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CARF

the canadian amateur

May 1978

No. 5

New Prefix for Yukon

VY1

On April 21, DOC announced that the Pacific Regional Office in co-operation with the District Manager in Whitehorse will implement a prefix changeover from VE8 to VY1 for Yukon Territory Amateur stations. Other VE8 NWT stations are not affected.

WARC PROPOSALS

CARF to attend FCC meeting

As a further and welcome step in the co-operation between CARF and the U.S. Amateur community in WARC '79 matters affecting operators in both countries, arrangements are being made to have a representative from your Federation attend the U.S. Federal Communications Commission's Advisory Committee on Amateur Radio meeting early in June.

Following the close liaison with the ACAR secretary over the past months in WARC matters, the meeting will give CARF a first hand look at U.S. Amateur reaction to the FCC's upcoming draft proposals for post-1979 frequency allocations for Amateurs.

The FCC paper should be published about the first week in May while the CARF brief in response to the Canadian Interdepartmental Committee Public

hearing on its second draft of frequency proposals for WARC '79, now in the course of preparation, will be available for the CARF rep to discuss with the FCC. By that time it will have been presented to the CIC and will be outlined in our June issue.

HR Report speculates on what is in the FCC draft, which will be the subject of the FCC ACAR meeting. It says that inside bets are that 160 and 80 metres will be trimmed in favor of broadcasters "just as was proposed in Canada though probably not as severely". It says that maybe either a 10 or 18 MHz band will "be offered in exchange" for that trimming; (the Canadian proposal discussion in early April hinted that 10 MHz was a "trader" for the slashing off of 3.8 to

Continued on Page 2



the canadian amateur

ISSN 0318-0867

Editor:
VE3CDC Doug Burrill

Publisher:
Steve Campbell

WARC '79

Continued from Page One

The Canadian Amateur is the official monthly publication of the Canadian Amateur Radio Federation, Inc. It is distributed to members and is available to others for \$7.00 per year. The Federation is incorporated and operates under a federal charter, with the following objectives:

1. To act as a coordinating body for 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.

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Vice-President	VE2DNW	Fred Towner
Secretary	VE3FVO	Joan Powell
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General Manager	VE3AHU	Art Blick

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- (If you want to contact the Federation, write or call a Director in your region or write to CARF, Box 356, Kingston, Ont. K7L 4W2.)
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- VE6HO Jim McKenna, Box 703, Ft. McLeod, Alta. T0L 0Z0.
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- VE2RA Gene Lajoie, RR 2 Perkins, Que. J0X 2R0.
- VO1NP Nate Penney, Box 10, Shoal Harbor, Nfld. A0C 2L0.

New deals for Clubs

The Canadian Amateur Radio Federation now has a special deal for clubs and students. This deal is designed to encourage club-sponsored courses on Amateur Radio and to gain support for your national society. For \$13.00 a student receives a copy of the Certificate Study Guide and the Regulations Handbook and a year's membership in CARF-- a saving of \$3.00. In addition, the club sponsoring the course will obtain, as a bonus, a copy of the Instructor's Package when 5 orders for the Package Deal are received and a set of 35 mm slides for use with the Instructors Package when 10 Package Deals are received.

4.0 MHz...but that it may leave some "flexibility"...see our April issue.)

HR Report further speculates that 40 metres may be left alone "or may even see slight improvements". Just what that may mean is not known. The Canadian draft proposes 6900-7100 kHz exclusive with 7100 to 7300 going to broadcasters.

CARF Annual Meeting

The annual general meeting and the Board of Directors meeting of your Federation will be held in Ottawa on Saturday, May 27th.

Members wishing to attend should contact the General Manager, CARF Inc., through Box 356, Kingston, Ont. K7L 4W2 as the location has not yet been confirmed.

The Board of Directors term now runs for two years, with the next election of directors by members being in 1979. The term of officers, however, runs only for one year and the Board meeting will see the election of the 1978/79 president, vice-president, secretary and treasurer.

AMATEUR NIGHT AT ICC '78

Canadian Amateurs will be featured at the International Communications Convention (ICC '78) to be held at the Sheraton Centre, Toronto, June 5, 6 and 7.

Sponsored by ICC '78, three papers will be delivered on Wednesday, June 7 at 7.30 pm. "Digital Slow Scan TV", by Bill Westbrook VE3EKA; "Design of Phase 3 Space Craft", by Randy Smith, VE3SAT; "Vertical Polar Diagrams of Practical HF antennas", by Jack Belrose VE2CV.

The session chairman, Bud Punched VE3UD, extends an invitation to all interested Amateurs to attend whether they are registered at the Convention or not.

SHORT CIRCUITS

by
Stan Hill
VE3DQ



"OK MR. ECONOMY-MINDED! NOW THAT YOU'VE TRADED OUR GUZZLER-8 ON THIS MICRO-MINI-4, WHERE WILL YOU FIND ROOM TO STASH YOUR MOBILE TRANSCEIVER GEAR?!"

An end to special calls?

Due to a mix-up in DOC on a request for a special call sign, a number of club bulletins and The Canadian Amateur carried an erroneous notice that VE2 stations could use the prefix VZ until October 1978. This is not so ... the special call requested and used was for a special suffix for the Montreal CBC club to mark the 25th anniversary of Radio Canada's first TV broadcast. The call was VE2VZ, which was good only until the end of 1977.

Episodes like this and the headaches which they cause, plus the administrative time, is about to end the era of special calls according to a reliable DOC source. The FCC in the U.S. found it was an impossible task to keep track of special calls and have ceased to issue them. One doubts if the majority of Amateurs will weep much, either here or below the border.

Experimenter comments due

With the proposed no-code, tough exam, VHF 'Experimenter' certificate due at the end of May, CARF organized a panel of experts in VHF computer sciences and 'packet radio' to put together a brief to DOC.

With DOC agreeing to drop some of the contentious points as reported in our April issue, the main thrust of technical arguments from the CARF group and others will be the compatibility of 'packet radio' with other modes of transmission on the 220 MHz band and opposition to its exclusive use for packet radio transmissions.

There are a number of highly qualified groups working on responses to DOC's Gazette notice and CARF will circulate its draft brief to them and provincial societies for comment. In this way, it is hoped that all salient points and technical arguments will be covered by all of those sending briefs.

New remote control bands

Plans for removing remote control devices from the 27 MHz General Radio Service band to three new bands at 310-320 MHz, 350-360 MHz and 380-400 MHz have been announced by DOC. This move has been necessitated by "the explosive growth of the 27 MHz GRS and the growing market for alarms and similar security devices".

Remote control units for use in new bands will not require licensing if they have been DOC tested and approved. Approved units will carry an appropriate "radio licence exemption number" on each piece of approved equipment.

VE3ZS



Canadian
Repeater
Advisory Group

VE3DWL Hugh Lines

From Quebec, here are two changes in the Sept Isles area: VE2RSI on 146.34/146.94 now has an autopatch, and a new repeater VE2ERU is on the air on 146.19/146.79.

In Ontario, a new Elliot Lake repeater should be on the air soon. For those travelling in the Sudbury area, there is a new machine on 146.16/146.76 located at Chelmsford (no call sign given). A proposed repeater in the tri-county area of Stormont, Dundas and Glengarry, south-east of Ottawa, is VE3SDG on 147.84/147.24. It should be on the air in a couple of months from the QTH of VE3BCO at Newington (Ontario, that is).

