, the London Seniors Amateur Radio Club station was used for passing and receiving messages. The station has a beam and a Kenwood TS120S, which was quite sufficient for traffic into Central and South America on 20 metres. Unfortunately, my home phone number was the number used as a central calling number, and my family members reminded me that not everyone has the ability to copy messages from persons whose command of English is not good. However, while not terribly efficient, the system still worked, thanks to the patience of both my family and the callers.

¿ HABLA USTED ESPAÑOL? —

Assistance in the interpreting came from Dr. Rafael Martell and Orlando Valencia, who quickly learned radio procedure and were invaluable in

negotiating with the central and South American relay stations. Because of their efforts, we were able to bypass the U.S. stations and work through the Latin American ones.

These nets were much more receptive to traffic from Canada and after the first day, traffic was passed through them exclusively. In the next two weeks, we passed over 120 messages and got the replies. In addition, we took messages from El Salvador to Montreal, Ottawa, Kitchener and Toronto.

CFPL-TV and the *London Free Press* assisted our effort by doing a story on the club effort and published the telephone number. The Cross Cultural Learning Centre in London also informed their members that the Amateur radio fraternity would assist them in making contact with El Salvador, and the results were that our efforts were well-broadcast and, incidentally, well appreciated.

Next time... which, unfortunately, seems to be inevitable, considering the recent movements in the Pacific rim, there are some other improvements which the system could benefit from. The central location and central message concept are quite effective. However, if it is possible, we will attempt to have a bilingual person take messages in the future and try to use one of the members of an association from the affected area to take in messages.

Some consideration to using an amplifier is being given, since this would improve signal strength if the distances are greater than Central America. With these improvements, our next outing should run a bit more smoothly.

¿ PORQUE? —

Why this need to concentrate all messages into one location and collecting point? There are reasons which appear to be logical, and if there are flaws in the logic, any comments would be appreciated. The three elements which comprise this concept are the use of a central station, a central telephone number and an interpreter or speaker of the target language who passes

messages. These we will treat in reverse order.

When listening to persons unfamiliar with Spanish trying to pass a message, it is painful to listen to the operator trying to pronounce the name in phonics unfamiliar to him or her. It must be equally painful for the Amateur on the other side trying to decipher the name and make it into something he or she can call on the telephone.

Telephone numbers also present quite a problem, and it is typical in Spanish to pass on numbers by using the ordinal numbers as a check to the cardinal numbers... one, three and then first, third. The Amateur who is attempting to write down the message, in our experience, takes from three to five messages before passing on to the next caller.

By using a Spanish speaking operator, we passed from 10 to 30 messages at a time, and since our operator was from El Salvador, he was understood quite correctly. In addition to that, other Latin American operators were most cooperative in getting traffic from Canada through, a contrast to the reception we received on U.S.-operated nets. In addition, our operators did not preface their message passing with a case history, which is a frequent occurrence.

CUT THE CACKLE —

Imagine your reaction if you were in the earthquake area and someone came on the air and said "This is ##4###, the official RACES station of Muggywoggy, Alabama, and we have a young man here who comes from San Salvador. Now his parents live about two blocks from the United States Embassy in San Salvador and he is concerned about the safety of his mother and father and all his family there in San Salvador. Now we were wondering if you could take a message and try to contact his parents and see if they are all right..."

As sympathetic as we may be to the young fellow's problem, it describes the plight of just about everyone who is attempting to get a message through. If all of the stations calling in

gave a case history with every message, it would take forever to get the information through and get the answers back.

Our operators were to the point... repeat the message twice, get a QSL and get onto the next message. The stations in El Salvador would accept ten to fifteen of our messages when others were allocated three to five, but we did not argue for equal numbers. We probably did get equal time, but we utilized it in a constructive manner. Very little time was wasted in the passing of names when the names were given in Spanish, and the numbers were also quickly understood.

Why a central station for passing messages? There are several reasons why this *modus operandi* was used...first of all, there were only about ten consistent operators on the air from El Salvador, and they all got to know our call sign. In fact, traffic was passed to us as a Canadian station that would pass traffic anywhere in Canada. They also knew that we could copy quickly and accurately, so little time was wasted in spelling name and guessing at numbers. Another reason was the station's control over the messages.

THE DUPE LIST

With one central station passing the traffic, we did not repeat the same names several times. When multiple stations are used, there is a very good chance that the same names will be repeated. Such practices are a waste of time and, if the same station in El Salvador were to get the same message from two people in the same town, it would lead to a suspicion that things were not too well coordinated.

Finally, collecting names at a central telephone number also helps in not duplicating efforts. Our list of names was an exclusive list, and we were able to eliminate duplication of messages from the source.

In the El Salvador earthquake, two telephone numbers were used, but eventually it became one when the number was published in the paper and over CFPL-TV. It was possible to check both the lists at the station and ascertain that we were not doing a rerun before going on the air. Our only duplication occurred when we could not recontact a station which had taken about 15 of our messages, and we had to relist them the next day.

Using this system, our turn-around time was about ten minutes to 24 hours... considerably better than the times we experienced during the earthquake in Mexico City. With the use of a telephone number of a speaker of the language in any other exercises such as this, we hope to

improve on the method and provide a smooth and efficient service.

Needless to say, the whole exercise took a lot of volunteer help. First of all, there were our Spanish speaking operators who took many hours out of their life to assist in passing traffic. Dr. Rafael Martell, Orlando Valencia and Lorena Gonzales did yeoman service as our official 'Voice of VE3LS' during the three weeks we were in operation. Many of the London Amateurs volunteered their time to act as station control during the time of operation... usually during the dinner hour and later.

MUCHAS GRACIAS

Thanks go to John Ohnmacht VE3JO, Hugh Clark VE3WM, Wayne McKinnon VE3LSU, Ced Tanner VE3BBI, Ken Bidner VE3OEL, Jack Herman VE3LSD, Leroy Blynn VE3AJQ, Clark Campbell VE3KSQ, Jack Strangleman VE3GV, Ed Dutton VE3EWO, John Frangos VE3NRP, Len Dantzer VE3LST, Naralon Thorn VE3LRU, John Cramm VE3MBP and many others who assisted in the effort. Finally, the London Seniors Amateur Radio Club, VE3LS, deserves a thank you for the use of their club station. Its operation brought good news to many people.

SWAP SHOP

FOR SALE: HOME in Nakusp, B.C., 733 Columbia Crescent. Nine yrs. young, 1450 sq. ft. plus 325 sq.ft. court-yard-sundeck. Beautifully fenced and landscaped. Double garage, Sauna with pool. Underground wiring, sewer, street lights, side walks. EXCELLENT DX-Location. Curling, fishing, golf, Hot Springs, Ski Hill. Contact VE7EHD, 604-265-3175.

FOR SALE: Oscilloscopes: Hickock 500 series, dual trace and differential amp, delaying sweep, \$350; Eico 460, \$190., new tubes; Heath 10-4540 - 6" square CRT, solid state, \$230. All in top mint condition with manuals. Reason for sale: have new scope. Also, HF Linear Amplifier, 400 watt out, AL84 Ameritron 10-160, new tubes, original spares, manual, used three months, \$550. Reason for sale: home brew kilowatt Hi. Barrie Coates VE7AQK, Box 3463, Langley, BC V3A 4R8 (604) 581-0924.

FOR SALE: Zimbeam—4-el. all driven 20m homebrew beam; 4 section anodized aircraft quality elements; brackets, clamps, everything aluminum or zinc-plated, very heavy duty. Must sell, \$350.00 (cost). Gary Van Overloop 4444-33 St., Red Deer, AB T4N 0N4 403-342-2862.

FOR SALE: Accu-Memory Keyer, excellent condition, large Hammond Transformer 5000 Volt range, 1 amp 120 volt inlet. (Used on military teletype). Any reasonable offer. Percy Crosthwaite VE5RP, RR 3 Saskatoon, Sask. S7K 3J6 668-4619.

FOR SALE: The TS940SAT complete w/IF10B RS232 plus filters. \$3300.00 1 month old. TS440SAT Power Supply 50, \$1900.00. Barry Greenwood VE3ADA, 416-251-3535.

FOR SALE: Hallicrafters SR400 Cyclone Xcvr w/pwr supply and spare finals. Working condition, output about 175 watts. \$275.00 FOB Dunvegan. Will ship your expense via UPS. Ian McAuley VE3MYO, RR 1 Dunvegan KOC 1J0 or Phone 613-525-1770.

FOR SALE: Heath HA202 2M amplifier, 5 to 15 W input, 20 to 50 W output. Asking \$50. B.J. Wenner VE6WN, P.O. Box 66, Ralston, Alta. T0J 2N0. 544-3325.

WANTED: Wireless Set No. 19 equipment

and accessories. Especially looking for power amplifier and pocketwatch. I am willing to buy and/or trade equipment. Please write to Chris Bisailion VE3CBK, 91 Varley Drive, Kanata, Ont. K2K 1H5.

WANTED: Ten-Tec Delta 580 transceiver in good condition. Doug Conrad VE1ZL, Box 306, Armdale, N.S. B3L 4K4, 902-477-7536.

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THE FOXX ATU

A FOXX transceiver was constructed, and adjusted to give 1 watt over a 50 ohm resistor. A W2JEK ATU (TCA March 86 p38) was built to complete the unit, using a small transistor radio tuning capacitor.

The unit now gave barely 150 mW output. After untold grief the ATU coils were transferred to an air dielectric capacitor, and output immediately rose to 1 watt. A second plastic dielectric capacitor was tried, and gave the same miserable output as the first.

It appears that the plastic film used in these tiny capacitors is too lossy for use in a transmitter. This is a pity, for a capacitor of 1 cubic inch (15 cc) allows the entire unit to fit neatly inside a cheap, sturdy, elegant conduit outlet box.

Can anyone recommend a make of capacitor of these dimensions and suited to HF?

— VE3DQB

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GD-7/2KW	\$ 229	+ 8.90	#1217*	\$ 69	+ 6.90
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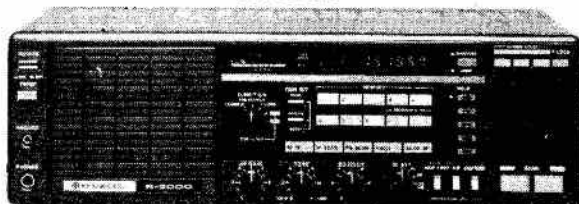
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Digital Communications and Emergency Work

BY G.G. FRASER VE3HSF

PROLOGUE

The present state of readiness of emergency Amateur digital communications is exceedingly low. I know of individuals who are interested in emergency digital work and I know of others who have made efforts to assemble the equipment to do emergency work but common effort is sadly lacking. This is not a criticism of the people involved in packet radio or the emergency coordinators. It is a function of the newness of the mode and its phenomenal growth over the last few years.

This growth and our ever-expanding sophistication with this new mode allows us now to plan a suitable emergency response which will augment and assist the voice channels during emergency conditions. The purpose of this paper is to stimulate dialogue among the many groups in the hopes that, by this time next year, we have in place a comprehensive emergency plan of action which includes digital communications for each of the major centres in Southern Ontario.

THE EMERGENCY

Traditionally the emergency has been one involving an act of nature. If one were to take a survey of the back issues of *QST* or *TCA* one would quickly come to the conclusion that earthquakes, hurricanes and tornadoes provide the vast majority of emergencies. These emergencies will always be with us.

Today however, new types of emergencies can occur that have never even had the potential of happening before. Of these, some of the most frightening are chemical spills, gas emissions and radiation leaks. These new dangers add to the traditional ones to produce a greater potential for disaster than we have ever seen before in the industrialized world.

THE EMERGENCY RESPONSE

In any situation where large numbers of people must be evacuated, the Red Cross plays a significant role. Their mandate is to

provide for the comfort of the displaced by setting up shelters and mobilizing community effort. The ARES has had the responsibility of providing communications to the Red Cross so that their mission of mercy and comfort may be more effectively completed. Of course the Amateur radio community at large provides for others as well, but since I am a trained Red Cross emergency services worker I will address my comments to Red Cross support.

Typically the Red Cross responds to an emergency where large groups of people are evacuated by setting up shelters in local churches, schools or arenas. These shelters provide for the needs of the inhabitants until the danger abates.

In parallel with the above task, the shelters also carry out the critical function of R&I (registry and inquiry). The occupants of each shelter are interviewed by Red Cross workers and a registration form is filled out (one per family). These registration forms (see figure 5 & 6) provide the Red Cross with all the information about the location and present status of the evacuees. Shelter occupants wishing to know the whereabouts of other family members fill out an inquiry form which requests information about their status. As well, others outside of the disaster area may want to know the status of their relatives and friends within the area. These people may go to their nearest Red Cross center and fill out an inquiry form.

The Red Cross must cross-index these forms at a location called the Central Registry. In the ideal situation, inquiry forms and registration forms will be matched together. Inquiries will be answered, providing much-needed information regarding loved ones to people both within and without the stricken area.

ARES contributes to the Red Cross efforts by providing communications in any way that is required. Some of the standard missions are as follows: shelter to shelter, shelter to central registry, central registry to Red Cross H.Q. (if they are different), and central registry to Regional H.Q. In some cases, if VIP Red Cross executives are

in the field, then hams may shadow them with handhelds giving them instant access to a shelter or the central registry. All of these standard missions are marked by one common element, large volumes of formal, informal and R&I traffic.

VOICE CHANNEL EMERGENCY WORK

In any emergency, the first communications established are the voice links. The portability and simplicity of modern equipment allow almost instant access to the stricken area or the shelters. The local ARES group has the responsibility to plan such reactions and to practice each year during a Simulated Emergency Test carried out under the sponsorship of the local Red Cross.

The various missions that have to be carried out can use many of the local VHF and UHF resources. Simplex work is done only in the absence of a local repeater. Long haul work is done on 40/75 metres if the site of the disaster is remote and linked repeaters are not available.

As of today, emergency planning for the most part consists of various flavours of the above scenario. The rest of this paper will deal with the integration of digital communication into the emergency mission.

DIGITAL CHANNEL EMERGENCY WORK

The nodes that operate in an emergency must produce hard copy and be able to work on DC. Transcribing from the screen to message forms introduces errors and seriously affects the throughput of the channel.

The local planning that must be done should consider that all AX25 TNCs can be used as digis. Since in a small centre there are few places big enough to act as shelters during an evacuation, TNC base stations close by can be relied upon for the first digipeat out of the shelter. LANs can be established to link shelters together, to link central registry and the shelters, and if possible, to establish a link to the .01 network.

However, even with analysis of the

TNCs available within a community, the ability of that community to support several different LANs, which would be required during an emergency, may not be possible. In such a case, the local club members might want to build a portable digi that could be deployed outside in all weather on the ground or on a roof. I have designed, built and extensively tested such a digi. It works well and when it is deployed has worked up to a week with moderate use on one battery charge.

Using such a portable digi increases the options of the local emergency response team by giving them the ability to custom-tailor LANs to the needs of the moment and, more importantly, to modify them when the needs change. I have included a parts list, sketch and blurb on my portable/emergency digi in Appendix 1. Its node address is VE3HSF-1 and is often heard on the Toronto LAN, 145.03 MHz.

MINIMIZING CHANNEL LOADING

We all know that channel loading can prove extremely frustrating. In emergency situations where vital data is being transmitted, it is of utmost importance that channel loading be kept to a minimum. However, when we are dealing with the .01 network we have the added problem of network loading that is being generated many nodes away. For instance, we might have an emergency in Barrie. Our main long haul digi for communications to Ottawa and Toronto would be VE3LSR. As we all know VE3LSR is a critical digi that passes much traffic along the backbone of the Province. Barrie might have an important emergency but others around the Province would not know of the problem and hence would still route their connects through Barrie. This would add to the congestion.

How do we let others know that there is an emergency in Barrie? The problem concerns the effective rate of propagation of information through a network. For those monitoring the LSR coverage area there is no information problem. The question still remains, how can someone not in the LSR coverage area understand that there is an emergency going on at LSR and not route either through LSR or through any digi that LSR can hear?

This is quite a task, for we must propagate the information through the network (ie. that there is an emergency occurring at LSR) yet not send beacons every few minutes indicating such. The ideal solution would involve somehow attaching

that emergency information to the packets that would normally be sent from the emergency area to other major centers in Ontario. All packeteers in those centers who could monitor would know at a glance that there was an emergency located in the coverage area of LSR.

