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The Canadian Amateur  
Radio Magazine  
La Revue des Radio  
Amateurs Canadiens

MAY 1986

# Ravenscroft Loses!

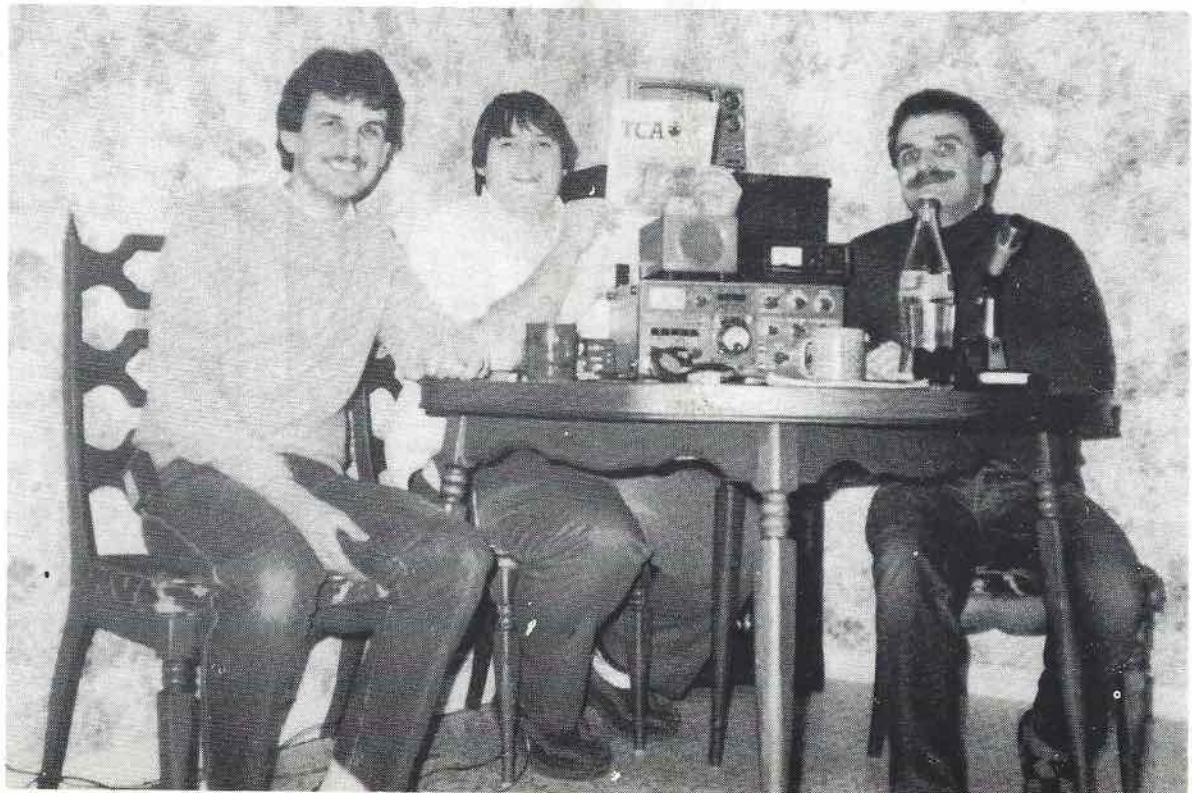
—See Page 4

*Art VE3AHU comments on  
the DOC proposals*

*The First CRRL, Part 2*

*All-digital Receivers -more-*

*Canada contesters Sylvain VE3FOT, René VE2AHC and Norm  
VE2FQX. See Page 38.*



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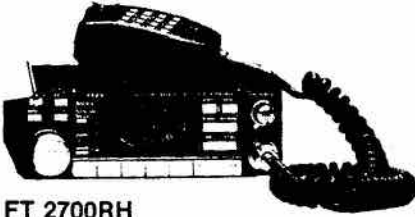
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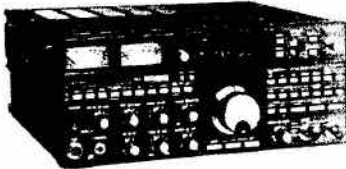
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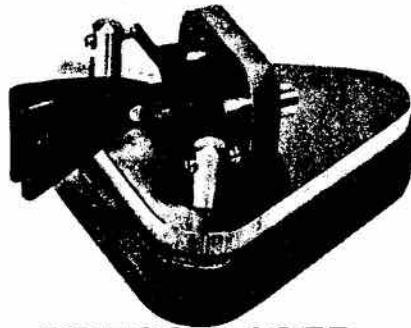


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# THE CANADIAN AMATEUR

**CIRCULATION OFFICE**  
P.O. Box 356, Kingston  
Ont. K7L 4W2  
613-544-6161 (24 Hrs.)

**EDITOR**  
Frank Hughes VE3DQB

**CONTRIBUTING EDITOR**  
Doug Burrill VE3CDC

**TECHNICAL EDITOR**  
Bill Richardson VY1CQ

**CONTEST SCENE**  
John Connor VE1BHA

**AMSAT NEWS**  
Ernie Welling VE3HD

**MICROWAVES**  
Michael Ross VE2DUB

**CRAG COLUMN**  
Cary Honeywell VE3ARS

**DX EDITOR**  
Paul Cooper VE3JLP

**YL NEWS AND VIEWS**  
Cathy Hrischenko VE3GJH

**VHF/UHF**  
Bob Morton VE3BFM

**PACKET RADIO**  
Brett Delmage VE3JLG

**COMPUTERS**  
Lyle Blake

**DESIGN**  
Nancy Bradley VE2GFN

**ADVERTISING  
REPRESENTATIVE**  
Don Slater VE3BID

RR 1 Lombardy,  
Ontario K0G 1L0  
613-283-3570

**PRODUCTION**  
County Magazine Printshop Ltd.  
P.O. Box 30, 71 Main St.  
Bloomfield, Ont.  
K0K 1G0  
613-393-3355

Please address correspondence to  
the Editor at Box 855, Hawkesbury,  
Ontario K6A 3C9, telephone 613-  
632-9847.

May 1986

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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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**TCA— The Canadian Amateur** is published by C.A.R.F. Publications Limited, 370 King St., P.O. Box 356, Kingston, Ontario, Canada K7L 4W2. It is recommended by the Canadian Amateur Radio Federation Inc. and its members receive it automatically. Indexed in the Canadian Periodical Index: ISSN 0228-6513.

Second Class Mail Registration Number 5073





# Executive

**C.A.R.F. President**  
Ron Walsh VE3IDW  
10 Nicholson Cres.  
Amherstview, Ont.  
K7N 1X1  
(613) 389-3301

**Past President**  
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RR 1 Lombardy  
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RR 6,  
589 Ashburnham Dr.  
Peterborough K9J 6X7  
(705) 748-2499

**General Manager**  
Lorna Hill VE3IWH  
154 Colborne St.  
Kingston, Ont.  
K7K 1E2

**Secretary**  
George Sansom  
VE3LXA  
786, Selkirk Rd.  
Kingston, Ont.  
K7P 1A5  
(613) 389-5108

**Treasurer**  
Ollie Schijns VE3LXO  
730 Dempster Dr.  
Gananoque, Ontario  
K7G 2E7  
(613) 382-3867

**Legal Counsel**  
Gary Warren  
157 McLeod St.,  
Ottawa, Ontario  
K2P 0Z6  
(613) 236-0852

**Mid West Director**  
Norm Waltho VE6VW  
Box 1890  
Morinville, Alta.  
T0G 1P0  
(403) 939-3514

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Newmarket, Ontario  
L3Y 6E2  
(416) 898-4875

Geoff Smith VE3KCE  
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**Interim Director  
(Manitoba/Northern Ont.)**  
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665 Munroe Cres.  
Winnipeg, Man. R2K 1H9

**Assistant Regional  
Directors**  
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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

## Mark 30!

QUA 

BY J.F. HOPWOOD  
VE7AHB

The 30 metre band is ours because the international Amateur radio community fought long and hard before and during the 1979 Geneva World Administrative Conference (WARC) to have it assigned to Amateur service. While the International Telecommunications Union (ITU) assigns this 10.100 to 10.150 MHz band to both fixed and Amateur service, the DOC, with certain limitations, has allocated this segment wholly to Amateur use. It's ours to enjoy, however we are cautioned not to interfere with foreign fixed services. Footnote 'C6' to the current DOC 'Table of Frequency Allocations' states the following:

"The band 10100-10150 kHz is allocated to the fixed service on a primary basis worldwide. In Canada, the band is allocated exclusively to the Amateur service. Canadian Amateur operations shall not cause interference to fixed service operations of other administrations and if such interference should occur, the Amateur service may be required to cease operations. The Amateur service in Canada may not claim protection from interference by the fixed service operations of other administrations."

The international ham community honours the primacy of fixed services on the 30 metre band by prohibiting contests and other concentrated award-seeking activities which could likely cause heavy QRM. Canada-wide, WRS, WAZ, DXCC or other awards are not offered. Bad news for the radiosport and award-seeking enthusiasts! Good news for the CW and RTTY ragchew fraternity!

Don't let this turn you away from 30 metres no matter where your operating interests lie. It's a great band! It's not crowded. In fact, it's under-utilized. Worldwide DX, always, is found at the lower edge of the band 10.100 to 10.110 MHz. Ragchews can be found anywhere,

but tend to cluster around 10.125 MHz (plus or minus a few kHz). Very little ham activity is observed between 10.130 and 10.150 MHz. Fixed service stations are interspersed across the band. They come and go depending on the time of day and band conditions. They are easy to avoid.

Situated halfway between 20 and 40 metres, 30 often provides a DX window when 20 is useless. International time standard station WWV at 10 MHz acts as a good beacon station with which to judge 30 metre band openings around North America and to the mid and south Pacific. Foreign fixed service RTTY stations may help as band opening indicators.

As yet, longwires, dipoles, inverted vees and verticals are the popular antennas in use. However, commercial builders are beginning to offer monoband and multiband yagis and other antennas which accommodate 30 metres. And, of course, almost all recent commercial ham band transceivers are equipped with the new 10, 17 and 12 metre WARC bands.

The 30 metre band plays host to some 'phantom CW stations'. These stations show up periodically sporting various foreign call signs. They send endless curious CQ's sometimes mixing in coded sets within the CQ sequence while slowly shifting the transmit frequency! One frustrated and angry ham who tried unsuccessfully to QSO with several of these mystery stations suggested to me that they were 'subversive operations.' Oh my! Really! But then, 30 metres does have a character all of its own. Besides, what was he doing trying to work a non-Amateur(?) station?

Mark 30 metres down on your list of bands to explore. Try it! You'll like it! Remember the do's and don'ts and for heaven's sake, Please tell me who those mysterious phantom stations really are!

# LETTERS

## MISTAKEN IDENTITY

The outline to the illustration on page 18 of March *TCA* mistakenly refers to Howard VO1BL as Bob VO1KG. Howard was the one who worked on the repeater.

73, Nate Penney VO1NP  
CARF Atlantic Director

*(Oh, this is awful! Even Homer sometimes nods, Nate (and there's worse to come!)- Editor.*

## TCA'S INNUMERATE EDITOR

With respect to VE7CWC's Editorial in the March 1986 issue of *TCA* I count at least five members of CARF in Alberta. One Midwest Director, three Assistant Regional Directors and me. Do we constitute the .4% missing from your total? Maybe we don't count, or maybe the Editor can't count!

Milt VE6ER

## THE ICOM 745

Enjoyed the write up on the Icom 745 in the December issue. There were two points that need clarification.

- Why is the top 10 kHz on 160 M Ham Band mode missing? i.e. the band ends at 1990 kHz and jumps to 1800 kHz and starts over. It is not possible to transmit between 1990 and 2000 kHz.

- Icom has stated the Lithium battery life will probably outlast the rig itself. The operating system, being stored in volatile RAM, was a concern to most owners. Lose battery power and you lose the functions of an operating rig! In the event of battery failure the board can be returned to most dealers and a new board/battery supplied for \$25.

Let's hope storage of an instrument's operating system in volatile RAM never becomes an accepted engineering technique for designed obsolescence.

Otherwise, the Icom 745 is a gem.  
73, Ralph Cameron VE3BBM

From a user point of view, VE3BBM's concerns are quite valid. My own, about lithium batteries, was whether or not they might explode as they were prone to do in the aircraft industry. You might recall some ELTs (Emergency Locator Transmitters) were equipped with lithium batteries and reportedly exploded while in flight.

As for the incomplete band on 160M, it appears to be a design engineer's deficiency or mistake. This

was not checked on mine until VE3BBM wrote and I find it the same. His complaint, among others, has come to light since publication of my report and from reading other reviews since, they have become the subject of correspondence with the factory engineers. Results will be sent to *TCA* when received and collated.

VE3BBM and others are urged to write ICOM America Inc., 2380-116th Ave., Bellevue, WA. USA 98004. Drop a copy to me for follow-up.

Vy 73, Moe VE6BLY

## VE3AHU'S CONTRIBUTIONS

Enclosed is a paper prepared by Art Blick VE3AHU of Kingston which I think should be published in *TCA* as soon as possible. (See DOC, p.11.)

You will recognize, as soon as you read it, that Art has drawn on his extensive experience in preparing it. I was involved superficially in Amateur operator certification when I was in the DOC as Director-General of Telecommunications Regulation and more extensively after I retired and became President of CARF. Art, however, did all the work and I know he should get all the credit. Art's paper will be helpful to thoughtful Amateurs desiring to comment on the DOC proposals.

In closing I want to say how good *TCA* has been looking these many months and to compliment you on your work. I think *TCA* is now ahead of CQ and 73 in quality of material. I have always thought that Canadian Amateurs were the equal of Amateurs anywhere else in the world and *TCA* really shows that.

Regards,  
Bill Wilson VE3NR

## THE APOTHEOSIS OF THE ZX-81

Since I wrote the article about a ZX-81 repeater, I have received many letters all over Canada from OMs trying to build the project, I am now happy to announce the new Eprom version of the program. I am thinking about doing a new article on it.

I consider that *TCA* is the only real Canadian Amateur magazine which could and should be the ground base of a more technical paper.

It took me two years to produce the article about the repeater controller, and another year for the next one. It is obvious that this is really a big job on a small income, but this is the only way to stay master of your destiny.

## SILENT KEYS

George Coffin VE1BZZ, Charlottetown, P.E.I.

Charles Fitzgerald Underwood. Box 1647, Fort McLeod, Alta. A fellow naval operator and friend for over 40 years.—Ernie Johnson VE7CGF.

Tom Martin VE7AJF of Ganges B.C. (Saltspring Island) Jan. 30, 1986. He is sadly missed by his many ham friends, especially the gang on the B.C. Public Service Net.—J.F. Hopwood VE7AHB.

## VE3YQ

Joseph Vincent (Joe) Davies passed away suddenly at his home in Ottawa on Dec. 19, 1985, at the age of 66 years. He is survived by his wife Frances and two sons, Paul and David.

## LATE NEWS THE RAVENSCROFT DECISION

Judge W.T. Hollinger has issued a permanent injunction to restrain Jack from transmitting radio signals from his home. He must pay special damages in the amount of \$58.60 and general damages of \$2500 for inconvenience and interference with the enjoyment of the Houghtbys' various pieces of electronic equipment. He must pay costs.

Jack has 30 days to appeal against the judgement. He meets his lawyer on April 14 to see if there are any grounds for an appeal.

He still needs our help. Please send contributions to the JRSD Fund, Box 8873, Ottawa, Ont. K1G 3J2.

There is a Radio Advisory Board meeting on May 1. Doubtless there will be some discussion of the case there.

Full story in June *TCA*.

Many Canadians send articles to the U.S. to receive more money than from CARF, I know, but they lose a lot of punch that way. "Nul n'est prophète en son pays?" or "Rien n'est impossible...?"

I have chosen the second one!

73, Roger Coude VE2DBE

## AMATEUR PR?

Politicians respond to public opinion, and civil servants are answerable to politicians.

Therefore, it might be helpful to

employ a public relations man (or woman) to get the Ham Radio story to the public.

The average Ham simply won't call the newspaper and try to sell a story with him as the hero. If he could be persuaded to write a report to a central point, or in a serious situation, phone in on a national hot line number, perhaps he would do so for the good of all.

There are other approaches, of course. Naming the Governor General an 'Honorary Ham' for example. A Canada Day message to the PM from the four corners of Canada: Yukon, the navy base in Victoria, Newfoundland, and 'Alert.' Perhaps a special stamp (the government makes money from such things).

An expert with time to work with his imagination could do much. The result in five or more years, would be a much stronger position for Ham radio.

It could be that a noisy campaign to allow us to relay news messages on emergencies (if no commercial products are mentioned) might bring attention: I suspect the news media would approve, and any counter argument might be difficult.

We all appreciate the fine DOC-liaison work being done, and this suggestion is put forward to call for additional effort on another front.

Rear Admiral Harry Powers, USN(R) once told me, "He that doth not toot his own horn, for him shall no horn be tooteth."

Suppose the idea costs money, I say up the dues if need be. Remember, "When the going gets tough, the

tough get going". Let's not just sit there, let's woof.

73, Ford VE7DDF

### A REAL SERVICE

For those of us who have the opportunity of living outside of Canada, and operating with a foreign call sign, Amateur radio takes on a completely different meaning. Oh sure, it's great logging plenty of contacts and being besieged for QSL cards, but to me the real value has been the response that I have received from those VE's back in Canada who have literally gone overboard helping me to clear traffic or run patches.

First of all there are ones who have replied to my CQ to a certain QTH; who have gone on other bands to find another station, or made long distance calls; who have stayed on frequency until I had made the necessary contact. You don't know how much that really helps. Then of course there were those reliable ones who regularly kept skeds at almost any hour so that I could keep in touch. I refer to people such as VE3NO (now a silent key), VE3BFQ, VE3BCC and VE3IT. I should also like to make special mention about VE3GV during the recent illness and death of my mother in London, Ont. From the moment I had the first news Jack was in daily contact with the Home so that I was never out of touch.

Don't let anyone ever tell you that ham radio is just a lot of fun. It's more than that. It's a real honest to goodness service that comes through when you need it.

73

Doug VE3LKU/HI8  
HI8DDC

### KONNICHI WA, VE2GKJ!

Your magazine certainly keeps me up-to-date on the VE front, for which I am very appreciative.

Some of the important DOC happenings are passed on to the members of the TIARA (Tokyo International Amateur Radio Ass'n). This association is composed of licensed hams from U.S.A., Australia, New Zealand, Europe and even one from Canada (me!), plus Japanese hams who hold call signs from other countries besides the Japanese ones. We meet on the last Friday of each month. Also the *TIARA News* is mailed each month prior to each meeting to every member.

The January 1986 issue was received early February, which makes me wonder if the Cdn. postal system is improving at last!

73, F.Y. Okimura VE2GKJ

### BOUQUETS FOR TCA

Thank you for a very good magazine plus the much improved delivery. Good luck. 73, Ken VE7ERC.

Please accept my membership application for CARF enclosed.

I attended the RSO convention in London in September 1985.

I dropped over at the CARF booth there and some gentleman sitting there handed me three of your very fine TCA radio magazines.

I have finally got around to reading these and find that your magazine is outstanding.

Could you please send the back issues from October till now?

73, Claude VE2ZZ

Certainly, Claude—Debbie.

### TECHNICAL ILLUSTRATOR NEEDED

TCA urgently needs a technical illustrator, to draft the schematics, PCB's, and similar figures that accompany technical articles. Please, someone, take this job on! Write to the Editor, TCA, Box 855, Hawkesbury, Ontario K6A 3C9.

### LES JEUX OLYMPIQUES D'HIVER

Les amateurs de Calgary (Calgary Amateur Radio Club) sont déjà à préparer les communications pour les Jeux Olympiques d'hiver 1988. L'acheminement des messages de et vers la station officielle olympique sera assuré durant les jeux. Egalement les communications pour l'escorte de la flamme olympique sont planifiées. Un exercice complet est prévu pour 1986.



Gomen nasai, the photographer didn't tell us the names of these Tokyo International ARA members.



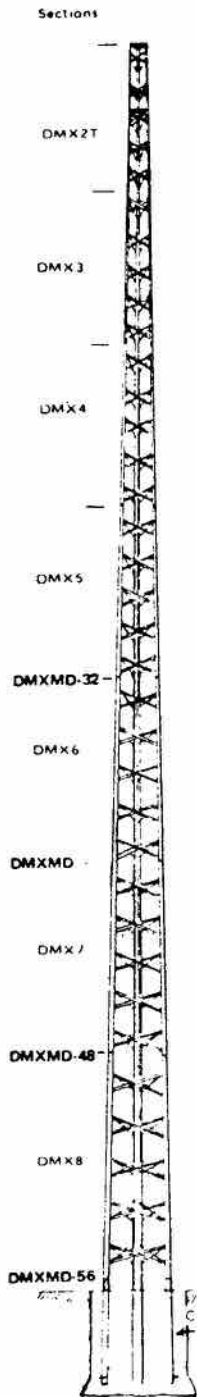


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# The DOC Proposal— Amateurs Respond

## FROM VE3HTQ

1.(a) In general, I am in full agreement with the proposals for restructuring the Amateur Service as put forward by DOC.

(b) Unlike most Hams, I have no real fear of creating another 'General Service' mess, providing we properly indoctrinate all new Hams and instill in them a respect and appreciation for good and proper 'Operating Practices.' This, plus a definite understanding that abuse of the privilege will result in licence cancellation, should ensure a satisfactory level of 'new' operators.

(c) As a further safe-guard against 'undesirables,' why not name it necessary for an aspiring 'A Class' applicant to be screened by a legitimate Ham club, via an obligatory course?

2. Yes, this new structure would definitely encourage me to become a Ham— the elimination of code from the first level (class A) is all that it would take. On the other hand, retention of any degree of code will do little to attract more prospective Hams— code is outdated and redundant in the opinion of most non-Hams.

3. No, the new proposals would not reflect in any changes to my normal operations or the equipment I use, since I am already an 'Advanced Licence' holder. However, I can see it greatly affecting present 'Amateur Class' operators, who would apparently be granted 'Advanced Privileges' without further examination. This, I am definitely in agreement with.

4. I think it would definitely affect Amateur Radio in a positive way. It would ensure a reasonable annual increase in numbers and tend to attract much younger people. Just look around at a club meeting to see the 'middle to old age' of most people there.

5. I hesitate to comment on this item since I have very little knowledge of 'special groups' such as Digital operators. However, it is my opinion that they could be accommodated by the new proposals.

6. I can't really see any need for a 'Novice' type certificate, in addition to the 3 new proposed levels. To me, 'Class A' is really a novice level other

than it does not call for any code at all. I feel that even the novice level of 5 wpm would discourage many worthwhile potential new Hams— at least until they got 'their foot-in-the-door,' so to speak.