Plans for a new repeater in Winnipeg are well underway. Equipment has been ordered and should be up and running soon, with an autopatch implemented as soon as possible.

From Three-Hills, Alberta, comes word of a new repeater on 146.22/146.82.

VE6FUN is on the air and working well. It is the result of dedicated work by VE6HB, VE6CEB and VE6CDY and others. It consists of a PYE transceiver. VE6HB built the control system.

Plans are underway for a Senior Citizens repeater in the Southern Vancouver Island area of B.C. Owen VE7QT has been instrumental in this endeavour and should be contacted for further information. Thanks to a letter from VE7ADI and the East Kootenay ARC, we are able to give you a rundown on their local machine, VE7CAP, on 146.34/146.94. It is located on Baker Mountain, about 7 miles southeast of Cranbrook, at an elevation of 7244 feet. Equipment consists of Systcoms solid-state transmitter/receiver, AC and backup DC power supplies, Sinclair antennas and a homebrew control system. First installed in 1968, its coverage is pretty well dictated by the mountainous terrain of the area but averages 50 miles or better in most directions. The solid-state gear replaced the original tube equipment in 1976. The club is very proud of the repeater and the favourable reports it gets.

On the facing page is a repeater listing that is current as of April 12, 1978. If you spot any errors or omissions, please let me know: Hugh Lines VE3DWL c/o CARF Inc., Box 356, Kingston, Ont. K7L 4W2.

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Sort DX cards by prefix and VE and VO cards by call sign numbers. For cards going to QSL Managers in USA, include SASE and IRC. Wrap securely, tape or tie in parcels not over 1 1/2 inch thick and not over one pound.

Add CARF membership number and call in lower left hand corner. Life members add 'CLM'. Do not use Registered mail or over-sized parcels (it will delay your cards). Send to CARF QSL Bureau, Box 66, Islington, Ont. M \$X1. Enclose a SASE.

To avoid confusion and a returned cheque, please write the month abbreviation or in full ... e.g. 2/1/78 could be 2 Jan 78 or Feb 1, 78 depending on the interpretation that the banks put on it.

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Contest Calendar

May

- 6-7 Russian Contest CQ-M
- 13 World Telecommunications
Day Contest Phone
- 19-21 YL-ISSB QSO Party
- 20 World Telecommunications
Day Contest CW
- 20-21 ARRL E-M-E Contest

June

- 10-11 ARRL VHF QSO Party
- 17-18 All-Asian Phone
- 24-25 ARRL Field Day

July

- 8-9 IARU Radiosport

In single band, VE7BC and C7BGK both beat the old Canadian single band record, each with over 2000 QSOs and around 1.5 million points. No information has been received re scores from points further east. There was a lot of Canadian activity and lots of special prefixes from Canada.

IARU RADIOSPORT CONTEST

This new contest will receive its second running on July 8 and 9. The scoring system may be changed from last year, and details were not available at press time.

Canadians made several outstanding scores in this contest in 1977.

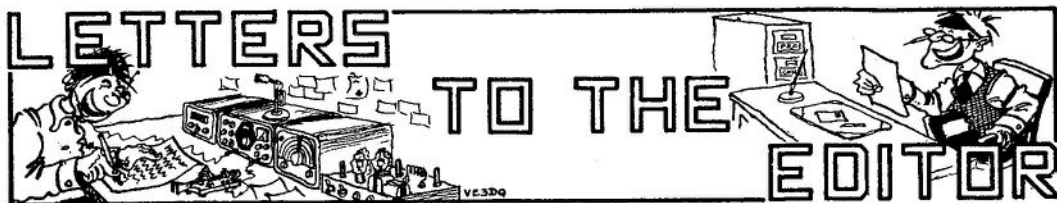
Lee Sawkins CY7CC came WORLD HIGH in the single operator category. Lots of Canadians have done well in lots of contests, but not many make the WORLD HIGH score in a major contest. Congratulations, Lee!

In multi-operator, VE7WJ came third world high, also a very notable achievement.

The scores to beat this year are:
Single-op CY7CC 840,735 points
2291 QSOs 105 Multipliers
Multi-op VE7WJ 1107,236 points
2757 QSOs 107 Multipliers

CQ WW WPX SSB CONTEST 1798

Preliminary results for the WPX contest indicate several records broken. In multi-multi, VC7WJ made almost 8000 QSOs for a total score of around 8.4 million. This is certainly a Canadian record, and perhaps a world record, depending on some scores from overseas.



Comments or Complaints? Write to The Canadian Amateur, P.O. Box 356, Kingston, Ontario K7L 4W2.

Prefixes

Here's a brilliant idea ... how about asking DOC to assign the following permanent call prefixes: VY8 for the Yukon and VX8 for all of the northern Canadian islands with North West Territories remaining VE8?

Robert V. Mauris VE7HL

Contests

I enjoy The Canadian Amateur very much, but I would like to see more information given on other contests that come up such as the ARRL contest on the weekend that I write this. I am a firm believer that CARF is the voice of the Canadian Amateur, but it sure leaves us in the dark as to international activities on the bands.

Also, on your article in the Feb. 78 issue 'To VE or not to VE', I enjoyed it very much. Being a Cape Bretoner, may 1978 - page 7

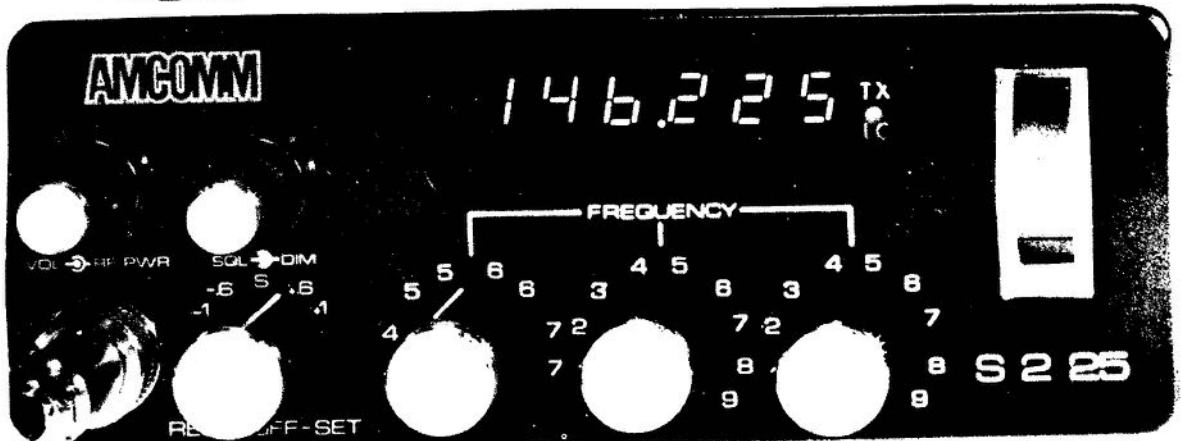
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I'll be glad when they come out with distinctive prefixes so that people won't keep asking me what province I'm from. Maybe Cape Breton can join Sable and St. Pauls in becoming the Maritime triangle of special prefixes!