THE SOLUTION

I want to suggest the following solution. Each of our TNCs can have up to 16 different addresses. They range from MYCALL (-0) to MYCALL-15 or in some cases MYCALL-F. (The hexadecimal numeral F on some TNCs is replaced by the number 15 on others). My proposal requires that everyone who is actively working the emergency set their TNC node address to MYCALL-E or MYCALL-14 whichever works on their TNC. I chose 'E' because it would stand for Emergency and because it is doubtful that anyone would have so many TNCs on the air at once that they would need one with MYCALL-14 (E).

This simple modification to the TNC's node address would be propagated throughout the network. It would be carried in all the emergency packets entering or leaving the area. Any casual monitoring of the data flow would alert all Amateurs that there was an emergency. Their duty at such times would be to abstain from originating packets on that network.

ERROR-FREE COMMUNICATIONS

One of the significant advantages of digital communications over the regular analogue form is built-in error detection and correction. That is, the data, if it is entered into the network correctly, will emerge from the network at its destination without modification or introduction of errors. This is invaluable especially when compared to the slow laborious voice channels with their phonetic spelling and their endless fills.

In emergency work where time is always of the essence, the digital mode of communications allows the users of the network (the major one being the Red Cross) to develop confidence in our ability to get the job done in a timely manner without distortion and errors.

Finally, in this section I want to discuss the scenario where the emergency occurs in an area isolated from the .01 network even though the local emergency group has LANs established for shelter and central registry communications. In this case the proper action is to use 40/80 metres digital communications. The question then becomes: what do we use on HF? We might use HF packet.

The state of that mode at the present time does not permit the throughput required or have the operator base needed for effective emergency communications. However, there is another digital mode that has several times the throughput of HF packet, has an installed base of active hams and has the error detection and correction required for accurate communications. That mode is AMTOR.

AMTOR IN EMERGENCIES

It is important that the planners of the emergency communications in my area consider the use of ALL forms of digital communications. In this paper I talk primarily about packet because of the form in which it is presented, however, I would be amiss if I did not mention AMTOR. With this capability either in place in the remote area or brought into the area and hooked up to a local 40/80 metre antenna system, long haul coverage of the whole Province can be arranged.

This is of great importance because with the new types of emergencies, Ottawa and Toronto might have to be in contact more or less constantly. For instance, several pages of highly technical information dealing with the proper handling of dangerous substances or medical information regarding such may have to be passed quickly and accurately. AMTOR mode A is ideal for this long haul digital communication.

Many packeteers have mentioned to me that AMTOR has a much slower throughput than packet and therefore should not be included in the plans for data communications. Such is not the case. AMTOR mode A transmits roughly 6.5 characters per second maximum or 80 words per minute. This means that an 8½x11" page of double spaced text of about 250 words in length, could be transferred in just under four minutes with the added guarantee that it would arrive without errors being introduced by the transmitting mode. This is fast even for VHF packet, especially when one is working multihop or the channel is busy.

Continued next month

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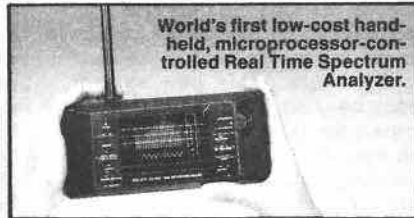


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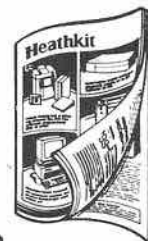
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Municipal Elections Hooked on Ham Radio

**BY ROY H. HOOKHAM VE6RH
AND KEN OELKE VE6AFO**

The Calgary public learned its civic election results this year within three hours after the polls had closed. Calgary Amateur radio operators were responsible for this remarkable feat, having relayed all the results from all 190 Polling Stations.

In October 1964 Dave Harris, Chief Returning Officer, and I got involved in the counting of ballots. The Election Act had introduced what is known as an 'Early Election Count.' This allowed an initial count at the Polling Station. The Deputy Returning Officers (DRO's) then telephoned the results of their count to a bank of operators at City Hall. After recording the results on sheets, the telephone operators submitted the counts to Key punch operators, who entered the information into a computer system. Printouts from the computer were issued to the news media.

Although this was a huge improvement over the old system, there were still problems and delays. Some Polling Stations did not have telephones available and thus had to physically bring their results to City Hall.

A more serious problem was the familiar old busy signal. There simply could not be enough telephone lines available at City Hall.

After the 1964 election I approached Dave Harris with a new idea: use Amateur radio operators to transmit the results from the Polling Stations to a Control Station Operator at City Hall.

The idea went over so big in 1966 that the Calgary Amateur Radio Association gave their blessing to this project. We recruited 20 hams who were 75-metre mobile equipped. They were assigned those polling stations that were without telephones, while I took my Base Station down to City Hall— complete with a 75 metre antenna, power supply and mike.

The day of the election I climbed to the roof of the Administration Building and tied the ends of my 75 metre dipole to the cupolas at either end of the building. I strung coax down the centre stairwell to the third

floor and into an office that had been selected as the Control Station location.

Two of us sat in the office. I manned the rig and recorded results on the Early Election Count sheets. An assistant Base Operator maintained a control sheet that kept track of each Polling station operator and type of count (Group number: 1 for Mayor, 2 for Aldermen, 3 for Public School Trustees, 4 for Separate School Trustees).

All 20 ham operators checked in on-schedule on 3,740 kHz just prior to the Polling Stations closing at 8 p.m. By about 8:20 the first of the results began coming in. We had finished our work at 11 p.m. This new system proved to be at least three to four times faster than the telephones.

Each year that election time rolled around the Calgary Amateur Radio Association once again gave their blessing. Increasing numbers of Hams volunteered their time and equipment to serve the public.

With the advent of new 2-metre technology we made another great leap forward. We were lucky that one of our members, Tony Mountjoy VE6MX, was an expert on 2-metre equipment. Smaller antennas, repeaters, and handhelds all combined to improve our coverage and efficiency. 2 metres opened the field to operate a base station within the actual polling station.

In the early 1970's, Municipal regulations changed so that elected officials served a three-year term rather than a two-year term of office. This gave us more time to recruit more hams and to prepare ourselves for each successive election.

Calgary's population had boomed by 1980, meaning a proliferation of new Polling Stations throughout the City. Nonetheless, Amateurs were covering in excess of 80% of the polling stations. In 1983 we fell short of covering all the Polling Stations by just 16 Amateur Radio Operators. Our procedures by then were fine-tuned and streamlined. Delighted election officials praised the speed and accuracy of our system. Their encouragement renewed our vim and vigour.

Now, in 1986, we managed to cover

all 190 Voting Sub Divisions (V.S.D.), which is the new name for a Polling Station. My dedicated assistant, Ken Oelke VE6AFO, took over the entire responsibility of assigning Ham Operators to the V.S.D.'s. Two hundred and seventeen of the 239 Hams that we contacted participated in the election. This represents nearly all of the active Hams in Calgary.

Using eight repeaters (seven on VHF plus 1 on UHF) we allocated about 24 hams to a Repeater. Establishing each Control Operator at his home rather than at City Hall eliminated the possibility of intermod between the base station radios, as well as eliminating the need to move equipment and antennas. The procedure sheets, assigned frequency, and the phone numbers of the 'Emergency' Home Station Operators were mailed to all the VSD ham volunteers. Control Sheets were drawn up as in the past and distributed to the eight Control Operators. Spare mobile operators were married to the Control operator's homes in case a VSD ham operator had problems with his equipment. Hence mobile could be dispatched immediately to the VSD to take over as a relieving operator.

The DRO at the VSD counted and recorded each of the groups which indicated Mayor, Aldermen, Public and Separate School Trustees and passed the results to the ham operator who transmitted those results to a Base Station Control Operator. The Base station Control Operator used a telephone linkup to City Hall, where results were recorded by eight City Employees directly to the early Election Count Sheets. Data Entry operators used a computer system that had been linked to terminals at all the required news media, who then reported on the progress of each candidate to the public at large. Within three hours after the polls had been closed, the Mayor and all 14 aldermen had been elected, and so had the majority of both Public and Separate School Trustees. The difference between using Amateur Radio in this system is certainly a far cry from the old system!

Amateur radio in the City of Calgary really does play a vital role of

From the Mexican Consulate, Montreal

COMMUNIQUE DE PRESSE

Le vendredi 31 octobre à 11h00, aux bureaux du Consulat général du Mexique à Montréal, le Consul général, monsieur Rodulfo Figueroa,

BRITISH SCHOOL OF TELEGRAPHY

The British School of Telegraphy is looking for its oldest former student. Since the school opened in 1906, he could possibly be a centenarian. All former students are asked to write to M.D. Spalding, Senior Lecturer, London Electronics College, London SW5 9SU.

Harold Bride, wireless operator of the Titanic, and Thomas Cottam of the Carpathia both trained at the school.

CORRECTION

The first Amateur to work all continents on the same day was Miss NELL (not Neil) Corry, and the date was Oct. 27 1935, not as stated in TCA October page 4.

Tnx VE4QL

TECHNICAL ARTICLES

TCA welcomes technical articles. Please send them to the Technical Editor, Bill Richardson VY1CW, RR1, Site 20, Box 63, Whitehorse, YT Y1A 4Z6.

FOXX KITS

FOXX Transceiver kits are available from \$40.; Box 855, Hawkesbury, Ont. K6A 3C9.

Page 16

public service. As well, it gives ham operators the expertise to perform under any situation when called upon to use their equipment.

The Amateur operators of the Calgary Amateur Radio Association who took part in this operation are to be congratulated for doing this public service task year after year. Most of them are eagerly looking forward to the year 1989 when once again we can play a vital role in the Civic Elections.

remettra la plaque 'Reconnaissance Nationale du 19 Septembre a la Solidarité Internationale' au groupe de radio-Amateurs qui ont organisé le 'Réseau de communication d'urgence Mexique-Québec-France,' lors du tremblement de terre qui a secoué le Mexique le 19 septembre 1985.

Cette reconnaissance a été créée par une entente présidentielle par laquelle un jury qui, après avoir reçu des propositions moyennant une convocation publique, l'a octroyée à des Mexicains et étrangers, individus, organisations sociales privées ou corporations publiques qui se sont distingués dans les tâches de sauvetage et secours des personnes touchées par les séismes des 19 et 20 septembre 1985.

La plaque de reconnaissance à la solidarité internationale qui sera remise est une reconnaissance symbolique au groupe de radio-Amateurs qui, dans leur qualité de citoyens, ont immédiatement mis leurs connaissances et leur temps au service des mexicains, tout en rendant un service essentiel lorsqu'une partie du Mexique était incommunicable avec l'extérieur.

Il est impossible de faire un bilan complet de toutes les personnes et les institutions qui se sont mobilisées pour aider le Mexique devant un désastre sismique dont la grandeur n'a pas de précédents. Les gestes de coopération et la volonté d'aider de la part de la population québécoise ont été multiples, ce qui rend difficile de reconnaître tous et chacun en particulier.

Le Mexique remercie l'initiative et l'efficacité de ceux qui, dès les premiers moments, ont créé le réseau:

— Monsieur Frédéric Prosper Dorval (du Québec), Monsieur Pierre St-Jean (du Québec);

ainsi que ceux qui ont participé intensément en renforçant le réseau récemment créé:

— Monsieur Marc Dardé (du Québec), Monsieur Ronald Belleville (de l'Ontario), Monsieur Alain Vincent (du Québec)

Il faut absolument reconnaître le travail actif d'autres radio-Amateurs qui se sont incorporés à cette tâche:

— Monsieur Gaétan Briand (du Québec), Monsieur Bertrand Dufour (du Québec), Monsieur Grégoire Lussier (du Québec), Monsieur Michael Masella (du Québec), Monsieur Serge Szpilfogel (de Nouvelle Ecosse).

Le travail de cette équipe a été possible grâce à tous ces radio-amateurs qui ont rendu leurs appareils silencieux, afin d'éviter les interférences et ils ont rendu plus facile le travail de communication d'urgence. À tous ceux qui ont participé avec leur silence respectueux, le Mexique leur exprime sa reconnaissance.

La coordination intérieure et le travail efficace accompli par les radio-Amateurs qui ont fait partie du réseau de communication entre le Mexique et le Québec et ultérieurement entre le Mexique et l'Europe (via Québec) a apporté de la tranquillité et des nouvelles opportunités à beaucoup de familles mexicaines résidant au Québec et a contribué aux opérations des troupes internationales en leur rendant plus facile la communication avec leurs pays d'origine.
Montréal, le 30 octobre 1986

On October 31, the Mexican Consul-General, Rodulfo Figueroa, presented the plaque 'National Recognition of international solidarity on September 19' to a group of Amateurs. The Amateurs had been selected by request of the President of Mexico for meritorious service during the 1985 earthquake.

While no complete list of those who then served is possible, the Amateurs named in the French text, from Ontario, Quebec and Nova Scotia, were thanked for their initiative and efficiency.

The work of these Amateurs was made possible by all those others who maintained silence during the emergency. Mexico thanks them all.

The circuits initiated and maintained by radio Amateurs between Mexico and Quebec and, later, between Mexico and Europe, brought peace of mind and timely news to many Mexican families residing in Quebec. They assisted the work of the international teams by facilitating their communications with their homelands.

HAMFESTS

Waterton International Hamfest

The Canadian Amateur was in luck! The Waterton hamfest 1986 had two photographers to record its activities. This, the 52nd annual one this year, is held on the third weekend each July. It was attended by over 400 Amateurs and families.

There were the usual activities: contests, swap tables, QCWA meetings, ladies' crafts, seminars and auctions. All were well attended and everyone had a good time.



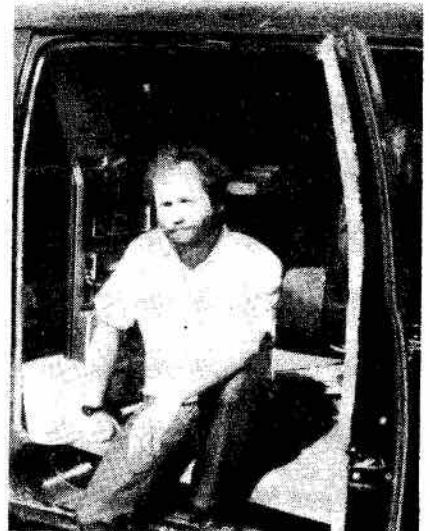
"Did I tell you about the time..." Left to right: George VE7CR, Brian VE7CRA, Jack VE7AJM, George VE7ERV. Photo— VE7BDW.



Above: Gerry VE6CNL officiates at the colourful ceremony of 'Saluting the 160 m antenna.' Photo— VE7BDW.



Blair VE6AGH conducted the auction while VE6CPP took the records. Photo— VE6VW.



"Who said he uses a 3CX 25000A in his final?" The DOC were there, with their van. Photo— VE6VW.

Kingston ARC Flea Market

Not an antenna falls to the ground in Kingston, it seems, but VE3NFU is there with his ever-busy camera. Here's his latest crop of picture recording the doings of the Kingston club.



This Page:

Right, top: Ron VE3IDW, CARF's president, listens attentively to Ray VE3FVI.

Middle: "What splendid company there is to be had in Canada!" says Kajetan Adamski SP5MR, here on a business visit to Montreal.

Bottom: Gordon VE3CJJ from Napanee, the Hub of the Nation, shakes hands with Ollie VE3LXO, CARF treasurer, who manned the booth with Debbie Norman.

Below: Eric VE3XE and Al VE3NFB at the KARC flea market. Photos—VE3NFU



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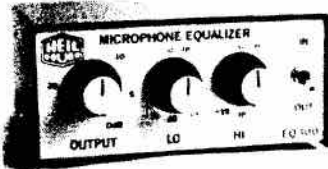
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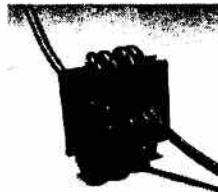
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CONTEST SCENE

Well, here we are at the start of a new year, and once again I didn't get the 80M beam that I asked for for Christmas. Oh well, maybe next year Santa will take pity on me.

Of course, the above paragraph notwithstanding, one must realize that magazine columns are written in a peculiar sort of time warp. (I heard that comment out there about the columnist being warped.) The result is that I am actually writing this shortly after the CQ Phone Contest. Therefore, a few words about the early results of that weekend would not be inappropriate.

Clearly *CQ Magazine* has something that would be of enormous interest to solar physicists. I am referring to the device that they turn on at the end of October every year that generates such good propagation. I knew that they had it set to high this year when I heard Europe on ten metres! Openings on both 15 and 20 were very good, with all zones and at least 145 countries active on 20 metres. Some of the better DX? How about DU, VK9N, A2, Z2, VQ9, 5Z or 7Q? Oh, did I say that ten metres was open? Would you believe that W3LPL worked 90 countries on the band? C'est vrai.