7. See item 6— there is no need for a novice level, as such, in addition to 'Class A.'

In summary, I am in favour of the proposals as put forward by DOC,

*Unlike most Hams, I have no real fear of creating another 'General Service' mess, provided that we properly indoctrinate all new Hams and instill in them a respect and appreciation for good and proper operating practices.*

and am opposed to either leaving things as they are at present, or amending the proposals with a number of 'sub-classes,' etc. Let us keep things simple and to the point.

## FROM THE NORTH SHORE ARC

As instructed by the members at the January meeting, the Directors of the North Shore ARC prepared the following petition, presented for members' signatures in February, and forwarded to the DOC in Toronto. If you were unable to attend to sign the petition, maybe you can write your own letter. Your views are important for the future of your hobby.

Dear Madam or Sir:

The members of the North Shore Amateur Club Inc. are in general agreement with liberalizing the entry-level Amateur Radio licence as a means of encouraging new participants in this hobby.

However, we respectfully submit that abolishing Morse Code as a prerequisite for licensing will predictably result in an influx of poorly-motivated and ill-disciplined recruits who will do enormous damage to the Amateur Radio service.

We need look no further than the chaos and obscenity on the 11-metre "Citizens' Band" to find an example to be avoided. If we look for examples abroad, a novice licence has become so easy to obtain in Japan, for instance, that 2-metre FM in that country is now virtually unusable for serious and dignified Amateur communication.

We also fear that those who have no knowledge of the code will miss out on an important aspect of this hobby. Low-power CW is a wonderful way to get acquainted with Amateur Radio. The novice can start exciting and gratifying communications with fellow hams all over the world, using minimum equipment that is often used and inexpensive, and simple, home-brew dipole antennas. We suspect that starting into FM or restricted SSB immediately is likely to discourage many novices who lack the money or experience to set up a good 'antenna farm,' particularly during a sustained period of low propagation such as we are now experiencing. We all know that CW will often 'Get through' when other modes of radio transmission are unintelligible— an important consideration for emergency communications.

To ensure that new recruits to this hobby are properly motivated and fully able to participate in Amateur Radio in all its aspects, we urge that Morse Code be retained as a requirement for any entry-level licence, with the speed dropped to 5 words per minute. We further urge that the Department impose a time limit for holding such a licence of 12 or 18 months at the most, during which time the Novice must upgrade to a higher class. This will 'weed out' poorly-motivated novices who have no interest in the broader aspects of Amateur Radio, and whose only interest in this easier, new entry-level licence proves to be using VHF or UHF as a glorified form of 'CB'.

Thank you for considering these ideas.

Yours truly, Rena Torresan VE3KQE,  
Director and President  
and the Members of the North Shore  
Amateur Radio Club Inc.

(from NSARC SPARKS)

## FROM VESDC

I feel that the restructuring of the Amateur Radio service proposal as presented by the DOC is more in line with the needs of new aspiring Amateurs of today. The 'A' Certificate should help to bring in numbers of people who have no interest in HF or CW operation. My wife (Kay VESADN) was licensed in 1980, but to date has never been on HF or used Morse code. The 'A' Certificate would have been more suitable for her. She does use and enjoy 2 metre FM on a fairly regular basis.

My two sons studied for their Amateur licence but found the theory part of the exam to be a formidable barrier. Not that the theory is so hard, but that there is so much to learn. They passed the code and regulations but failed the theory twice. Their ages were 12 and 15 at the time. They have since given up on Amateur Radio, for the present time. None of my family had the slightest problem with the code. Hopefully the theory part of the new certificate will not be so complex.

I do not want to give the impression that I am against Morse Code. Quite the opposite. I have been licensed since 1958 and still use Morse on a regular basis and enjoy it very much. I do not feel that the code is difficult to learn, but it does take time and discipline. I feel that Morse must be part of any certificate which allows HF operations.

The new certificates will be of benefit to holders of the present Amateur Radio Operators Certificate who have not upgraded due to the difficulty of the present theory exam, and in some cases the code exam. The holders of the present advanced certificate would not be affected to any great extent by these new certificates.

I don't believe that a novice certificate would be of benefit to Amateur Radio in Canada, as the new A, B and C certificates should accommodate all interested groups. Some Amateurs are saying that if the new certificates are implemented that the VHF bands will be overrun with CB types of operators. This should not be a problem because there will still be two written exams which will require a fair amount of study. (40 hours of instruction as indicated in TCA magazine). These exams will be stringent enough to keep out the unmotivated.

In closing, I feel that the new certificates are a step in the right direction and if the theory exam is not too difficult we should see many new people entering Amateur Radio.

## FROM VE3FIG

I have read a copy of your discussion paper on restructuring the

Amateur radio service in Canada, and it has been much discussed by Amateurs in this area.

With respect to 'Amateur certification structures in other countries,' apparently DOC has studied information from 16 other countries. You do not tell us which countries these are. You do not tell us what qualitative results the various licensing practices have brought. You merely tell us that no-code licensing exists in several other countries. Are you telling us that this, in and of itself, justifies our adopting the same?

Your examination of practices in other countries is, of course, a good idea. Many Amateurs in Canada today are trying sincerely and objectively to gaze into their crystal balls and anticipate the results of changes such as DOC proposes. Since DOC does not shed much light insofar as their findings in these 16 unnamed countries, Canadian Amateurs are left to call upon their own limited knowledge of other examples. I dare say the two examples

*You show me the character  
who can modulate the blast  
from a machine gun as easy  
as I can communicate with  
it in morse code...*

that spring into the mind of most of us are:

1. Amateur radio in the United States.
2. General Radio Service ('Citizen Band') in Canada and in the United States.

These examples do not seem to support the current proposal. In the first case, the United States, after due consideration, has firmly rejected no-code licensing. In the second case, the effects of unlimited access to radio bands was well illustrated. Is it not true that massive abuses have taken place on the 'CB' band, and DOC has virtually given up in trying to monitor or control activity on this band?

If it were possible to experiment with this proposal, and forget it if the results were disastrous, I would be less concerned. Or if you could guarantee that no bands will become chaotic, and no repeaters will be rendered useless by senseless chatter, we could all relax. But you want more Amateurs, with less training, and less

demand on DOC resources. You are opening Pandora's box, and there will be no going back.

You are doing a great disservice to all those Amateurs who have worked hard and persistently to acquire the knowhow to operate a station properly, to those who have invested large amounts of money and great amounts of time in establishing and operating the tremendous network of repeaters across the country.

## FROM VE1BC

Teaching Amateur Radio is one of the best lessons in human nature I have had to date. Your discussion paper really makes much sense. I would like to see this in full use as soon as possible. With this proposed Amateur Radio Service, Canada will have the finest Amateur Radio Service in the world.

With each Amateur radio Class I have taught since 1973, I can see many 'A' Class Certificates simply disappear after the first few evenings of instruction. The current requirements are more for a trade rather than a hobby. This proposed 'A' Class Certificate would make many of these individuals Amateur Radio Operators. They all would be a welcome asset to this hobby. The 'A' Class Certificate will soon be the largest group within the Amateur Radio Service.

Assigning Amateur Operators the job of examination for Morse Code is an excellent idea. The modern DOC Radio Inspector is barely capable of passing this exam. One must be proficient in morse code in order to be able to examine one in this art.

There should be no age restriction on any of these certificates. Those who will spend the time acquiring the knowledge required per your discussion paper in order to pass one of these certificates, are the ones that will be an asset to the Amateur Radio Service.

I would like to provide the following answers to your questions. Your question 1 (a) page 17:

The Amateur Station Licence should be issued by a National Radio Association, possibly the Canadian Amateur Radio Federation. The ideal location would be an office operated by Amateurs for Amateurs with no interference from any organization. This will make a significant decrease on the demands of DOC per your page 13. The DOC should handle the examination and allotment of Amateur Operator's Certificates only.

Your question 2 page 17:  
I believe your class 'A' certificate would, from my experience with those who are 'dropping out' of my Amateur radio classes to date, encourage one



to become an Amateur. Something brings these people to class for a few evenings and then they just disappear.

Your question 4 page 17:

This should increase the numbers significantly. The vast majority will remain above 30 MHz but *please* leave the bottom portion of each band for A1 (CW) only *including* the bands above 30 MHz. Morse code is communications. One can communicate in morse code when no other medium is possible. One can

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On your way to EXPO 86 be sure to check with radio Amateurs in the Vancouver area via the following:

- Trans-Canada Highway 1 near Kamloops via VE7RLO 146.06 MHz -600 for a direct open auto-patch link to Vancouver's VE7FVR. Ask the 'User Group' for assistance if required.

- Southern B.C. Provincial Highway 3 via Princeton to Manning Provincial Park's VE7MPR at 146.06 MHz +600 for direct auto-patch to Vancouver's VE7FVR.

- U.S. Interstate Highway 1-5: try VE7RPT at 146.94 MHz -600/Vox as you reach Everett, Wash., going north. Or, ask for link assistance to Vancouver's VE7FVR through VE7RVC at 146.68 -600/cxr.

- Marine traffic using upper Puget Sound, Juan de Fuca and Georgia Straits and along the eastern shores of Vancouver Island as far north as Alert Bay/Port Hardy— see the page pull-out of this TCA on VE7FVR and the provincial networks through the Northern Vancouver Island Repeater Association's links. Also monitor Saltspring Island wide coverage repeater at 147.32 MHz +600.

- Trans-Canada Net at 18:00 UTC Sat & Sun at 14.140 MHz will be monitored by VE7EXPO.

- B.C. Public Service Net 17:30 PDT daily at 3729 kHz will be monitored by VE7EXPO.

Be sure to bring along your handheld and mobile rigs to EXPO 86. The VE7 fraternity look forward to QSO's and eyeball encounters with radio Amateur from around the world. Join the excitement and enjoy the marvels of Canada's world class exposition whose communications and transportation exhibits and spectacular shows are second to none.

communicate with morse code by sound; a ship's whistle, a car horn, or any noisy instrument where one can vary the pitch of the noise or turn the noise on and off. One can communicate with morse code by sight, a light, flag waving, or any visual object one can move or turn on and off to form the required dots and dashes. One can communicate with morse code by sense of touch simply by turning on and off vibration. One could communicate in morse code by the sense of smell if one could turn on and off any odor one could smell.

Morse code has been used to communicate in many ways. Aircraft Pilots have been known to communicate simply by manipulating the noise of their aircraft engine. One could communicate in morse code with a machine gun. I agree this is rather far fetched. You show me the character who can modulate the blast from a machine gun as easy as I can communicate with it in morse code; then, and only then, will I agree it is time to terminate morse code.

Your question 6 page 17:

I felt the foreign Novice class of

certificate was a good idea until I learned the actual record of this certificate. So many who obtain this certificate never put it to any use that I am now convinced it is a wasted effort. Your proposed 'A' class certificate will make more excellent Amateurs than a novice certificate could.

In summary: As I see it there are only two areas of criticism re this proposal. The first is the no-code certificate. Those who criticize this are not up-to-date with the current rules and regulations outside Canada. Several nations have had a no-code certificate above 30 MHz or more for some time. This move will simply bring Canada up-to-date on a world scale.

The second area of criticism is in the grandfather clause giving the present Amateur Certificate the same grades of future certificates as the present Advanced Amateur Certificate. I agree that this is not right, but I can find no way around this proposal. The benefits from this proposed change appear to out-weigh any of this criticism.

## SWAP SHOP

**WANTED:** 20M Monobeam, pse state make, gain and price. Also wanted: schematic for linear amplifier using two 813 in push-pull. Frank S. Hamelink VE3NHZ, P.O. Box 682, Geraldton, Ont. POT 1M0. Tel. (807) 854-0545.

**WANTED:** Radio News Canada, Northern Electric/Marconi sets, trade or cash. A. Nolf, 539 Kastelic Place, Burlington, Ont. L7N 3R5. 416-639-4768.

**ATTN HOMEBREWERS:** Clearing out large collection excellent parts, hardware, TX tubes; available after May 1/86, Montreal QTH. Send list your requirements for prompt reply. Most items Flea Market prices or less. VE8YQ, P. MacDougall, 4570 Oxford, Montreal H4A 2Y8.

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Valcourt St., Ste Foy, Quebec G1W 1W2. I have an assortment of tubes form 1.5 filaments to 50 volt filaments. Also have the odd old tubes #27, 30, 32. Peanut tubes etc. Anyone interested send for my list or your want list and offer to VE3BYH 105 Pine St, Brockville, Ontario K6V 1G8.

**FOR SALE:** Moving. Mosley TA36 antenna, 6 section Delhi Tower, Ham M rotor, Drake TR4 and RV4 transceiver, Magnum Six RF Speech Processor, all in working condition, also QST magazines from 1959 to date.

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Each year our annual reunion gets better - could it be because of all the lovely ladies? (Last year 25 attended!). Everyone will enjoy an eyeball with old friends and meet new ones to eyeball with again next year. We'll have a group picture taken on the steps of the Monument, and our roving photographer will be taking individual pictures, all of which will appear in various newspapers and magazines.

After many years of organizing the Annual Oldtimer's Reunion, Bruce VE3BC has turned over the happy chore to Ding VE3ATK. Contact Ding for further info.

Better still, make your reservations now. Send \$13.00 per person to:

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Remember! Your remittance must be postmarked or received by May 1st. If there are any reservations open after that date it will cost you an extra buck!

**Date:**  
**Tuesday,**  
**June 17, 1986**

# Comment on the DOC Proposal

BY ART BLICK VE3AHU

The recent DOC 'Discussion Paper on a Possible Restructuring of the Amateur Radio Service in Canada' has caused many Amateurs to express support or rejection of the changes to requirements and privileges expressed therein. The main changes from current requirements and privileges are:

- a change in emphasis in the first level certificate from the present high technical standard to a reduction in the technical knowledge required plus more operational knowledge, to be accomplished in a 1 semester course of 40-45 hours of classroom instruction instead of the 60-75 hours now needed for the average citizen to acquire it.
- ability to operate on the bands above 30 MHz by passing the initial (A Certificate) requirements.
- requirement for demonstrated Morse code proficiency (12 wpm) to gain operating privileges below 30 MHz.
- a top level class (C Certificate) with nearly similar technical standards to the current Advanced Amateur class that enables the holder to use maximum transmitting power, home-brew transmitting equipment and license a 'remote' Amateur station such as an auto-repeater.

Your national Federation, alarmed at the drastic decline in Canadian Amateur growth during the previous 2 years, made a presentation to the DOC in late 1980. In the presentation recommendations were made that:

- more emphasis be placed on operational and less on technical knowledge requirements for the current Amateur level.
- an annual review be made of questions used in examinations to ensure that they conformed to current requirements.
- a review made of the requirements for the Digital Operator levels so that it could be obtained by the average citizen wishing to use Amateur radio for computer communications.
- changes be made to the presentation and conduct of the various examinations then in force.

Since that presentation, changes have been made and the DOC has met



*Art Blick VE3AHU, First president of CARF. As Sir John A. MacDonald was to Canada politically, so was Art to our Service. Art is the Founding Father of CARF. For years he ran the Federation, banked the subscriptions, wrote the renewal notices, kept the fledgling organization together, working out of his basement. Without Art's hard and sometimes lonely struggle, there would have been no forum for Canadian Amateurs to discuss DOC proposals in depth, as we are doing in these pages.*

annually with officials of CARF and CRRL to discuss further changes, has reviewed the 'question bank' for the Amateur and Advanced Amateur levels, and has thoroughly investigated the structure of the Amateur Radio Service of other countries. The Discussion Paper is the outcome of these meetings and investigations.

The principal reasons for requesting changes in the Canadian structure is to stimulate growth in Amateur numbers, to attract more young adults into Amateur Radio and to stimulate usage of the bands above 150 MHz. There have been two periods of satisfactory growth since WWII— each of about five years, the first immediately following WWII and the other from 1973-1978.

In the first period there was an influx of persons who had acquired knowledge and operating skills as a result of their work services and

wished to continue use of radio communications as a hobby. From about 1950 to 1973 there was a gradual, slow growth so that numbers increased from around 6,000 to 12,000. By 1973 the number of GRS operators was rapidly increasing and many of these operators, realizing the limitations of GRS, were attracted to Amateur Radio. At the same time DOC changed requirements and examination procedures, CARF published the first editions of their Study Guides and courses on Amateur Radio were accepted as part of provincial Adult Extension Education programmes.

The new requirements, etc., made it possible for candidates to acquire the necessary knowledge and skills in a 1 semester course of 40-45 hours of classroom instruction, with most Community Colleges and many Secondary Schools holding well organized courses with competent instructors. The next five years produced excellent growth (from about 12,000 to 22,000) but, in late 1978, DOC again changed requirements and procedures and growth has virtually ceased since then.

Today's growth potential includes young adults, familiar with computers and wishing to use Amateur Radio as a means of computer communications and older adults desiring an absorbing spare time hobby. The average age of Canadian Amateurs is gradually increasing and with the lack of present day growth, unless changes are made, the numbers of Canadian Amateurs will decrease.

As evidenced at WARC '79 there is little pressure on our HF bands except for 40M by International Broadcasting but there is continual, heavy pressure on DOC by commercial communication interests for more frequency allotment above 30 MHz. "Use them or lose them" certainly applies to our bands above 30 MHz!

The opinions of those Amateurs against the Discussion Paper proposals fall into two main categories— the present structure (requirements and privileges) has proven successful since WWII so why

Page 12



change? and the easing of existing requirements will see a massive influx of GRS operators into Amateur Radio and result in a lowering of current standards of operating.

These opinions are readily rebutted as there have been many changes made in structure since WWII to cope with changing technology and operating practices and the massive influx of GRS operators into Amateur Radio in the 1970s did result in the development of excellent Amateurs. Note particularly that the initial Certificate proposed (A Certificate) is not a 'give-away' but will require 40-45 hours of classroom instruction to obtain.

If you compare the proposed levels of Certificates with existing levels you will note that the holders of A plus B Certificates are equivalent to the 'Amateur' level; of a C Certificate to the 'Digital Amateur' level and of B plus C Certificates to the 'Advanced Amateur' level. The one, new change is the holder of an A Certificate with operating privileges above 30 MHz.

Many Amateurs, generally agreeing with the changes proposed, have recommended changes to the operating privileges to be granted. The majority of these recommend that the holder of A plus B certificates be only granted similar privileges on the HF bands to those of the present Amateur level, i.e. that phone privileges on the major bands be only granted to the holders of B plus C Certificates. The main purpose of this change is to create an incentive to obtain the C Certificate and to ensure that an HF phone operator has had prior operating experience. Another recommendation is that the code speed requirement for the B Certificate be lowered to 10 wpm that will more readily ensure that a candidate for the A Certificate can obtain the necessary skill in Morse code while attending the course of 40-45 hours instruction.

On the Novice question— it takes about 35-40 hours of instruction to prepare a Novice Candidate while the proposed A plus B Certificate will require only five hours more. Also, from substantial changes to the Novice class recently recommended to the FCC, it is apparent that this class has not served its purpose either as a separate low-level class or as a stepping stone to higher classes.

The need for substantial change is evident if Canadian Amateur Radio is to continue development and to ensure a stronger voice to our regulatory authorities. The proposals made in the Discussion paper will ensure this development and with no diminishing of our present high standards.

#### FROM VE3NQG

I feel that a certificate is a very valued item, and not to be taken lightly. There are many of us who have spent much time and effort to obtain one. Certainly, if I were to start over again, the thought of a no-code licence would appeal to me, but the question is, are we going for quantity or quality?

I would see no problem with a 5 wpm novice licence in place of the no-code. These would have a separate prefix i.e., VN3, this to denote Novice. This could be handled without too many problems. It would also be a prerequisite that they would upgrade to the point of VE3... the 'E' as we know it for experience. I am sure that you will agree that there is no room in the Amateur service for the same problems that exist in GRS.

I would also like to think that a person would have a time of familiarization before he is on HF with phone privileges, possibly after the second

*A lowering of standards can only go so far before inflicting irreparable harm on the Amateur Radio Service in Canada.*

printing of the Canada Call Book. Before that time, all people would have had such experience. It is not fair to the people who have spent time in earning both their Amateur and Advanced to suddenly have new people have the same privileges. This does not give much incentive to a person who spends his time to upgrade his knowledge and skills to know that after implementation the new Amateur is going to have the full privileges he is working for.

Certainly times are changing, and we must change with them, but as I have stated, for quantity or quality. I would like to think that we are very interested in our hobby and do much to promote it, but not at the cost of polluting our airways.

As for the classes, I would like to think that the 'A' class be the highest class available, and I think there would be no problem in joining the Amateur and Advanced in the 'A' class, but only if they had their licence before a certain date, i.e., the printing of the Canada Call Book.

There has been comment about

Seniors that certainly could be handled in the Novice class, VN3. They would have the option of retaining that class or moving up to VE3. Since they would probably be mostly recreational and possibly in apartments the areas above 30 MHz could be utilized very effectively.

If a no-code licence is to go through, it should be limited to one year with a VN prefix. If there is no advancement, then it should be withdrawn with the exception of the aforementioned seniors.

I would also hope that DOC would provide local clubs with the names and addresses and calls of new Amateurs so that the clubs could help them to learn the rules of repeaters, etc. This would go a long way to prevent abuse on the repeaters and airways. It would also help clubs recruit new members.

I thank you for your interest.

#### FROM VE7APX

The Amateur Radio service in Canada could be well served by some changes. Most of what is contained in TRS-021-85 could be implemented with some minor variation.

First off, I will use a lot of the proposals contained in TRS-021-85 as I find that they are quite valid. The structuring would consist of the following:

1) NOVICE— certifies an individual to operate a basic, commercially built, modern Amateur station below 30 MHz on CW only. Non-renewable two-year time limit.

2) AMATEUR— certifies an individual to operate as this present class of licence now stands with the exception of adding some Phone privileges on the HF bands.

3) ADVANCED AMATEUR— certifies an individual to operate as this present class of licence now stands.

#### DETAILS OF THE ABOVE PROPOSALS:

The examination of the NOVICE class of licence should consist of a minimum of electronic theory, but should weigh heavily on the operational and installation aspects of an Amateur station plus the Radio Regulations as pertaining to this class of licence. A morse code requirement of 5 wpm sending and receiving. Knowledge of antennas and antenna theory, as well as propagation, feed-lines and proper grounding of an Amateur station. Operation of radio-telegraphy only below 30 MHz would only be permitted on certain segments of each band.

The examination for the AMATEUR class of licence would be similar to the one now used except

that the morse code requirement would be 8 wpm. Operation on all bands as now allowed for this class of licence and the inclusion of operation of SSB emission on the approved portions of the 80 metre band. Power limitations of 250 watts DC input.