Roger Tobin VE1TX

(Tx Roger, but at the present stage of 'TCA', we have room only for Canadian affairs. We hope to do better as time goes on. In the meantime, there are a number of publications which devote much space to international contests. Write to our Contest Editor, Peter Driessen VE7BBQ for info (see mast-head for address).

To VE?

I enjoyed the article by VE3GCO, 'To VE or not to VE?'. I have a question which I will put in a similar form: 'To UCT, CUT, GMT or Z?'. I noticed The Canadian Amateur is UCT-ing, so is QST. When I listen to WWV, they are CUT-ing. Can you or your readers tell me what to Do-ing?

Henry Traue VE7BYP

Acknowledgement

Our thanks to other correspondents, VE6CFK Allen Dick, who reminds 2 repeater users of good operating; VE3 EFK/MM Ed Leahey, aboard 'SS Brookdale', who makes out a case for novice tickets for sailors, WA4QLW/VE3 Arthur Herold, who is involved with third world development and whose letter may appear as an article soon. Tx too, to the bashful writer (no name) who gave us some more dope on radiation standards ... it's been passed to Peter Ruderman, author of 'Uncooked Ham'.

CARF American Div.

Your April story on the 100% jump in CARF American Division membership is much appreciated. You did, however, goof on my name and call ... it's LaWson, not LaRson C. Wrappe, and I'm now in W2, so the call is N1IOU/2.

Lawson C. Wrappe, Director, American Division, Canadian Amateur Ragchewers' Federation.

American



Newsfront

Due to an unknown problem with the mail, part of the CARF American Division director's April first report arrived too late for publication last month. The Canadian Amateur Ragchewers' Federation American Division director, Lawson C. Wrappe, N1IOU/2, said that he felt it was desirable at this time to note in his report, particularly for American Amateurs, the position of CARF in the United States. He wrote:

"CARF is operating in the United States at the request of leading American Amateurs who realized that American Amateurs who wished an alternative radio ragchewers' organization were as yet not sufficient in numbers to maintain a ragchew organization of their own, nor could they finance a successful one. The Canadian Amateur Ragchewers' Federation has therefore created a Division in the United States under an American director, exactly as in Canada. The American Division supervises all their activities.

"CARF has no territorial ambitions

and does not for a moment presume that the U.S. will always remain a part of CARF. By request it is doing what it can to help the Amateurs of a sister country until they attain sufficient numbers to insure the success of an independent organization. When these American Amateurs elect to separate and maintain their own association, CARF will withdraw from the U.S. and turn over the present organization to them.

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In the meantime, CARF considers that it has a sacred trust in America and it proposes to safeguard that trust with all its ability. It would be false to its trust, if, in these days of the relatively tender growth of the American search for an alternative ragchew organization it withdrew in favor of an Amateur ragchew organization formed or fostered by a publishing company for pecuniary motives; or in fact if it yielded on any other basis than at the request of the American Amateurs themselves.

"In the meantime", Lawson cautioned, "BEWARE OF BEING MISLED, American Amateurs!! There is not the slightest excuse for a counter-organization to buck CARF. When the right moment comes, CARF will turn over all its activity and organization in the United States to a group of all-American Amateur officers and CARF stands ready to create this independent all-American alternative ragchew organization, see it safely started and withdraw from the United States, whenever the majority of American Amateurs indicate that they so desire. CARF in America means a safe and sound alternative radio ragchew organization when the time is ripe.

"Meanwhile", Lawson again exhorted, "BEWARE OF FALSE PROFITS PROPHETS!!"

With these ringing words, we bring CARF's American Division director's report to an abrupt end as several pages seem to be missing.

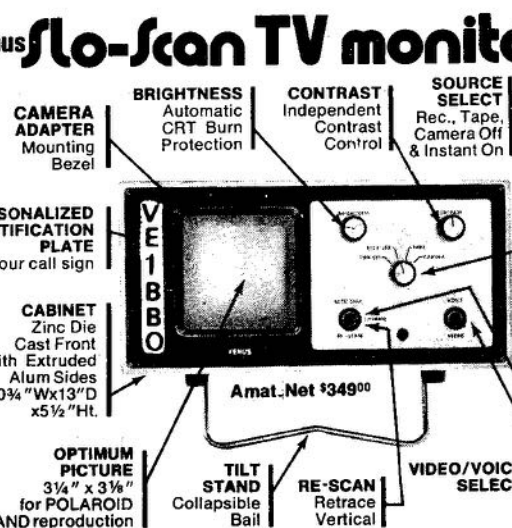
CARF Code of Ethnics

Following the lead of our sister publication "QRT" in its energetic crusade against advertisers who use such racist methods of advertising as black and white in their copy, CARF Inc. will follow a similar code of ethnics in its official publication, "The Canadian Amateur", a course directed at eliminating ethnic discrimination from its pages.

In order to ensure that both the publication and its advertisers are free from charges of discrimination on the basis of colour, all advertising copy must now be provided in full colour ... not just four colours ... in order to have its pages reflect complete non-discrimination.

Advertisers who do not comply with CARF's Code of Ethnics will have their names listed publicly. Because the term 'black' list or 'white' list would defeat the very purpose of this crusade inasmuch as the words 'black' and 'white' are often applied to people in a derogatory sense, the term 'grey list' will be used. So far, with the exception of the Editor's complexion last New Year's morning, there are no known records of grey people.

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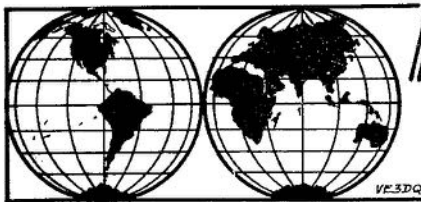
Surveillance Receiver?



Barlow XCR-30

WSI THANKS THE HAMS IN MONTREAL (VE2QC??) WHO DIRECTED Monsieur YVES DAVID WHO WAS WANDERING AROUND FOR ONE FULL YEAR FOR A BARLOW WADLEY SOURCE!! THANKS FELLOWS!

Shortwave Listening



INTERNATIONAL NEWS

—Vive le Canada libre? Not only have St. Paul's Island and Sable Island been declared separate nations by an American organization but now, stealing Rene Levesque's thunder, the countries list for the award given by the Reseau des Emetteurs Francais, in a burst of Gaulist enthusiasm lists our province of Quebec as a separate "nation". How come the REF boys missed la Republique de Madawaska on the upper St. John River? Or Louisiana?

—HR Report devotes a front page story to the FCC release on its concern with the "increase in business-type" use of autopatches on the Amateur bands.

— Classified ads —

Single insertion is \$1.00 (minimum charge) for 10 words and \$1.00 for each additional 10 words. To renew, send copy and payment again. Deadline is first of month preceding publication.

Put your membership number and call (not counted), if any, at the end of your ad. Print or type your ad and include your address with postal code. If using a phone number, include the area code. CARF and The Canadian Amateur accept no responsibility or liability for content or matters arising from ads.

Send to CARF, Inc., Box 356, Kingston, Ont. K7L 4W2.

To introduce our new feature, here is our first want ad ... and, for being the first one off the line, it's on the house!