Well, if you missed all this excitement, it's too late to do anything about it now. But you can resolve to get in there next year and work some of the DX.

I do also have one early score to report, from VE7EIK in beautiful downtown Penticton. George went single band on 20M and made 1554 QSOs in 32 zones and 88 countries for 492k points. Obviously George gets out.

With the ARRL DX competition looming up on the horizon, this seems like a good time to discuss the results of last year's contest. Leading the pack on CW was VO1MP with 592k, which was also the number one W/VE low power score. Phone went to Rick VE1NG who rolled up 1300 QSOs for 720 thousand points, good for the number one low power W/VE spot. Second was VE3XN at 570k. VO1MP placed third with 315k, which was also the number two W/VE low power score. Table I summarizes the results.

This contest has undergone quite a few significant rule changes, which makes it difficult to come up with a definitive set of records. Nevertheless, I have taken a crack at it, as you can see with a look at Table II. I have omitted results from the 1980 contest, which was completely different from

all other versions of the ARRL DX Competition.

Some of these records look to me

like they could be pretty easily bettered. Any takers out there?

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ARRL DX COMPETITION CANADIAN RESULTS 1986 PHONE

CATEGORY	CALL	SCORE	QSO S	COUNTRIES
All Band	VE1NG	720,390	1298	185
	VE3XN	570,726	813	234
	VO1MP	315,882	654	161
	VE2AYU	257,424	496	173
	VE5RA	249,912	534	156
	VE3ST	144,615	311	155
	VE7AAQ	110,250	350	150
	VE4JK	95,700	319	100
	VE7FJE	81,003	403	67
	VE3IY	81,000	250	108
	VE7EIK	34,560	256	45
	VE7ETC	25,857	169	51
	VE3CWE	18,240	80	76
	VO1AW	14,400	100	48
	VE1CBF	13,650	91	50
VE3GRA	11,040	92	40	
40M	VE3CUI	300	10	10
20M	VE3NBE	96,672	424	76
	VO1QU	37,800	225	56
	VE3XQ	20,574	127	54
	VE1AGZ	14,715	109	45
	VE3NYT	5,445	55	33
10M	VE1EN	7,740	86	30
	VE3P7Q	5,037	73	23
	VE2AEJ/3	726	22	11
MS	VE4AA	142,175	445	107

CW

CATEGORY	CALL	SCORE	QSO S	COUNTRIES
All Band	VO1MP	592,200	1128	175
	VE2AYU	283,206	613	154
	VE3KP	149,328	408	128
	VE5RA	87,120	264	110
	VE3ST	69,000	200	115
	VE3IY	68,040	189	120
	VO1AW	45,069	181	83
	VE7AAQ	40,560	208	65
	VO1QU	40,296	184	73
	VE3XN	38,958	151	86
	VE6ADK	18,666	122	51
	VE3CWE	18,360	102	60
	VE7FJE	18,327	149	41
	VE7EIE	9,315	115	27
	VE3NBE	7,869	61	43
VE3XQ	2,592	32	27	
80M	VE3CUI	2,331	37	21
20M	VE6CB	41,022	318	43
	VE4IM	22,950	150	51
	VE3LNV	2,925	89	25
10M	VE2AEJ/3	72	6	4
MS	VE8RCS	4,020	67	20

QRP

Moe Lynn VE6BLY
10644-146 St.
Edmonton, Alta. T5N 3A7

As mentioned in October *TCA*, operating mobile QRP can be fun and good experience to have before it becomes a necessity during some disaster or emergency.

For anyone contemplating a homebrew mobile antenna, here is a better view and a few dimensions. Without a great deal of money tied up in antennas you should have no hesitation shelving the whole assembly after satisfying yourself it works and can be used again at a moment's notice.

MOUNT

Any scrap mobile base will do to mount the mast after making an adaptor. Some of these no longer in use have a swivel base which is handy to raise and lower your whip. Others were the popular spring base and either will be found in a lot of auto wrecker yards. Some have the long white fibreglass, stainless steel, or helical wound brown fibre glass whip with the threaded end broken off.

For these or even a rusted out base you will need a 3/8" NF 24 threads per inch tap after drilling out the broken threads with a 21/64" drill bit. Then you may have to make the threaded end for your adaptor so you will need a 3/8" NF 24 threads per inch die which will also be handy for cleaning up any other suitable length of thread. Maybe you will want to renew the threads on that white fibreglass whip you found that had the threaded brass end broken off. Just cut the thing off (not the wire inside the rod) until the LOMCW band resonates. Then use epoxy cement to replace the brass end and solder the wire back in the end through the hole

using the silver solder method (brazing).

WHIPS

This is reference to the telescoping aerial on top of the broomstick and lengths varied from 22" to 26" on the band 3800 to 3540. The 20M whip at 22" gave less than 1.1:1 from 14002 to 14140. Both experiments were using a maximum of 50 watts and could be 1:1 with a lesser power setting (QRP).

COILS

Wind any of the bands you want to work simply by using half of the wire necessary for a half wave dipole found from the formula 468 divided by the frequency in MHz. This is about 65' for the 80M band, or 75M for that matter, and jumping from one to the other can be done with an alligator pig tail instead of telescoping the whip. We will let that be your choice. Another idea is to make an octopus plate to fit the mast and a hole in the middle for 80M. The remainder of your whips plug in to the plate at an angle (experiment) off the vertical in a circle around the middle. Should anyone actually do this experiment, the QRP editor would be interested in talking about it and publishing your findings. If anyone needs a collapsible whip just send me an SASE with your request.

PERFORMANCE

The end results were most gratifying, especially when compared to factory-made units whose names cannot be mentioned here. We will not get into wind resistance, drag coefficient (parasitic or otherwise)

except to say our homebrew model came out on top again.

(Reminds me of the time flying across the Dew Line from South to North with the Bristol Freighter. The radio operator at Cambridge Bay asked if it was a homemade aeroplane as the radar operator didn't recognize the blip. We had drag on that aircraft with the big nose and fixed landing gear but we could haul six tons at 165 mph.)

VSWR was less than 1.5:1 across any part when the least effort was made toward proper length at the operating frequency. If the length could not be adjusted (inclement weather or while in motion) the power was reduced to what was considered acceptable to my IC745 (no transmatch).

Don't believe that myth about an antenna not radiating properly if you have a high SWR. It is also futile to operate solid state finals with automatic power reduction or otherwise unless you yourself keep control of power/SWR selection. Radiation patterns from any antenna are the same with 1W of 1kW.

GLEANINGS

Heard VE7FOU on 3650 the other night testing his QRP with friend on the BCEN. Was unable to bust through the QRM with a 529 report of his signal but another VE7 took it after Rick signed off.

Are there any pros and cons toward the suggestion we expand our readership through QRP efforts? Drop a line with your views, suggestions or criticism either by pony express, exchange or discs, tele-communications or in person. My C128 and Master Modem at 300 baud can be made available after 0600 UTC for anyone preferring this method.

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If you can provide me with any other scores that should be included in this list, I would be grateful.

In looking through past results to make up these records, I was struck by something. When I regained consciousness, I spent some time wondering why no one seems to like 15 metre single band in Canada. There's lots of DX, the QRM is nowhere near as bad as on 20, but hardly anyone ever enters. Why?

Well, that pretty well wraps it up for another month. Right now, I have to head over to the local mall. I want to see Santa about my Christmas list.

CANADIAN RECORDS— PHONE

CATEGORY	CALL	SCORE	YEAR
10M	VE3BMV	564,750	81
15M	VE7IN	491,892	81
20M	VO2CN	139,230	83
40M	VE3HPA	9,963	81
80M	VE2DZE	5,358	84
160M	VE1YX	12,696	84
All Band	VE3BVD	1,825,920	82
MS1	VE3WQ	1,929,216	78
MS2	Noentrent		
LM	VE3FH0	1,580,302	69

CANADIAN RECORDS— CW

CATEGORY	CALL	SCORE	YEAR
10M	VE3KKB	94,185	82
15M	VE3BLY	201,051	82
20M	VE3GB	41,022	85
40M	VE2ZP	38,613	82
80M	VELAXT	14,784	81
160M	VELAXT	561	82
All Band	VE2DCW	1,300,830	70
MS1	VE3OU	1,462,500	81
MS2	VE1CR	43,281	83
LHI	VE3US	701,325	70

QUA CARF

CARF, in order to encourage relations between the two organizations, invited CRRL to rejoin us in sponsoring the 1987 Amateur Radio Symposium. We are glad that they accepted the proposal, and we look at this as one further sign of cooperation between the organizations.

The FCC is proposing expansion of 7050-7075 for novice operators in Alaska, Hawaii, U.S. possessions in the Pacific and the Caribbean. Your comments please, to Box 356, Kingston, K7L 4W2.

Foreign Affairs

DEPARTMENT OF COMMUNICATIONS RADIO ACT

Notice No. TRS-025-84

Subject Amateur Service— Countries that forbid radiocommunications with Amateur stations under their jurisdiction— Transmission of international communications on behalf of third parties by Amateur stations— Reciprocal Amateur operating privileges

References: Article 32 of the International Telecommunication Union Radio Regulations and sections 50, 61 and 62 of the General Radio Regulations, Part II.

This notice replaces and cancels DGTR-018-83 dated 24 Sept. 1983.

1. The following countries have notified the International Telecommunications Union that they forbid radiocommunications with Amateur stations under their jurisdiction:

Burma (Socialist Republic of the Union of)	Somali (Democratic Republic of)
Iraq (Republic of)	Turkey
Libya (Socialist People's Libyan Arab Jamahiriya)	Yemen (People's Democratic Republic of)
Pakistan (Islamic Republic of)	Zaire (Republic of)

2. Canada has concluded agreements or arrangements with the following countries to permit the transmission by Canadian Amateurs of international communications on behalf of third parties.

Antigua and Barbuda*	Paraguay (Republic of)
Australia	Peru
Bolivia (Republic of)	Trinidad and Tobago
Chile	United States of America
Colombia (Republic of)	Uruguay (Oriental Republic of)
Costa Rica	Venezuela (Republic of)
Dominica	
Dominican Republic	
El Salvador (Republic of)	
Grenada**	
Guatemala (Republic of)	
Guyana	
Haiti (Republic of)	
Honduras (Republic of)	
Israel (State of)	
Jamaica	
Mexico	
Nicaragua	

* Effective Nov. 15, 1983.

** Effective May 18, 1984.

3. Canada has concluded agreements or arrangements with the following countries to permit licensed amateur radio operators to operate radio stations while temporarily in the other country:

Antigua and Barbuda*	Jamaica
Australia	Luxembourg
Austria	Malta (Republic of)
Bahamas (Commonwealth of the)***	Netherlands (Kingdom of the)
Barbados	New Zealand
Belgium	Nicaragua
Bermuda	Norway
Botswana (Republic of)	Panama (Republic of)
Brazil (Federative Republic of)	Papua New Guinea
Chile	Peru
Colombia (Republic of)	Philippines (Republic of the)
Costa Rica	Poland (People's Republic of)
Denmark	Portugal
Dominica	Saint Lucia
Dominican Republic	Senegal (Republic of the)
Ecuador	Sweden
Finland	Switzerland (Confederation of)
France	United Kingdom of Great Britain and Northern Ireland
Germany (Federal Republic of)	United States of America
Greece	Uruguay (Oriental Republic of)
Grenada**	Venezuela (Republic of)
Guatemala (Republic of)	Yugoslavia
Haiti (Republic of)	
Honduras (Republic of)	
Iceland	
India (Republic of)	
Iceland	
India (Republic of)	
Indonesia (Republic of)	
Ireland	
Israel (State of)	
Italy	

* Effective November 15, 1983.

** Effective May 18, 1984.

*** Effective June 25, 1984

Dated at Ottawa, this 26th day of October 1984.

R.W. JONES

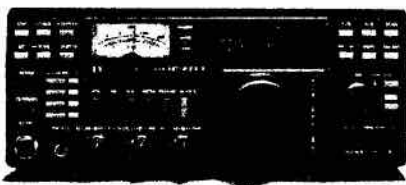
Director, Operations Branch
Telecommunications Regulatory Service

Amateurs who wish to operate in Commonwealth countries other than those listed above should apply to the embassy in Canada or directly to the appropriate regulatory agency. — TCA.

SALE!

★ SAVE \$\$ on these ★ ★ CLOSEOUTS ★

ATLANTIC HAM RADIO BRINGS YOU ANOTHER ICOM CLOSEOUT.. The NEW IC-275 2M All Mode will be announced soon at \$1699.00.. Take advantage now of the closeout prices on the IC-271A/H.
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IC-271A 25 W
 IC-271H 100 W

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- 32 Memory Channels
- 12 VDC
- Internal Power Supply Option
- Fluorescent Display

2 Meter FM/CW/SSB 25 Watts or 100 Watts

IC-271A \$999

IC-271H \$1249

For the ultimate in 2-meter communications, ICOM presents the IC-271H transceiver with a high dynamic range receiver and a 100 watt transmitter. Operating from the IC-PS30, IC-PS15, or the internal IC-PS35 (optional), the IC-271H brings all the advanced functions of the latest CPU controlled radios to your shack.

Standard features include 100 watts of

power...32 built-in subaudible tones which are easily selected by rotating the main tuning knob...32 memory channels which hold frequency, offset, offset direction, mode and subaudible tone...PLL locked at 10Hz...ICOM's high visibility, easy-to-read fluorescent display...memory and programmed band scanning, including Mode scan which scans memories with a

particular mode or locks out busy frequencies so the receiver will not stop at that memory channel while scanning.

Optional features include a swichable preamplifier, CTCSS encoder/decoder (encoder is standard), computer interface and voice synthesizer.

The 25 watt IC-271A is also available and has the same outstanding features and size (11 1/4" W x 4 3/8" H) as the IC-271H. An optional IC-PS25 internal power supply makes the IC-271A a compact, go-anywhere 2-meter base station.

Some Specifications:

- Frequency Coverage: 143.8000 - 148.1999MHz
- Frequency Resolution: SSB, 10/100 Hz
- Steps/TM: 5KHz steps, 1KHz steps with 15 buttons depressed
- Frequency Readout: 7 digit fluorescent display 100Hz readout w/RIT
- Frequency Stability: ±10 PPM (-10° - +60°C)
- Memory Channels: 32 channels, any inband frequency programmable

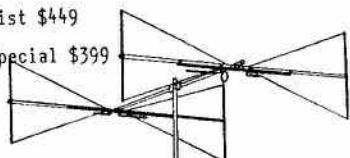
- Usable Conditions: Temperature: -10°C - 60°C (14°F - 140°F)
- Duty cycle: continuous
- Power Supply Requirement: 13.8V DC ±15% (negative ground) 6A max. or 117V/AC ±10%
- Dimensions: 11.1mm(H) x 286mm(W) x 274mm(D)
- Transmitter Output Power: SSB 25W (PEP), CW 25W, FM 1 - 25W (Adjustable)
- Emission Mode: SSB (A3), USB/LSB, CW (A1), FM (F3)
- Modulation System: SSB: Balanced modulation, FM: Variable reactance frequency modulation
- Max. Frequency Deviation: ±5KHz
- Microphone: 600 Ohm (IC-SW6 optional base mic available)
- Operating Mode: Simplex, Duplex (any inband frequency separation programmable)
- Receiving Mode: SSB (A3), USB/LSB, CW (A1), FM (F3)
- Sensitivity: SSB, CW, Less than 0.5 microvolts for 10dB S+N/N, FM, More than 30dB S+N/D/N+D at 1 microvolt
- Selectivity: SSB, CW, More than +1.2KHz at -60dB point, Less than +2.4KHz at -60dB point; FM, More than +7.5KHz at -60dB point, Less than +1.5KHz at -60dB point
- Audio Output Power: 2 Watts
- Audio Output Impedance: 8 ohms
- RIT Variable Range: ±9.9KHz

OPTIONS: PS-35 Pwr Sup (H) \$269; PS-25 Pwr Sup (A) \$159; AG-20 GAAs-FET Preamp (A) \$99; MB-12 Mob Brak \$39; AG-25 Mast Mount GAAs-FET Preamp (H) \$149; EX-310 Voice Synth. \$65; EX-309 Micro Int Conn \$70.

The HF4B "Butterfly"™ A Compact Beam for 20-15-12-10 Meters

List \$449

Special \$399



	List	Disc.
HF6V	\$289	\$229
HF2V	\$269	\$219
HF4B	\$449	\$399
TBR160HD	\$	99
RMK-II	\$	99
STR-II	\$	65
SC-3000	\$149	\$129

- Unique design reduces size but **not** performance.
- No lossy traps; full element radiates on all bands.
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- Turns with TV rotor
- Only 17 lbs.