The examination for the **ADVANCED** class of Amateur licence would consist of a morse code test of sending and receiving at a speed of 12 wpm. The theory would consist of the exam as is proposed in TRS-021-85 which is somewhere between the present **AMATEUR** and **ADVANCED AMATEUR** level. The operating privileges for this class of licence would not change.

The structuring of the Amateur Service as per my proposal would do the following things for the Amateur service.

1) Provide an easier entry into the Amateur service, a so-called **NOVICE** licence which would encourage an increase in the Amateur ranks.

2) The code requirement would keep the CB mentality off the Amateur service at the same time the lowering of requirements for all classes of licence would make it easier for more people to advance through the licence classes of Amateur radio and still maintaining quality of operations and operators. A lowering of standards can only go so far before inflicting irreparable harm on the Amateur Radio service in Canada.

3) An increase in operating privileges for the **AMATEUR** class of licence on 80 metres would enable this class of licence to participate in

regional and emergency phone nets. This would, I am sure give them incentive to upgrade for the increased privileges of the **ADVANCED AMATEUR** licence.

4) My proposal allows for a natural progression through the **AMATEUR RADIO** licence classes without compromising quality of operations or operators. While at the same time this makes all classes of licence easier to obtain especially the initial entry into Amateur Radio via the **NOVICE** class.

If the proposals are allowed to go through as stated in TRS-021-85 I see the following things happening to the Amateur Service.

a) A massive increase in 2 metre and higher band activity by 'CB' mentality type persons with the ultimate degradation of the Amateur Service.

b) No incentive to explore or learn more of Amateur Radio or the Amateur Radio or the Amateur Radio fraternity.

c) As the TRS-021-85 proposal stands anyone now holding a **AMATEUR** certificate would automatically upgrade to **ADVANCED AMATEUR** status. This I find unacceptable. Something for nothing is definitely not needed in Amateur Radio. Amateur Radio operators are proud of their accomplishments at each and every licence level.

d) The dropping of the terms, Amateur, Advanced Amateur in favour of A, B, and C licences is a very drab way of indicating licence classes. I still prefer Novice, Amateur and Advanced Amateur for licence designations or some similar type terms.

#### FROM VE3FIT

My interest in Amateur Radio goes back over 20 years to the time when I was a 15-year-old schoolboy. It was this early involvement with radio which led to my eventual choice of electronics as a livelihood. As well, for the past five years I have had the pleasure of teaching Amateur Radio (both Beginner's and Advanced level) at a local night school.

To most of the people with whom I have ever discussed it, Amateur Radio conjures up images of communications (usually by voice) over long distances at any time of day or night. They like the idea of talking with people, both across our own country and in foreign lands. This is what I like to call 'the magic of radio.' Indeed, if they are fortunate enough to have a friend or acquaintance demonstrate Amateur Radio to them, these images are usually reinforced.

I believe that everybody is in favor of requiring examinations for prospective Amateurs. There is quite a bit of disagreement, though, as to how 'hard' or how 'easy' the exams should be. This seems only reasonable. If you have to work for your privileges you will certainly want to protect them. This attitude has led the Amateur service to be self policing, highly disciplined and allows it to operate with minimal regulation or intervention by the DOC.

In the past, when most Amateurs used homemade transmitters and receivers and electronics was not at today's sophisticated level, it was reasonable to give a 'stiff' exam. This helped to ensure that an Amateur wouldn't cause annoying (or possibly even disastrous) interference to other radio services. In this respect, today's commercially available Amateur equipment (which most Amateurs seem to prefer), using state of the art circuitry and construction, could well be considered as being interference free when properly installed and adjusted.

I see no need for a separate class of licence (and examination) for owners of repeaters or homemade transmitters, especially since these people are likely to be a very small segment of the Amateur population.

I will now outline some specific licensing proposals. Only one examination will have to be given since only one class of licence will be available.

-7 wpm Morse code sending and receiving test

-test on pertinent regulations

-theory examination (not at an engineering level)

Privileges:

-Operation below 30 MHz, for the first six months after licensing, would be restricted to CW (Morse Code). The six month period is to allow time for familiarization. Full VHF privileges would be available immediately. Power level to be 250 Watts maximum.

-After six months of operation, a Radio Inspector may authorize full privileges (identical to the present Advanced class) if the licensee can prove sufficient activity to have learned proper operating techniques.

#### LAST CALL FOR COMMENTS

The DOC will close the file on restructuring in mid-May. Not much time left to send your comments to the Director-General, Radio Regulatory Branch, DOC, 300 Slater St. Ottawa, K1A 0C8. Mark envelope DOS-PR.

#### HELP!

CARF needs the addresses of these Amateurs. If you know where they are presently living, please tell Debbie. Her address is CARF, Box 356, Kingston, Ont. K7L 4W2. Name and last known address:  
Bill Morgan VE6BRD, 9927-114 St #706, Edmonton Alta. T5K 1P8  
Fuzzy VE8MT, M4178 Life L. P.O. Box 2294, Inuvik, NWT. XOE 0T0.  
Edwin Petzolt VE3NBX, 60 Ferrier Ave. Toronto, Ont. M4K 3H4.  
W. Green VE7XK, R.R. 1, S. 175, C. 38, Qualicum Beach, B.C. V0R 2T0  
T. Birrell VE3HRI, 123 Bellamy Rd. N #1118, Scarborough Ont. M1J 2K9.  
C.B. Stephens M4184 Life L. 25 Countryside Blvd 312, Clearwater, Florida 33519, USA.  
Philip Robinson VE3CUR, 46 Scrivens St. Ottawa, Ont. K2B 6H1

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# DOC News

Dear Mrs. Houghtby:

This is further to the Honourable Jake Epp's letter of April 17th to you concerning your request that he encourage me to revoke the radio licence held by your neighbour.

Under Section 4.(1)(d) of the Radio Act, I do have the discretion to suspend or revoke a radio licence when the operator has willfully failed to operate the station in accordance with the Radio Regulations or with the conditions of his licence.

The malfunction of various devices in your residence is not the result of any improper operation of the amateur radio station but rather the inability of these devices to adequately reject the amateur's transmissions. Manufacturers in Canada and abroad are aware of the need to design any item using solid state electronics to operate satisfactorily in the presence of radio waves but often have chosen to modify affected units as a lower cost alternative to including the added protection in all units sold. It has been my staff's experience that problems, when they occur, can be resolved.

## From the Minister of Communications

I understand that officials of my Department have assisted in the investigation of the problems with your furnace, electric organ and, to some extent, your microwave oven. Representatives of the manufacturers and retailers of these devices have been able to eliminate the interference to the furnace, and achieve a 75% reduction in interference to the electric organ. Unfortunately, tests with the microwave oven have proved inconclusive. I also understand that you wish no further tests or modifications to your electrical devices even though these are necessary to technically resolve the interference.

The regulations made under the Radio Act concerning interference are designed to provide protection to the reception of radio communications. All the electrical devices in your home investigated to date are not used for radiocommunications purposes resulting in my Depart-

ment's involvement being limited to that of a technical advisor to the manufacturers and their service agents.

As this matter is somewhat beyond my jurisdiction and with incomplete tests on the devices involved, I am sure you can appreciate why I cannot revoke your neighbour's radio licence.

I realize that you have elected to seek a legal solution before the courts. I encourage you, however, to participate in further tests as proposed by my Ontario Regional Director in his letter to you of April 12th as the best means to achieve a satisfactory solution.

I have attached excerpts from the Radio Act and the General Radio Regulations Part II for your reference. I hope that this letter has clarified my Department's role, and the limitations of my authority in this matter.

Yours sincerely  
Marcel Masse

### ERRATUM, DOCUMENT DE TRAVAIL DE LA RESTRUCTURATION...

À la page 13 de la section française, remplacer le texte du sous-alinéa 2) par le suivant: "2) certificat de classe B— autorisant le titulaire (qui détient aussi un certificat de classe A ou des classes A et C) à exploiter une station au-dessous de 30 MHz (épreuve de transmission et de réception en code morse);"

### STRANGE BUT TRUE

A not-so-newly licensed Amateur purchased a 144 MHz Yagi antenna to replace a chimney-mounted colinear used for local FM operation: a few days later he returned to the dealer demanding his money back, saying that the Yagi was a far worse performer than the colinear. The dealer was rather surprised and asked the Amateur how he installed it... the customer thought that 'vertical polarization' meant mounting the antenna with its boom vertical and the array pointing directly upwards.

—from RADIO  
COMMUNICATION

## Reciprocal Licensing and International Relations

BY FRANK SALTER  
VE3MGY

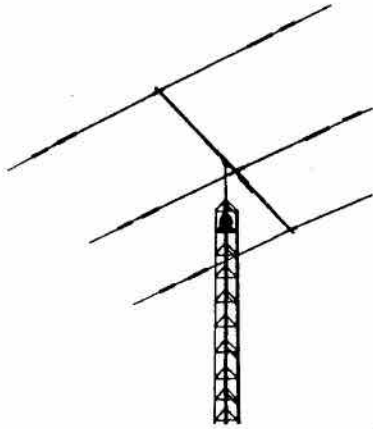
After being asked to assume the duties of international relations and reciprocal licensing, it took little time to discover that I was living in the same area as the CRRL representative who performs the same duties. After a discussion with the CRRL representative, we agreed that we would cooperate in providing Canadians with information on reciprocal licensing and attempt to keep up on international relations. Our reasons for doing this are twofold—first, there is no sense in duplicating all the letters and requests to embassies and governments abroad to provide files for two national organizations whose representatives live in the same area, and secondly, the cooperation between the CRRL and CARF, to quote a legal dictum, should not only be done, but appear to be done.

When your requests for inter-

national licensing or reciprocal agreements are sent to me, I consult with the CRRL representative and if CRRL has the information available, it will be sent forthwith. If I have the information available, I will send it from my QTH. Please do not be surprised, then if your requests arrive from the CRRL headquarters, because they have been asked to send it to you.

The alternative to this situation is for CARF to ask all the embassies and governments for information which they have already sent out. If I were one of the persons who had to entertain two requests for information from two different national organizations who do the same tasks, I would probably wonder why the two representatives with the same postal code could not share information. In cooperating in this venture, we are precluding any such questions and adding a new phase in CRRL/CARF cooperation.

## HF Multiband Verticals

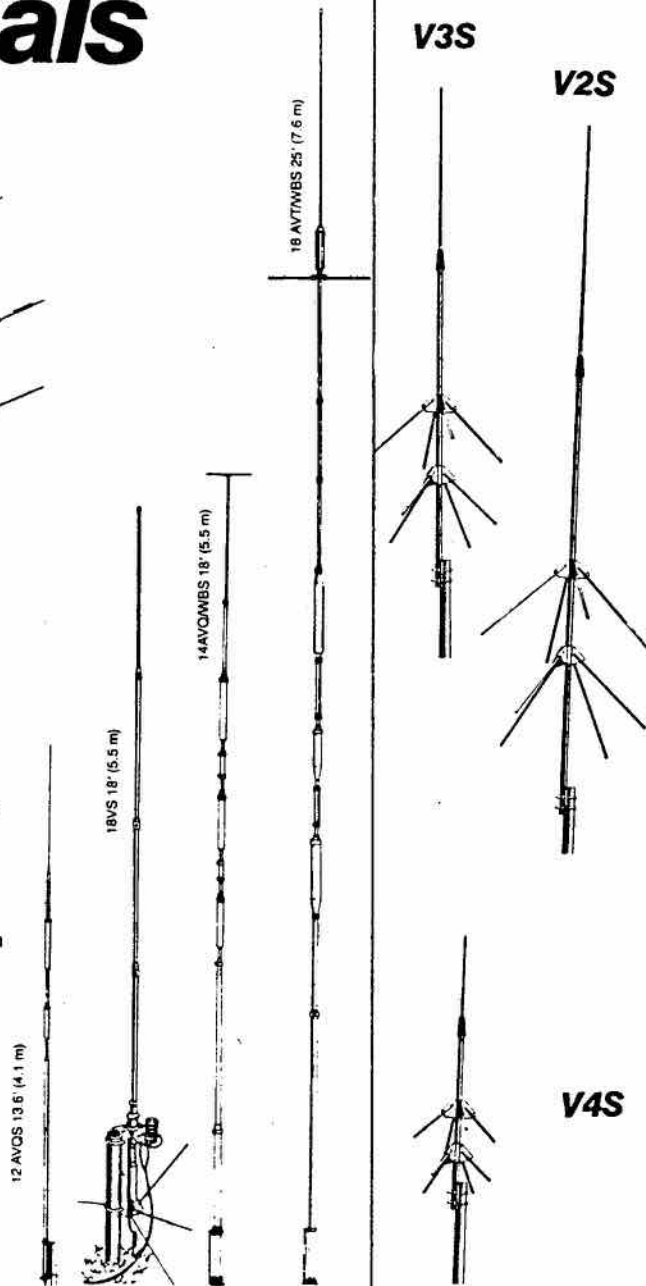


### TH3JRS 3-Element Triband Beam

Hy-Gain's Thunderbird Junior offers top performance with a compact design that makes it ideal where space is a limiting factor. Featuring separate and matched air dielectric Hy-Q traps for each band, it feeds with 52 ohm coax, delivers maximum F/B ratio without compromise. The TH3JRS has a VSWR of less than 1.5:1 at resonance on all bands. All hardware and clamps are stainless steel. Maximum power, 300 watts CW and 600 watts PEP output. Hy-Gain ferrite balun BN-86 is recommended for use with the TH3JRS.

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# An Amateur Radio Station at Expo '86!

BY VE7AHB

At long last it appears that an Amateur radio station will be part of EXPO 86, the World's Fair on Transportation and Communication being held in Vancouver, B.C. The station will operate on all bands with a call sign of VE7EXPO.

VE7EXPO will provide an exciting and interesting introduction to many of the more than five million visitors expected at the Canada Pavilion alone. For Amateur radio it is probably the best opportunity we will have for years to make the public aware of the Amateur Radio Service.

Planning for the station began in August, 1983 with a meeting of interested hams from lower mainland radio clubs, at Provincial Emergency Program headquarters in Surrey. A concept was agreed upon, and Harry Beardsell VE7ZQ and Bob Smits VE7EMD delegated to approach EXPO.

In the weeks, months and years that followed, meeting after meeting was held with representatives of EXPO 86, the B.C. Provincial Pavilion, and any other organization that might be able to help. None of the meetings were successful in obtaining a commitment to Amateur radio for an Amateur exhibit.

By the spring of 1985, Amateurs were fairly disgusted. It appeared that unless you had a lot of money to spend, you weren't going to be allocated space. It was also going to be increasingly difficult to organize equipment and operators without adequate lead time.

Unknown to the committee, others were also concerned that no Amateur exhibit was planned for at EXPO 86. In January, DOC representatives discussed the matter with officials of the Canada Pavilion. In early February, a proposal was made to the Amateurs to participate by operating a station at the Canada Pavilion for the duration of the fair. They did not take long to accept.

Within several weeks, Amateurs put together almost all the requirements for an EXPO station. All the local Amateur radio suppliers were canvassed, and ICOM agreed to supply all the radios required for the display. Local dealer Com West

agreed to supply the antennas and other bits and pieces.

The committee itself hurriedly passed a set of bylaws and adopted a constitution to incorporate as a registered society. Clay Jones VE7CUW was roped into acting as Secretary-Treasurer, while Larry Reid VE7LR became chairman of the operating committee and Vice Chairman overall. Dave Gilmour VE7YG has volunteered to act as installation coordinator, with assistance from many others. Bill Williams VE7FHV will act as the 'Ham' coordinator.

The tentative schedule at this time calls for station construction to begin on March 15. Completion is scheduled for April 1, with a two week shakedown period before actual operations begin on April 15 (although the fair does not open till May 2).

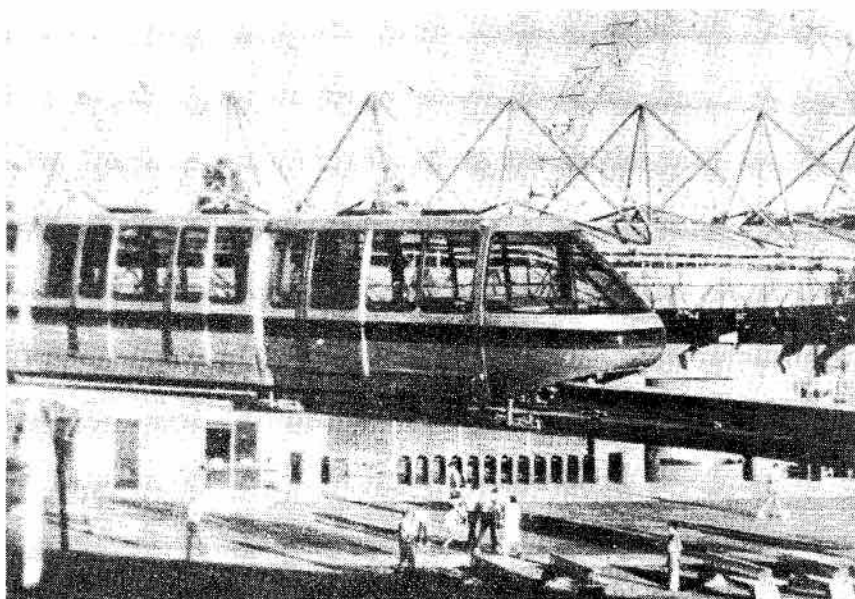
The station will operate on all bands from 160 metres through 1.2 GHz, and all modes including SSB, CW, RTTY, AMTOR, Packet, FM, ATV and SSTV. The station will operate

from 10 a.m. to 10 p.m. Pacific Time, with operators putting in 6 hour shifts each. All contacts will be QSLed through the VE7 bureau, with outgoing cards via the CARF outgoing bureau.

Clubs that wish to operate as a group will be encouraged to do so, first come, first served. Individual Amateurs are also requested to make their plans known so that scheduling may be completed and security and day EXPO passes can be arranged as soon as possible. Visiting hams from outside the area will be able to operate (as long as you're in the callbook or have your licence with you).

Clubs that wish to be on the VE7EXPO mailing list should write to VE7EXPO Amateur Radio Society, 202 13640 67 Ave., Surrey B.C. V3W 6X5, or call 604-590-1014 (ask for VE7EMD)

To register as a volunteer radio operator, please write or call Bill Williams VE7FHV, 6180 Udy Road, Richmond B.C. V7C 2X9 or call 604-274-0944.



Who'll be first to go /MM\* on this train at BC EXPO?

\*Monorail Mobile.

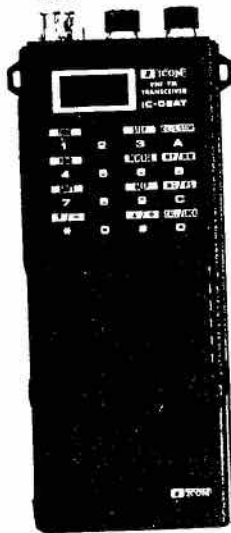


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# Long Delayed Echoes

BY DOUG BURRILL  
VE3CDC

## 40 YEARS AGO— XTAL MAGAZINE FOR MAY 1946

The big news in this issue was the release to the Canadian and U.S. Amateur Services of the 40 and 20 metre bands. Effective that July 1st, more wartime allocations of the ham bands were being phased out and 7150 to 7300 MHz and 14.100 to 14.300 were once again in Amateur use, although with some restrictions. The bands available by this time were not the same or as extensive as they are today. They were 3.5 to 4.0 for CW, with phone restricted from 3.8 to 4.0, 7.15 to 7.3 for CW, with no phone; 14.1 to 14.3 for CW and 14.2 to 14.3 for phone. Both modes were authorized on the now-CB-band of 27.185 to 27.3455 MHz, as they were on all of the bands above it. These were 50-54, 144-148, which was a lonely place in those days, 235 to 240 (even lonelier and later changed to 220 to 225 MHz), 2300-2450 (the 420-450 MHz allocation came later) and three more UHF bands, 5250-5650, 1000-10500 and 2100-2200 MHz. Special endorsement was required for phone on ten, twenty and eighty metres.

## 35 YEARS AGO— SKYWIRE MAGAZINE FOR MAY 1951

The rather skimpy content of this issue of 34 8½" x 6½" pages contained nothing of real interest to posterity. Two very good articles on feeding antennas, a further explanation of the then budding SSB mode and one of a continuing series

### INFO GUIDE

Pull out CARF's complimentary 'Information Guide' center-fold page from this issue of TCA and take it with you to EXPO 86. The greater Vancouver Amateur radio associations, clubs and nets welcome you to one of the world's most beautiful cities. Join in on our nets and share your presence with us. Have an eyeball with the operators of VE7EXPO at the absolutely magnificent Canada Pavilion. Contact local club representatives and come to a club meeting.

on TV theory and servicing completed the technical content and fleshed out the many pages of ads by manufacturers featuring receivers... building transmitters was still fashionable but receivers were getting too complicated to build. A totally irrelevant article on how to floodlight your back yard completed this rather unexciting issue.

## 15 YEARS AGO— VE NEWS FOR MAY 1971

Over the years things in the Amateur world had heated up and the now seemingly perennial question of U.S. band expansion and its effect on the rest of the world, especially on Canada, was very much in the news again with the FCC's ill-famed Docket 19162. This proposed novice and other phone band expansion for U.S. hams was part of their 'Incentive Licensing Program.'

## 10 YEARS AGO— TCA MAGAZINE FOR MAY 1976

The feature story was a report on

the completion of a task undertaken a year previous by CARF at the request of DOC. It had asked the Federation to draft a codification of the Radio Regulations which apply to the Amateur Service. The idea was to bring all of these regs together in one place, similar to the FCC's Part 97 of its rules, which does just that for U.S. Amateurs.

Although WARC '79 was still three-and-half-years away the CARF WARC Working Group presented its background paper for the Canadian WARC delegation. It gave an excellent history of Amateur radio and justification for its existence. It is good reference material for handouts for clubs which put on a public demonstration of Amateur radio.

This biggest issue to date, 24 pages, also included the fourth edition of the CRAG Canadian repeater directory, the first one to be compiled in Canada. Also printed was the DOC report that 14,173 Amateur licences were issued for the previous fiscal year.

## Another Echo

I plead guilty to being the same Ivor Nixon who under my original call (VE3ACL) functioned as one member of the post-war CAROA team responsible for XTAL magazine. Unfortunately, not even one copy of that magazine has survived in my archives, and I would indeed relish having a duplicate copy if one turns up.

Jon Purdue was the principal mover and shaker in the day-to-day operations of CAROA. After a year or two, an out-of-town job presented itself to me (a paying job, that is) and I was compelled to remove myself from the scene. While it lasted it was fun and an education— I even managed to get an article accepted by QST! (No current trace of that remains either.)