WANTED: 1960s VE1 licence plates for P.E.I., N.B. and N.S.; VO2 for Nfld. and Lab.; VE2 and VE3. Reasonable prices paid. Maurice Van Ryckeghem, Box 8, Dinsmore, Sask. S01 0T0

FOR SALE: Wilson 1402-SM HT. Leather case, nicads, desk charger, 52/52 rocks. \$140 postpaid. Gord Woroshelo VE3-EYW, 15 Grandmont, Sault Ste. Marie, Ontario P6B 3W1. H-208: VE3EYW.

—The ban on 10 metre linears by the FCC will be opposed by R.L. Drake and maybe other U.S. manufacturers, on the grounds that the ban unnecessarily penalizes Amateurs.

—A direct lightning hit on a mountain near Bremerton Washington caused almost complete shutdown of the mountain top facilities. A peculiar situation was noted wherein most of the speaker coils - even on spares on the shelf - were forced through the speaker cones. Most outlets were damaged, and plugs were blown out of their sockets. It even looks like the force of the strike lifted the roof slightly on the building. Ground rods were blasted out of the ground and were bent U shaped. - (Tx VE7BS).

CANLON

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" 432-434/144

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144/432

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Price: \$156.

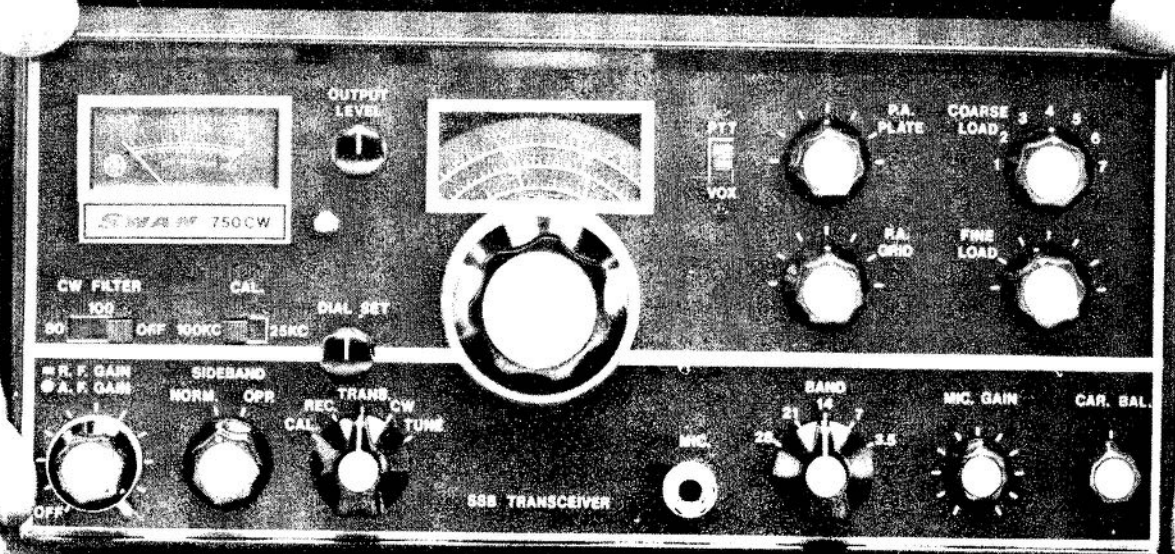


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 700 WATTS PEP INPUT SSB, 400 WATTS CW
 80 HZ/100 HZ CW AUDIO FILTER!!++SIDETONE MONITOR

--220 MHz band occupancy, although dampened and in some cases held off until the current hoo-haw on the Experimenter certificate and the proposed freeze-out of all but packet radio is settled, is nevertheless showing an upswing. The increasing availability of 220 transceivers and its apparent good propagation characteristics are reflected in the number of people moving up from two metres. VE1SJ, George Brewer, Saint John, reports that simplex working over a 172 km. path with VE1UT Bernie Bonnar in Yarmouth was achieved fairly consistently using the now available Midland 13-509 transceiver.

--Marsh Jeannert, VE3EMJ, was made an officer of the Order of Canada at an April 18 investiture at Government House in Ottawa. According to VE3 AAG, his brother-in-law Norm Delahunty, Marsh seized the opportunity to have a word with the Prime Minister about Amateur Radio.

--The Telephone Pioneers in Toronto are proudly claiming to have the first 1296 to 450 repeater in Canada. It goes in on both 1297.120 and 448.300 MHz and disgorges on 443.3 MHz. The solid state machine answers to the call VE3 PRT. There are also some area people working on 1297.20 simplex.

--VE DX Fans: Alex Mootoo, 29 Brown Squard Ave., Vaccas, Mauritius tells CARF QSL Bureau that he needs

SAE plus an IRC in order to airmail QSL cards direct.

--Radio Society of Ontario delegates--forty of them--met in Toronto on April 18 to discuss Society business. Fred Towner, CARF vice-president was asked to attend and gave the delegates, from all parts of Ontario, a detailed rundown on the current status of the DOC proposal for the no-code Experimenter certificate.

Conventions—

Saskatchewan Amateur Radio League is holding a convention in Regina during August.

Comox Valley ARC will hold its annual "camp-out" in June.

Radio Society of Ontario convention will be hosted by London club, October 13-15 incl. A new gimmick ... contact VE3LON/3, the London ARC club station, request a special QSL card and it gives a buck discount on your registration.

Still no sign of an Atlantic Convention this year.

(If you want a free plug for your convention send details to CARF Inc., Box 356, Kingston, Ont., K7L 4W2).

For the 2 M Operator

28-144 MHz Linear Solid State 15 Watt Transverter

This Linear Transverter is designed to accept a low level drive signal from an HF Transceiver or Transmitter in the 28-30MHz Amateur band and transverts it to the corresponding frequency in the 144-146MHz Amateur band. For example a signal on 28.235MHz will be transverted to 144.235MHz. In a similar manner signals being received in the 144-146MHz band will be transverted in a reverse manner to the corresponding frequency on the 28-30MHz range of the HF Receiver or Transceiver.

The BUCCANEER is fitted with a unique Automatic Overdrive Warning System. This automatic system is so designed that should excessive low level drive be applied to the BUCCANEER a Warning Light Emitting Diode will illuminate thus indicating to the operator that excessive drive is being applied and so enable the operator to reset the input drive level and ensure that a clean undistorted signal is radiated at all times.

The BUCCANEER is also fitted with a Hi-Lo switch which switches the output of the BUCCANEER between the full output of 15 Watts RMS and a low power output of 1 Watt RMS. This feature has been incorporated so that excessive power need not be used when a relatively local contact is being made.



Specification brochure available
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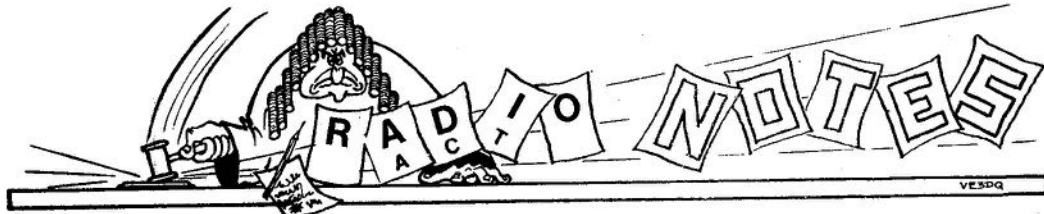
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509 Argonaut 80-10m 5w Qxcr.....