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Model HF6V \$229

- 80, 40, 30, 20 15 and 10 meters automatic bandswitching.
- Add-on kit for 17 and 12 meters available now.
- 26 ft. tall

Model HF2V \$219

- Designed for the low-band DXer
- Automatic bandswitching on 80 and 40 meters
- Add-on units for 160 and 30 or 20 meters
- 32 feet tall - may be top loaded for additional bandwidth.

Stop Spinning Your ('757's) Wheels -

With the 757 QSYer!



\$159.00

757 QSYer

the best thing next to a 757

The QSYer provides the Yaesu 757 with keyboard frequency entry - the single major feature left off this remarkable transceiver. Actually a tiny computer terminal with its own 8-bit microprocessor, the QSYer is pre-programmed to mate with the 757's computer port. Installation is accomplished in seconds by plugging only two cables into the 757's rear panel jacks - one for data and one for the QSYer's power. Your operating frequency can now be changed immediately - anywhere in the range of the transceiver - just by pressing two or more buttons on the standard-sized telephone keypad. The QSYer is built with commercial-quality components throughout, and is housed in an attractive, sloped metal enclosure color-matched to the 757.

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For 20 years, pro
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W2AU 1:1 & 4:1
 \$39

W2AU Broadband

For medium power
 and broadband c

W2AU 1:1 \$39.

*50 to 50 or 75

*For dipoles, V's

W2AU 4:1 \$39.

*200 to 50 or 3

*For high imped

folded dipoles

W2DU Non-Ferrit

W2DU HF (High F

*1.8-30 MHz

*3000-9000 w

*1500-5000



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- ICOM IC-745 ALL ACC
- ICOM R-70 Receiver
- YAESU FT-902 Mint--
- YAESU FC-902 Tuner
- Yaesu FC-700 Tuner
- KW-107 Tuner & Dumm
- YAESU YD-901 Scope
- KENWOOD TW-4000A Mi
- AZDEN PCS-4000 2M P
- YAESU FV-101B VFO--
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- KENWOOD TR-7500 2M
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ANY QUANTITY



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Continuing a 66 year tradition, there are new Callbooks for 1987.

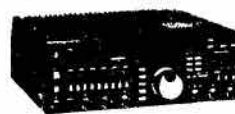
The North American Callbook lists the calls, names, and address information for licensed amateurs in all countries from Canada to Panama including Greenland, Bermuda, and the Caribbean islands plus Hawaii and the U.S. possessions.

The International Callbook lists the amateurs in countries outside North America. Coverage includes South America, Europe, Africa, Asia, and the Pacific area.

Please note that due to the Government's Retaliation on Books, Duties are now payable increasing book prices.!!!!.

- 87 North American Callbook \$40
- 87 International Callbook \$40
- Map Library-----\$21
- ARRL 1987 Handbook-----\$26
- Antenna Handbook-----\$12
- Antenna Compendium-----\$16
- HF Antenna for any Locatn-\$19
- FM & Repeaters-----\$ 8
- 86/87 Repeater Directory--\$ 5
- Satellite Experimenter's--\$15
- Get Connected to Packet--\$18
- Tune in the World-----\$15
- CRRL/Zbarsky Study Guide--\$19
- CRRL 600 Questions & Answr\$10
- ARRL Code Tape Kit (2)----\$14
- World Radio Database-----\$19
- 87 World Radio TV Handbook\$?
- Ontario Haruteq Scanner Bk\$15
- Toronto Fox Scanner Book--\$15
- Spiral Log Books-----\$3.25

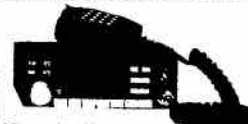
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NEW HIGH
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IC 1271A LIST 1749
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IC-27A LIST 629 IC-27H LIST 669
IC-28A LIST 629 IC-28H LIST 669
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• micro design covers
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2-METER MOBILES
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- Kantronics KPC-2----\$289
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- AEA PK-64A-----\$459
- AEA PK-80-----\$369
- AEA PM-1-----\$299
- AEA HFM-64-----\$169
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Affaires Etrangères

MINISTÈRE DES COMMUNICATIONS

LOI SUR LA RADIO

Avis n° TRS-025-84

Objet: Service d'amateur—Pays qui interdisent les radiocommunications avec les stations d'amateur relevant de leur juridiction—Transmission de communications internationales au nom de tierces personnes par les stations d'amateur— Privilèges réciproques d'exploitation de stations d'amateur.

Source: Article 32 du Règlement des radiocommunications de l'Union internationale des télécommunications et les articles 50, 61 et 62 du Règlement général sur la radio, Partie II.

Le présent avis annule et remplace l'avis n° DGTR-018-83 du 24 septembre 1983.

1. Les pays ci-après ont notifié l'Union internationale des télécommunications qu'ils interdisent les radiocommunications avec les stations d'amateur relevant de leur juridiction:

Birmanie (La République socialiste de l'union de)
 Iraq (République d')
 Libye (Jamahiriya Arabe Libyenne Populaire Socialiste)
 Pakistan (République islamique du)
 Somalie (République démocratique de)
 Turquie
 Yémen (République démocratique et populaire du)
 Zaïre (République du)

2. Le Canada a conclu avec les pays ci-après des accords ou des arrangements permettant la transmission par les amateurs canadiens des communications internationales en provenance ou à destination de tierces personnes:

Antigua et Barbude*	Honduras
Australie	(République de)
Bolivie	Israël (Etat d')
(République de)	Jamaïque
Chili	Mexique
Colombie	Nicaragua
(République de)	Paraguay
Costa Rica	(République du)
Dominique	Pérou
Dominicaine	Trinité et Tobago
(République)	Uruguay (République orientale de l')
El Salvador	Venezuela
(République de)	(République de)
Etats-Unis d'Amérique	
Grenade**	
Guatemala	
(République du)	
Guyane	
Haïti (République d')	

* Effectif le 15 novembre 1983.
 ** Effectif le 18 mai 1984.

3. Le Canada a conclu avec les pays ci-après des accords ou des arrangements autorisant les radioamateurs du Canada à exploiter des stations de radiocommunications lorsqu'ils séjournent dans ces pays:

Allemagne (République fédérale d')	Nouvelle-Zélande
Antigua et Barbude*	Panama
Australie	(République de)
Autriche	Papua-Nouvelle-Guinée
Bahamas (Commonwealth des)**	Pays-Bas (Royaume des)
Barbade	Pérou
Belgique	Philippines
Bermudes	(République des)
Botswana (République de)	Pologne (République populaire de)
Bresil (République fédérative du)	Portugal
Chili	Royaume-Uni de
Colombie (République de)	Grande-Bretagne et d'Irlande du Nord
Costa Rica	Sainte-Lucie
Danemark	Sénégal
Dominicaine (République)	(République du)
Dominique	Suède
Equateur	Suisse
Etats-Unis d'Amérique	(Confédération)
Finlande	Uruguay
France	(République orientale de l')
Grèce	Venezuela
Grenade**	(République de)
Guatemala	Yougoslavie
(République du)	
Haïti (République d')	
Honduras (République de)	
Inde (République de l')	
Indonésie (République d')	
Irlande	
Islande	
Israël (Etat d')	
Italie	
Jamaïque	
Luxembourg	
Malte (République de)	
Nicaragua	
Norvège	

* Effectif le 15 novembre 1983.

** Effectif le 18 mai 1984.

*** Effectif le 25 juin 1984.

Ottawa, le 26 octobre 1984

Le directeur, Direction de l'exploitation

Service de la réglementation des télécommunications

R. W. JONES

Il faut que les Amateurs qui veulent opérer aux pays du Commonwealth autre que ceux nommés au-dessus appliquent à l'ambassade au Canada ou directement à l'agence régulatrice appropriée.—TCA.

George Morgan VE3JQW
687 Fielding Dr.
Ottawa K1V 7G6

From the Clubs

I received a very interesting letter recently from Marcel Lemay VE3FNG of Ottawa, and I would like to quote from it:

"... I wish to congratulate the Nortown ARC on their effort to restore HMCS Haida's radio room.

"In 1956, as a radio operator on the Haida, I had my first exposure to Amateur Radio through a shipmate operating the ship's Marconi CM-11 transmitter on the ham bands with HMCS Cornwallis' callsign. On many occasions, in home port, I would accompany my shipmate to Radio One and search the bands to see if the trainees from Commschool in Cornwallis were on the air. As we hid behind the locked door with the lights dimmed and sound low, he would call CQ on CW and contact station after station with all the confidence in the world. He seemed to be an old hand at operating his pirate station. 'This is a lot more fun than the Navy procedure we have to work with,' he would say. I

do not know if he ever got his licence.

"I was on the Haida only a short time but the seed was there and somewhat later, in 1965, I received my certificate and licence, went on the air and experienced the same excitement my shipmate had felt nine years before and, you know, it is still there today.

"Thanks for the memories, Nortown ARC; I will definitely come down to the harbour and visit the old ship again."

According to *Ground Wave*, the Windsor ARC is sponsoring a 30th anniversary award. To qualify for the award, one is required to achieve 30 points, as per the following point system:

For VE3 stations,

Work the club station VE3OW (10 through 160 metres only) 15 points; Work any current WARC member 5 points; Work any VE3 station 1 point.

For all other stations,

Work the club station VE3OW (10 through 160 metres) 15 points; Work any current WARC member 10 points; Work any VE3 5 points.

In all cases at least one contact must be with a Windsor ARC member. Repeater contacts are not allowed.

The award is in effect only from 0000 UTC Sept 1, 1986 to 2359 UTC Aug. 31, 1987.

To receive your award, send a copy of your log signed by yourself and one other Amateur along with \$1 (or 3 IRC's) to the Windsor ARC, PO Box 1322, Windsor, Ont. N9A 6R3.

Members of WARC are being encouraged to promote this award on the HF bands, and the club is sponsoring an HF net. (I will pass along the times and frequencies when I hear of them.) The club station will be active as well on the bands.

And from the Beaver Valley ARC's *Beaver Valley Clicks*, with thanks to Jack VE7ERY and Helmut VE7ESO, the following account of the Spokane to Trail Friendship Run:

The weekend of Sept. 10-20 was a fun run-relay race participated in by the Trail Nooners and the Spokane YMCA Club. There was a total of 64 runners, eight teams of eight runners each. The idea was to leave Spokane, run from four to five miles and then ride for that same distance, repeating this arrangement until Trail was reached.

The run started on Friday night, Sept. 19, with three teams of slower runners departing at 8 p.m. The next group left at 9 p.m., with the fastest group leaving at 10 p.m. Somewhere

along the route the last group took the lead.

As it turned out, the first arrivals crossed the finish line in Trail at about noon Saturday, Sept. 20. This group was the Trail Nooners. The other groups kept arriving from then till 5 p.m., when the last man 'staggered' in. The total distance of the run was in the neighbourhood of 130 miles.

All this was accomplished with the aid of Amateurs in both Washington and B.C. supplying communications. The 2-metre mobiles kept shuttling between runners and relaying the progress of the run ahead. No problem arose out of the race except when the organizer of the run failed to report some homemade trophies which she was bringing into Canada. An over-zealous custom inspector detained her for four hours, which put a slight damper on the event.

Communications were excellently handled by all Amateurs, and the groups finished off with an Italian dinner at the Collander.

If you have ever wondered if our public service efforts are really appreciated, listen to what K.F. McCready, President and Chief Operating Officer of TransAlta Utilities Corporation wrote to Ken Oelke of the Calgary ARA:

"On behalf of TransAlta Utilities and our customers, I would like to extend to you and to our fellow radio Amateurs our thanks for the assistance offered to us in providing backup communications during the severe snowstorm that southern Alberta experienced on May 14.

"In particular, the efforts of Dennis Reipley VE6AUR in Airdrie; Art Fritz VE6GB in Airdrie, and Don Cole VE6EY, who was operating as VE6AFO at the 911 Emergency Centre, all worked in contacting our crews in Airdrie and arranging for a communication link to be established. We were also helped by VE6CRV, but have been unable to determine his name. The emergency communications provided by these 'Hams' was much appreciated.

"You may be interested in some of the statistics regarding this storm. This storm was the most severe that has been experienced by the TransAlta system. Some 108 steel towers carrying our high voltage transmission lines, 300 wood pole structures for our 138 kV system, and in excess of 3000 wood poles for our distribution lines were destroyed by the storm. Some areas were without power for over a week.

CALENDAR

1987

Jan. 14: DOC licence examination applications.

Feb. 6-15: Special event station VE7NOR. Details Jan. TCA.

Feb. 11: DOC licence examination.

Feb. 20-22: Guides on the air. Watch the YL column from October on.

Sept. 11-13: CLARA 87 Celebration. Details October YL column.

Applications for DOC licence examinations Jan. 14, Mar. 18, May 20, Sept. 23. DOC licence examinations Feb. 11, Apr. 15, June 17, Oct. 21.

Publicize your get-together here. Write the Editor, TCA, P.O. Box 855, Hawkesbury, Ontario K6A 3C9.

Let TCA know about your events three months in advance to list them in the Calendar.

VE7NOR

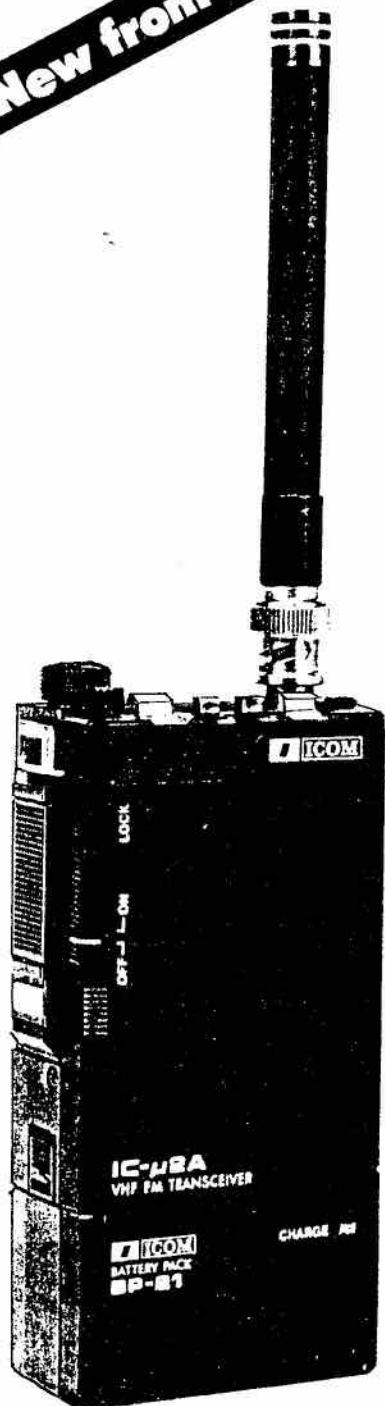
The North Okanagan Radio Amateur Club will be operating special station VE7NOR Feb. 6-15, 1987 to commemorate western Canada's largest winter carnival. The frequency will be 14.230 MHz every afternoon. For commemorative certificate and QSL send log info and \$1 or 2 IRC's to: NORAC Box 1706 Vernon, B.C. V1T 8C3 Canada. Thank you for your help.

Kevin Kienlein VE7EGD
Certificate Manager

New from ICOM

IC- μ 2A/T

2-Meter Handheld



SPECIFICATIONS

GENERAL

Frequency Range:	140.000-163.000MHz
Antenna Impedance:	50 ohms
Frequency Stability:	±15ppm (-10° to +60°C)
Memory Channels:	10
Frequency Resolution:	5kHz
Power Supply:	7.2V - 13.8V DC
Polarity:	Negative GND
Current Drain:	
Standby	23mA
High	550mA
Low	220mA
Size:	2.3"W x 5.6"H x 1.1"D
Weight:	8 oz.
Operating Temperature:	-10° to +60°C

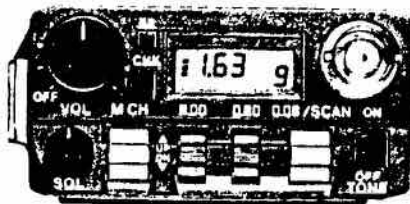
TRANSMITTER

Output Power:	High: 1W (25W opt.); Low: 0.1W
Modulation:	FM: Variable reactance modulation
Max. Deviation:	± 5.0kHz
Spurious Emissions:	-60dB
Microphone Impedance:	600ohm electret
Operating Mode:	Simplex and duplex
Subaudible Tones:	32 tones built-in

RECEIVER

Sensitivity:	FM 12dB SINAD -12dBu (0.25μV)
Squelch Sensitivity:	FM Threshold -20dBu (0.1μV)
	FM Tight -12dBu (0.25μV)
Selectivity:	± 7.5kHz
Spurious & Image Rejection:	60dB
Audio Output:	0.25W (8ohms @ 10% distortion)
AF Output Impedance:	8 ohms
Receiving System:	Double conversion superheterodyne
IF Frequencies:	16.9MHz; 455kHz

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Cathy Hrischenko VE3GJH
56 Stockdale Cres.
Richmond Hill, Ont. L4C 3S9

YL News & Views

Don't forget GOTA, Guides on the Air Feb. 20-22, 1987. Suggested frequencies again are 14.133, 7.150, 3.775.