So I know perhaps better than most what CARF has gone through over the past 15 years or so and I applaud the results. Having survived the nit-picking and back-biting as well as the satisfaction of creativity all in a non-paying volunteer activity, I appreciate the dedication of all those who have put CARF together and made it stick.

With regard to other CAROA activists, I do know for sure that the keys of Eric Bartman (then VE3VD) and Len Horsfall (then VE3AZ) became silent many years ago. VE3GT is now Larry Thivierge of DOC and neither he nor I know what happened to Sam Trainor. Alf Gillier became VE3KT and is heard from time to time. Peter Posnikoff VE4ATR is now active as VE3BBN. Jon Purdue I haven't seen or heard of in the last 35 years. I have no current knowledge of Messrs. Powell, Carpenter and Haines and as their former calls have all been re-assigned I have to assume that they have long since moved elsewhere, perhaps to the ultimate DX to which we all aspire. Perhaps you will receive other letters with information supplementing mine. In the meantime, the job being done by CARF is superb; I dropped my membership in ARRL with confidence that CARF and TCA would be all I need in future.

73. Ivor Nixon VE3IHN  
17 Romney Road,  
Islington, Ont. M9A 4E9

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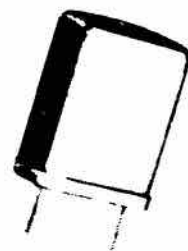
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## VIDEO RECORDERS

Several Amateurs have written to make me aware of some brand name VCRs that seem to have better immunity than others. Some of the metal shielded higher priced units seem to have considerably better immunity— so a word to the wise. If you can afford to pay a few dollars more you could lessen the problems. Rather than recommend specific models it may be better to give some general criteria— then you do the choosing.

The problem with VCRs is as old as the Ark. Time and time again the manufacturers design high gain amplifiers with little or no immunity built in. In the case of VCRs this may soon catch up with them as DOC is about to formulate radiation requirements which VCRs must meet. If we assume that shielding will reduce radiation then it is equally true that this will improve immunity to RF— let's hope.

Previously VCRs did not contain tuners and so were exempt from any of the shielding and filtering requirements. For anyone attempting to operate 80 in the vicinity of most VCRs I hope justice comes swiftly.

The video amplifiers used for recording and playback in the VCR have a relatively flat response to 5 MHz and have gains approaching 120 dB. These are ideal conditions for audio rectification. Lack of shielding and no filtering equals disaster.

## LOCAL OTTAWA PROBLEM

On Camp Fortune, the local mountain-top home to most of Ottawa's TV/FM broadcast transmitters, the local EMI is quite severe. One local resident tried several VCRs in an attempt to find one that would record and playback properly. In many cases the VCR would record properly, as verified at a different location, but the local RF literally swamped the playback amplifiers. How much chance have you on 80M with a few millivolts of signal competing with an unshielded play-

## CELLULAR PHONES

As of Feb. 5, there were 14,142 cellular phone subscribers in Ontario and Quebec, according to figures released by the Federal Department of Communications (DOC); 7,785 were in Ontario, excluding Ottawa, which is lumped in with Quebec. At that time, there were 709 subscribers in Ottawa-Hull.

back amp? Thanks to Harry VE2MO who sent a note to say the March '85 issue of *Video Review* contained an article re VCR immunity problems.

## GROUND FAULT CURRENT ISOLATOR— FM

Fred VE7FFK all the way from Vancouver tells of problems detailed in a late issue of *EC&M*, Electrical Construction and Maintenance magazine which tells of a transmitter getting into a ground fault current isolator. These devices are used in locations where any leakage to ground would cause automatic removal of the mains voltage, i.e. when one grabs the hot conductor by mistake. Hospitals make abundant use of these devices. They are also useful in locations where machines and outdoor pools make use of electrical outlets.

Imagine the consternation when a local transmitter caused these devices to activate. The magazine solicits answers from readers and there were some rather weird and misleading responses. One reply related to the voltage drop due to skin effect! A more logical reason seems to be a near resonant power line situation.

## POWER LINE LENGTH

In most of the cases involving band

sensitive EMI there appears to be a near resonant line situation occurring. In a modern house with aluminum siding, the combinations of siding and electrical wiring form many possible resonant conditions. Ways have to be found to identify and nullify these effects. Good wishes to you should you have problems in this area.

## TV TUNER FILTER INSTALLATION

VE3EDC in his 'Hot Watch' passes along some useful info for installing high pass filters in older TV sets. He suggests removal of the 300 ohm ribbon running from the tuner to the rear of the cabinet. Install a balun right at the tuner and throw away the short piece of 300 ohm— it is a great pick up point for RF. From the other side of the balun, run 75 ohm coax to coax feed thru type connectors on the rear panel (you install). If you still get front end overload, install a high pass filter which has 75 ohm type connectors right at the rear of the set. Bob says there may be a slight loss with this method but it could save buying a filter.

Good luck until next month. Send any newsy EMI items c/o CARF. Let me know what works and what doesn't. Let's communicate.

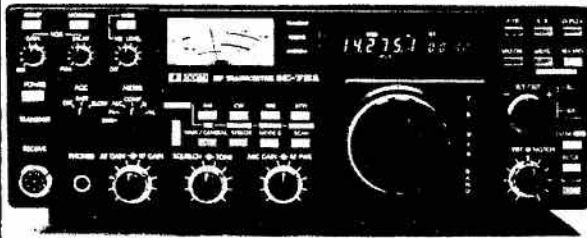
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OUR 751 COMES STANDARD WITH FM, HM-12 MIKE & FL-44A FILTER

# ICOM 751 • \$400 Off!



All band (160-10m) 100W SSB-CW-RTTY-AM-FM Transceiver w/General coverage (100 kHz-30 MHz) Receiver, 32 Memories.

REGULAR \$1899 \*\* SPECIAL \$1499.00

LIMITED OFFER :: ORDER TODAY!  
VISA/MASTERCARD ACCEPTED - ADD 2%

## IC-751 Accessories

	LIST	SALE
PS-35 Internal Power Supply-----	\$239	\$219
PS-15 External Power Supply-----	\$200	\$185
PS-30 25A Station Power Supply----	\$385	\$349
PP-1 Phone Patch-----	\$199	\$179
SM-6 Standard Desk Mike-----	\$ 79	\$ 75
SM-8 Up/Dn Scan Desk Mike-----	\$109	\$ 99
SM-10 New Scan/Equalizer/Comp Mike	\$169	\$159
FL-32 500Hz CW Filter 1st IF-----	\$ 99	
FL-63 270Hz CW Filter 1st IF-----	\$ 70	
FL-52A 500Hz CW Filter 2nd IF-----	\$129	
FL-53A 250Hz CW Filter 2nd IF-----	\$129	
FL-33 6kHz AM Filter-----	\$ 55	
EX-310 Voice Synthesizer-----	\$ 59	
RC-10 External Frequency Control--	\$ 55	
MB-18 Mobile Mount-----	\$ 32	
IC-2KL w/PS Solid State Amplifier	\$2149	\$1949
AT-500 Auto Antenna Tuner 500W----	\$699	\$629
AT-100 Auto Antenna Tuner 100W----	\$529	\$479
SP-3 External Speaker-----	\$ 79	\$ 75

## INFORMATION ON CURRENCY EXCHANGE

Since exchange rates vs. the Canadian Dollar have changed so much in the past 6 months we wanted to give you some info on changing prices. Since Mid-Sept the cost of 1000 Japanese Yen has risen to \$8.00 from \$5.50 a rise of 45%. While many items have increased in price they have NOT risen by 45%. The dealer and the importer have absorbed some of the increase. SOME ITEMS ARE STILL IN STOCK FROM PRIOR TO THE INCREASE SO HURRY IF YOU WANT TO SAVE MONEY.....

## HI-Q BALUN

- For dipoles, yagis, inverted vees and doublets
- Replaces center insulator
- Puts power in antenna
- Broadbanded 3-40 MHz.
- Small, lightweight and weatherproof
- 1:1 impedance ratio
- For full legal power and more
- Helps eliminate TV!
- With SO 239 connector
- Built-in DC ground helps protect against lightning



Only \$1 9

## YAESU



FT-757GX

HF transceiver with general coverage receiver. 8 memories. Dual VFO's. Programmable memory scanning. CAT system computer control.

## USED GEAR

FT-901DM 10-160 HF XCVR MINT--	\$749
FT-102 9 Band HF Xcvr MINT----	\$849
FT-101E 6 Band 160-10 XCVR----	\$599
TS-530S 10-160 WARC XCVR MINT	\$799
IC-730 10-80 Digital XCVR-----	\$699
TR4C Drake 10-80 5 Band XCVR--	\$399
Sony ICF-2002 .150-30MHz Rcvr--	\$279
FV-901DM Scan VFO 901/2 1012D	\$199
SP-901P Speaker/Patch 901/101	\$ 99
FT-208R 2M FM Handheld MINT--	\$299
YM-24A Speaker Mike 207/8----	\$ 35
FNB-2 Nicad 207/8-----	\$ 35
MMB-10 Mobile Bracket 207/8--	\$ 10
Leather Case FT-208R-----	\$ 35
NC-8 Deluxe Desk Charger 208--	\$ 79
FT-207R 2M FM Handheld-----	\$199
FA-9 Fan 101E, 1012D-----	\$ 19
FRB-707 Amplifier Relay-----	\$ 19
Kantronics Hamsoft Apple-----	\$ 25
Icom SM-6 Desk Mike 751 745--	\$ 49

## ICOM



IC735 NEW General Coverage HF Transceiver Full Featured Ultra Compact - Economical

CALL FOR SPECIAL PRICE!



IC745 General Coverage HF Transceiver IC751 Full Featured HF Transceiver

CALL TODAY FOR LOW ICOM PRICES!



IC271A IC271H IC471A IC471H

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IC27A IC27H IC37A IC47A

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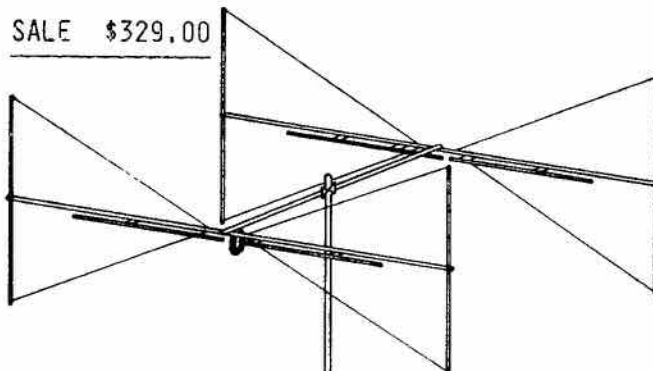
IC3200 NEW 2m/70cm Dual Band Xcvr. CALL FOR SPECIAL PRICE!



IC02AT - 2mtr IC04AT - 70cm High Tech HT XCVRs IC3AT - 2mtr IC3AT 220 MHz IC4AT 440 MHz ALL IN STOCK

## Introducing the BUTTERFLY™ Beam from Butternut!

SALE \$329.00



The HF4B Compact, 2-element Beam for 20-15-12-10 meters

### Compact Size

The HF4B's 12½-foot elements and 6-foot boom are ideal for home-station use and for weekend retreats, condos, apartments and other places where oversized beams are prohibited. Its light weight (17 pounds) means it can be turned with a tv rotator, yet it is robustly constructed in the best tradition of our world-famous Butternut verticals.

HF-6V 10-15-20-30-40-80M Vert	\$229
HF-2V 40-80M Vertical-----	\$219
TBR-160S 160M Adaptor-----	\$ 99
RMK-II Roof Mount Kit c/w STR--	\$ 99
STR-II Stub Tuned Radial Kit--	\$ 65
Ins S&H add \$9 for Ants \$5 others	

### Performance

The HF4B BUTTERFLY™ has not sacrificed performance for compactness. Its unique design with fanned elements and L-C circuits avoids use of power-robbing traps yet provided high-efficiency operating on all bands. The BUTTERFLY™ outperforms anything in its class.

The HF4B offers an SWR of 1.5:1 or less at resonance. Its 2:1 bandwidth is 200 kHz on 20 meters, 450 kHz on 15, 1.7 MHz on 10, and across the entire 12 meter band. And it will handle the legal power limits both CW & SSB. Gain is at least 3 dB on 20, 4.5 dB on 15 and 5 dB on 10 & 12 meters. Front-to-back is up to 18 dB on 10, 12 and 20m, and up to 15 dB on 15m.

## PACKET PICK-IT

AEA PK-64	\$ 369
HFM-64	\$ 169
NEW PK-80	\$ 369

## Kantronics

KANTRONICS PACKET COMMUNICATOR II \$ 369

## MFJ

MFJ 1270 PACKET \$ 229

**GO PACKET!**  
FM of the 80's

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Saturdays 10 a.m.-2 p.m.  
After 7 p.m. Call (416) 222-2506  
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# DAIWA Ham Equipment

## Helps You Achieve Superior Operation

NEW LOWER  
PRICES !!

### ALL MODE LINEAR AMPLIFIERS.

- LA-2035 2M 3W in gives 30W out-----\$ 89.95
- LA-2035R 2M 5W in gives 30W out with Preamp---\$ 99.95
- LA-2060 2M 3W in gives 50W out-----\$159.95
- LA-2065R 2M 10W in gives 50W out with Preamp--\$179.95
- LA-4030 430-450MHz 3W in gives 35W out-----\$179.95



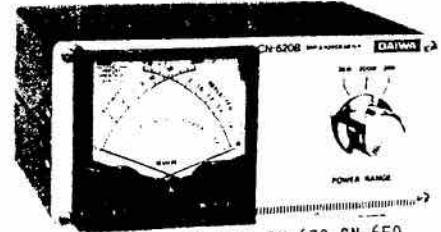
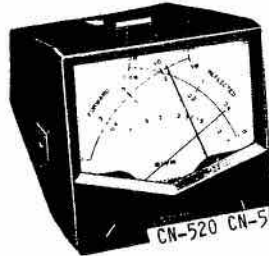
LA-2035 LA-2060 LA-4030



LA-2035R LA-2065R

### CROSS NEEDLE METERS.

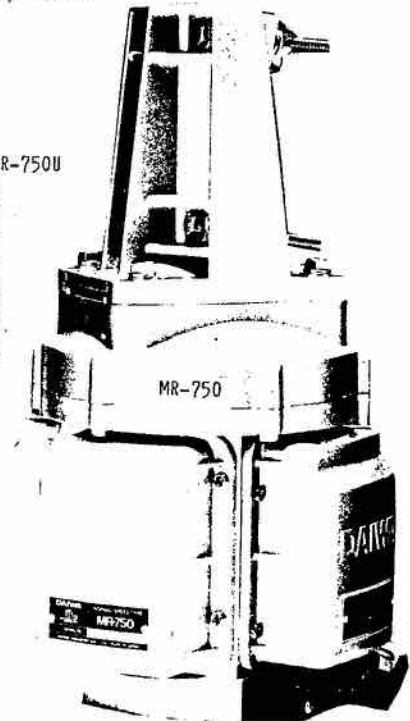
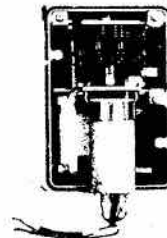
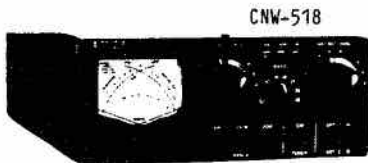
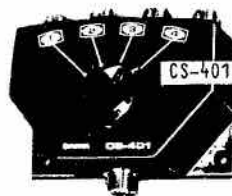
- CN-520 1.8-60MHz 200/2kW-----\$ 79.95
- CN-540 50-150MHz 20/200W-----\$ 89.95
- CN-620B 1.8-150MHz 20/200/2kW-----\$149.95
- CN-630 140-450MHz 20/200W-----\$169.95
- CN-630n140-450MHz 20/200W with 'N' connector--\$179.95
- CN-650n 1.2-2.5GHz 2/20W with 'N' connector---\$199.95



CN-620B CN-630 CN-650

### OTHER DAIWA PRODUCTS.

- CS-201 2 position coax switch-----\$ 29.95
- CS-201G 2 position coax switch with 'N' conn.--\$ 39.95
- CS-401 4 position coax switch-----\$ 79.95
- MR-750E Antenna rotator with motor-----\$359.95
- MR-750PE As above with preset control & motor--\$399.95
- MR-750U extra motor for 750 rotators-----\$119.95
- CNW-419 200W antenna tuner with X needle meter\$299.95
- CNW-518 1kW antenna tuner with X needle meter--\$449.95
- DK-210 Electronic Keyer with LED speed meter--\$109.95
- AF-606K Audio filter with PLL control-----\$149.95
- RX-110G 2M Ga-As FET preamp-----\$ 99.95



PRICES IN EFFECT May 1, 1986.

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Insured Shipping & Handling - Please add 2% (\$5 Minimum) to all orders. Some items are subject to freight collect.....  
 Visa / Mastercard accepted at slightly lower discounts.....  
 ONTARIO RESIDENTS - ADD 7% SALES TAX AFTER ADDING SHIPPING.  
 PLEASE SEND 2 - 34¢ STAMPS FOR CATALOG & INFO REQUESTS.....  
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# THE CANADIAN AMATEUR RADIO FEDERATION

INVITES  
RADIO AMATEURS  
TO

# VE7EXPO

AT THE 1986  
WORLD EXPOSITION

VANCOUVER, B.C. CANADA  
MAY 2 — OCTOBER 13, 1986

## AN INFORMATION GUIDE FOR VISITING AMATEURS

- VE7EXPO
- AUTO-PATCH
- CLUBS AND ASSOCIATIONS
- NETS
- REPEATERS

### VE7EXPO AMATEUR RADIO SOCIETY

(PULL THIS CENTER DOUBLE PAGE OUT)

## AMATEUR RADIO STATION VE7EXPO

Amateur Radio Station VE7EXPO is located on the main floor of the Canada Pavillion at the Burrard Inlet EXPO 86 site. The station operates from 160 meters through 1.2 GHz with modern amateur radio equipment. Antennas are mounted under the sail type teflon roof. VE7EXPO monitors VE7RPT at 146.94/34, 224.300/222.700, 443.525/448.525 MHz. Please drop by to see and talk with the operators and be sure to bring along a QSL or calling card which they will display on the bulletin board.

## EXPO AREA — MAJOR AMATEUR RADIO CLUBS AND ASSOCIATIONS

CLUB OR ASSOCIATION	REPRESENTATIVE	PHONE
B.C. DX Club	Vic Waters VE7ALR (rep)	738-7975
B.C.F.M.C. Assoc.	Ed Wilson VE7EWS (Pres)	591-7727
Burnaby A.R.C.	Norm Kirk VE7FKN (Pres)	298-5041
C.A.R.F.	Jim Voight VE7CWC (Dir)	795-5208
	Larry Reid VE7LR (A Dir)	298-4372
C.R.R.L./A.R.R.L.	Ernie Savage VE7FB (SM)	224-5226
	Bill Kremer VE7CSD (Dir)	522-3548
Delta A.R.C.	Fred Reynolds VE7CUI (Pres)	946-2947
Fraser Valley DX Cl.	Marty Martin VE7HAM (Pres)	826-9812
Maple Ridge A.R.C.	John Schiere VE7BKG (Pres)	462-9072
Richmond A.R.C.	Bill Williams VE7FHV (Pres)	274-0944
Surrey A.R.C.	Mike Holley VE7AVM (Pres)	534-6466
Totem A.R.C.	Alex Knox VE7CSK (Pres)	321-0180
Vancouver A.R.C.	Tal Hunt VE7CVD (Pres)	261-6882
VE7FVR Users Group	Bill Blake VE7AEG (Rep)	467-3990

## EXPO AREA AMATEUR RADIO PUBLIC SERVICE AND CLUB NETS

NET	PERIOD	TIME	FREQ.
B.C.F.M.C. Association	Thursday	21:00 PDT	146.94 MHz
B.C. Public Service Net	Daily	17:30 PDT	3729 KHz
B.C. Northern Net	Wed. & Sun.	19:00 PDT	3775 KHz
B.C. Emergency Net (cw)	Daily	17:00 PDT	3650 KHz
Burnaby A.R.C.	Monday	20:00 PDT	145.35 MHz
Fraser Valley DX Club	Sunday	20:00 PDT	147.28 MHz
Maple Ridge A.R.C.	Sunday	20:00 PDT	146.80 MHz
Morning Show	Mon. - Fri.	07:30 PDT	147.26 MHz
Retired Gents Net	Daily	16:30 PDT	3780 KHz
Richmond A.R.C.	Tuesday	19:00 PDT	147.14 MHz
Marine Net (DDD Int'l.)	Daily	04:00 UTC	14.115 MHz
Marine Net (Vancr Island)	Daily	17:30 PDT	146.68 MHz
Marine Net (Gulf Georgia)	Daily	17:00 PDT	147.32 MHz
Senior Citizens Net	Daily	09:05 PDT	147.10 MHz
Technical Net	Thursday	21:05 PDT	147.06 MHz
Trans Canada Net	Sat. & Sun.	18:00 UTC	14.140 MHz
Vancouver A.R.C.	Sunday	21:00 PDT	28.650 MHz
Victoria A.R.Rptr Assoc.	Monday	19:00 PDT	146.84 MHz
White Cane Net	Thursday	20:30 PDT	3765 KHz
YL Get Together	Wednesday	14:00 PDT	146.84 MHz
YL Dogwood Net	Thursday	16:00 PDT	3753 KHz

## CANADIAN NATIONAL CALLING FREQUENCIES:

Band	Frequency	Band	Frequency
80 Meters	3758 KHz	40 Meters	7165 KHz
20 Meters	14.140 MHz	15 Meters	21.260 MHz
10 Meters	28.400 MHz	2 Meters	146.52 MHz (simplex)

# EXPO AREA 2 METER REPEATERS

LOCATION MHz CALL NOTE SERVICE & INFORMATION

## Normally accessible using a handheld radio

Burnaby	145.35	VE7RBY	-6/0	General & Club Info
Bellingham WA.	146.74	K7SKY	-6/0	Border & Marine QSO's
Richmond	147.14	VE7RMD	+6/0	General & Club Info
Vancouver	145.17	VE7ESR	-6/0	General & Club Info
Vancouver	*146.94	VE7RPT	-6V/MP	Emrgncy/Asst/Short QSO
(wide ranging coverage)				
Vancouver	147.02	VE7RAG	+6/0	Ragchew for 146.94
Vancouver	**147.06	VE7FVR	+6/0/OP/L	Auto-patch & Link Hub
Vancouver	147.12	VE7VAN	+6/0	General Use
Vancouver	147.26	VE7WRS	+6/(3 cxb)	bursts) General Use
Vancouver	147.30	VE7RDX	+6/0	DX Club Info

## Accessible depending on QTH and relative power:

Chilliwack	147.00	VE7ELK	-6/0	General & Club Info
Chilliwack	147.10	VE7RCK	+6/0	General & Club Info
Coquitlam	146.60	VE7RCH	-6/0	General Use
Gulf Islands	146.68	VE7RVC	+6/0/L	Link Marine & General
Gulf Islands	147.32	VE7RSI	-6/0	General & Marine QSO
Maple Ridge	146.80	VE7RMR	-6/0/OP	AP-up *789/down #
Maple Ridge	147.28	VE7DXC	+6/0	General & DX Club
Nanaimo	145.43	VE7RNA	-6/0/MP/L	Mid Van Is. Link
Nanaimo	146.64	VE7ISC	-6/0	General & Club Info
Seattle Wa.	146.88	K7PF	-6/0	General Use
Surrey	147.04	VE7RSE	+6/0	General & Club Info
Victoria	145.41	VE7RSR	-6/0	General Use
Victoria	146.84	VE7VIC	-6/0/MP	General Use

### NOTE LEGEND

-6 = offset down 600 KHz  
MP = member autopatch  
O = carrier operated  
L = link repeater  
+6 = offset up 600 KHz  
OA = open autopatch  
V = voice operated  
\*see VE7RPT \*\*see VE7FVR

## UHF REPEATERS

Vancouver 224.300/222.700 VE7RPT (Monitored by VE7EXPO)  
Vancouver 443.525/448.525 VE7RPT (Monitored by VE7EXPO)  
Vancouver 443.800/448.800 VE7UHF  
Vancouver 444.000/449.000 VE7URG

# VE7FVR - VANCOUVER OPEN AUTO-PATCH & PROVINCIAL NETWORKS

VE7FVR's signal covers the greater Vancouver and Fraser Valley areas. VE7FVR is the main hub of a duplex trunk network to BC's southern interior and to major areas of Vancouver Island. VE7FVR 147.06/66 OPEN AUTO PATCH.