Local Amateurs in Winnipeg assisted DOC in gathering evidence against a local jammer, who regrettably, was also an Amateur.

Direction-finding (or "fox-hunting") rigs were used by the Winnipeg Amateurs and the local DOC office to track down a 75 metre jammer who gummed up Manitoba nets with music, tones and carrier.

Derrick J. Belbas, 20, was fined \$500 or two months in jail in provincial court on April 10 for causing deliberate interference.

In Burlington, Ontario, Wayne Scott was convicted in provincial court of possession of unlicensed radio equipment. Sentencing will be May 12, when another charge will also be heard against him.

It seems that prosecution orders are easier for field personnel to obtain these days; could be the new deputy minister of DOC, Bernard Ostry, is backing up the field forces in their battle against illegal use of the radio spectrum.

Awards directory

By July 1, 1978, the first directory of Canadian Amateur Radio awards will be ready for distribution.

The directory will consist of 60 or more pages of maps, rules, application forms, checklists, etc. of all currently available Canadian awards. Any information should be sent to E. Walden VE3 HLL, R.1 Gowanstown, Ont. N0G 1Y0 or G. Hammond VE3GCO, Listowel, Ont. N4W 2M4.

WARC 1979 Report

Recently there have been statements made around the country to the effect that CARF has accepted the Amateur band proposals as detailed in the second draft Proposals By Canada for the 1979 WARC dated February 1978. It has also been alleged that the CARF proposals agree with the government's proposals for reduced widths of some of the bands. Both of these allegations are false.

CARF proposals were submitted in a brief to the Canadian Interdepartmental Committee on October 15, 1976, after very careful study of the CIC first draft, dated August 16, 1976, by a country-wide CARF working group. The proposals were published in the November issue of *The Canadian Amateur* with request for comment in plenty of time before the deadline to CIC. A separate booklet of the CARF recommendations and comment was published for general distribution. These recommendations asked for much more than the government is now proposing for Amateurs. The CARF response to the Second Draft Proposals is now in preparation by its WARC working group. It

will strongly protest the proposed reduction of some of the bands.

It should be realized, however, that the CIC proposals to be presented at Geneva in 1979 only represent Canada's position at the negotiating table. The final decisions affecting Amateurs will not be known until late in 1979. They will come as the result of the deliberations of some 154 countries, each having one vote. In establishing Canada's position, the government must weigh the requests from and for many different and essential services. Since there is insufficient spectrum to satisfy all requirements, the government must arrive at reasonable compromises which will be likely to succeed when agreement is negotiated internationally.

Of the 154 delegations at WARC 1979, it is expected that only about 20 will submit extensive proposals covering the entire radio frequency spectrum. Many others will submit only their own requirements. Some may borrow or adopt the proposals of other countries. Canada and the United States are the only countries that make their proposals pub-

• 100CH PLL Circuit

A CMOS LSI digital PLL circuit, developed through the latest Kenwood technology, allows coverage from 146.010MHz to 147.990MHz.

The excellent synthesizer frequency accuracy guarantees that you will be on the frequency you want.

• LED Channel Display

A two digit LED display indicates the frequency or channel position selected by the selector switch.

• One-Knob Selector System

A single rotary switch allows easy frequency selection. A highly reliable, multi-contact 50 position switch facilitates channel selection together with the LED display system. A pushbutton switch will shift the frequency up 15kHz, thus giving you 100 channels. 44 out of 50 channels on switch position are pre-programmed at factory as standard frequencies. And 6 extra diode programmable channels are available for your personal frequencies.

• Repeater Operation

The repeater mode switch has three positions...S, ⊕ and ⊖. These are for simplex, +600kHz offset and -600kHz offset. For example, if the selected frequency is 146.94MHz the following combinations are possible:

- S - 146.94MHz transmit and receive
- ⊕ - 147.54MHz transmit
146.94MHz receive
- ⊖ - 146.34MHz transmit
146.94MHz receive

• Superb TX/RX Characteristics and High Reliability

Kenwood's advanced VHF technology has developed a transceiver with the following requirements: high sensitivity with excellent S/N; 10.7MHz MCF for outstanding two-signal characteristics; three stage helical resonator; superb spurious characteristics and high reliability.

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If the main knob is not properly positioned or the PLL circuit fails, the ULI LED comes on. At the same time, receive and transmit functions cease.

• Sub Audible On/Off Switch

A switch is provided to turn on and off a sub-audible tone encoder (user provided option).

• External Terminals

An external speaker jack and center meter jack are provided on the rear panel.

• Compact and Light Weight Design

• Employment of Large Aluminum Die Cast Heat Sink and Front Panel

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TR-7500

This 100 channel PLL synthesized 146-148 MHz transceiver comes with 88 pre-programmed channels for use on all standard repeater frequencies (as per ARRL Band Plan) and most simplex channels. For added flexibility, there are 6 diode-programmable switch positions. The 15KHz shift function makes these 6 positions into 12 channels. 10 watt output, + 600 KHz offset and LED digital frequency display are just a few of the many fine features of the TR-7500. The PS-6 is the handsomely styled, matching power supply for the TR-7500. Its 3.5 amp current capacity and built-in speaker make it the perfect companion for home use of the TR-7500.



- Front Panel High/Low (10W/2/) Power Switch
- On Air Indicator
- Optional AC Power Supply PS-6

TR-7500 - \$429⁰⁰ PS-6 - \$119⁰⁰

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lic and invite discussion before solidifying their own positions. Canada's proposals will be distributed world-wide well before September 1979, when the conference begins. In most other countries, the governments control all communications. Their proposals to WARC are handled privately in their own countries and are not distributed widely before the conference.

The decisions of WARC 1979 set the scene for frequency management for the balance of the century. There will, however, be a need to review the allocation table from time to time to assure efficient use of the spectrum, because of technological advances, social developments, etc. If services do not expand or develop in the spectrum allocated, then it may well be taken away

from them, and this applies to the Amateur bands as well.

The schedule for the WARC preparations in Canada is:

1. Deadline for comments on 2nd Draft Proposals, May 31/78.

2. Supplement to the Draft issued by CIC by July 1/78.

3. Deadline for final comment on supplement - Aug. 31/78.

4. Final revisions of CIC Proposals to be made during last quarter of 1978.

5. Canada's final proposals transmitted to Geneva - January 1979.

-VE3UD

(Editor's Note: The World Administrative Radio Conference will meet in Geneva next year to deal with international frequency allocations for the next two decades.)

Equipment Review

by Dave Robinson VE3BTY

This month, Jim Dean VE3CMV loaned us his Kenwood AT-200 antenna tuner so the rest of us could learn more about it and share his discoveries.

First of all, it is much more than just a matching device: it also incorporates an antenna switch, power meter and VSWR meter. It is designed for use with 50 ohm coax line, up to 200 watts, from 160 to 10 metres inclusive.

The antenna switching feature allows you to select one of seven options: dummy load (not supplied), straight through to one of three antennae, or via the matching network to one of the three antennae. Connectors (SO-239 or UHF) at the back of the unit are provided for the transmitter, dummy load, Antenna #1 and Antenna #2 while a binding post is provided for end-feeding a wire antenna. A ground connection is also provided (especially important when you are loading directly into a wire antenna).