Get your local paper involved. Try to take a picture and send to me with information on your operation.

RADIO ROMANCE

From time to time we hear about Radio Romances. Here's another one sent in by Roy VE7TG. It seems Roy has been involved with the Pearson College Amateur Radio course for the past seven years.

The love of radio led to the recent marriage of Nina Pejnovich OA4BBU of Lima, Peru and Juan-Carlos Martinez YV6HFF of Caracas, Venezuela.

Juan-Carlos graduated from Pearson College in 1983 and Nina in 1984, but their courtship was continued via radio after they returned to their own countries.

Nina received her own call while home on holidays. After graduation she kept in touch with her college friends via Amateur radio. Then she and Juan-Carlos began having regular skeds. After visiting each other in their respective countries, they decided to get married.

Nina was the first female from Peru to attend Pearson College. She won a scholarship but her government refused her a visa saying, "Women should not wander around the world getting an education." She fought the first decision and won. They now live in Caracas.

CLARA'S 20TH

87 Celebration Convention Sept. 11-12-13, Sheraton Parkway Hotel, Richmond Hill, Ont.

Plans for 87 Celebration are moving along nicely. A brief description: Friday Sept. 11—Registration. Bus trip on an English double decker (yes, it's red!) to the Cullen Country Barns where we'll have lunch, see a vaudeville show and shop. Then return by bus.

Friday evening, a dinner and a Monte Carlo night with side entertainment.

Saturday, Sept. 12—Registration. General and executive CLARA meeting. Luncheon with presentation, etc. Afternoon Forums, Evening Dinner dance and entertainment. Sunday, Sept. 13—Bon Voyage Brunch.

All meals are theme oriented. Lots of prizes, individual table pieces, goodie bags.

Don't forget to bring your swaps!



Senorita Nina OA4BBU (now Senora Nina Pejnovich y Martinez).

Don't know what a swap is? A swap is a small memento brought to give another YL. Usually something made or representing the area from which you came or something that you're known for. It's nice to put your name and call and possibly a personal greeting tag. I'm mentioning this to you so you'll have time to think of something by September.

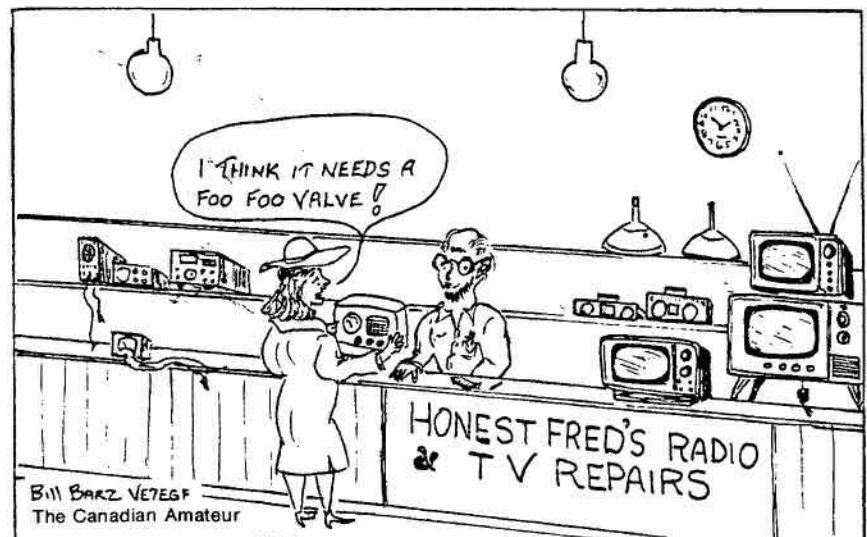
You don't have to be a member of CLARA to join in the Celebration. Even if you don't have your call yet. You can take part and your OM is invited to come along and join in on our 87 Celebration fun.

For more information, registration, and hotel accommodation write to: 87 Celebration, c/o Cathy Hrischenko VE3GJH, 56 Stockdale Crescent, Richmond Hill, Ont. L4C 3S9.

I'd like to say THANKS for the many calls, cards and inquiries as to my recovery. They sure do help and makes me feel proud that I'm an Amateur radio operator—a better bunch you couldn't find, and we're worldwide.

Feel free to pass along any YL news to me. 73, 33, 88, as the case may be.

Cathy VE3GJH



KENPRO KT-220ET

IDENTICAL TO

SANTEC ST-20T

KENPRO

A SUPER VALUE AT

\$459.00

COMPARE TO \$600 for other HT's & Features



WHICH OTHER HT CAN:
MEMORIZE 2 PHONE NUMBERS
TELL THE TIME (24hr CLOCK)
RUN ON 12VDC, ETC., ETC.

KENPRO KT-220ET	VHF FM TRANSCEIVER MODEL ST-20T
General	
Frequency Range	142 000 to 150.995 MHz
Type of Emission	F3
Memory Channels	10 Channels
Antenna Impedance	50 ohms
Power Source	9V NiCd battery pack 9V Dry battery pack D.C. 8.4-16V
Transmitter	
RF Output Power	5.0 Watts (H), nominal at 12V 3.5 Watts (H), nominal at 10.5V 0.5 Watts (L), nominal at 10.5V
Modulation	Frequency modulation
Maximum Deviation	± 5 KHz
Transmit Scourious	- 60dB
Microphone	Electret Condenser Microphone
Receiver	
Receiving Methods	Double superheterodyne
I.F.	1st 16.9MHz 2nd 455KHz
Sensitivity	Less than - 0.25uV at 12dB SINAD
Band Width	± 7.5 KHz at 6dB down
Selectivity	± 15 KHz at 60dB down
Audio Output Power	400mW at 8 ohm

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It Really Shouldn't Be This Easy

Remember just a few years ago, how it took a roomful of equipment just to work RTTY. And if you wanted more than one mode it took a dedicated computer system costing thousands of dollars. The new AEA Pakrats are proving it doesn't take lots of equipment or money to enjoy working all bands in five different modes.

First. A Good Idea

The idea behind the Pakrat is very simple. One controller that does Morse, Baudot, ASCII, AMTOR, and Packet, and works both HF and VHF bands. Of course the decoding, protocol, and signal processing software must be included in the unit, and connection to the computer and transceiver have to be easy. The unit also has to be small and require only 12 volts, so it will work both in the shack and on the road.

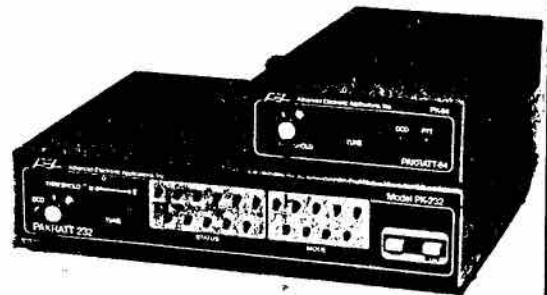
Second, Computer Compatible

It doesn't matter what kind of computer you have, we have a Pakrat for you. The PK-64 works with the popular Commodore 64 or 128, and the PK-232 works with any other computer or terminal that has an RS-232 serial port. The PK-64 doesn't require any additional programs. Simply connect to the computer and transceiver and you're on the air. The PK-232 needs a terminal or modem program for your computer. The one you're using with your telephone modem will work just fine.

PACKET CONTROLLERS and Accessories:

A.E.A. PK-232 \$559; PK-64A \$459; PK-64 \$369; PK-80 \$369; PM-1 \$299; HFM-64 \$169
KANTRONICS KPC-2400 \$559; KAM \$559; KPC-2 \$289 Modem-2400 \$259
M.F.J.-1270 \$249. Extra 5 pin cable \$12

PAKRATT™ Model PK-64



PAKRATT™ Model PK-232

Third, Performance and Features

The real measure of any data controller is what kind of on-air performance it gives. While the PK-64 and PK-232 use different types of modems, both give excellent performance on VHF. The optional HF modem of the PK-64 uses independent four-pole Chebyshev filters for both Mark and Space tones, and A.M. detection. The HF option can be factory or field installed.

The PK-232 uses an eight-pole bandpass filter followed by a limiter discriminator with automatic threshold correction. The internal modem automatically selects the filter parameters, CW Fc = 800 Hz, BW = 200 Hz; HF Fc = 2210 Hz, BW = 450 Hz; VHF Fc = 1700 Hz, BW = 2600 Hz.

The PK-64 uses on screen indicators to show status, mode, and DCD (Data Carrier Detect) while the PK-232 uses front panel indicators. Both units use discriminator style tuning for HF operation. And that's just the tip of the iceberg. Features like multiple connects on packet, hardware HDLC, CW speed tracking, and other standard AEA software features are included in both the PK-64 and PK-232.



FM-240
\$449.00

Specifications KDK FM-240 (and FM-740)

General	
Supply Voltage	13.8v ± 15%, negative ground
Consumption	Transmit: 1.5A @ 5w, 5.5A @ 25w Receive: 4A @ 0 sig., 6A @ max volume - 10 deg. C to 60 deg. C
Temp. Range	- 10 deg. C to 60 deg. C
Dimensions	40H x 140W x 170D mm (Body only)
Weight	1.0kg (Body only)
Transmitter	
Freq. Range	FM-240 142.000 - 150.000 MHz (FM-740 440.00 - 449.975 MHz)
Output	High = 25 watts, Low = 5 watts (High = Low (Low = 1W) (FM-740 High = Low)
Modulation	Variable reactance frequency modulation
Max. Deviation	± 5KHz
Spur. Emiss	More than 60dB down from carrier
Duplex Offset	Programmable 5:1 to 12.7MHz (set at ± 8KHz ex factory)
Tone	Programmable 74-250.3 (34 EIA tones) Encode and Decode
Receiver	
Int. Freq	1st = 10.7MHz, 2nd = 455KHz (1st-21.4MHz 2nd 455KHz)
Sensitivity	Better than 12dB SINAD @ 2uV
Squelch Sens	Better than 15uV
Bandwidth	+6KHz @ - 6dB
Selectivity	+ 12.5KHz @ - 60dB
Image Ratio	Better than 70dB
Audio Output	More than 2w, 8 ohms load, 10% THD
Standard Accessories	
Speaker Microphone	Speaker = 8 ohms, Mike = Condenser type. SM 31A UP/DOWN plus tone encoder.
Power Cable	2 meters with 7A fuse.

- Superior features, simpler to use for 2 meters. MARS, CAP
- Compact size for better fit in today's automobile
- 16 fully programmable memory channels, plus priority call channel
- 2 VFOs for today's user
- Subaudible encode and decode standard for today's 2 meter bands
- Subaudible frequency programmed by freq. no chart needed
- Speech synthesis option for voice VFO

with TouchTone Speaker Mike
Voice Synth. \$59



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EMCAB Issue 2— What it's all about

The Electromagnetic Compatibility Advisory Bulletin was first issued in 1977 by the Department of Communications. Issue 2 emerged in August, 1982. At that time, the bulletin was distributed to most manufacturers of electronic equipment because of the alarming incidence of devices which responded to emissions from radio transmitters. The Electronic Communicator of March 1975 showed some interesting statistics—which in some manner were largely ignored by business concerns.

STATISTICS

The statistics speak for themselves and show the total number of complaints of radio interference in Canada were about 15,700 in 1970. Records kept by the DOC indicate these cases continued to increase to 30,290 in 1975. It's anyone's guess how many exist today. Amateurs were responsible for 53% of complaints in those days with consumer receivers being the susceptible devices. How well we remember the introduction of AC/DC sets. One particularly bothersome case of susceptibility was even discussed in the House of Commons and an uninformed member stated that the best way to get an Amateur off the air for interference was to provoke him into swearing over the air. Apparently, the Minister has some clout in these circumstances—and still does, under the Radio Act. Faults which were found due to Amateur Radio equipment had the highest incidence in Manitoba and the Northwest Territories. They were both tied at 63% of the then-known cases.

POSITIVE ACTION

It should be mentioned that there were caring individuals in the form of a group known, as the Canadian Radio Technical Planning Board or CRTPB, for short. This group formed an Ad Hoc committee, in 1974 to examine the following:

A. The methods and procedures now used by DOC to ameliorate interference situations and their implementation.

B. Steps being taken by manufacturers to protect their equipment against 'interference' (italics mine), or to clear interference problems in the field.

C. Steps being taken by the licensed

users to protect their equipment against interference or to clear interference problems as they occur.

There were 12 recommendations made by the sub committee which related to these three examinations. Approval was obtained from all members but one, the Toronto Police Commission.

SPONTANEOUS EMISSIONS

The CRTPB recommendations bear a striking similarity to those pursued by its present successor, the Radio Advisory Board in Canada. As a CARF representative to the RABC, I have a great appreciation for the task which faced the CRTPB. What the CRTPB represented is now past history and, as we know, history has a way of repeating itself. Some of the findings of the 1975 group still seek solutions. Now that 11 years have elapsed and many devices are becoming sensitive to the present radio environment, it is worthwhile to reflect on a few of the final CRTPB conclusions:

1. Appoint a standing committee that will look into ways and means of coordinating all EMI Activities in Canada *continuously*.
2. Continue and strengthen support of the CSA as the single recognized standards-writing organization for EMI.
3. That the DOC collaborate with CSA in the establishment of standards for radiation as well as equipment immunity from radiation.

Note: A footnote to this recommendation stated that, "Specific concerns have been expressed, for example, by respondents on susceptibility of stereo-audio equipment, colour amplifiers in colour television sets, as well, radiation from power lines."

4. Influence CSA to obtain a better balance of representation between manufacturers of the EMI prone devices, users and consumers. Particularly ensure that committee chairmen are as independent as possible to avoid conflict of interest.
5. Encourage CSA to generate EMI limits that cover the full radio spectrum.
6. Request DOC to consider the practical susceptibility limits as established by CSA when DOC are licensing transmitters.

And finally, "Review with DOC the

Radio Regulations Part 1, Section 21, Clause which states that the consent of the Minister is required in order to prosecute for violations of provisions of Sections 17, 18 and 19, dealing with certain EMI situations."

FCC STATISTICS

In 1984, the FCC received 66,794 complaints involving 'interference,' according to a writer in a September edition of the *Los Angeles Times*. That writer left the impression that overpowered CB amplifiers were the sole cause. Impressions created by technically deficient press releases take years to correct—some of the local Ottawa press coverage tended to sensationalize the phantom operation of a microwave oven by an Amateur transmission. There was not one shred of technical evidence to support such an allegation. As the trial transcript revealed, the model affected was subject to recall for intermittent operation and subsequent board replacement by the supplier which corrected what had been 'interference' by association. There is a definite need for a 'clearing house' involving both users and consumers—how else will the problems associated with immunity ever be *communicated* to and resolved with the parties concerned?

MORE CASES OF EMI

During the last couple of months, there have been several cases caused by lack of immunity in certain electronic devices. A couple of these could form grounds for possible legal action, should one wish to suffer the exasperation and expense of testing the lengthy legal process. Better to put your money on the 649.

At a National Defence site a walkie talkie triggered off a smoke detector causing loss of 'Halogen' fire retardant. Loss was estimated to be some \$10,000.

A silent intrusion alarm recently dialled the protection company (silently of course) and a consequential problem was discovered, in addition to the lack of immunity in the alarm system. This happened to an Amateur and it was found that a sizeable length of unshielded two-conductor cable led to a remote switch. The switch merely closed a contact to apply 12 volts to a

solid state amplifier. Even though the entire case of the alarm system was well-grounded, the RF pickup on the twin conductors was sufficient to conduct current directly to the digital dial circuitry and turn it on.

A recent change in the pulse duration of certain tones generated by the standard Bell pad makes very short duration noise immunity very likely. It is hoped the donation of small toroids, with instructions for insertion, will prevent a recurrence. Oh yes! The consequential problem. It seems the Amateur had moved to RF Utopia, well removed from man-made noise. When the protection agency called the police to investigate— they

couldn't find the owner of the alarm. This is one case where immunity came to resolve the problem.