ON-CODE = none (dial tel no) OFF-CODE = #

The network is available from the locations below and system users group will accommodate you upon request.

STATION	MHz	OFFSET	LOCATION
VE7FVR	147.06	+600 KHz	Vancouver
VE7MPR	147.06	+600 KHz	Manning Prov. Park (Hwy 3)
VE7RAC	147.24	+600 KHz	Port Alberni
VE7RLO	146.96	-600 KHz	Kamloops
VE7RNA	145.43	-600 KHz	Nanaimo
VE7RNC	146.68	-600 KHz	Newcastle Ridge
VE7RNI	146.94	-600 KHz	Albert Bay/Port Hardy
VE7RVC	146.68	-600 KHz	Saturna (Gulf Islands)
VE7RYV	145.31	-600 KHz	Chilliwack

# VE7RPT - VANCOUVER EMERGENCY & PUBLIC SERVICE REPEATER

\*\*\*VE7RPT 146.94 MHz (-6V) \*\*\*MONITORED by VE7EXPO\*\*\* Operated by the B.C.F.M. Communications Association with primary focus on emergency public service using a system of auto-dialler codes. Its normal use is short contact QSO's. Users are invited to QSY to VE7RAG at 147.02 (+6/0) for ragchew QSO's. Auto-patch assistance is given on request.

Dial 94 plus the two digit code below. The controller will read back the number! \*\*\*IMMEDIATELY\*\*\* after the number is read back, press your PTT for 1 second! Disconnect is #.

## PUBLIC SAFETY SERVICES

AREA	POLICE	A/D#	FIRE	A/D#
Burnaby	299-8822	10	291-1234	11
Coquitlam	464-6211	12	939-1122	13
Delta/Ladner	946-4444	14	946-4155	15
Haney/Maple Ridge	467-3411	16	463-6234	17
Langley	534-8822	18	535-4141	19
New Westminster	521-7711	21	526-4411	22
North Vancouver City	988-4111	23	985-5323	24
North Vancouver Dist.	988-4111	23	985-2525	25
Pitt Meadows	467-3411	16	465-4141	27
Port Coquitlam	464-6211	12	941-8611	29
Port Moody	939-1234	30	939-1234	30
Richmond	278-1212	31	278-1234	32
Surrey	574-4131	33	596-3344	34
University of B.C.	224-1322	35	228-4567	36
*Vancouver	911	911	911	911
West Vancouver	922-9111	37	922-2345	38
White Rock	531-1146	39	531-1414	40

\*For Vancouver only . . . just dial 911 . . . other no's not needed.

Ambulance (Vancouver)	911	911	(94 not required)
Ambulance (other)	872-5151	45	
Freeway Patrol/R.C.M.P.	732-4343	41	
Rescue Co-ord Centre		910	(94 not required)
Poison Control	682-5050	44	
Poison Control (Surrey)	581-2211	46	
B.C.A.A. Road Service	736-5971	70	
PEP Headquarters	584-6366	50	

## RECORDED INFORMATION

B.C. Ferry Schedule	685-1021	80
B.C. Road Conditions	277-0112	81
General Weather Forecast	273-8311	82
Marine Weather Report	270-7411	83
Aviation Weather Report	273-1151	84

# AMATEUR RADIO NEWS BULLETINS

C.A.R.F. Wednesdays 17:30 PDT 3729 KHz B.C.P.S. Net.  
C.R.R.L./A.R.R.L. (except summer months)  
Thursdays 17:30 PDT 3729 KHz B.C.P.S. Net.  
VE7EXPO as required on VE7RPT 146.94 - 6V

## QSL'S

QSL via your local bureau or send S.A.S.E. (or I.R.C.) to  
VE7EXPO QSL Manager  
P.O. Box 80555  
South Burnaby, B.C.  
V5H 3X9

# World Exposition Special



## IC-02AT

The World Famous  
Standard in 2 Meter  
Hand Held Communications



- Digital Readout
- Scanning
- 10 Memories
- 32 PL Tones
- 3 Watt Std./  
5 Watt Opt.

Special  
**\$419.00**

Regular  
**\$469.00**

Often  
Imitated,  
Never  
Duplicated

## ANTENNAS SOMMER

HXP-70 16 dB 70cm Helical **\$179.00**

XP-505 5 Band Trapless Beam **\$729.00**

## MIRAGE/KLM

2M-22C High Gain Circular Polarized **\$269.00**

## ROTORS

### KENPRO

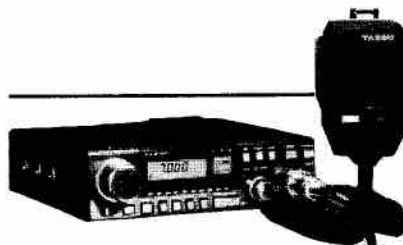
KR-5400A Elevation-Azimuth **\$549.00**

### DAIWA

MR-750E Multi Torque (1 Unit) **\$449.00**

## OTHER PRODUCTS FROM COM-WEST RADIO

AEA	LARSEN
ALINCO	MFJ ELECTRONICS
AMP SUPPLY CO.	MICROWAVE
ARMACO	FILTER CO.
ASTRON	MINI PRODUCTS
BAKER & WILLIAMSON	MIRAGE
BENCHER	MODE
BUTTERNUT	MOSLEY
DAIWA	W.M. NYE VIKING
HEIL	SOMMER
HUSTLER	SONY
ICOM	TRYLON
KENPRO	TELEX/HYGAIN
KLM	YAESU



2-METER 45/5 TRANSCEIVER

**YAESU**  
**FT-270RH**  
**\$659.00**

**COM-  
WEST Radio Systems Ltd.**

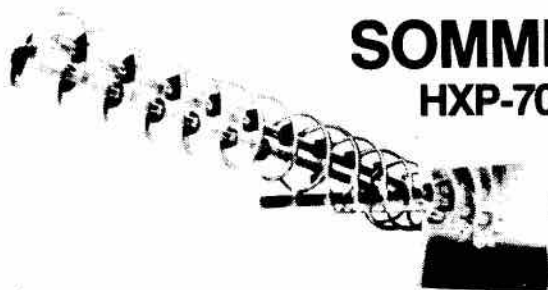
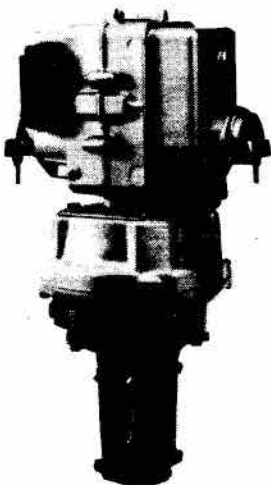
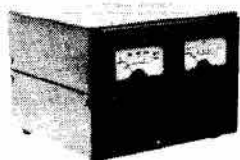
8179 Main St.,  
Vancouver, B.C. V5X 3L2  
(604) 321-1833 or 278-0423



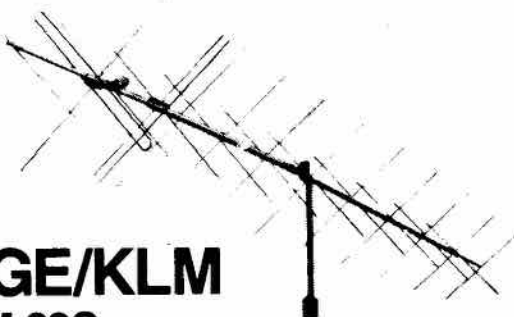
# VE7EXPO

## OSCAR SATELLITE ANTENNA SYSTEM

**KENPRO**  
KR-5400A



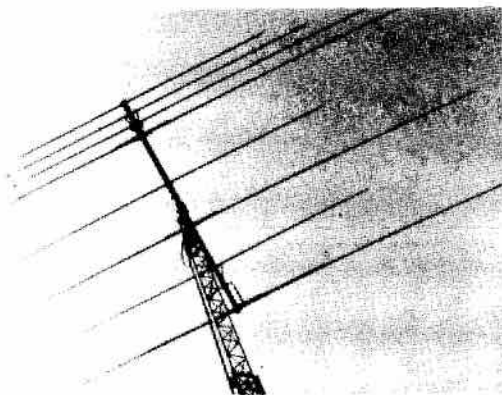
**SOMMER**  
HXP-70



**MIRAGE/KLM**  
2M-22C

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## HF BEAM ANTENNA SYSTEM

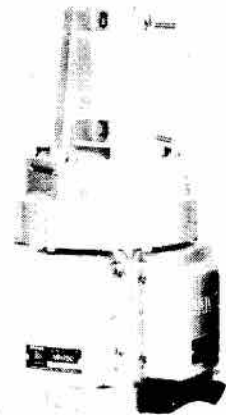


**SOMMER**  
XP-505

10-15-20-30-40 meters  
TRAPLESS BEAM

**DAIWA**  
MR-750E

Output torque:  
700 kg/cm (608 lbs/inch)  
Brake Power:  
6,000 kg/cm (5,215 lbs/inch)



ANTENNAS SUPPLIED COURTESY OF COM-WEST RADIO SYSTEMS  
STATION EQUIPMENT SUPPLIED BY ICOM AMERICA INC. BELLEVUE, WASH.

# The Life and Death of the First CRRL

## PART II

BY GEORGE F.W. REYNOLDS  
VE4AJ

*Part 1 of this story told how Canadian Amateurs were put off the air in 1914; allowed back on in 1919; how they prospered until entertainment broadcasting brought ill-made commercial receivers, sitting ducks for any interference; how in Manitoba a powerful government official wanted to put Amateurs off the air, since all interference was blamed on them. Here's the response of the Canadian Amateurs of 1923.*

The broadcasting stations of the Winnipeg newspapers had been on the air since April, 1922. Originally started as a promotional venture, they had been losing money because of federal regulations prohibiting the sale of advertising during programs. They were anxious to get out of broadcasting if they could do so without antagonizing the people for whom they had been providing free entertainment. On Jan. 8, 1923, the newspaper publishers met with Lowry to explain their problem to him.

The Commissioner informed them that the provincially-owned MTS would begin broadcasting if the Manitoba government could come to an understanding with the federal authorities regarding jurisdiction over radio in the province and if they could obtain a split in the private receiving station licence fees to finance the operation of the station. The newspapers promised that they would support any action the province might take for the control, regulation and development of radio in Manitoba.

On Jan. 29, Lowry sent the Minister of Telephones the draft of a proposed 'Manitoba Radio Regulation Act' which codified many of his ideas. If it became law, this act would, in effect, have transferred the jurisdiction over radio in Manitoba from Ottawa to the province. The act is too long to quote in its entirety; the following is a condensation of those clauses which would have particularly affected the Amateur service: "No person... shall install or operate any radiotelephone

or telegraph apparatus within the province except under and in accordance with a licence issued by the Commission."

"The Commission shall issue licences for transmitting and receiving stations but licences will not be issued for radiotelephone and telegraph stations which are considered to be a danger or detriment to the development or progress of radio communication." *Amateurs Beware!*

"Any person who... without lawful cause or excuse interferes with or obstructs any radio transmission, shall be guilty of an offence and shall be liable to summary conviction and a penalty not exceeding \$100 or one month imprisonment."

"The Commission shall prepare, issue and control, standards for the erection of all wires, structures and apparatus used for transmitting and receiving in a manner approved by the Commission."

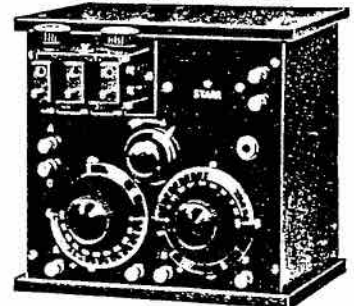
Lowry had previously suggested to the Minister of Telephones that the twin role of inspection and enforcement of regulations be taken over by the province because, "Amateur transmitting stations are more or less a menace to commercial business and under the present system there is no control and not a proper system of inspection." Further, "if the federal people turn the matter over to us as suggested, we could handle it very nicely."

Amateur operators had already agreed to a suggestion by the federal Radio Inspector to observe voluntary 'Quiet Hours' between 6:30 and 11:00 p.m.

In a letter to the Minister of Telephones, Lowry elaborated on his policy regarding Amateurs, "In discussing the Amateur question with officers of the Signal Corps, they agree generally that, as the government is spending a lot of money to train young men in radio telegraph and telephone work, there is no advantage at all in having these Amateur stations. Providing there is proper regulation and inspection we would have no objection to a limited number of telegraph transmitters in the province operating on a wavelength to be determined and during hours we would set."

Lowry clearly implied that

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Size of Complete Part 2...  
We guarantee this long range detector to work

\$20.00

As Illustrated without Coils, Tubes or Batteries...  
Two Stage Audio Amplifier same size to match the above.

\$26.00

Two Stage Radio Amplifier same size to match the above.

\$29.00

Without Tubes or Batteries

## DETECTOR

Type "C" Complete \$45.00

### EQUIPMENT

<ul style="list-style-type: none"> <li>1—Tube</li> <li>1—A Battery 1½ Volts.</li> <li>1—27½ Volt B Battery</li> <li>1—1½ Phones</li> <li>1—Set Coils 55, 50, 75.</li> </ul>	Value of Equipment <b>\$20.00</b>
---	--------------------------------------

## AMPLIFIER

Type "C" Complete \$45.00

### EQUIPMENT

<ul style="list-style-type: none"> <li>2—Tubes</li> <li>1—A Battery 1½ Volts.</li> <li>1—42 Volt B Battery.</li> </ul>	Value of Equipment <b>\$16.50</b>
--	--------------------------------------

Licensed under Patents  
155794-1911 206025-1922 216057-1922  
216360-1922 216793-1922

**STARR METAL PRODUCTS CO.**  
630 Pape Ave. TORONTO, ONT.

Amateur radiotelephony would not be permitted.

At a meeting of radio wholesalers and retailers, Lowry was reported to have said, in reference to the Amateurs, "As these people are only a nuisance, this type of licence should either be eliminated or raised to a prohibitive amount."

Lowry submitted the Manitoba Radio Regulation Act to Ottawa for

consideration but senior officials of the Department of Marine and Fisheries advised him that, "they did not altogether approve of the proposed legislation." Instead, the Deputy Minister offered a counter-proposal. Regulation 2 under the Radiotelegraph Act, 1913, would be amended to give the Minister of Telephones in Manitoba (in effect, the Commissioner) the right to endorse, i.e. veto, applications for:  
Public and private radiotelephone stations,  
Private commercial broadcasting stations,  
Amateur broadcasting stations,  
before the applications were submitted to the Department of Marine and Fisheries for final approval.

The province agreed to this overture and shelved the Manitoba Radio Regulation Act. The new Regulation 2b went into effect on May 15, 1923. Commissioner Lowry had obtained what he so earnestly desired, monopoly control over radio broadcasting and commercial radiotelephony. The MTS broadcasting station, CKY, had gone into service on March 13, 1923, and applications for potential broadcasters and competing radiotelephone stations were vetoed for the next decade.

Now a word about Amateur broadcasting stations. The revised regulations of Sept. 1, 1922, gave a bona fide *Amateur* radio club, in an area remote from commercial broadcasting, the right to obtain an Amateur broadcasting station licence for the purpose of providing free entertainment to the local listeners. Don't let the name *Amateur* broadcasting station confuse you. Members of the *Amateur* radio club could be hams but club members were not necessarily hams. The club members must put up their own money to finance the building and operation of the station. Advertising and fees for service were not permitted. Assigned frequency was 250 metres with maximum power 50 watts. Stations were allotted a '10' call, e.g. 10AB in Moose Jaw, Saskatchewan. Some of these stations were later converted to commercial outlets. Lowry refused to grant any Amateur broadcasting station licences in Manitoba.

The Radiotelegraph Branch confirmed the fact that, "The control of all stations remains in the hands of the Dominion government as heretofore and all stations will continue to function under the regulations issued by this department. Radiotelegraph, Amateur, experimental and training school stations are exempt from the new regulation 2b."

The department also promised Manitoba Amateurs that, "There would be no change in their status as compared with other Amateurs in the Dominion without first advising them and giving them an opportunity of expressing their opinion."

In spite of these firm assurances, no Manitoba Amateur had been granted phone privileges during the previous six months. Who was applying the pressure to keep them off the phone bands? No one would give them an answer to that question but it was obvious that it was someone in Manitoba with a great deal of political clout.

It was this fact, more than anything else, that triggered the formation of the first CRRL. It was apparent that what was needed was a strong national body that could exert political influence on behalf of Canadian Amateurs.

It would be wrong to assume that this was purely a local problem and that it could not happen elsewhere in Canada. Other provinces were interested in getting control of radio but for different reasons than Manitoba.

At the beginning of this article the question was asked: "Were the interests of Canadian Amateurs being adequately protected by existing organizations?" The answer is, "No they were not." At that time, the only organization claiming to represent Canadian hams from coast to coast was the ARRL. One thing should be made clear; in the mid-1920s no organization was *officially* recognized by the Radio Service, Ottawa, as the mouthpiece of Canadian radio Amateurs.

This article is not an exercise in ARRL bashing, *per se*, but it will be shown, by quotations from *QST* and other sources that the headquarters of the ARRL, then located in Hartford, CT, was lamentably ignorant of what was going on in Canadian ham land. Headquarters should have been kept fully informed of events in Canada but there was almost a complete breakdown of communications between Canada and Hartford and the fault lay on the Canadian side.

In telling the story of what happened, it may be necessary to describe certain incidents out of their proper chronological order.

When and why did the ARRL come to Canada? According to 'Two Hundred Meters and Down,' the unofficial history of the ARRL "Effective January, 1920, the ARRL expanded its operating activities to include Canada. This was done at the request of a relatively small number of

Canadian Amateurs. Sufficient expansion of post-war Amateur activity had occurred to merit their inclusion in the ARRL but not enough to make a national organization of their own practicable."

No record of the names of the Canadian hams who approached the ARRL appears to have survived. It probably included A.K. Russell 3AB, W.C.C. Duncan 3AC, A. Reid 2BE, A.J. Lorimer 2FB and J.V. Argyle 2CV, all of whom were later prominent in ARRL circles. When they contacted the ARRL in 1919, their calls would have been in the old XAA-XGZ series; the new Canadian calls with a figure and two or three letters did not come into use until Jan. 10, 1920. There were no Amateur prefixes designating country until 1929, many Canadians used the unofficial prefix C.

When the ARRL was first incorporated, its principal objectives were the effective relaying of messages and the legislative protection of U.S. Amateurs. Relaying is now a lost art and it is ignored in the current list of ARRL objectives, once it was as popular as DX contests are today. In 1920, transCanada relaying was a virtual impossibility on 200 metre spark because of the long gaps between stations. Membership in the ARRL would provide enhanced operational capabilities for Canadians. What they wanted was a north-south hookup with the trunk east-west relay lines in the U.S. This would, for example, enable a message to be sent from Toronto to Buffalo then via the U.S. relay network to Seattle and then north to Vancouver. It was a two-way street, U.S. relay links would now have access to Canada. Today's crop of hams is frequently puzzled by the preoccupation with relaying. In the 1920s, relaying was the name of the game, a high-speed brasspounder who could move a lot of traffic, error-free and fast, was king of the hill.

The editor and business manager of *QST* was K.B. Warner; he was also secretary of the ARRL. At that time *QST* and the ARRL functioned as separate entities. You could subscribe to *QST* or buy it at a newsstand without joining the ARRL. Each number of *QST* carried the query, "Are you a member of our ARRL?" Warner ran the ARRL and *QST* as a one-man show. He made the major decisions which were routinely rubber-stamped by the ARRL board of directors.

*With Big Brother to watch over us, what have we to fear? Read next month's instalment to find out.*



Ken Kendall VE3IHX  
777B Springland Dr.  
Ottawa K1V 6L9

I do not wish to engage in a lengthy argument with the unknown author of the EMCOM article but I feel there are several statements that are either inaccurate or easily misinterpreted in this write-up.

To begin— the sub-title 'Barrie Disaster— A near disaster for Amateur radio' is an out-and-out slap in the face which I do not accept.

"...their initial response to the emergency was very slow due to several administrative problems." I do not consider response by the E.C. before being called by the Red Cross to be 'slow.' When we arrived at the Branch office, even the staff there had no idea what had happened, they were just on stand-by. I cannot think what 'administrative problems' would be involved at that point.

The 'handful of operators' totaled 22 within the first 15 minutes of the first call. This first call was not dependent on an overloaded telephone system but was made on simplex 146.52. The only 'callup procedure' at that time was between the Red Cross and the Barrie

Emergency group. There are four names on the fanout sheet of the Red Cross and none had to be telephoned!!