The power meter has two ranges, 20 watt and 200 watts full scale, forward and reverse power (10% of full scale accuracy), making the AT-200 suitable for either QRP or 'Exciter' operation. For you QRP enthusiasts, midscale (of the 20 watt range) is about

Kenwood Antenna Tuner
Model AT-200
(160-10 metre, 200 watt)
Trio-Kenwood Corp., Japan

5 watts, with scale markings at one-watt intervals. The SWR meter operation is standard: you first 'Calibrate' (set the 'forward' reading to full scale) and flip the switch and read the 'reflected' indication on the SWR scale which is calibrated up to 10:1.

The antenna tuner function operates as follows: having first tuned your transmitter into the dummy load, you now select which of the Antennas 1, 2 or 3 (the end-fed wire) you want to use, and the band (1.8 to 28 MHz). Set the meter to read reflected power and alternately adjust the 'R' and 'X' controls to get minimum meter reading. As with other couplers, there is a trick to getting 'a perfect match': after you have found the 'minimum' as above, deliberately turn the X control slightly one way or the other and go for a minimum by varying the R control. You will now have a new 'minimum' which will be higher or lower than the previous 'minimum'. If it is higher, try the other direction, and if lower, try moving the X control a bit further in the same direction. With a little practice, and using both hands, you can bring the reflected power down to zero (a perfect match) in about five seconds.

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The AT-200 is compact and well-made. The coil forms are of a ceramic material, the two variable capacitors are rated at 1200 volts and the fixed capacitors are rated at 3000 volts. The unit is 166mm (6 17/32") W x 153mm (6") H x 190mm (7 1/2") L and weighs about 2.8 kg (6.2 lbs.). It comes with (1) an operating manual, (2) 'extension' feet to tilt it back for easier viewing, and (3) some insulated tubing if you are using an end-fed plain wire antenna.

These units were selling for about \$160, but since our dollar took a dive with respect to the yen, the price is probably closer to \$190 now. When you consider that the AT-200 gives you a dual range wattmeter, SWR meter, all the antenna switching most of us will ever need, and 160 through 10 metre antenna matching (and harmonic reduction) capability, that isn't bad at all.

* * * * *

There is really no such thing as the perfect piece of Amateur gear ... they all have good points and points which may not come up to expectations, or which suit a particular need. There is also such a thing as the design fault which will only show up under consumer

use. Then too, the odd factory lemon can slip by. The point of this is that equipment reviews are intended to point out the good and the bad, the advantages and disadvantages to those contemplating purchase of new gear.

The last review (on the Atlas 350XL) prompted a very informative letter from W6QKL, prez of Atlas Radio, concerning some of the points raised by CARF reviewer Dave Robinson VE3BTY. These will be commented on by Dave in our next issue.

The odd part is that, in the same mail, we received a letter from Ron Williams VE2EWZ who wrote "... my principle reason for writing is to say that I am most gratified to read an equipment review which points out the less favourable aspects of a product as well as the advantages, which of course are highlighted in the advertisements ... I realize that a product review is a subjective view of the person doing it, but ... I feel that special attention should be paid to ensure that limitations are pointed out, as there are readers like me who have limited experience and who depend on an honest report."

"My congratulations to VE3BTY for doing an excellent job!"

Packet Radio in a Packet

Bill Wilson, VE3NR

Packet Radio has suddenly become of interest to Amateurs as a whole in Canada because of DOC's proposal to allot the 220-225 MHz band to packet radio and the proposed new experimenter class of Amateur certificate. It is worth while, therefore to take a look at the basics of packet radio and see what it holds for Amateurs. Amateurs shouldn't be scared off by packet radio technology though they must indeed be concerned about the DOC's proposed exclusive reservation for it on 220.

The fastest way to grasp the packet radio concept is to start with the average two metre network comprising umpteen Amateurs who communicate through a repeater station. When one Amateur wants to talk to another on the system he addresses him by call. A person is not expected to pay any attention unless he is addressed or called. When another

wants to check in there is an agreed procedure which, when followed, makes it possible for him to access the repeater when it is in use. There are procedures too, for when one wants to run a net.

By increasing the sophistication of our basic two metre net and repeater in steps, we can end up with a packet radio system. The following is one of several ways to do this hypothetically and see what packet radio is like.

Suppose that we decided to change it from voice to RTTY and installed selective calling with auto start and stop. We could leave our stations on to receive the messages addressed to us and read them from the printout at leisure. If we had traffic to clear we would have to wait until the repeater was free before we could send it but we would not have to wait until the recipient was home for

Drake Accessories

designed for convenience and accuracy

Drake Directional RF Wattmeters



W-4 1.8-54 MHz



WV-4 20-200 MHz

Drake directional, through line wattmeters, using printed circuits, toroids, and state of the art techniques, permit versatile performance and unsurpassed accuracy, yet at a lower cost.

In contrast to VSWR measuring devices of the past, Drake wattmeters are frequency insensitive throughout their specified range, requiring no adjustments for power or VSWR measurements.

Negligible insertion loss allows continuous monitoring of either forward or reflected power for fast accurate tune up and checking of transmitter-antenna performance.

Indirectly measure radiated power (forward power minus reflected power) and VSWR by means of a plastic nomogram included.

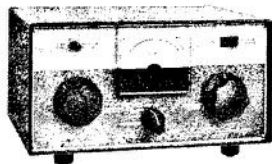
Each wattmeter makes possible quick, accurate adjustments of antenna resonance and impedance match, when placed between transmitter and matching network.

High accuracy; ideal as laboratory instruments.

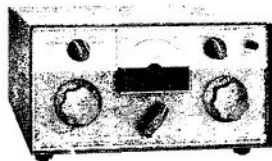
Removable coupler allows remote metering.

Specifications	W-4	WV-4
Frequency Coverage	1.8-54 MHz	20-200 MHz
Line Impedance	50 ohm resistive	50 ohm resistive
Power Capability	2000 W continuous	1000 W continuous
Jacks, Removable Coupler	Two SO239 input and output connectors	Type N input and output connectors.
Semiconductors	Two 1N295 power meter rectifiers	Two 1N695 power meter rectifiers
Accuracy	± (5% of reading +1% of full scale)	

Drake MN-4 & MN-2000 Matching Networks



MN-4 (300 Watts)



MN-2000 (2000 Watts)

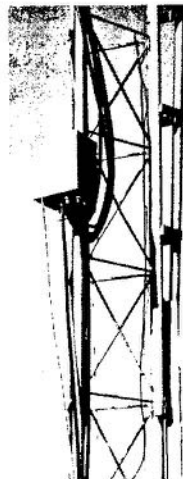
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may 1978 - page 22

Drake RCS-4 Remote Coax Switch

- Remotely Selects One of Five Antennas
- Grounds All Unused Antennas
- Grounds All Antennas in Gnd Position for Lightning Protection
- Front Panel Indicator Monitors Antenna Selection Interval
- Protected Against Adverse Weather Conditions
- SO-239 Connectors Provided for Main Coax Feed-Line and Individual Antenna Feed-Lines
- Handles 2000 Watts PEP
- Available in 120 V-ac or 240 V-ac 50/60Hz Versions



• Control unit works on 110/220 V-ac, 50/60 Hz, and supplies necessary voltage to motor. • Excellent for single coax feed to multiband quads or arrays of monobanders. The five positions allow a single coax feed to three beams and two dipoles, or other similar combinations. • Control cable (not supplied) same as for HAM-M rotator. • Selects antennas remotely, grounds all unused antennas. Gnd position grounds all antennas when leaving station. "Rain-Hat" construction shields motor and switches. • Up to 30 MHz, insertion of switch changes VSWR no more than 1.05:1. • From 30 MHz to 150 MHz, insertion changes VSWR no more than 1.5:1. • Motor: 24 V-ac, 2 amp. Lubrication good to -40°F. • Switch Rf Capability: Maximum legal limit.