There was another case of a TV converter blocking on most channels. To isolate this type of problem, disconnect the converter and place the cable directly on the TV. Your problem should disappear. These converters must be built with sealing wax and a little dried bamboo because some have about as much immunity as a dog at a flea market. The simple solution for the Umpteenth time was our little round friend with the hole in the centre and I don't mean Angel food cake. Six turns cured the problem.

I spoke with an Amateur in South Carolina that had his wireless telephone turn off the blower to his air conditioner! Now, if that wouldn't be annoying. I don't think he ever found a solution short of throwing out the phone. This phone I might mention was supplied by a very well-known North American chain. The provisions of EMCAB 1 are best explained by reference to the document itself. It was really a well-done piece of literature and has obvious solid technical content. Too bad it was never taken seriously by manufacturers—it could have gone a long way to dealing with a situation, which for lack of definitive procedure and cost responsibility would not now be in the courts. Part of the real issue in cases of this nature is, "Who pays?" A copy of EMCAB 1, Issue 2 has been supplied to ye Editor in the hope he may reprint interesting portions. A subsequent article will deal with the interpretation of some of the field strength figures.

The letter from VE3BLD (p.5) indicates how little we suspect appliances may react by themselves. Who is responsible for the inconvenience and nuisance caused by such appliances? Not me.

QUA 

News Bulletin from CARF EMI Committee

OCT. 30 1986

BY RALPH CAMERON VE3BBM —
COOPERATIVE FIELD INTENSITY
TESTS WITH DOC

At the request of CARF, (see TCA for Nov. 86), the Department of Communications agreed to a cooperative measurement of the field intensity in proximity to several typical Amateur Radio Stations in urban areas. The stated objectives were as follows:

- 1) To measure typical levels of field intensity outside the Amateur's home. An area encompassing roughly two homes each side of the Amateur's, at both front and back exposures were selected. Measurements were to be done on the neighbouring streets so that permission for access to nearby houses would not be needed.
- 2) To create a mobile Amateur station which could be parked outside the Amateur's house, on the street or in the driveway whereby:
- 3) Measurements of field intensity in the Amateur's home and conducted energy right at the electrical sockets in the home could be measured.

Making such measurements will permit some assessment of the attenuation characteristics through normal home construction materials. It will also tend to confirm the predominance of the conducted mode of entry, at HF.

It is proposed to transmit on the 5 HF bands, 3.5-28 MHz. Twenty measurements on each band would provide a data base of 1000 measurements when done at 10 separate locations.

The data obtained will provide some insight into the high/low levels of field intensity to be expected around Amateur stations. A random set of measurements taken within approximate boundaries will establish the values being sought. Meaningful measurement of field intensity in an open area such as an urban neighbourhood is practically meaningless unless sufficient data can be obtained.

The question of field intensity may eventually be raised in conjunction with the potential to affect health. Such a study is now being done by the Environmental Protection Agency in the U.S. In Canada, The Department of Health and Welfare plan to extend their present recommended standards to include frequencies below the B.C. band. That includes us.

The current tests being conducted with several Ottawa Amateurs may well be extended to other large cities. Coordinators may be needed to act as liaison with DOC should the local offices decide to participate. It is suggested that this is a worthwhile venture to secure important statistical data and Amateurs should be willing to participate for the short test duration required. Professional loafers have responded as tests need to be conducted during business hours.

Expect results of this survey shortly—to date levels have been well within the anticipated range. No further public announcement is planned.

QUA CARF

Garry Hammond VE3XN is now manager for the CARF Awards. Garry's address is: 5 McLaren Avenue, Listowel, Ont. N4W 3K1.

CARF thanks John Brummel VE3JDO, our former Awards manager, for his tireless work for the Federation.

Timothy Ray VE2KC has replaced Gary Warren as our legal counsel. Thanks, Gary, for your work on our behalf. CARF and TCA appreciate it!

Tim's address: c/o Hughes, Laishley, Barristers & Solicitors. 116 Lisgar St. Suite 600, Ottawa, Ont. K2P 0C2. 613-236-7333.

Amateurs using 430 MHz equipment are advised that there is sufficient medical evidence that the retina of the eye is sensitive to these frequencies and unnecessary exposure is to be avoided.

HELP!

CARF needs the new address for the Dartmouth ARC, VE1YO. Last known address: 6 Parkmoor Avenue, Halifax, N.S. B3R 1B4.

Can you help? Call or write Debbie at Box 356, Kingston, Ont. K7L 4W2, 613-544-6161.

10 DAY MONEY-BACK GUARANTEE

You may order any GARANT TD-Trap Dipole, any GARANT GD-Window Dipole, any GARANT GB-Beam, or any EMOTATOR 105TSX, 502CXX or 1105MXX for a 10-day no-risk inspection. Have a look at them in the privacy of your home and if you don't like what you see return the item pre-paid to our warehouse. We'll refund the full purchase price less shipping charges. We trust in what we sell!

GARANT ANTENNAS		(SHI)	EMOTATOR ROTORS		(SHI)
GB33DX	\$499	+ 18	105TSX	\$299	7.00
GB43DX	\$669	+ 24	502CXX	\$499	9.00
GB+7	\$189	+10.00	1105MXX	\$749	11.00
TD-2005/S	\$127	+ 6.90	1200FXX*	\$999	15.00
TD-2005/HD	\$137	+ 7.90	1500FSX*	\$ 4,195	26.00
TD-160	\$ 57	+ 6.90	EV-700*	\$ 889	9.00
GD-6/500W	\$ 99	+ 6.90	EV-700DX*	\$ 1,590	18.00
GD-6/2KW	\$199	+ 7.90	#303	\$49	6.90
GD-8/500W	\$119	+ 7.90	#300	\$89	6.90
GD-8/2KW	\$219	+ 7.90	#1211	\$59	6.90
GD-7/500W	\$129	+ 8.90	#1213	\$69	6.90
GD-7/2KW	\$229	+ 8.90	#1217*	\$ 69	6.90
GD-9/500W	\$149	+ 9.90	105PSX*	\$ 139	7.00
GD-9/2KW	\$249	+ 9.90	502PSX*	\$ 169	7.00
GD+2	\$ 29	+ 6.90	*These items are not		
GD+160	\$ 59	+ 7.90	stocked regularly!		

Prices are subject to change without notice. PAYMENT with VISA, MASTERCARD, CHEQUE or MONEYORDER. TECHNICAL DATA HOT-LINE 1-807-767-3888. Franchised dealer for GARANT and EMOTATOR. Manitoba residents ONLY add 6% sales tax. NO SALES TAX ON ORDERS FROM OTHER PROVINCES.

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NOMINATIONS FOR 1987

Nominations for 1987 are now required from full voting CARF members of the Federation.

All six positions of Regional Directors become vacant June 1987. Each nomination must have five full CARF member names and addresses on the nomination letter, as well as the candidate's signature, that He or She accepts the nomination.

Deadline of receipt of nominations is December 31, 1986.

Please address all nominations to the CARF Office, Attention Secretary, Box 356, Kingston, Ont. K7L 4W2. Send via Registered Mail to ensure prompt delivery.

The position of Director is the most important office within the Federation. Directors represent YOU, the voting member. Directors set policy, vote on all major decisions and appoint the executive to carry out YOUR wishes.

Exercise your privilege... **SELECT and VOTE.**

George Sansom VE3LXA
Secretary

10 GHz Contest— Second Weekend

After the unsuccessful attempt for a new distance record in the first weekend of the contest, we set out to put more stations on the air for the second weekend, not putting all our eggs in one basket, so to speak.

Amateurs both with and without 10 GHz stations were contacted to participate in the event. Some had been on past expeditions and were familiar with microwave operation while it was the first time for others.

The plan was to get as many stations on the air as possible, within the Montreal area. To this end, I built two additional 10.7 MHz IF transceivers as described in past TCA articles, for other Amateurs to use. One was completed the weekend before the contest, with the other being assembled on the Friday before the contest. Both units worked well by supper time Friday night.

We all met at Concordia University in Montreal on Friday night, for equipment calibration and to familiarize new operators with the equipment. I contributed one 30 MHz IF station with two-foot dishes, two 10.7 MHz IF transceivers with one- and two-foot dishes which were distributed to Amateurs without equipment. VE2HOT took the 30 MHz unit to operate from Mount Megantic FN45JK. VE2DKK took the 30 MHz IF transceiver belonging to the Concordia University Club station VE2CUA and an 18-inch dish. He was to operate from Covey Hill FN35CA with further trips into grids FN34, FN24 and FN25, as he would be near the intersection of four grid squares. The equipment checked out okay in a short hallway test and was calibrated in frequency to my transceiver.

Murphy first struck with the 10.7 MHz units that had been working 100% when they left my QTH. The modulator/power supply board developed a short and blew the 7805 regulator in one unit while the receiver board in the other unit shorted out, blowing the fuse. As the receiver couldn't be quickly repaired at that point, the working modulator was removed from one unit and used to repair the other. As luck would have it, a different short occurred as the regulator brushed up against a grounded bolt and poof, gone again. As it was near midnight at this point, we gave up for the night and gave the two units to VE2FFS to attempt repair

before the contest outing the following day.

Another team consisting of VE2DWG and VE2XL would also be involved with a 30 MHz station from St. Joseph du Lac FN25WM. VE2KW, also with a 30 MHz IF, was to operate from Mount Royal FN35FM. This was a total of six stations that would be active on the same day. Things were looking good.

Accompanying me to Mount St. Hilaire in FN35KN at 1350 feet were



VE2DWG, at the dead centre of St. Joseph du Lac, uses the Gunnplexer. Note telescope and 2 m beam. Photo— VE2XL.

Patrick Douek VE2PGD who just recently passed his digital exam and Andrew McGregor another University student studying for this ticket. Once again the weather was clear and sunny. The climb took about an hour over a well trodden path.

As we scuttled up the last rock formation to the top, we were hit with a bone-chilling Easterly wind that kept things frigid for the whole day. There was close to two inches of ground frost in the woods in certain places, and almost half an inch of ice on the puddles in the rocks at the top. This was only October!

A call on the local 2 metre coordination repeater put us in touch with the other stations en route to their destinations. Were we too early or was

everyone else late? Must remember to get firm operating times from everyone next time. Anyway, we set up the two metre and 10 GHz stations to be ready for the first station to fire up.

It took two people to keep the dish steady in a never-ending struggle against the wind. As time went by, my operating position shifted from sitting to crouching to laying down behind the rocks to get out of the wind. The other two were not so fortunate, having to stand up to rotate and steady the dish. My call sign shifted from VE2DUB to Veeeeee Eeeeeee 2 Deeeeee U Beeeeee as the day wore on. Shiver modulation was reported by several stations.

First to be set up was Jim VE2DKK. He reported being able to see our mountain and could line up the dish by eye. After he provided the reverse compass bearing and we further consulted the map, we had our antenna aimed in about the right direction. As the frequencies had been preset, only minimal tuning was required to pull in his signal. Weak at first, it was detected by the buzz of the CW tone oscillator and peaked by moving the antenna in both azimuth and elevation. After turning off the tone, his audio was full quieting but there was something wrong. While I could hear every breath he was taking, his receiver produced only noise. That isn't supposed to happen with full duplex communication! After carefully checking continuity from the mixer diode post, through the coax and connector to the receiver input pin on the board, the cause of the problem was still unknown. Even the time proven banging-the-case-with-fist method drew a blank on this one. Efforts continued to find the problem for several hours to no end so he had to give up and go home. One down four to go.

We checked with Nick VE2HOT on his progress towards Mount Megantic, a two hour plus drive from Montreal. When he was ready, we turned the dish his way and started searching for the familiar buzz of the tone oscillator. This hundred mile path, which had been successfully completed in summer conditions, did not work. As it is a non-optical path, it depends on the bending of the radio signal along the curve of the earth to be successful. With the weather the way it was, I suspect the K factor was

You think you're confused...

BY CARL L. BEDAL VE3DZB

THE PROBLEM

No wonder the public can't understand ham radio. Let me illustrate.

Ever had the 2 metre scanner whirring when you had an uninitiated passenger in the front seat of your car? The flashing lights, mysterious CW identifiers, strange chatter and those thunderous kerchunks. It's easy for the unsuspecting passenger to be confused about the whole thing.

HEARING IS BELIEVING... OR IS IT?

Consider the thoughts which could run through your passenger's mind as the scanner picks up snatches of conversation.

"Yours is definitely different from mine..." (What! Shower room comment on the air?)

"Maybe I can hear you from beyond..." (Do hams know something about the here-after that I don't know?)

"Got to go VE2..." (That guy can't spell!)

"I've been spending time..." (And he's on the loose on the airwaves!)

"Catch you tonight, dear..." (Sounds ominous for his wife!)

"Do you keep it on all the time?..." (Imagine, wearing a wig to bed!)

THE MORE YOU HEAR THE MORE...

Well, you get the picture. Ham radio, under these conditions, must be very confusing to the unwary listener. But consider how much more confusing it is in a repeater-saturated community when all 15 of your punched-in frequencies are pumping out snippets of conversation. Your bewildered passenger hears something like this:

"Talk to you later... in alphabetical order... well... ya... What are you doing this afternoon?... Got company coming... just got home.. Hope you have a nice visit with your family... and a couple of other guys... Take your pick... Find one that does have it... What was that again?... Bring it up for me, please... I had to move it to the other side of the car... Reg, I've got two of them.. I'll talk to you about it later... Standby one.. Take a look at it.. How about now?... Yea, you can do that sometimes... It's about 4 years old, but... He hasn't got that darned thing yet... It's like I said, if I... got those replaced and it seems to be OK now... Over to you John..."

BACK TO YOU

"OK, I'm just curious... You must have had fun. How many wives went?... If I didn't have one already... It'll be twenty degrees cooler tonight... I guess you're doing OK then, Joe..."

Now you're getting closer... I appreciate it, and if you want... I'll drop by the house... OK, we'll be waiting, give us a holler... Yea, I oughta be around... That's for sure... Where's the flea?... I'll let you go before this thing drops... 73's..."

CONFUSION CONCLUDED

This intermittent chatter sounds familiar, doesn't it? What did you expect? With most of our concentration on the road and the remainder on the QSO, we can't expect a scholarly presentation. Of course, I could have pressed a switch and let my passenger monitor an intelligible conversation. And, now that I think of it, perhaps scanner demonstration of 2 metres is not the best way to introduce the public to ham radio.

However, it's mighty impressive to be able to say to a passenger that we are listening to 15 conversations at once. On the other hand, when my YL is the passenger she'd be pleased if I listened to just one conversation, HERS.

EDITOR'S NOTE

This is a work of fiction. The names, incidents, places and dialogue are not to be construed as real, having been speech processed, filtered, suppressed and distorted beyond recognition.

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less than the average 1.3 that would have permitted the contact. Two down.

By this time the other stations had arrived at their locations and were ready to go. VE2KW at Westmount lookout on Montreal fired up and aimed our way. After a little searching we found his signal and made our first two-way contact over a distance of 35 km. This confirmed that our station was working well.

Our next attempt was with VE2DWG at St. Joseph du Lac. They had set up part way up the hill next to a school that was undergoing renovation, leaving the ground torn up by the contractor's heavy equipment and covered with mud.

After some discussion over which side of Mount Royal we should be aiming the antenna, we found the faint signal from his horn antenna, 65 km away. Another contact I thought. While we could copy him with our two

foot dish, well above the noise, he heard nothing. Not again! Nothing we could do produced any output from his receiver. Don suspects the receiver diode may have lost its sensitivity. Maybe the two-foot dish in his car trunk would have brought the signal up to a detectable level.

Back at Westmount lookout, on Mount Royal, VE2FFS had arrived with one 10.7 MHz unit in operating condition. Using a military surplus 18 inch dish and motion detector, he attempted to contact us. After half an hour, without success, we discovered the feed on his dish was producing horizontal polarization, while we were vertically polarized. Even with this corrected, no contact was made. He was received by VE2KW on his 30 MHz IF unit, a few feet away.

By this time, however, the dish operators were approaching hypothermia and it was decided we should leave, in no uncertain terms,

NOW! After seven hours on the mountain, we packed up and headed down. VE2KW and VE2FFS made their way to the West side of Mount Royal and contacted VE2DWG over the 30 km path, with VE2FFS taking a turn on the mic.

As you can see, there is still a long way to go before operation on 10 GHz resembles anything being done on the lower VHF bands today. We are at the same point that two metres was a few decades ago, as you can see by reading some of the early accounts of their hilltop adventures. We sure didn't clean up in the contest, but did get people out operating and further sparked the interest in Amateur microwave activity in the Montreal area.