Yes, VE3LSR was down due to an extensive power failure extending from the Bruce Peninsula to Barrie and beyond. It was back on the air before the other local repeater.

The offer of a repeater that had linking capability into Toronto was initially refused because the INITIAL need was LOCAL and some of our operators have 'rock-bound' transceivers without crystals for every repeater. Why should we contend with a wide-coverage repeater available to multitudes outside of the emergency area at a time when strictly local communications were necessary?

When the time came to communicate with the Toronto Headquarters of the Red Cross the primary hook-up was confusion itself. Thanks to capable and most efficient personnel, the difficulties were resolved and the link did prove invaluable.

Regarding 'proper approved identification'— this is an area that must be dealt with from either a

Federal or Provincial level. Some Emergency Services have identification that is recognized by their local police but I defy them to try and use that identification in another locality. Do you know where you are going to be when the next disaster strikes? I don't. I understand that the Provincial Government is being approached regarding such I.D. and perhaps there can be some form worked out in the not too distant future. Until then, we will have to do with what we have, if anything.

As radio operators, why should we have to rely on even LINE-LOAD (which, incidentally, was available to us in Barrie) when we have radio? We did not need it.

To the best of my knowledge, the Barrie Police communication system was not down. I learned that something was not as it should be by monitoring. I understand this was not the case in Grand Valley where the Amateurs were able to be of assistance to police in that area.

My final remark. Are there 'ideological differences' between repeaters? If so, I was not aware of them (even if I knew what was meant by the term). My refusal was based solely on the IMMEDIATE NEED LOCALLY among my own operators.

I cannot believe that the author of the article was anywhere near Barrie when the Tornado struck. I am certain he was not among the available and capable operators who responded when they were needed.

73 de VE3NLN  
Marion Bolechowsky  
Emergency Co-ordinator  
Barrie Amateur Radio Club

## Barrie Tornado

Members of the Barrie Amateur Radio Club are most upset by some of the implications in the December issue of TCA on page 38 under 'Emergency Communications.' We would have expected the author of the article would have left the comfort of his armchair at his favorite oasis (where it would seem he collected his information) and consulted with someone more closely connected with the operation before expressing his opinions in the national publication of CARF.

For the benefit of the author and your readers, members of the Barrie Amateur Radio Club were on the job even before the official call-up had been initiated by the Red Cross and, yes, we had Line-Load capabilities. We ourselves found this of limited use as 2 metres covers our area well.

We thought that 28 members was more than adequate as the initial response (on simplex within 15 minutes). Possibly by larger club standards this is only 'a handful.'

Yes the local repeater was out of service because of a large area power failure. It was put back in service faster than most clubs could arrange. We initially turned down the offer of

the other repeater as our repeater was back in service and we had operators on site who operate crystal-controlled transceivers. Later this alternate repeater proved very valuable to let Red Cross officials in Barrie communicate with Toronto, Grand Valley and Peel. Our thanks to the people involved.

We in Barrie feel that the identification problem would better be resolved at the Provincial or Federal level as a local solution would only be recognized locally. Amateurs willing to help from surrounding areas would still not be recognized or admitted.

The Barrie Club was given a difficult task to do and we did it. However, if the author still feels we need to pull our socks up he is welcome to conduct the next S.E.T. here. By the way, it will be held the Thursday evening immediately preceding the next disaster. Then I'm sure we will do it perfectly.

Fraternally yours,

VE3GCB

*Now that's a splendid idea! Nationally recognized identification, so that any Amateur could go where needed. Any one have ideas as to how it could be done?— Editor.*

### VE7EXPO

CARF has offered to assist VE7EXPO organizers through free QSL Bureau service assistance and, if approved by the coordinating group, to include VE7EXPO as a special bonus point station during the July 1st 1986 Canada Day Contest. Local Amateurs will be asked to volunteer as station operators throughout the duration of the big event from May 2nd to October 13th.

### CAPITAL DIRECTORY

The Ottawa ARC has published the 1986 edition of the National Capital Region Directory of Amateur radio club members. A most useful and handy directory.

For Fast QSO's

# IC-735

**New ideas are a natural part of progress. No one is more aware of that fact than ICOM. We introduced fully solid state transceivers when others were still in the throes of vacuum tubes. Independent dual VFO's and tunable memories are two other ICOM innovations.**

Whether you're interested in trying new areas, operating casually, or multi-multi contesting, we're ready to serve your needs with today's top quality gear...and we stand behind every unit after the sale. As we've learned through conversations with individuals around the country, however, new products can't be fully understood in a single advertisement. This page is intended to bridge that void and pique your creative thinking.

Our new ICOM IC-735 HF transceiver with general coverage receiver is, in our opinion, today's best features-per-dollar value in amateur radio. It's the ideal "no compromise" unit for experts or newcomers and its compact size is equally suited for home, mobile, or portable installations. Its trim cabinet design results from using a wide internal heat sink and a long horizontally mounted squirrel cage blower which provides quiet cooling and long term reliability. Other special features include a transmitted audio control which mates the unit and microphone to one's voice characteristics for

superb sounding SSB, full break-in with optional narrowband filters and internal electronic keyer for top CW performance. Up front, there are dual VFO's and 12 memories that store both frequency and mode data.

How do you use 12 memories when there are only eight HF bands available at the present time? That depends, naturally, on personal preferences. You can casually operate with pushbutton ease, make it sing like a nimble sports car, or mix those capabilities. Suppose, for example, we store favorite operating frequencies in memories 5 through 12 and use memories 1 through 4 for a competing edge in weekend contests. We'll begin a morning's operation on 20 and 40 meters with VFO "A" on 7.150MHz and VFO "B" on 14.155MHz. Tuning VFO "B," a slightly weak FK8 is heard working a KL7 on 14.162MHz. If we sit and wait for the QSO's end, we could miss more or better DX, or become involved in a massive pileup. The FK's frequency is thus stored in memory 1 and tuning continues. A 3D2 is spotted calling CQ on 14.195MHz, and a memory 1 recheck shows the FK8 still in QSO. We call, but the 3D2 returns to a VK4. We store his frequency in memory 2, then switch operation to VFO "A." A VK7 is spotted chatting on 7.158MHz, and placed in memory 3. Further tuning reveals a JA2 on

7.180MHz. Meanwhile, the memory 1-rechecked FK8 begins signing on 14.162MHz. We call and successfully contact the FK8, then as the QSO ends we recheck memory 2, 3, and VFO "A." The JA is contacted next, but we've still had time to tune 15 meters with memory 10, shift a spotted DX station directly to VFO "B," and continue the pursuit. Within a few minutes time, we've contacted several exciting amateurs while others are patiently awaiting their chance in a single frequency QSO.

With slight changes, our previous example can be applied to emergency, newsworthy, or net-type operations. The flexibility of our solid state/broadband and microprocessor controlled designs are endless.

While the previous features are enticing and inspiring, they are meaningless if a unit becomes unexpectedly damaged or inoperative. That's why we're striving for the fastest and most effective service policy in the industry: service centers nationwide plus a main office "turn around time" not exceeding three working days as standard operating procedure. We understand your investment in amateur gear, we recognize the valuable service you provide to society, and we're devoted to serving your needs. After all, isn't that the main difference between a basic importer and a dedicated manufacturer?

## New IC-735 Accessories



**ICOM SM-10**  
Compressor/Graphic Equalizer  
Desk Top Microphone



**ICOM AH-2**  
Automatic Antenna Tuner,  
All HF Bands

# YL News & Views

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

Marion Murdoch kept a secret for 40 years.

When people asked her about the work she did during the Second World War the former Wren would refuse to discuss it.

"I was in one of the most secret stations in New Zealand," she would tell them mysteriously.

"I can't tell you what I did."

The mystery ended just over two years ago when Murdoch got a letter from the Ministry of Defence releasing her from her oath of secrecy.

For the first time she was free to tell about the extraordinary 18 months she and seven other women spent monitoring the movements of enemy ships.

It all started one day in March, 1943. Marion Pitt (Murdoch is her married name) was 24 years old, and feeling rather dazed as she rattled through the Blenheim countryside in a van on the way to her first military assignment.

"I was bewildered. I didn't know where we were going and I had no idea about what I was letting myself in for."

Near the tiny township of Rapaura the van pulled up at a wooden farmhouse surrounded by a two metre high barbed-wired fence. An armed guard questioned them at the gate, then let them past.

Marion Pitt's next impression was of a "group of giggling girls."

"They were all peering at me, trying to see what had come to join them."

The giggling girls were actually young women in their early 20s, who had been handpicked to man the Navy's top-secret new venture—a radio finger-printing station.

Marion Pitt was the last to join the eight-member team.

Soon after her arrival she was ushered into a workroom lined with sophisticated radio equipment and shown how the system worked.

Four of the women were to work as radio operators; the other four (including Marion) as classifiers.

The operators listened into a special radio receiver that incorporated a cathode ray tube and gave a continuous picture of the morse dots and dashes sent by Japanese wireless operators in naval bases and ships.

The display was photographed and the classifiers examined the film minutely to work out who was sending each signal.

They came to recognize the 'hand' of some enemy operators and thus

were able to monitor the movement of enemy craft.

"Sometimes it was just the difference of a little wave or click that gave the game away," Murdoch says. "And sometimes we just couldn't work it out at all."

The information they gleaned was passed onto naval headquarters in Wellington via a 'scrambler' telephone.

Often the work was routine. But there were times of intense activity when Japanese submarines cruised close to the New Zealand coast.

"At those times the operators would scream at us to get the film and compare it," Murdoch remembers.

"We'd work like mad to get the information rung through as quickly as possible."

In between shifts, the eight women got on with the business of living together in their secluded farmhouse.

They cleaned, cooked meals, tended the vegetable garden, and picked walnuts and cherries from the trees around the house.

A live-in supervisor kept tabs on their work but the atmosphere was informal.

"It was sort of like a big home," Murdoch says.

Stiff white shirts and blue wool jackets were left hanging in the wardrobes, and the women got round in naval-issue shorts, bell bottoms or overalls.

"We all got on pretty well really," Murdoch recalls. "We'd spend hours chatting about our future, or about boy-friends..."

No visitors were allowed—but the girls often went visiting after finishing work.

Murdoch remembers dances, dinners and days out with officers from nearby Air Force and Army bases.

But as the war progressed their jobs became less important. Fewer enemy boats ventured into the waters around New Zealand—and the shifts at the Rapaura station grew boring.

May 3, 1944, is entered in Murdoch's diary as 'Black Wednesday.' On that day the women got the news that the radio finger-printing station would be closed.

They packed their clothes, sipped farewell sherries with their guards, and cried together.

Then, within a few days, they went their separate ways to new naval postings, with strict instructions to stay mum about their experiences.

And Murdoch is sure that all her

companions did just that—for 40 years.

"None of us would have talked about it... We all had a loyalty."

The eight women never got together again, though four of them joined forces for a memory session at a Wrens reunion five years ago.

Two of the team have now died and others are scattered throughout New Zealand and overseas.

N.Z. Herald

Thanks to A.E. Allen ZL1JQ and Marilyn ZL2BOA—Cathy.

## I NEED HELP!

I'm gathering photographs of mother and daughter YLs. Would appreciate your help! They don't have to be recent or licensed now, and can be from any country. Just put the date, names and calls on a slip to accompany the photo.

I know there are quite a few mother and daughter YL's, and some have several Amateurs in the family.

Thanks. Please send to Cathy Hrischenko VE3GJH, 56 Stockdale Crescent, Richmond Hill, Ont. L4C 3S9.

## INTERNATIONAL NEWS

A method of encoding computer data, claimed to be many thousands of times more secure and half the price of the American DES cryptor industry standard, has been announced.

The Perth, Western Australia, Ran Data Corporation Ltd. launched its EKES cryptor in London recently. Encryption is increasingly used in electronic funds transfer, message transmission, and will play an important part in the new era of home banking.

The DES system employs a 56 bit key. RAN data uses a 32,000 bit key, statistically unbreakable using present technology. —Jim

VK3PC

From AMATEUR RADIO  
(Australia)

## VE1 CALLBOOK

The Halifax ARC is publishing a 1986 VE1 Amateur call book, listing all those licensed in the three Maritime provinces. More from them at P.O. Box 663, Halifax, N.S. B3J 2T3.

May 2-Oct. 13 Visit VE7EXPO at EXPO 86's Canada Pavilion, Vancouver, B.C.



# AMATEUR RADIO IS NO PLACE FOR AMATEURS.

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As with our commercial products, every Larsen amateur antenna features our exclusive high efficiency platings—either Kūlrod® chrome, or Kūlrod T™ Teflon®.

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# •CQ DX•CQ DX•

Paul Cooper VE3JLP  
RR 2 Metcalfe Ont.  
K0A 2P0

Let me start my first column by thanking the editor for giving me the chance to take over this page from Doug Griffith VE3KKB, I am very conscious of the high standards he set. In many ways it will be a hard act to follow but I shall do my best to maintain these standards and keep you, the readers, interested and informed.

Ever since I was first asked to write this section of *TCA* I've been giving a great deal of thought to how the column should be structured. Those of you who read a number of Amateur publications will already know that each DX column has its own style and approach. Most of them devote a great deal of space to reports on DX activities now and in the immediate future that will be of interest to DXers. Since I think most readers want to pick up tips that will help them increase their countries worked total, this emphasis on the future makes sense to me.

Many columns also use space for other aspects of the challenge of DX. To be an effective operator we need an efficient station, good knowledge of propagation, information on DX nets, news of the operating habits of rare stations and so on. Most writers deal with these and other similar subjects from time to time, helping to make their columns more useful and readable.

A few columns seem to favour, from time to time, lengthy, rather folksy dialogues between the author, who usually assumes the role of 'DX sage,' and a visitor to his shack who is sometimes a new ham, sometimes an old-timer. The visitor is puzzled or depressed by some aspect of the hobby and our columnist patiently explains the 'whys and wherefores' of the matter, eventually leaving the visitor and the reader, of course, with a better understanding of the problem.

At least that is the theory. For myself I find these pieces contrived and a bit juvenile. The central messages of one of these stories can usually be stated in a few crisp sentences. When I have points to make in this column I shall present them to you directly. I assume that you prefer your information in a reasonably concentrated form so that you can soon finish reading and get back where you really want to be, in your shack looking for DX!

Before I leave the subject of how the column might be structured, I want to mention one other approach that I do find effective. It's best

exemplified by the DX column in the British periodical *Short Wave Magazine* which is written by G3KFE. The emphasis here is on what has been heard and worked recently by a number of keen DXers who pass extracts of their logs on to the editor.

Reading this column, one quickly builds up a picture of the operating possibilities of various bands— from the UK of course— during the last month or so. Inevitably you compare these reports with your own efforts over the same period. "Why didn't I hear that 9M6 on forty that everyone else seems to have worked?" you ask.

I like this approach and if there is sufficient interest I might try a small section along these lines to see how readers like it. For the time being, however, I intend to use my predecessor's layout.

## BAND CONDITIONS

Being first licensed in 1977 I have never operated through a complete

sun spot cycle so I am watching the declining sun spot numbers apprehensively. However despite the overall trend there seem to be lots of openings on 20m and plenty of opportunity to work DX, it just takes more patience now.

The present cycle, number 21, is expected to bottom out sometime this Fall when the sun spot number may sag to 7. Currently the experts are using a figure of 11 for forecasts for the period March-April. Contrast this with the peak figure of 165 reached in December 1979.

On a more optimistic note we are now approaching the Spring equinoctial period which runs from the end of February to early May. During this time ionospheric conditions in the Northern and Southern hemispheres are somewhat similar resulting in some good openings on the longer DX paths between the two hemispheres. On occasions you should find improved

## New DX Editor Paul Cooper VE3JLP

Paul tells us that he has been licensed for nine years but his interest in Amateur radio goes back to his school days in the UK, just after World War II. Army cadet training in signals sparked his interest in HF communications and he soon became an avid SWL. His first receiver was a home brew O-V-1 (how many readers know what that means?), and he soon discovered the Amateur bands, spending many hours listening to U.S. military personnel working back to the States with their BC610s and Hammerlund Super-pro receivers.

Moving to Canada, raising a family and getting established on his farm kept Paul too busy to take the plunge and get his ticket until his son Bob, now VE3JLQ, started getting interested in CB. Fortunately reason prevailed and the two Coopers ended up taking the general course at a local community college and in August 1977 they were on the air using a Tempo One (FT-200) and a long wire on 80 metre CW.

Since then the station has matured and now consists of a TS-830 feeding a TH-6, currently at 45 feet but soon to be raised to 70 feet.

Now that Paul has retired from the Federal Government and is farming full time he has more time, at certain seasons of the year anyway, to spend on the hobby. Plans call for better antennas for the LF bands and ultimately a rhombic pointed toward SE Asia to winkle out those hard to work countries in that part of the world.

Operating mostly on CW, Paul occasionally shifts to phone to experience the delights of exchanging information at normal talking speeds instead of his usual 20 wpm crawl! From the beginning the emphasis has been on working DX so a great deal of time is spent listening before a station is selected for a QSO. Paul is the first to admit, however, that there are limits to his enthusiasm when it comes to snaring a new country. He tells us that he has rarely spent more than an hour in a pile up, no matter how unusual the DX station. The VE3JLP TS830 runs barefoot and while it puts out a respectable signal it is no match for the big guns South of the border. In consequence, his DXCC total now stands at about 230 and Paul does not expect to reach the Honour roll for a few years yet!



propagation between Canada and South America, South Africa and Antarctica on the HF bands.

In general, DX possibilities during daylight hours will be best on 20 metres but look for 15 and even 10 to open occasionally. During the early evenings, as the MUF drops, 20 and 40 will be your best bets. Overnight and through until sunrise 40 and 80 should be open.

It's worth mentioning that this is the time to look for openings on 160 metres. I suggest you check the detailed propagation charts, like those excellent tables that W3ASK published in *CQ Magazine*, for possible openings to various parts of the world. A snag with this band, however, will be rising levels of QRN.

#### FORUMS AND CONVENTIONS

One of the nicest ways of finding out what is going on in the world of DX is to attend a major gathering of other enthusiasts. Two of these are coming up shortly and I can recommend both of them, one from personal experience and the other from its long reputation.

For those of you who live in the East and Central parts of the country the place to head for is Dayton, Ohio, for the weekend of April 25-27. The Hamvention there needs no introduction to most readers, I'm sure, but from this column's point of view

I'm reminding you that there is a well organized DX Forum which is not only informative but also fun to attend. Readers in Western Canada might consider a trip down to California to attend the International DX Convention at Visalia on the weekend of April 18-20. This convention, now in its 37th year, is hosted by the Southern California DX Club and details are available from Don Bostrom N6IC.

If you are wondering where Visalia is, it turns out to be a small town about midway between San Francisco and LA close to the Sequoia National Park which is in the Sierra Nevada mountains. This particular convention looked so attractive that my wife and I have arranged to attend as part of a family trip to the West coast. Watch this column for a special report on the proceedings!

#### BITS & PIECES

Over the mid-winter period consistently good conditions have been experienced on the path from Eastern Canada to Africa. The 20 metre beacon, ZS6BN/B, on 14.0996 MHz has been invaluable in confirming this opening. During the time slot 1800 to 2000UTC the following stations have been heard or worked from my QTH:-

**5H3, Tanzania**— 5H3ZR on 14.006 MHz, QSLs to OH6IQ. 5H3HM on 14.124 MHz, Keith is a Canadian from Saskatchewan looking for VE contacts.

**3D6, Swaziland**— 3D6BU on 14.156 MHz, QSL direct to Box 64, Manzini, 3D6QL on CW with QSLs to the YASME foundation(?).

**A2, Botswana**— A22DP, Dale usually works SSB and QSLs should go to W7GRV. A25/W6KG was Lloyd and Iris Colvin on their latest grand tour, QSLs to the YASME foundation. A22TJ, Jerold, is another SSB operator, QSLs should go direct to his call book address in Gaborone.

**TZ, Mali**— TZ6FS on 14.155 MHz, QSLs to DL4BC.

**6W, Senegal**— 6W1HH on 14.146 MHz, QSLs to DL1HH, 6W1OQ on 14.136 MHz.

**9Q, Zaire**— 9Q5MA on 14.236 MHz, QSLs to PAOGAM.

**5N, Nigeria**— 5N8ZHN, Hassan in Kano is usually on SSB.

**5X, Uganda**— 5X5GK, Jerry is normally on SSB looking for VE contacts. His QSL manager is DJ5RT. Jerry is running a medical clinic on an island in Lake Victoria. The July 1980 *National Geographic Magazine* has an interesting article on his first visit to Uganda.

You might like to look out for the following:

**UA1, Franz Josef Land**- RZ1OWA on

14.015MHz at 1140 UTC. UA1PAP on 7.004 MHz at 0000 UTC.

**YA, Afganistan**— 'QRZ DX' reports a rumour of a DXpedition by several Soviet hams that will use the call YAOA (YAOA?). No other information available.

**Pacific Islands**— Ron ZL1AMO will be visiting 4 Pacific islands this Spring. His itinerary looks like this:

**A35EA Tonga**— Feb 23-March 11;

**5W1CW Western Samoa**— March 12-

**15; ZK3RW Tokelau Islands**— March

**17-April 20; 5W1CW Western**

**Samoa**— April 22-26; **ZK1CQ South**

**Cook Islands**— April 27-31.

#### DXAC

The ARRL DX Advisory Committee now has a new Canadian representative, Roland Suran VE3EJ. He takes over from Hal Parsons VE3QA, who has held the position for eight years. Hal's DX activities have now been severely restricted as he has moved from his rural home South of Ottawa into an apartment in the City. I am sure all Canadian DXers will join with me in expressing our thanks to Hal for all the work he has put into the Committee over the years on the sometimes thankless task of deciding whether or not to add some new country to the DXCC list.

My thanks to the following sources for some of the material appearing in this column: *CQ Magazine*, QST, QRZ DX.

#### QSL INFORMATION

Call sign	QSL Via
A35WN	DJ1WN
A35ZH	W6ZH
C3ØBBV	DK7WD
C3ØBBS	DK9FE
C31NP	EA3BNX
FKØAT	Box 2899
	Noumea
FOØLG	K6ANP
JY9CL	G3MUL
JWØA	SP2HMT
	(LA5MN?)
OD5FB	WA2QUA
OE2TWM/YK	OE6URO
T3ØAT	G4GED
VP8AQU	KØJW
VQ9CI	KA4UMB
VR6JR	G3OKQ
ZC4CZ	G4MGQ
ZC4MR	G4SDJ
3D2DX	SM3CXS
3XØHAB	DL8CM
5H3HM	VE5UJ
5T5T0	F6BUM
5X5BBP	DL2BB
9Q5MA	PAØGAM

#### HOT-WATCH

March 12/1986 No. 01

Kenwood TS830S HF, Kenwood TS130S HF, YAESU FT208R Handheld, Yaesu MC40 —MIKE, Daiwa 2030 2N. Linear, KDK 2015-A 2N. FM Cantronics interface, Grey Case Red Led., RCA VCR— VHS. All above gear has ID, SIN. No. 426-451-118, Stolen from house of VE3KSG Ingersoll, Ont.