- 80-10 Meters
- Antenna Selector and By-Pass Switches included

A Drake matching network is a worthwhile addition to any amateur station where peak performance is desired. Basically identical, except for power handling capabilities, the MN-4 and MN-2000 enable feedline SWR's of 5:1 to be matched to the transmitter. If input impedance is purely resistive, even higher SWR's can be handled. • Besides presenting a 50 ohm load to the transmitter, the Matching Network's built in rf wattmeter allows accurate and continuous power measurement and VSWR indication. The advanced wattmeter circuitry yields frequency-insensitive readings from 2 to 30 MHz, and accuracy until now obtainable only in expensive wattmeters.

Write for Catalogue Sheets c/c J. H. Williams VE3XY

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it to be received.

We could make the system a little more sophisticated by the addition of a small microcomputer to each station and the repeater. By using the microcomputer's memory and control abilities along with its video terminal, we can, by establishing suitable procedures and controls for all stations in the system, arrange to clear our messages automatically. The messages we would type into our microcomputer-controlled terminals would be transmitted and received in bursts or packets at speeds umpteen times normal. The routings would be looked after by our microcomputers working together and based on the address to and any other instructions we put in the "headers". We would then have a packet radio system of the simplest kind and man-machine and machine-machine communications as discussed at the symposium in November 1977 in Ottawa.

Of course we would have to have certain standards: addresses, protocols, codes, error checks and so on. We would need a standard for packet length not to prevent timing out the repeater but to prevent flooding the other fellow's floppy disc storage! Several packet radio systems or several repeaters in a region could be integrated into a single bigger system to provide communications over a huge area.

Once he has a fully automated station an Amateur would need to check his station only a few times a day to read the messages in and put his replies into his terminal. It certainly is not a very human way to communicate but it would be fun to get the equipment together and make it work.

Mobile operation is feasible provided arrangements are made to take account of Doppler effect. If packet radio systems operated on microwave frequencies, bandwidths could be very wide, transmission speeds high and tremendous quantities of information could be moved very efficiently. The ALOHA system does this now. While packet radio can include voice transmission and can operate on VHF frequencies using FM with bandwidths as low as 10 kHz, it is usually discussed in terms of the automated handling of information between computers in digital "burst" form.

The variety of systems possible with-

in the definition of packet radio is immense and beyond the scope of this article. Any way one takes it, it is a challenge to Amateurs.

The devotees of packet radio see all kinds of possibilities that go beyond mere technology. Some feel that it is the only possible means by which everyone can have the benefits of his own light-weight personalized communications and data terminal. Others even feel it will be the eventual "Citizen's Computer Radio Service" free of all the problems that plague the GRS/CB Service and a model of efficient spectrum utilization. Such a service would undoubtedly benefit small industries in Canada. It might also be useful to communities by enabling information exchanges to be set up and to schools by facilitating computer/communication education. A new hobby might be born: that of computer assisted intellectual sports by radio; playing Star Trek and other similar games. In the mobile field it may well prove a very desirable alternative to the cellular system now being tried out at around 900 MHz in the States. Amateurs could do some very useful experiment work and turn up a number of practical uses that would benefit business and social activities. They could prove its technical economic and social feasibility and open new fields of competition for the telephone and cable TV companies.

A feature of importance is the better spectrum efficiency that is achievable with such a system for those kinds of communication needs where messages can be packeted, delayed a little if the system is fully loaded and sent in a burst when their turn comes up. Instead of a dedicated channel for each group of needs a single channel provides for all needs and avoids the exclusive assignment of discrete frequencies.

To clear the whole of the 220-225 MHz band and reserve it for a particular type of highly sophisticated and relatively expensive broadband system is quite unreasonable. It would be better placed in either the 400 or 900 MHz bands where propagation is more reliable and where broad bands can be made available for the higher data speeds for which the system is suited.

The prospect of reduction of the 80 meter phone band by the 1979 WARC will force Amateurs to turn to VHF for

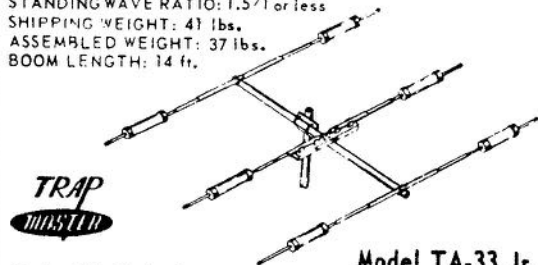
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The Classic 33 10, 15, and 20 meters

Model TA-33 for 10, 15, and 20 meters

The Mosley TA-33 three element beam provides outstanding 10, 15, and 20 meter performance. Exceptionally broadband - gives excellent results over full Ham bandwidth. Exclusive Mosley trap design offers resonant frequency stability under all weather conditions. Element center sections are of double thickness aluminum to reduce sag. Boom requires no bracing. Heavy duty universal mounting plate fits masts up to 1 1/2 inch O.D. Antenna handles full KW AM/CW or 2 KW P.E.P. SSB input. Feed with one coax line, RG-8/U recommended. The TA-33 may also be used on 40 meters with TA-40 KR conversion. Complete with Hdw.

FORWARD GAIN: Up to 8 db. TURNING RADIUS: 15.5 ft.
 FRONT-TO-BACK: 20 db. or better WIND LOAD: 114 pounds.
 MAX. ELEMENT LENGTH: 28 ft. WIND SURFACE: 5.7 sq. ft.
 STANDING WAVE RATIO: 1.5/1 or less
 SHIPPING WEIGHT: 41 lbs.
 ASSEMBLED WEIGHT: 37 lbs.
 BOOM LENGTH: 14 ft.



Model TA-33 Jr.

Mosley TA-33 Jr. has quality and performance found in the TA-33. Rated to 300 watts AM and CW, - 1000 watts P.E.P. on SSB. Complete with Hdw. The Junior may be converted to MP-33 with higher power rating with MPK-3 Kit. Shipping weight 28 lbs. Assembled weight 20 lbs.

Beam designed to provide the extra gain for working hard-to-reach DX. Incorporates exclusive Mosley 'Weather-Proofed' traps with resonant frequency stability. Features new boom to element clamping and balanced radiation. Hardware is stainless steel. Feed with 52 ohm RG-8/U coax. Fits up to two inch mast. Use with most heavy-duty rotors. 1 KW AM/CW or 2 KW P.E.P. SSB input.