One clarification on my article on the 24 GHz Gunnplexers— Microwave Associates produces Gunnplexers, AAR markets them with a complete line of accessories.

Paul Cooper VE3JLP
RR 2 Metcalfe Ont.
K0A 2P0

•CO DX•CO DX•

COD FILLETS

One of the many nice things about writing this column is the interesting letters that arrive in my mail box from readers all over the country. A recent item came from one of our semi-rare locations, a VE2 in Zone 2. There are not many active stations in Zone 2 so every time VE2LJ goes on the air he attracts a lot of attention. I had already thought that at some time or other we should take a look at this whole question of 'Working in a pile-up' and then Kent Chown's letter arrives full of suggestions, hints and general beefs all from the point of view of the DX station. I think I can do no better than quote Kent's letter pretty well verbatim.

"I have been operating here from Zone 2 for the last year and a bit, and operated as VS6KD for a year. Here alone I have made about 5000 contacts, now running around 400 QSOs per month. That's not much operating at 60 contacts per hour, but I am often monitoring while I work, or working while I monitor.

As a 'semi-rare' DX station (Don't believe it?... come and listen to my pile-up some day) I have beefs too. Or perhaps they are 'Cod Fillets,' as that is the local stack, kept wet in a warm place until they stink.

Picture this, I or any other DX station are running one contact per minute or better on CW. The exchanges are going fairly smoothly. Suddenly, as I send 'TU 73 SK QRZ? K' a 20 over 9 signal comes over "CALL? CALL?" successfully blocking out all the other stations calling me. And I just sent my call one or two QSOs back. Oh well, I do manage to pick out one of the stations calling, and end off with "QRZ DE VE2LJ ZONE 2/IOTA." And here it is again... "CALL? CALL?"

Suggestion #1: If you don't think a DX station has identified for a time—listen first—send ONE question mark. He will hear the hint, but not be stopped from working the next station.

Then there is the guy who breaks the pile-up and proceeds to send, when I have given him his report "VE2LJ DE xxxxxxxx R TU UR 599 IN RAGCHEWVILLE RAGCHEWVILLE BT NAME NAME IS DEXTER DEXTER BT QSL VIA VE3JDO FB BT HW CPI VE2LJ DE xxxxxxxx KN". By this time I am screaming at the top of my lungs, having run out and cooked my supper during his transmission, eaten it and now well into my cup of coffee.

Hint: The DX station knows his or her call. Don't bother sending it.

Hint: if the DX station got your call right, don't repeat it, unless you are trying to be super legal and so send it at the very end. If you send it again, it only confuses, as I will think I had it wrong. And if I do have it wrong, send it once at the beginning and the end: there is often QRM at the beginning of your transmission, with other stations dreaming that perhaps I meant them. Remember that when I picked out your call I got it through a lot of QRM: when I work you that QRM should be near zero, so there is no need to repeat your call three times. If I need it again I will ask.

Hint: The DX station knows his or her QTH info. Don't bother sending it.

Hint: Listen to the DX station's style. If he or she is giving name, give yours. If it is just basic info, call and RST, then just give that unless you have unusual information... example, I give my Zone #; if you are QRP say so; VE1s give your Province.

Suggestion #2: Keep it short.

Suggestion #3: Listen and do not assume. Some people assume that because I have finished working one station, the next thing I must send is QRZ? even if it did sound surprisingly like another 599 report and a BK. I may work one, two or three stations after a single QRZ? call. Wait. I am mean with people who consistently don't listen. I don't work them. (Anyone can make one mistake—with QRM, etc.—that I accept. Try throwing in your call when I am working other stations two or three

times and you will hear "VE3JLP TU QRM TU FER QRM PSE QSY/QRT TU SK...") I don't know if other DX stations are as nasty as me, but I'm sure you would like them to be in a good mood so they will be back on another band when you need them.

Finally suggestion #4: Listen for directional calls. VO/VE/VY land is not Africa, Asia, Europe, Pacific or South America. We can sometimes get away with pretending that we are in the U.S.A. if that is the call. But respect the directional call. (I find it amazing how much of Europe moves into Asia when I call slowly—"QRZ ASIA ONLY ASIA ONLY DE VE2LJ KN".)

Well that rang a good few bells, didn't it? Kent's comments in suggestion #4 about respecting directional calls and pretending that we are in the U.S.A. touch a tender spot. I've done this many times but never without feeling guilty. I know 95% of these stations really mean 'North America' but to suggest, by responding to his call that I think I'm in the U.S... oh dear! The other very important point Kent made is to LISTEN. There are far too many people leaping into the pile up without finding out what the DX station's call is, if he is working split, if he has just made a directional call and so on. Perhaps I'll be considered as being hopelessly old-fashioned if I say that it boils down to good

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VP2MDY, Ursula Sadler, in her shack on the island of Monserrat. Look for her on 14.065, 7.028 or 3.565 MHz. She is an ex-WW2 special operator and her code is a joy to hear.

manners. A little more patience and consideration by everyone in the pile-up and things will move along so much easier.

NCDXF

You may remember that last April I was down in Visalia, California, attending the 37th International DX convention. One of the many useful contacts I made there was with a member of the executive of The Northern California DX Foundation, an organization I'd heard of many times but about which I had only the haziest ideas. My contact turned out to be an avid collector of Amateur magazines and journals and I was pleased to be able to send him some examples of *TCA* for his collection. Back in return came a complementary copy of the NCDXF newsletter and some general literature about the organization which have filled all my gaps and quickly made me an instant expert on the subject!

Apparently it was founded back in 1972 by Vince Chinn K6KQN and a group of DXers who live in northern California. The organization's goal is "... assisting worthwhile Amateur radio and scientific projects with funding and/or equipment." Since those days the group has become an international organization drawing members from all over the world. Funding got off to a splendid start with a generous capital donation by Lee Shaklee W6BH, whose gift has been invested and generates roughly \$10,000 a year(!) to support NCDXF projects. Additional funding is sought from members and it is suggested that one's contribution, in the first year, should be \$25. With a yearly renewal \$10. However the foundation "does not want to deny membership to anyone because of financial considerations" so those of you out there who are truly skint can join for whatever you can honestly afford.

So much for membership, but how does NCDXF operate in its role as sponsor and supporter of those worthwhile projects? The Board of Trustees meets monthly and considers carefully all the requests for assistance. Many of the major and minor DXpeditions you have worked over the last ten years or so have been funded, at least in part, by NCDXF. They have been particularly useful in organizing the printing of special QSL cards for many of these expeditions, a pretty significant contribution when you look at the high quality of their cards and the huge numbers needed for a major DX effort.

There are a couple of other worthwhile aspects of NCDXF I'd like to

mention before leaving the subject. I hardly dare mention their 20M beacon program after covering it in a fair amount of detail TWICE in this column over the last few months! However the program has generated quite a lot of interest, worldwide; the 1985 winter newsletter talked of total correspondence on the system having reached 585 coming from 35 different countries.

A few people have attempted to operate computerized automatic logging systems to monitor the beacons but the attempts have been on the whole, not too successful. The problem has been the high levels of QRM around 14.100 MHz. The other service NCDXF supplies which might be of interest, particularly to club executives putting together a speakers program for the winter, is a series of slide-tape and VHS video shows covering a number of major DXpeditions.

How do you join? Just send a cheque or M/O, or even equivalent IRCs, to: Northern California DX Foundation, P.O. Box 2368 Stanford, CA. 94305 U.S.A.

DXCC A NEW LOOK?

Back in July the ARRL Board of Directors asked the DX Advisory Committee to "... study the problems and advisability of restructuring the DXCC award program..." The study is scheduled to be completed by this December, in fact before *TCA* readers will have received this issue, so most of us will have missed the bus as far as sending in our comments. This is a pity as I'm sure most DXers have views on the existing program, particularly the criteria that are used to decide whether to approve a new 'Country'. The whole program seems to have grown like Topsy, unfortunately starting with some indefensible decisions like granting multiple country status to the U.S.S.R. and the U.K. while considering the continental U.S. and all of Australia as only one country each. The rules that granted country status to the United Nations HQ in New York and to the ITU in Geneva but are now balking at following the precedent with 4U1VIC in Vienna have also caused some head shaking. I could go on but I hope I've made my point. The ARRL DXCC rules talk of the countries list being "... the result of some 38 years of progressive changes in DXing," well, I suppose that's one way of putting it! What we have is a list of 316 locations that frequently bear little or no relation to what the man in the street would call a country. I expect most of you have had that embarrassing experience where a

proud relative announces to a mutual friend that you have contacted XXX countries and then you have to explain, with great difficulty, that 'country' doesn't mean a country in the normal sense of the word it means... and so on!

Well, what's the answer, what changes should the DXAC be considering for this venerable war-horse, the DXCC program? Lets hear from some of you and I'll print your comments in a future issue.

AMATEUR RADIO IN THAILAND

My special correspondent in Thailand, daughter number three, has just sent me an interesting clip from the *Bangkok Post* of Oct. 5 headed 'Amateur radio station on the air.' Under a photograph showing a busy ham shack full of local and visiting Amateurs the text explains that a special one-day station was set up recently as a demonstration. It goes on to say, and this is worth quoting in full: "The Post and Telegraph Department is now reviewing short wave Amateur radio regulations, an activity which has been approved in principle by the National Security Council." Amateur operations from Thailand have been severely restricted over the past few years, let's hope this item signals a return to more normal operations for Amateur radio in this part of South East Asia.

SUNSPOT CYCLES

There's growing excitement amongst all the propagation experts as cycle number 21 bottoms out and everyone polishes their crystal ball in the hope of predicting, correctly, the start of the long-awaited upswing that will signal the beginning of #22. The latest expert to plunge in is our own editor, Frank VE3DQB, who points out, on page 38 of the November issue, that a small sunspot appeared during the week of Sept. 29, in a high Northern latitude.

Since I'm still frantically reading everything I can lay my hands on in preparation for a future column on propagation, I'm not sure exactly how significant Frank's sighting is! KH6BZF, reported in *QRZ DX*, notes that two current sunspot 'Regions', RGNs 4750 and 4751, have sunspots in the mid-latitudes and may be the 'harbingers' of the end of #21 and the beginning of #22. He goes on to say that we will know for sure in February 1987 when and if Cycle 22 is indeed a reality.

As far as band conditions are concerned, over the last month or so, things have definitely picked up. Ten metres has been open several times and 15 quite frequently. On 20 I've

been getting very respectable reports back for European contacts, in marked contrast to the 519s that fill pages of my log-book for last summer. In addition, there have been solid openings into VK and ZL and even a QSO with a VU station, my first in at least 18 months. The big question is whether these conditions are a solid start to that upswing or whether they are temporary bumps at the bottom due to brief bursts of solar activity? Ah well, we shall all know soon enough though I'm not sticking my neck out and saying WHEN!

BITS AND PIECES

HFO S. SHETLAND ISLANDS— You thought this island group had a VP8 prefix? So it does but it also has HFO, LU or Z, CE9 and 4K depending on who is operating from there. It's geographically part of Antarctica and so has international status. Lately the Polish Antarctic station HFOPOL has been reported active from this location on 7.040 MHz at 0100-0300 UTC and 21.220 MHz around 1600-1800 UTC.

ST SUDAN— I was fortunate enough to work G4KLP when he guest-operated ST2SA on 20M phone on Oct. 21. He mentioned that the licence holder there is also active on RTTY and Packet. Graham was only in Khartoum for a few days but QRZ

NEW BATTERY

Scientists at UBC have devised a new battery, cheaper than Nicads, but without their 'sudden death' voltage discharge curve.

ANY QUESTIONS?

If you have questions on any technical matter, the Technical Editor will do his best to answer them. His address is at the top of the Technical Section page.

JA-VE RECIPROCAL LICENSING

Japan and Canada have announced that they have signed a reciprocal licensing agreement, valid Nov. 16. Details next month.

LATE NEWS

The VE7EXPO Amateur Radio Society honoured CARF with a Meritorious Service Award. Story next month.

AMSAT

AMSAT Editor Ernie VE3HD may resign as AMSAT Editor soon. Would anyone like to carry on with the column?

In the linear amplifier diagram (November TCA page 42) the 0.01 microfarad capacitors are drawn on the wrong side of the RF choke. They should be on the transformer side of the choke.

reports two other stations active from the Sudan: ON7IP/ST2 on 14.176 MHz at 2100 UTC and G4ABI/ST2 on 15M CW.

ZLB KERMADEC ISLANDS— Peter ZL8HV ex-ZL9AA will be stationed at the Met station on Raoul island for a year and hopes to be active on all bands 10 through 160. (No other

operating details are available at the moment but if I see or hear anything I will give you an update in this section.)

Thanks are due to the following sources for some of the material appearing in this column: *QRZ DX*, *CQ Magazine*, *QST*, Julia Cooper and KH6BZY.

International Amateur Radio Union

NINTH GENERAL ASSEMBLY OF REGION 2 BUENOS AIRES, ARGENTINA. OCTOBER 20-25 1986.

The Canadian Radio Relay League, CRRL was among the 25 national Amateur radio societies represented in the recent 9th General Assembly of IARU Region 2 held in Buenos Aires Oct. 20-25 1986.

The General Assembly was opened by officials of IARU Region 2, the Argentine Minister of Communications and the President of the Radio Club Argentino.

Then followed three days of intensive Committee work, reviewing almost 100 submissions, followed by a one-day plenary session at which the recommendations of the committees received final approval.

Highlights of the recommendations:

1. That the top 10 kHz of the 15 and 20 metre bands be the initial meeting place for Amateurs in time of international emergency.
2. That a type of emergency net, proliferating in South America, occupying spot frequencies in the Amateur bands, up to 24 hours a day, 365 days a year, be discouraged in favour of emergency nets that operate only during actual emergencies, or for training and practice.
3. That there be no phone operation on the 10 MHz band.
4. That contacts on the 10 MHz band not count for contests and awards.
5. That April 18, the anniversary of the founding of IARU in 1925, become World Radio Amateur Day.
6. That June 17 become World QRP Day.
7. That AX.25 be the international preferred protocol for Amateur packet radio and
8. That IARU Region 2 work with the ARRL Digital Committee to establish a packet radio network for North and South America.

The General Assembly also approved a set of HF Bandplans, not binding on anyone but offered as guidelines, for North and South America.

It also approved three important recommendations initiated by CRRL:

1. A set of guidelines for net operation which includes the concept that nets, while they

should be given every courtesy, do not have the right to a particular frequency to the extent that they can interfere with or displace QSOs already in progress.

2. That IARU consider establishing some professionally-equipped monitoring stations to increase the effectiveness of the IARU Monitoring System (formerly called Intruder Watch).

3. That IARU member societies throughout the world press their communications authorities to concern themselves with RF susceptibility of non-radio electronic products, and to make manufacturers of such products repair them without charge, whenever the products malfunction in an RF field.

Two relatively minor items created much heated debate. In split votes the General Assembly approved recommendations:

1. That the standard way of dating QSL cards should be year, month, day. (CRRL has been dating all CRRL Bulletins in this manner for years)

2. That Amateurs operating portable in a foreign country should place the prefix of the country before, instead of after, their own call sign, eg LU/VE3QST.

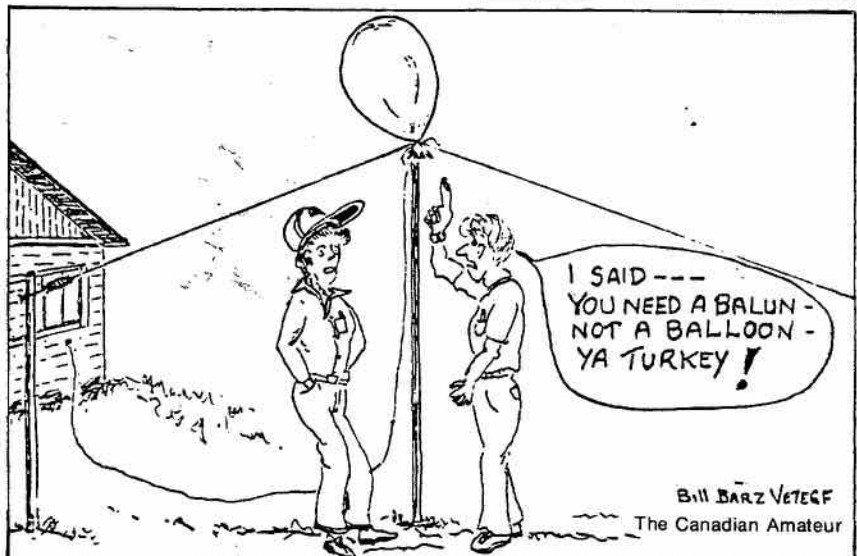
There were many more items discussed which will appear in a subsequent full report in a forthcoming issue of QST.