YAESU 208R Handheld, Ser. No. 4E382322. New rig lost in the mail. Rig of VE3NNQ Sudbury.

Send your list to: Hot-Watch care of Bob Fletcher, 208 Admiral Drive, London, Ont. N5V 1H8 Ph-1-519-455-9547.

#### BURNABY AUCTION

The 1st annual Burnaby Amateur Radio Club 'Auction' was successfully held on Sunday, Feb. 2. Club President Lou Beaubien VE7CGE and his helpers managed to sell everything from old tubes to the latest in CW filter and Morse code trainers to a crowd of enthusiastic lower mainland hams. This popular event ought to be around for some time to come.



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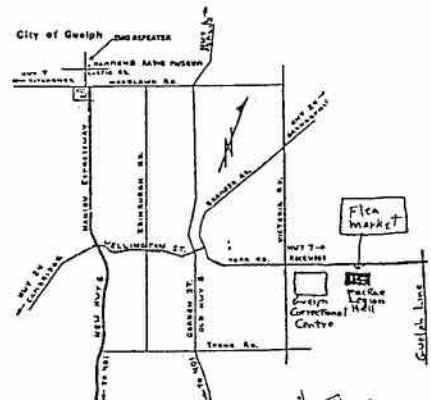
\* REFRESHMENT CONCESSION \*

\* DOOR PRIZES DRAWN THROUGHOUT THE DAY \*

FOR FURTHER INFORMATION CONTACT

Paul Modray, VE3CHM	-	519-579-3057	Kitchener
Andy MacIntosh, VE3AOH	-	519-884-8212	Waterloo
Greg Hollinger, VE3NXB	-	519-886-8569	Waterloo
Eric Enns, VE3BB	-	519-885-5216	Waterloo

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## From the Clubs...

Hoyt Golding VE1BRJ writes that the Loyalist City ARC of Saint John, NB, was actively involved providing two-metre communications for the Cycling Venue of the Canada Summer Games in August, 1985.

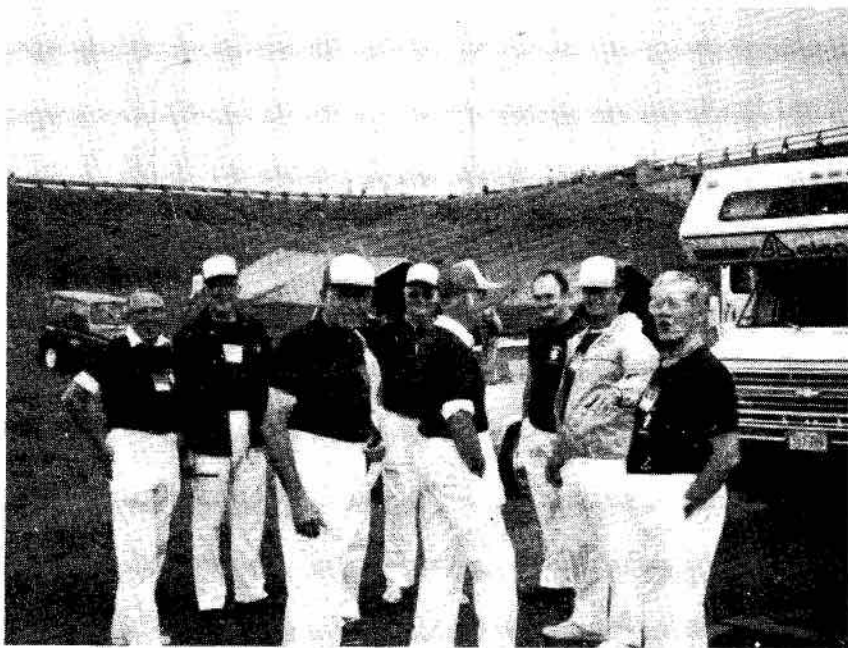
Preparations started months in advance with coordinators Del VE1RN, Murray VE1EE and Malcolm VE1IZ busy lining up volunteers and equipment, attending meetings with Canada Games officials and viewing films on cycling events designed to prepare and train the volunteers.

Despite a rather ominous looking day, the men's and women's time trials took place on Aug. 20 on a closed portion of a four-lane highway on the western outskirts of Saint John. Looking splendid in their blue and white summer games uniforms, club members stationed along the route radioed team positions and times to Bob VE1EY, who relayed the information to the public address announcer to add excitement for the crowd gathered at the finish line.

Thankfully, although one cyclist did fall while rounding the marker at the halfway point, no injuries occurred and communications went smoothly using two simplex frequencies and repeater VE1KI.

The highlight of the week was the men's and ladies' road races on Friday, Aug. 23. An 8-km route along the scenic Kennebecasis River in the western area of the city provided a beautiful background for the colourful cycling team from all provinces across Canada. Again the volunteer radio Amateurs proved their worth by providing officials at the finish line with up-to-the-minute information on the racers' positions and times.

Three brave hams, Ken VE1CQ, Dick VE1QE and Larry VE1AIO, crammed themselves into tiny spaces



Amateurs awaiting the start of the Cycling Time Trials, Canada Summer Games, Saint John, NB, Aug. 20, 1985 Left to right: VE1IZ, VE1EE, VE1FN, VE1EY, VE1RN, VE1CKY, VE1VW and VE1GQ.

on the service trucks which sped around the course carrying spare wheels for the cyclists. Two other club members, Mac VE1VW and Archie VE1FN, drove their mobile equipped vehicles carrying race officials continuously around the course checking for race violations and mishaps, etc. VE1FN was seen from time to time speeding by in his white car at breathtaking speed catching up with groups of competitors.

For this event, three simplex frequencies were used: one for the race itself; a second for the Commissioner's link from the chase cars to the base station at the finish line, and a third for emergencies from the chase cars to the nearby regional

hospital where VE1IZ was standing by.

Everything went well, with some cyclists experiencing the thrill of victory, others the agony of defeat. Allen Large, Race Commissioner, thanked the Loyalist City Amateur Radio Club, Inc. for its fine efforts and all agreed that the experience was very worthwhile. The 19 individuals involved were among close to 5,000 who volunteered their time to make the Canada Summer Games a success.

Those who participated were VE1's GQ, VW, EE, IZ, RN, BQE, EY, QE, BRJ, AIO, XG, BHB, CJ, CGI, BCT, SI, CKY, FN and CQ.

Hoyt adds in closing that enthusiasm is building in Saint John. Next year, 1987, marks the 50th anniversary of the founding of the Loyalist City ARC, and he invites all to listen for the club on the air.

I also received a short note recently from Noel Funge, ex-VE4CF. Noel was the CARF Club Representative for the Amateur Radio League of Manitoba until he moved to Victoria, Australia. He now has the call VK3DZE and would like to hear from his VE friends.

Incidentally, I have not heard yet from the ARLM as to who will be the new club rep, so I would appreciate the info as soon as possible. 73 for now

### NASA Needs You!

Want to participate in a geostationary satellite transponder experiment? NASA is looking for Amateur radio operators that wish to access a bird that will be orbited 22,500 miles above the earth in 1989. Experimenters will be given two years' free access. Earth stations will require 10 foot dishes. (28-30 GHz uplink, 18-20 GHz downlink.) NASA has invited interested parties to submit an 'expression of intent' to conduct an experiment.

Contact is Ron Schertler at NASA (Cleveland), phone: (216) 433-4000, extension 792. He has a brochure available. Possibility is for some Amateur group to satellite broadcast communications nationwide? Anyone interested? Business band (L and Mobile) satellite operation is expected to become a reality within a few years.

—WORLD RADIO

# CONTEST SCENE

John Connor VE1BHA  
18 Deerfield Dr., Apt. 1112,  
Nepean, Ont. K2G 4L2

We have results from two contests to discuss this month, the IARU Radiosport and the CQ WPX SSB Contest.

The Radiosport Contest is definitely suffering from a lack of sunspots, as shown both by the scores and the number of entries. Last year, only one Canadian entered in the mixed mode category, and therefore the prize for that class goes to VE4QST. The CW only category proved to be popular and VE3KP took the honours there with a good score of 141k, almost 100k ahead of the second place finisher, VE7UBC.

There may have been fewer entries in the phone only category, but there was more competition, with only 50,000 points separating the top three entrants. First place was taken by XJ3XN with 165k. Second and third places went to VE3CPU and XJ1CBF with 111k and 106k.

It is interesting to note that no records have been set in Canada in this contest since 1980. It seems likely that we will have to wait a few years yet before any of those records are broken.

The other contest that we have results for this month is the WPX SSB Contest. Canadian operators have a lot to be proud of in this contest, having turned in no less than ten world class scores last year.

In the single operator all band battle, three Canadians finished in the top ten world wide, led by Jim CG3IY who came in fifth with his 4.4M point score.

Not far behind was CG5RA with 3.75M, good for seventh in the world. Third in Canada, tenth world wide was Dave VE2ZP at CG3CRG. Rounding out the single operator competition was CG3XN with 2.9 million points which was the number 12 score in the world.

Nobody entered a score on either 10 or 15 metres. Granted conditions were not good, but they weren't completely nonexistent either. Just think, if you had worked one American on ten and sent in your score you could have won!

The top Canadian on 20 metres was VE7IN, with his 1.3M score, followed by CG7EIK with 654 thousand points.

## FORTY METRES

Meanwhile on 40 metres Max VF1CV and Yuri CZ3BMV continue their slugfest of the past couple of years. Max beat the old world record, finished with four more QSOs and one more multiplier than Yuri... and still came in second. Now that has to hurt!

Yuri still managed to edge Max out by 13,314 points by virtue of a higher average point value. This despite VF1CV's supposed geographical advantage. At any rate, Max still gets a trophy this year for his efforts. Yuri will simply have to settle for the world record score on 40 metres, and the trophy that goes along with that. Congratulations are certainly in order for both these gentlemen. Well done!

The other Canucks weren't exactly doing too badly on the other low bands either. On 80 metres, CZ3XO came up with the number two score in the world, setting new Canadian and North American records in the process. He worked nearly a thousand people en route to 1.3 million points.

On 160M, CG3MFA established a new world mark with 319k. VE3OME

## 1985 WPX SSB CONTEST CANADIAN RESULTS

CATEGORY	CALL	SCORE	QSOs	MULTS
Single Op. All Band	CG3IY	4,427,293	2192	661
	CG5RA	3,750,521	2295	619
	CG3CRG	3,009,270	1616	605
Band	(Op. VE2ZP)			
	CG3EIK	2,937,504	1694	592
	CG677	918,691	1045	401
	VF1CV	752,775	327	352
	VF1CV	644,654	772	374
	CG1KX	422,094	425	273
	CG7EIK	402,306	216	203
	VE3OME	153,058	225	192
	VE1WJ	111,074	200	138
	CG3DKX	50,461	138	117
	VE5BQ	17,490	78	66
14 MHz	VE7IN	1,355,790	1274	470
	CG7EIK	654,075	816	323
	CZ3EBC	300,428	445	236
	VE7FNC	96,269	219	164
	CG4JCN	88,506	233	149
	VE2ZPU	30,300	113	100
	CG7CIN	27,648	138	96
	VE3E7	22,848	100	84
	VE5VY	12,740	75	70
	VE2HAR	420	18	10
7 MHz	CG3EIV	3,397,962	1386	521
	VF1CV	3,384,643	1390	522
5.8 MHz	CZ3XO	1,329,840	926	360
1.8 MHz	CG5MFA	319,140	522	162
	VE3OME	162,793	355	129
2S	CG4JLC	3,108,191	2071	551
	CG7EBC	1,097,623	1014	558
15I	VE7ZZZ	4,149,423	2423	556

## 1985 RADIOSPORT CONTEST CANADIAN RESULTS

CATEGORY	CALL	SCORE	QSOs	MULTS
MIXED	VE4*ST	3,294	109	32
CW ONLY	VE3KP	141,848	732	56
	VE7UBC	44,430	350	40
	VE4JCN	39,331	335	37
	XJ1CX	32,593	364	29
	VE3KRE	27,956	309	29
	VE3DMU	19,576	220	27
	VE1BEI	16,094	127	26
	VE6ADK	11,818	132	19
	VE5BAP	11,796	144	22
	VE5AAD	5,475	119	15
PHONE ONLY	XJ3XN	165,850	809	62
	VE3CPU	111,012	580	58
	XJ1CBF	106,128	468	66
	VE3JAV	35,485	321	35
	VE4CCC	28,900	257	36
	VE7KYL	2,333	57	14

managed a third world high score on the same band with his 162k effort.

In the multi operator arena, CG4ALO was the top Canadian multi-single, amassing just over three million points. In the multi-multi category, VE7ZZZ rolled up just over four million, good for the number 11 spot in the world.

All in all, I would say it was a very good contest for the VE (or should that be CG?) contingent. Let's hope that everyone does as well this year. As always, I will encourage you to let me know early how you did, so that we can get some results into print.

## ARRL 86

As I write this, the 1986 ARRL Contest has just wrapped up. Conditions on the low bands were good, with 80M attracting a lot of competition. Ten and 15, on the other hand, were not so good. We won't even mention 20. Twenty metres during a sunspot minimum is not a place for the faint of heart. Anyone have any scores to contribute?

Enjoy the nice spring weather, do some antenna work in preparation for the fall contest season. See you next month.

## COVER PHOTO

*What stamina these contesters have! Sylvain, Rene and Norm look good as new after 24 hours at the Canada Contest 1985. (They credit cola and black coffee.) That's the TS-820s, second station, on 80 m.*

## CARF THANKS OUTSTANDING AMATEURS

Bard Abbott VE7FNI, Robert (Bob) Moore VE3AVU, Dave Barnett VE3LJV, Don Smith VE3IUQ, Jim F. Munsey VE6BKW, John Marles VE6BIW, Rick Lyon VE6BLQ, Art Kloc VE6BOE, George Spencer VE6AW, Bill Gillespie VE6ABC, Glen Anderson VE3JAU, Joe Fertich VE7BPN, Dan Dunlop VE7CRY, Doug Holmes VE3CWO, Barry Ripley VE1BYD, George F. Richard VE1IJ, Walter D. Jones VE1AMR, Larry B. Strong VE1BRN, Reed T. Park VE1NU, Dave Kimpton VE3AVS, Bill Wainio VE3LMV, John Visser VE3HTM, Ian Dorfman VE3LMN, Art Mior VE3LMG, Les Brown VE3JAJ, Skip Wright VE3BBS, Mike Nawrocki VE3ZG, Ed Kucbel VE3KRP, Tom Stephenson VE3MOP, Dave Campbell VE3EGC.



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# Social Events

## S.O.R.T. FLEA MARKET

The Southern Ontario Repeater Team Inc. presents their fifth annual flea market and packet symposium on Sunday, May 25 at Medway High School, Arva, Ontario.

Doors open 9 a.m., Vendors 8 a.m. Admission \$2.00, tables \$3.00. 50/50 draw, packet radio demonstration, talk-in VE3SUE 449.4/444.4, VE3TTT 147.78/18. Featuring Pete Eaton VB9FCW, executive vice-president T.A.P.R.

## KINGSTON ARC FLEA MARKET

Kingston Amateur Radio Club announces their 2nd Annual Radio and Electronics Flea Market, Saturday Sept. 27, 1986, at St. Margaret's United Church, 690 Sir John A. McDonald Blvd. Kingston. Registration of tables: call or write Bernie Burdsall VE3NB, 91 King Street E, Kingston, Ont. K7L2Z8. 613-544-4438. Table fees: small \$5, large \$10, Dealers \$20, General Admission: \$1.

## BRANTFORD ARC FLEA MARKET

The Brantford ARC will hold its flea market at Woodman Park Community Centre, 491 Grey St. Brantford, on Saturday Aug. 16 1986 from 8 a.m. to 2 p.m. (Vendors 7 a.m. to 3 p.m., \$3 per table). Admission \$2. Refreshments, door prizes, auction. Talking in 146.520 simplex, 147.150/750 VE7TCR. Call Gary VE3MWL 519-759-3354 or write Box 512, Brantford, Ontario.

## MAPLE RIDGE HAMFEST

The Maple Ridge Amateur Radio Club will hold its annual popular 'Hamfest' July 12 and 13 at St. Patrick's Centre in the Fraser Valley community. Those interested should contact hamfest chairman Peter VE7FY. This active club holds on-air meetings every Sunday at 8 p.m. on 146.80 MHz (down 600 kHz).

## C.A.R.L. PICNIC

Alberta (Red Deer) June 20-21-22. Central Alberta Radio League Picnic will be held at the Benalto Fair Grounds. \$15 registration fee includes Family Camping, Activities, Draws and Sunday Breakfast. Sat. night Beef Barbeque \$5. Talk-in on 146.52 or 147.00 down split. For information contact Clarence VE6BHR at 2 Odstone Green, Red Deer, AB T4N 5J1. Phone 347-5708.

## NANAIMO HAMFEST

Announcing: HAM HAPPENING 86, Nanaimo, Vancouver Island. Sept. 6/7, 1986. A new location for Vancouver Island's Annual Hamfest.

Many new ideas... new formats. An invitation to all Amateurs on Vancouver Island and the Mainland to gather in Nanaimo on Sept. 6 and 7, 1986.

Program: Saturday evening. Pot Luck Dinner and Beer Garden, Sunday 10 a.m. to 3 p.m. Seminars, Flea Market, Auction, Equipment Displays and Demonstrations.

## INTERNATIONAL PEACE GARDEN HAMFEST AND COMPUTERFEST

North Dakota-Manitoba (Dunseith, ND) July 12-13: The 23rd International Hamfest and Computerfest will be held July 12-13 at the International Peace Garden between Dunseith, ND, and Boissevain, Man. Activities include transmitter hunts, mobile judging, and CW contest. Lots of activities for kids and non-hams. Excellent camping facilities. Motels within 30 minutes. Free space for vendors and flea market. Talk-in on 52 simplex. 146.25/85. For more information, write MARA, Box 54, Minot, ND 58702 or VE4XN-TREAS-25-Queens Crescent, Brandon, Manitoba, Canada R7B 1G1.

## FLY HILLS REPEATER

NORAC, the North Okanagan Radio Amateur Club at Vernon, reports that the Fly Hills repeater (146.16/146.76) is now in operation. The club is looking for donations to purchase an autopatch.

## CALENDAR

May 2-Oct. 13: Visit VE7EXPO at Expo 86's Canada Pavilion, Vancouver, B.C.

May 21: Applications for DOC licence examination.

May 25: S.O.R.T. Fleamarket, Arva, Ontario. Details this issue.

May 25: Quebec Provincial Hamfest. Details April issue.

May 30: Fifth annual Halifax-Dartmouth flea market. Details April issue.

June 17: Annual Old Timer's Reunion, Orillia, Ont. Details April issue.

June 18: DOC licence examination.

June 20-22: Central Alberta Radio League picnic, Red Deer, Alberta. Details this issue.

July 12-13: International hamfest Boissevain, Man.-Dunseith, N.D. Details this issue.

July 12-13: Maple Ridge ARC Hamfest, Maple Ridge, B.C.

August 16: Brantford ARC flea market, Brantford, Ont. Details May TCA.

Sept. 6-7: Nanaimo ARC annual Hamfest, Nanaimo, B.C. Details May issue.

Sept. 17: Applications for DOC licence examination.

Sept. 27: Kingston ARC Flea Market. Details May issue.

Oct. 15: DOC licence examination.

Oct. 19-20: Jamboree on the Air, Scouts Canada.

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

## Items of Interest

• VE7EXPO is pleased to QSO and assist you wherever possible (see the pull-out for contact frequencies).

• B.C. Public Service Net invites you to check-in daily on 3729 KHZ at 5:30 p.m. Most B.C. localities are available for traffic and assistance.

• Trans-Canada Net on 14.140 MHz Saturdays and Sundays at 18:00 UTC will be pleased to assist with traffic and enquiries.

• Morning show on 147.26 MHz +600 Monday to Friday at 7:30 a.m. is there for the early risers who might want to chat with the gang going to work.

• YL's can meet the local gals on the Wednesday 'Get Together' on 146.84 MHz -600 at 2 p.m.

• CARF features VE7EXPO as a special bonus print station for the

July 1-8 'Canada Day Contest.'

• The Surrey ARC invites you to visit them on ARRL Field Day, June 28-29, at McKee Peak near Abbotsford B.C. (45 minutes east of Vancouver). Contact through the club rep at 534-6466.

• The Maple Ridge ARC invite you to their annual popular 'Hamfest' July 12-13 (30 miles east of Vancouver). Contact on 146.80 MHz -600.

• If your visiting the 'Island' Sept 7, be sure to take in the Vancouver Island Ham Happening 86 sponsored by the Nanaimo Amateur Radio Association this year.

So, come on out to Canada's 'Lotus Land' this summer to enjoy and to relax. We'd love to see you! QSY and Eyeball at Expo 86

## Towards an All-Digital Receiver

BY BILL DE CARLE VE3OBE

Tremendous strides have been made to upgrade receivers used in Amateur radio. Sensitivity, dynamic range, selectivity and frequency stability have all shown remarkable improvements over the years. Nevertheless, a sense is beginning to develop that this current technology's performance is approaching its limits. To make significant gains in future receivers a radical departure from conventional design approaches will be needed.

Receivers have traditionally used analog circuits to process analog signals. The main building blocks are mixers, amplifiers and sharp, narrow filters. An analog signal is essentially a time-varying voltage that represents some other continuous quantity, for instance the human voice. Varying between certain limits, this analog voltage can take on any instantaneous value. But the components used in analog circuitry are not perfect. Aside from the resistive and dielectric losses, all components generate some amount of noise which adds to and distorts the feeble radio signal we want to recover.

It is a sad fact that any signal reaching the antenna gets contaminated and garbled before it reaches the listener. What comes out is not an exact replica of what went in. A strong signal emerges from the receiver almost unscathed, but a weak signal can easily be lost due to distortion and additive noise generated by circuits in the receiver itself.

### A PERFECT MEMORY

There is at least one branch of electronics where a kind of perfection can be achieved. Take our home computer. If you store a number in its electronic memory, you can come back 20 years later (assuming the power has not been turned off) and retrieve that same number exactly. Absolutely no degradation of information will have occurred. It is interesting to think about why this is so, and see if there is something here we can exploit to design a better receiver.

To be sure, the circuits of a digital computer generate noise, and lots of it. But this internal noise is never able to alter the data which is stored and handled by the machine. Not even a

little bit. The correct answer always comes out every time. The key to all this is that the circuits in the computer are designed so that the noise they generate is never allowed to corrupt the information which is represented in the machine.

This is possible because the information has been quantized and represented digitally instead of in its original analog form. In contrast to the analog signal, which can take on any value, quantization introduces 'preferred' values. At each stage of processing, a firm output decision is made based on the inputs. The value of the voltage is never really indoubt. The price we must pay for this 'perfection' is that the quantized signals are almost always approximations to the real thing.

However, these approximations can be made as accurate as we choose without incurring any further penalties. Fig. 1 shows block diagram of a simple digital receiver. There will be a certain amount of loss in the antenna, and some noise will be introduced when the signal is quantized by the analog-to-digital converter (ADC). But that's it— once we have the signal digitized, we don't have to lose any more of the information it contains, no matter how much subsequent processing is done on it.

### THE SIMPLEST DIGITAL SIGNAL

In the analog world, the simplest signal is a pure sine wave. Thinking digitally, the simplest signal is one which can take on only two possible values, say 'low' or 'high.' Any analog circuit can have a digital counterpart— for example, a simple digital

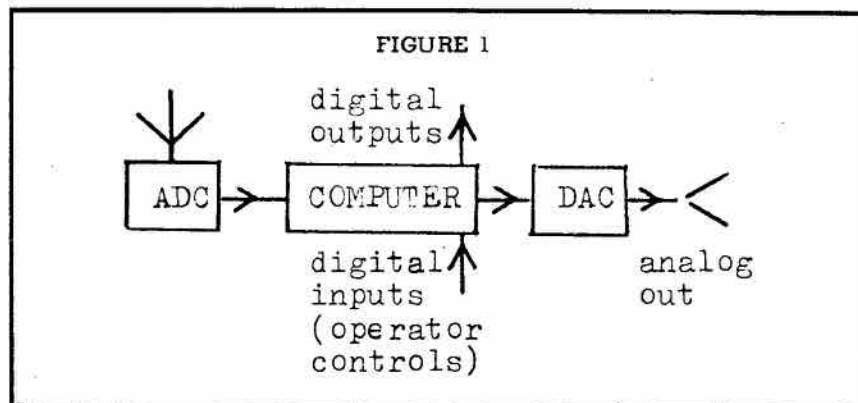
mixer circuit is diagrammed in Fig. 2. The 4013 IC is a flip-flop.

When the local oscillator signal on its clock input goes from low to high, the value of the signal on its DATA input at that instant is latched or saved, and appears at the Q output. The mixing formula is:  $F(if) = f - (m+1)F(lo)$ , where  $F(if)$  is the intermediate frequency,  $f$  is the input (RF) frequency, and  $m$  is the harmonic number of  $F(lo)$  which is nearest (but just below) the input frequency. The output signal at Q will not necessarily be a perfect squarewave. If we want to clean it up, we might use the digital version of a phase-locked-loop (PLL) shown in Fig. 3. To understand how this circuit works, think of U1 (an exclusive-OR gate) as the phase detector, U2 (a 2-input multiplexor) as the VCO, and U3 (a binary counter) as the low-pass loop filter.

If U3 is an 8-stage binary counter, the frequency at its output (Q8) will be  $1/256$  of the frequency at its input (clock) pin. Assume our IF input is about one kilohertz and we want a bandwidth of say 40 hertz— i.e. the loop will lock onto and track any signal within plus or minus 20 hertz of its 1 kHz centre frequency. We choose  $F1 = 250$  kHz, the low VCO frequency, and  $F2 = 260$  kHz, the high VCO frequency. Since this is a digital PLL, our VCO doesn't need to produce a continuously variable output, just either of two possible frequencies.

The multiplexor (U2) selects one of these two VCO frequencies as input to the counter. If only the low frequency is used exclusively, the Q8 output will be at about 1016 Hz. Now, even if we switch between the two input

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frequencies rapidly, it is clear that the counter's output frequency will always be somewhere between these two limits.

U1 compares the counter's output value (high or low) with the input frequency's value (high or low). When the two are the same, we count the 250 kHz clock, when they are different, we count the 260 kHz clock. The output of our PLL (Q8 of U3) will be a relatively clean squarewave at the same frequency as our (noisy) input signal.

Increasing the number of stages in the binary counter (and correspondingly increasing F1, F2) is equivalent to increasing the time constant (reducing the loop bandwidth) of the low-pass filter in the analog version. Notice however, that this loop uses only digital components, no capacitors. These simple circuits work well when we are using only two-valued (binary) digital signals.

### THE DIGITAL 'IF'

A more sophisticated approach to mixing and filtering may be taken when our input signal has been quantized into finer steps. For example, a 10-bit ADC can resolve an input voltage into 1024 discrete values, not just two, and so allows a much better approximation to its true value.

Referring to the diagram of a digital receiver (Fig. 1), let's assume the ADC can convert the instantaneous voltage at the antenna to a digital (numeric) quantity instantaneously. By sampling the incoming waveform at precisely-timed, evenly-spaced intervals, we obtain an intermediate or 'beat' frequency along lines similar to those shown in Fig 2.

This 'intermediate frequency' exists in the form of a series of numbers (each corresponding to the value of the input voltage at a given sampling instant) which are sorted in the computer's memory. If these numbers were printed out and plotted on a sheet of graph paper, a sinewave at the proper frequency would appear.

### AND DIGITAL FILTER

Now we want to replace the SSB or CW filter found in conventional analog receivers. Those old filters are expensive, the skirts aren't nearly steep enough, there is far too much passband ripple and phase distortion, and so on. So why not just invent (in our imaginations at least) the ideal filter to do the job?

We already have the input values (the numbers stored in the computer's memory). Given a set of filter

specifications, it is possible to CALCULATE exactly what the output of such a hypothetical filter would be in response to our stored input signal, even if our filter specs are so tough to meet no-one could ever build one. The point is that if we can calculate what the response of our ideal filter would be, we don't have to actually build the filter physically, just let the computer figure out the series of numbers that would represent the voltage at its output port.

Once we have these numbers, a digital-to-analog converter (DAC) can be used to synthesize that waveform for real. Digital filters can be created in any of the popular forms—elliptic, Chebyshev, Butterworth and so on, with characteristics made to order. Highpass, lowpass, bandpass and notch filters can all be easily realized.

As a practical illustration of what can be done, let's take a closer look at a FIR (finite impulse response) low-pass digital filter. The FIR algorithm is very simple. It works by going back in time over the last 'n' sampled values, multiplying each value by a weighting factor or coefficient, then adding up all the products. The resulting sum is the filter's output at that moment in time.

A typical 90-tap filter of this variety (in which the last 90 sampled values are used to compute the filter's output at each step) will have a roll-off of 80 dB per octave, the phase response will be absolutely linear, and the ripple in the passband will be less than 0.025%. Wow. The equivalent (13 pole) analog filter would need many carefully-matched components, would not be very stable over time and temperature, and to make it 'adjustable' would be virtually impossible.

A digital filter has none of these disadvantages. It can be adjusted merely by changing the filter coefficients or the sampling rate and

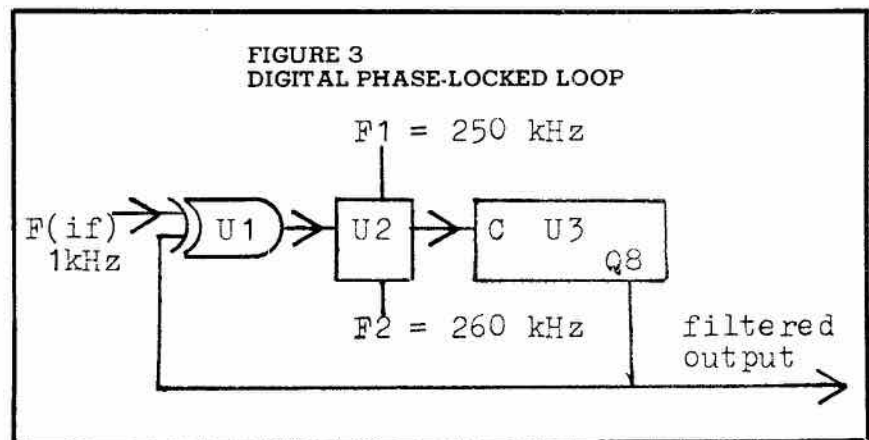
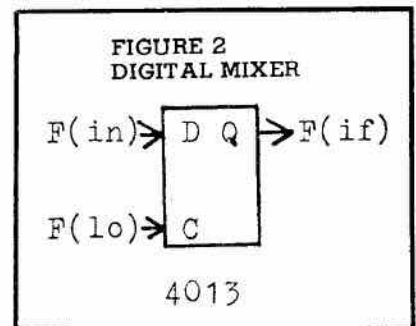
this can even be done while the program is running.

The big hurdle with digital filtering is that it is not so easy to do it in real time. After all, we need the output of our ideal filter now, not ten minutes from now. A lot of multiplications have to be done in the very short time interval between successive samples, so it takes a fast computer.

To get around this, we can go to a lower IF, where the processing can take place at a more leisurely pace. For example, even using today's technology, the FIR filter described above is able to handle input frequencies of up to 50 kHz. Digital IC's are available which can operate well past 30 MHz, so it would be possible to mix down to an IF around 50 kHz and put our filter in at such a point to get that great selectivity.

It would certainly be possible using readily-available cheap components to build an all-digital receiver for the VLF band. I don't think anyone has done it yet, though.

On the bright side, computer performance has improved awesomely over the past few years, and costs are tumbling. The day when an all-digital receiver covering the HF bands can be built at a reasonable cost is not too far off, and the performance we can expect will be nothing short of spectacular. Just look at what digital audio has done in the home entertainment field.



# Your Antenna— Blowing in the Wind

BY VE7TG

The high winds in this area, especially in winter, exert thousands of pounds of 'pinch' on rotor bearings. Great care must be taken with large beam installations, and high towers, in this part of the world. Even with moderate care, flexing can set up an oscillating motion that ends up as thousands of pounds of torque, or bending moment. Very high, hill-top installations may have wind forces applied at odd angles—perhaps updrafts that lift one side of the antenna, multiplying leverage many fold. Here precautions are in order.

The centre of gravity and wind

loading must be centered over the rotor, and not more than 12 inches above it, if any part of the array is more than 10 feet from the rotor. The ball bearing races are only six inches in diameter. Fifty pounds exerted against a ten foot lever will place a TON of pressure against the bearings! Each additional foot of leverage increases the force greatly.

Steps must be taken to eliminate any flexure in the mount and the antenna. Even with moderate breezes, flexing can set up motion that results in thousands of pounds of torque or bending moment. A couple of degrees of 'lost motion' are built into most rotors to act as a vibration dampener,

to take care of moderate swings. A few 'tricks of the trade' will take care of the rest.

The center of gravity and center of wind load force must be as close to the top of the rotor casting as possible. One to three feet is practical, in most installations. If the boom length is eight feet, or greater, and it is to be mounted more than five feet above the rotor, the turning unit should be inside the tower. The antenna support pipe should be 2" OD steel, with 1/4" wall. If spec. ASTM-120 is available, 1 1/2" nominal (1.9" OD) with a spec wall thickness of .145" is OK for small beams; and extra-heavy duty wall thickness .200 for big ones. Reinforce the clamping area by driving a hardwood dowel of the right size into the end of the mast.

Drill through the mast and rotor casting and clamp, using a 5/16" drill, and insert a bolt right through the clamp plate, mast and rotor, and tighten to 150 inch-pounds. Put self tapping screws through the boom clamps, and antenna elements, in appropriate places.

Average towers, properly installed, and carrying normal antennas, are able to absorb the heavy twisting strain when the rotor stops turning. If the antenna is large or heavy, or the tower tall, or lightly constructed, a torsion bar or sway brace should be added, as described in most rotor and antenna manuals. It allows the double guy wires to absorb the shock of stopping, which would otherwise twist the tower on its base.

If you live in a windy area, stick to yagi beams—quads are not for you!

Control units and components for the HAM-M, HAM-II and HAM-III rotors are essentially similar. The Ham II-CD 44 and Ham IV have a wind loading of 7.5 feet. The Tailtwister—15 square feet.

-There are 98 ball bearings in the Ham M, II and III (2 races).

-There are 138 balls in three races in the Tailtwister.

-Rotor mounting bolts in M, II and III are 1/4"—four used.

-Those in the Tailtwister are 5/16"—six used.

-The Tailtwister has a heavier case, mounting & stronger brake casting.

-Most parts of the above are the same, and interchangeable.

## Load up your tower

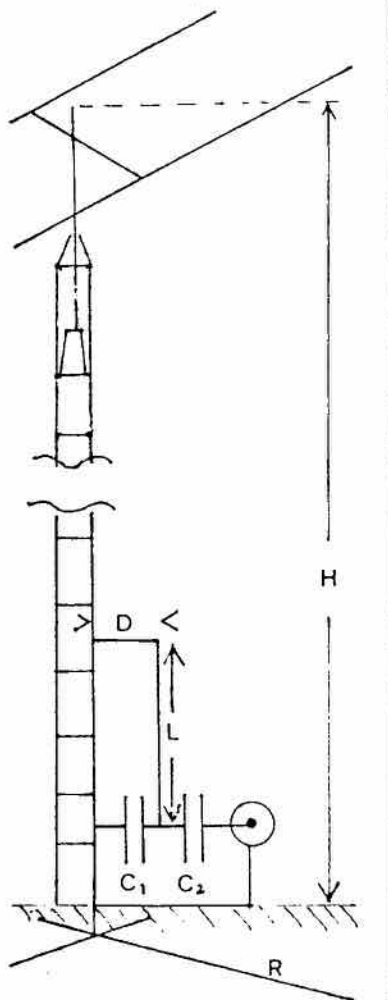
Peter VE3JPP suggests the following system for loading a vertical, in the South Pickering ARC's SPARC-GAP.

For 80-160M 40-80M

H	60 ft	48-50ft
L	12-1/2 ft	10 ft
D	1 ft	1 ft
C1	1460pf (160M)	1095pf (80M)
C2	1095pF 80 M	730 pF (40M)
R	6 at 130 ft	6 at 64 ft
	+6 at 64 ft	+6 at 34 ft

(1 foot = 30.48 cm)

For a multiband vertical, using an antenna tuner, use the above dimensions. No capacitors are needed. Transmission line should be a whole multiple of an electrical half wavelength for the low-frequency band.



## 160 Metres on a City Lot

BY MIKE PRICE VE3NRI

While studying for my first Amateur licence and listening to CW on an old Radio Shack receiver with a long wire, I would sometimes switch on 160 metres and listen to the QSO's in progress. The first thing I noticed about the band was the high static level, but the absence of QRM from the south prompted me to want to get on 160 metres as soon as I could. Little did I know what this would entail on a city-sized lot.

I did not have much room for a long wire, but then, the off centre loaded dipole came out in the ARRL Handbook one night. It looked like it had some promise.

With a final 50% reduction in the physical length, I could fit it on my lot

even though it would be an inverted 'V' configuration.

The final design was obtained by good old trial and error (more error than success) along with some theory from the antenna manuals.

First, I made the coils using the assumption that, since the antenna was to be 50% shorter, then 50% of the wire should be on the coil. I ended up with two coils of 105 turns on a 2-3/8" diameter piece of gray plastic tubing 19" long, XL impedance at 1.850 MHz worked out later to be 980 ohms.

Up the tower they went. They received well but would not load up. Down they came, up they went, and out they came again. Finally, after using a couple hundred feet of wire,

the coils ended up at a distance of 29 feet from the apex with 29 feet of wire in the lower part for tuning.

It worked well for the first contact of 5-9+15 into Michigan, but the SWR was still high, being 3:1 at resonance. Changing the angle at the apex brought it down to 1.5:1 with 40 kHz bandwidth under 3:1. Not that great, but I was on the air!

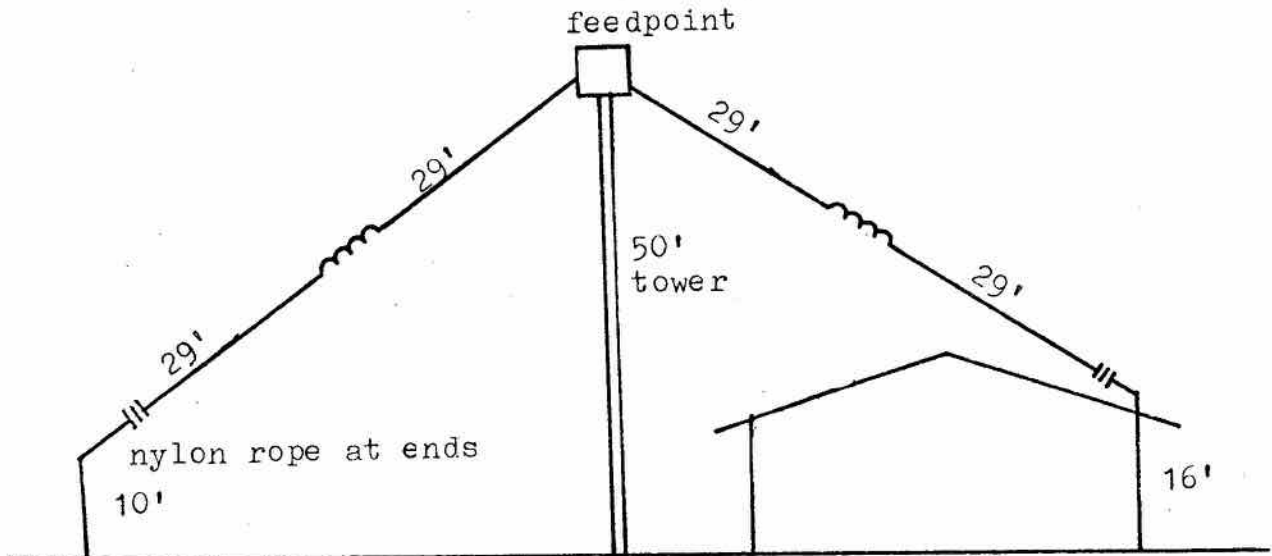
The whole point of this is that 160 metres is a funny band and what will work for one might not for someone else. SWR is greatly affected by the surroundings, i.e. trees, buildings, size of wire, height of antenna and good old Murphy's Law.

—Tnx LARC bulletin

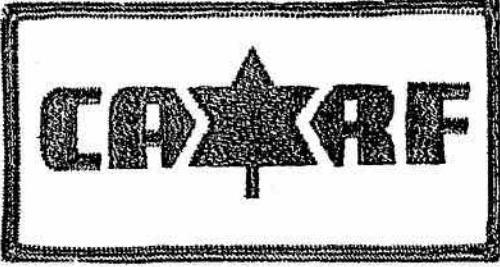
Coils: (two needed) 2-3/8" diameter formers, 20" long, 105 turns No. 14 insulated solid copper wire, (about 65 feet).

Centre insulator 1/2" plastic, about 3"x 5", plastic bored for support, antenna attachment, and centrally for PL-239 coax fitting.

TCA pays competitive rates for technical articles. Send them to the technical editor, Bill Richardson VY1CQ, Site 20, Comp. 63, R.R.1 Whitehorse, Yukon Y1A 4Z6.



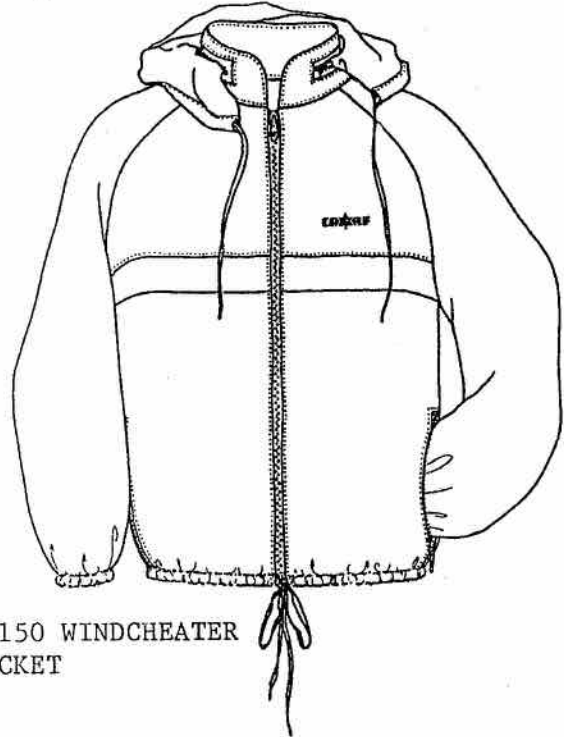




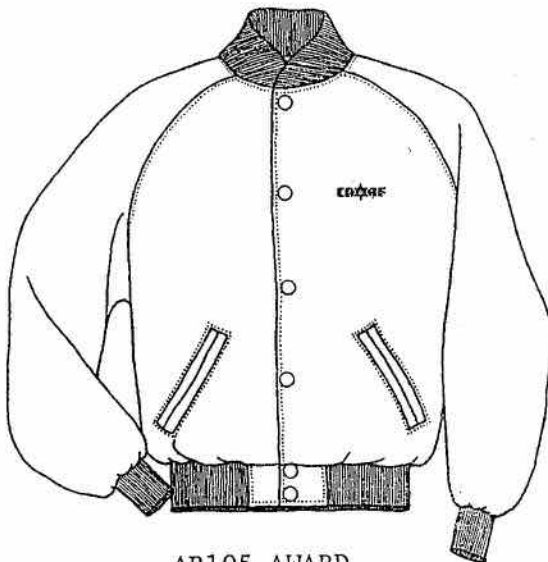
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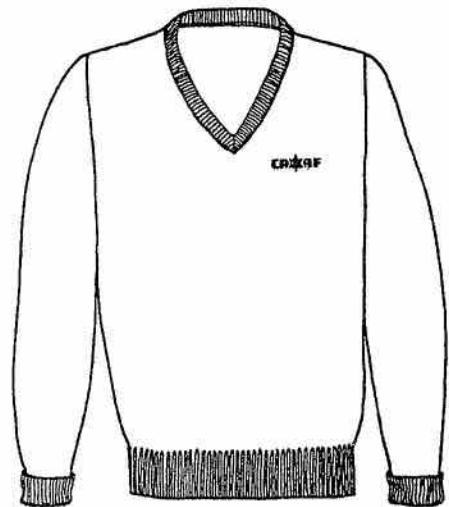
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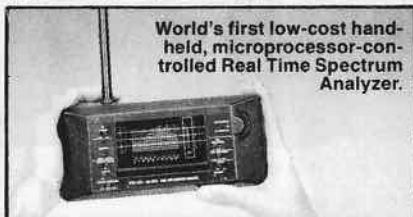


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