The Canadian Delegation to Argentina was headed by CRRL President Tom Atkins VE3CDM, who was re-elected for a further three-year term as a member of the IARU Region 2 Executive Committee, and CRRL Vice-president Harry Maclean VE3GRO assisted by CRRL Assistant Director Al d'Eon VE3AND.

A special presentation to the Radio Club Argentino commemorating their 65th Anniversary, was made by CRRL President Tom Atkins, on behalf of the radio Amateurs of Canada, at the closing banquet.

The Tenth General Assembly will be held in the United States in 1989.

Canadian Radio Relay League, Inc.
Nov. 2 1986



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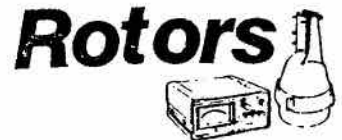
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Technical Editor:
Bill Richardson VY1CW
RR 1, Site 20, Box 63
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Photovoltaic Power Systems

BY VY1CW

Solar power is now a viable means of powering repeater sites in remote areas where commercial power is not available. Cost and simplicity as well as long life will appeal to Amateur applications where these requirements are of prime importance.

The Yukon Forest Service has been using solar power at repeater and lookout sites for seven years with very little maintenance required. Even sites with commercial power are being converted to solar because the long runs of wire necessary to bring power to these sites are prone to voltage spikes caused by lightning, resulting in frequent equipment damage.

Caustic potash batteries were the main power source for remote applications in the past. This is rapidly being replaced by solar power since the cost of caustic potash batteries recurs every four to five years and the cost of transporting them is very high. Environmentally, the dead batteries have to be removed from the site causing even higher transportation costs.

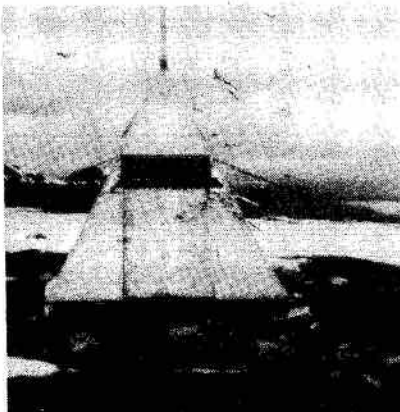
Solar panels have a life expectancy of 25 to 35 years and maintenance consists of cleaning the panel with water and a rag whenever the battery is replaced. Rain takes care of this most of the time. Regular automotive or marine type, maintenance-free 12 volt batteries should be used. The marine style are preferable since they have threaded posts which make for simple connections and electrolysis is less with these posts than with lead posts.

Solar panels can be obtained with built-in voltage regulators or without regulators for use with external charge controllers. It has been found that the external charge control route is the best one. This way, if there is a failure in the regulator, the panel itself does not have to be replaced. The external charge controllers also prevent over charging of the batteries. Regulators should use milspec components since they will be required to operate under great temperature extremes.

In all cases, only the highest quality panels and regulators should be used. The minimal cost saving realized by purchase of substandard equipment is soon lost when compared with the expense of having to make repeated trips to the site to replace defective units, especially when access to the site might only be possible for a short period each year.

The Yukon Forestry system uses Motorola MTR 300 repeaters. These are 5-watt units with very low standby current demands. A single 2-amp panel and one 105-amp-hour battery will provide and store more power than needed. The lookout towers use Motorola MCX 100 VHF radios, Spillsbury SBX 11A SSB radios, and a CB. In these installations, two panels and two batteries are used. Several portable repeater packages using the MTR 200 units are available for emergency use. These have two 0.45 amp panels built into the lid of the unit, and they will last for several weeks under high usage.

The Yukon Amateur Radio Association has had its 34/94 machine solar-powered for one year with no problems. This is a BR 150, 5 watt unit installed on a mountain with helicopter access only. The solar power system is ideal since the club is very small with a limited budget that allows only infrequent visits to the site.



Solar powered repeater, Watson Lake, Y.T. Photos— VY1CW

All wiring should be with large gauge wire and all terminals should be soldered as well as crimped. A coating of silicone spray will lessen corrosion on terminals. The efficiency of the panels will increase as the temperature lowers. On an overcast day in the winter, the panels will give 25% of their normal charge rate from light reflected from the snow.

Charts are included showing required panel angle and expected sunshine hours for various locations in Canada. The author will answer any specific requests for information if accompanied by an SASE.

Solar power is the answer to remote site power requirements. It provides a simple, economical and reliable solution and should be considered by anyone planning a repeater installation in remote or inaccessible areas.



Solar powered forestry tower, Tom Creek, Y.T.

TECHNICAL

Peak Sunshine Hours Per Day

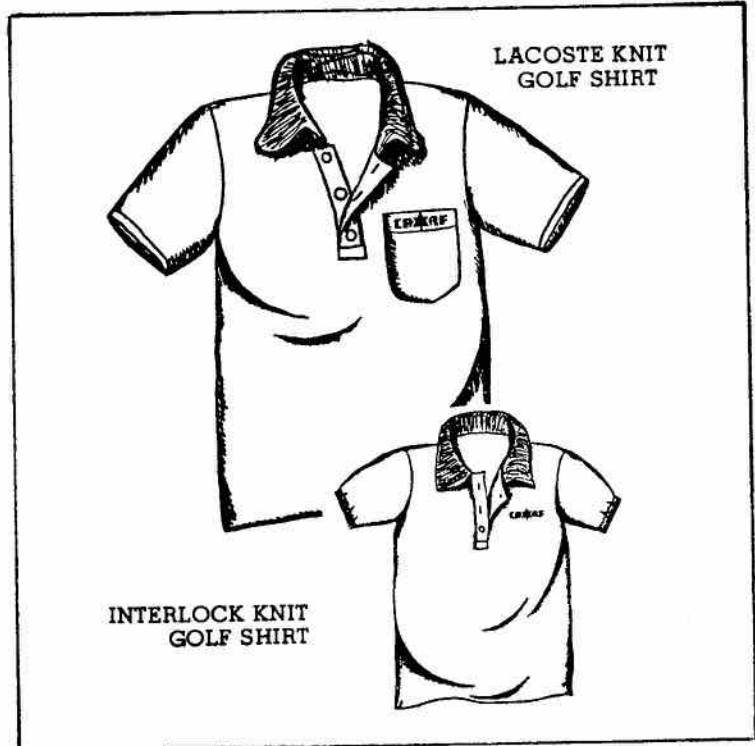
LOCATION	LAT.	LONG.	PANEL												
			TILT	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
RESOLUTE BAY	74°N	95°W	75°	-	-	2.8	5.6	7.0	6.4	5.6	4.3	2.7	-	-	-
AKLAVIK, NWT	68	135	65	-	-	3.1	5.2	5.8	5.5	5.4	4.1	2.7	-	-	-
FORT SIMPSON, NWT	61	121	65	-	1.6	3.3	4.8	5.3	4.9	4.9	4.5	3.2	2.0	-	-
DAWSON, YUKON	64	140	65	-	1.4	3.3	4.4	4.9	4.9	5.0	4.2	2.6	1.6	-	-
WHITEHORSE, YUKON	61	135	65	-	1.7	3.2	4.5	5.0	4.8	4.8	4.3	3.1	1.8	-	-
CAPE ST JAMES, QCI	52	133	65	1.1	1.7	2.6	3.5	4.3	4.0	4.2	4.2	3.5	2.2	1.3	1.2
NANAIMO, BC	49	124	65	1.1	1.9	2.8	3.8	4.5	4.3	5.1	4.7	3.8	2.4	1.4	1.2
PRINCE GEORGE, BC	54	123	70	1.2	1.8	2.8	4.0	4.0	4.1	4.4	4.1	3.3	2.0	1.4	1.2
SUMMERLAND, BC	49	120	65	1.3	2.1	3.1	4.0	4.5	4.4	5.1	4.7	4.0	2.6	1.4	1.3
VANCOUVER, BC	49	123	65	1.1	1.7	2.7	3.6	4.4	4.2	4.9	4.5	3.6	2.3	1.4	1.2
CALGARY, ALTA	51	114	65	1.7	2.5	3.8	4.3	4.7	4.6	5.5	5.0	4.1	2.9	1.9	1.8
EDMONTON, ALTA	53	113	70	1.5	2.4	3.5	4.3	4.4	4.1	4.7	4.4	3.4	2.6	1.7	1.6
LETHBRIDGE, ALTA	49	113	65	1.9	2.8	3.9	4.2	4.7	4.7	5.5	5.2	4.2	3.2	2.2	1.9
PEACE RIVER, ALTA	56	117	70	1.2	2.3	3.5	4.4	4.6	4.5	4.9	4.5	3.5	2.5	1.6	1.6
SUFFIELD, ALTA	50	111	65	1.9	2.7	3.9	4.4	4.7	4.6	5.4	5.0	3.4	3.0	2.0	2.0
REGINA, SASK	50	105	65	2.1	2.8	3.9	4.3	4.6	4.5	5.3	4.9	3.9	3.0	2.0	2.0
SASKATOON, SASK	52	106	65	1.8	2.8	3.8	4.4	4.7	4.5	5.2	4.7	3.9	2.8	1.9	1.9
SWIFT CURRENT, SASK	50	108	65	2.0	2.8	3.9	4.4	4.7	4.5	5.3	4.9	4.0	3.0	2.1	2.0
WINNIPEG, MAN	50	97	65	2.1	2.9	3.9	4.3	4.6	4.5	5.0	4.6	3.7	2.6	1.8	2.0
CHURCHILL, MAN	58°N	94°W	65°	1.2	2.3	3.9	5.2	5.0	4.8	5.0	4.4	2.9	1.7	1.3	1.2
NORWAY HOUSE, MAN	54	97	70	1.6	2.6	3.8	4.7	4.7	4.4	4.7	4.4	3.0	2.2	1.5	1.5
GUELPH, ONT	43	80	60	2.0	2.9	3.4	3.8	4.3	4.4	4.6	4.4	3.6	2.7	1.6	1.8
KAPUSKASING, ONT	49	82	65	1.7	2.7	3.8	4.1	4.2	4.5	4.5	3.9	3.2	2.2	1.5	1.5
KENORA, ONT	50	95	65	2.1	2.8	4.1	4.4	4.5	4.4	5.0	4.6	3.5	2.7	2.0	2.0
MOOSONEE, ONT	51	80	65	1.7	2.7	3.6	4.1	4.0	4.0	4.1	3.7	3.0	2.0	1.4	1.4
OTTAWA, ONT	45	76	60	2.0	2.8	3.6	4.0	4.3	4.2	4.6	4.3	3.5	2.6	1.6	1.6
THUNDER BAY, ONT	49	89	65	2.0	2.8	4.0	4.2	4.3	4.4	5.0	4.5	3.4	2.5	2.0	1.9
TORONTO, ONT	43	79	60	1.7	2.3	3.1	3.7	4.2	4.2	4.6	4.3	3.6	2.7	1.6	1.6
CHIBOUGAMAU, QUE	50	74	65	1.8	2.7	4.1	4.1	4.1	4.1	4.1	4.0	3.0	2.0	1.4	1.4
MONTREAL, QUE	45	73	60	1.9	2.6	3.3	3.8	4.1	4.0	4.5	4.1	3.5	2.5	1.6	1.5
NORMANDIN, QUE	48	72	65	1.9	2.7	3.9	4.2	4.0	4.0	4.1	3.9	3.1	2.1	1.6	1.6
SEPT ISLES, QUE	50	66	65	1.8	2.6	3.4	3.7	4.0	4.2	4.0	4.0	3.1	2.4	1.6	1.6
MONCTON, N.B.	46	55	60	1.5	2.3	3.3	3.8	4.0	3.8	4.3	4.1	3.5	2.7	1.7	1.6
CHARLOTTETOWN, PEI	47	63	60	2.0	2.7	3.5	3.9	4.0	4.2	4.5	4.3	3.4	2.5	1.8	1.8
DARTMOUTH, NS	44	63	60	1.8	2.5	3.1	3.6	4.0	3.8	4.4	4.0	3.7	2.7	1.8	1.8
ST. JOHN'S, LAB	47	53	60	1.5	2.2	2.8	3.3	3.6	3.9	4.5	3.8	3.3	2.1	1.5	1.4
GOOSE BAY, LAB	53	60	70	1.5	2.4	3.2	3.9	3.9	3.6	3.8	3.5	2.9	2.0	1.4	1.4
KNOB LAKE, LAB	54	67	70	1.4	2.3	3.7	4.3	3.7	3.5	3.7	3.5	2.8	1.9	1.4	1.4



BOMBER JACKET

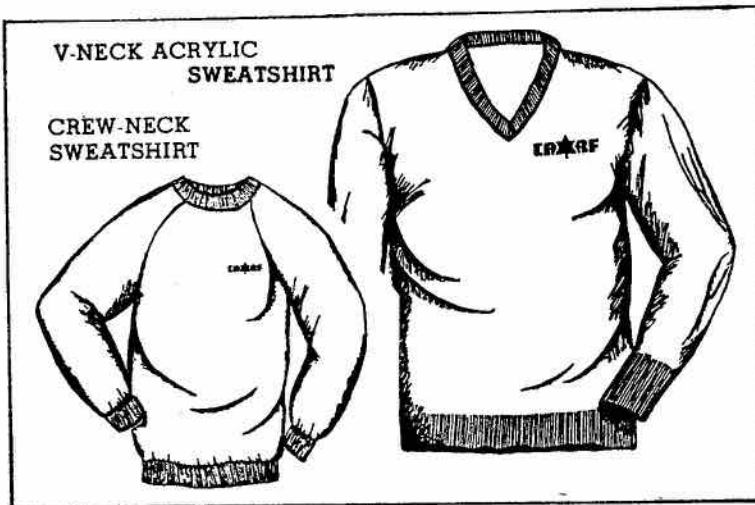


WARM-UP JACKET



LACOSTE KNIT GOLF SHIRT

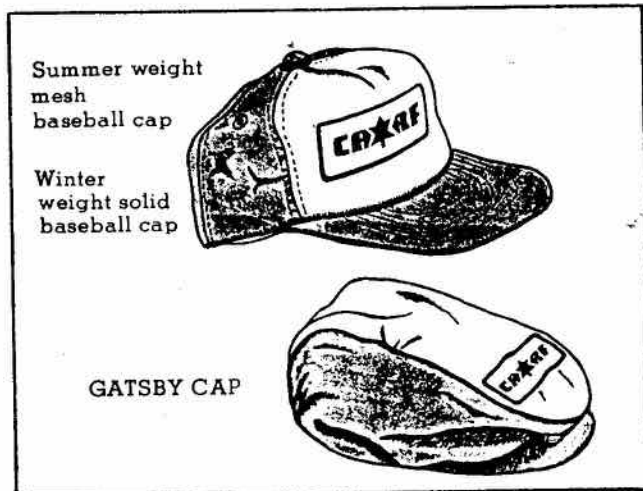
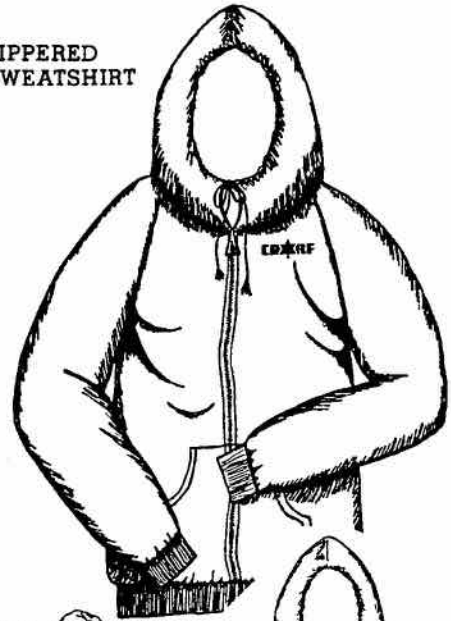
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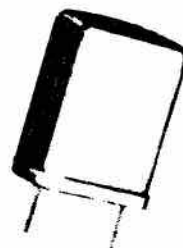
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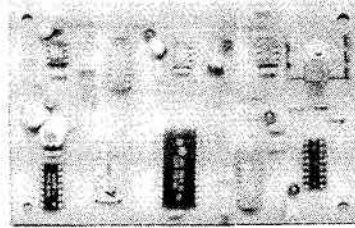
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