FORWARD GAIN: Full 8 db. compared to reference dipole or 10.1 db. over isotropic source.

FRONT-TO-BACK: 20 db. or better on 15 and 20; 15 db. on 10 meters.

STANDING WAVE RATIO: 1.5/1 or better.

MAXIMUM ELEMENT LENGTH: 27 ft.

ASSEMBLED WEIGHT: 42 lbs.

BOOM LENGTH: 18 ft.

SHIPPING WEIGHT: 47 lbs.

TURNING RADIUS: 16 ft.

WIND LOAD (80 MPH

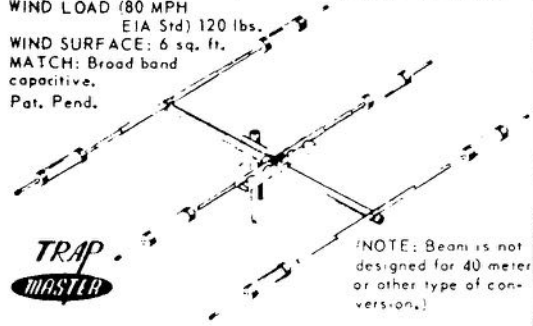
EIA Std) 120 lbs.

WIND SURFACE: 6 sq. ft.

MATCH: Broad band

capacitive.

Pat. Pend.



(NOTE: Beam is not designed for 40 meter or other type of conversion.)

TA-33 Jr.	\$195.00
TA-33	\$259.00
CL-33	\$295.00
CL-36	\$360.00

TA-33 Jr. pwr kit MPK-3	\$63.00
RV-4C 40-10 mtr vertical	\$85.00
RV-8C 80 mtr adapter	\$55.00
DI-2, 2 mtr ground plane	\$35.50
MY-144-9 element Yagi	\$54.50
MM-144 mobile antan na	\$31.50
Larsen 2 mtr mobile	\$31.50
Larsen Magnetic mount	\$16.50

12/24 hr. 4LED 6 digit clock kit	
Complete with case	\$35.00
Pi-259 connectors \$1.00 doz.	\$10.50
Lightning arrestors \$5.00, 3/	\$10.50
RSO filters	\$35.00

ROTORS

Big Talk	\$125.00
AR-40	95.00
CD-44	159.00
HAM III	205.00
Tail Twister	379.00
Rotor Wire	22¢ ft.
RG8U coax	25¢ ft
RG8U foam	28¢ ft
RG-213 coax	39¢ ft.

KENWOOD RADIOS

TS-520S	999.00
TS-820S	1399.00
TR-7200A	285.00
TR-2200A	329.00
TR-7400A	579.00
TR-7500	429.00

All antenna orders over \$450, you can deduct 5% or have shipment sent prepaid anywhere in Canada except VE8 land and Labrador.

Prices subject to change

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RR No. 2 Battersea, Ont
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 VE3BPM

their metropolitan/regional area communications. This can only be done with linked repeaters preferably using the 144-148 and 220-255 MHz bands. There are other technologies that Amateurs will explore such as VHF SSB mobile, folded modulation, microcomputer communications, and digital voice mobiles. It is as reasonable to use the 220-225 MHz band for these as for packet radio. Amateurs are experimenting with long distance propagation in the 144-148 MHz band now and will do the same in the 220-225 MHz band in areas where TV channels 12 and 13 are not in use.

Packet radio systems need protection but no more than other radio systems do. Available literature does not indicate

that this can only be obtained by an exclusive allocation; sharing can be worked out. Amateurs are past masters at the protection of radio systems of all kinds and in sharing the spectrum. They work in bands where congestion is second only to the GRS/CB band, their stations are located in the worst possible radio and consumer electronic environments and they experiment with practically all known forms of communications including satellites. Amateurs must now give packet radio and the other things they would like to experiment with careful thought. There is no better way to flush out compatibility and operational problems than to let Amateurs of all classes have a go at it.

Salvaged Parts : What should be Saved

by W. J. Karle, VE2ECW

Once you begin collecting "good junk" you are faced with a dilemma. What should you retain and what should you throw away? The temptation is to keep everything. The trouble with this approach is that you soon end up with a bulky assortment of equipment. You should be retaining useful parts.

A component is useful when it has or might have some application in your Amateur communications operations, experimentation, and maintenance activities. You should keep components which can aid you in these areas. The excess is useless junk. It is obvious that you have to set some standard of usefulness. If you, for example, have only solid state equipment then it is probably useless to retain vacuum tubes. Solid state components such as transistors and diodes should be salvaged. One who experiments with audio frequency circuits would want to keep suitable components like interstage transformers, output transformers, and volume and tone controls. The Amateur who makes wire antennas would retain all of the copper wire that he could find.

You have to be careful when setting your standard of usefulness. You don't want to throw out something which might have a use in a future project. If you are up-to-date in electronics as described in the various industrial and Amateur publications, then you will be able to think ahead with some accuracy. I kick

myself for throwing away all those TV flyback transformers which are a good source of ferrite material.

With an idea of what is to be saved, you can start extracting the components from the equipment. As with any job, the correct tools will do the job better. A suggested set of basic tools is made up of: Soldering Iron or Gun; Long Nose Pliers; Diagonal cutters; Slip joint ("gas") pliers; Screwdriver, straight blade; Screwdriver, phillips; Hand drill and bits.

The soldering iron and other tools should be "scaled" to the job at hand. That is, a low power iron (25 to 40 watts) and small pliers and cutters (4 to 6 inches in length) are suitable for solid state equipment. Higher power and larger tools are needed for vacuum tube and other "heavy" equipment.

To make your work easier, you might want to add the accessory items such as: Clip-on heat sink; Screwdriver set, jeweler's; Nutdriver set; Vice, bench or portable; De-soldering tips for iron; De-soldering tools, pick, small wire brush, solder sucker. I also recommend having a multi-meter (VOM, VTVM, or FETVM) available to test diodes, power transformers, resistors, and the larger valued capacitors. It would be good to have some means of checking transistors. Either a transistor tester or a VOM-based lash-up will do.

Charred or discolored components
may 1978 - page 25

HEAVY DUTY HAM TOWERS

DMXHD Heavy Duty Ham Towers can support a large amateur beam of up to 9 sq. ft. wind area. Guy wires must be used if larger loads are required or cross bar mounted antennas or if greater height using straight sections is needed.

DELHI DMXMD and DMXHD towers use the larger and stronger sections of our standard eight section, 68 foot TV tower, Model DMX-68. DMXMD towers have a DMX2T top section, DMXHD towers have a DMX3T top section. Both top sections have a No. 244A cast aluminum mast clamp installed on the top plate.

Each section is 8 ft. long and has beaded channel legs riveted together with "X" braces. Legs and braces are high tensile steel, heavily galvanized before fabrication. Rivets are solid heat treated aluminum. Sections fit accurately together and are joined by heat treated nuts and bolts. The uniform tapered leg design together with evenly spaced "X" braces give the tower greater strength and reliability.

NOTE: All DMXHD Series Ham towers are shipped complete with the following:

8 ft. tower sections, top plate with cast aluminum mast clamp, rotor plate, three 4 ft. concrete base stubs, special nuts, bolts and washers. (No mast is included in package).

Model No.	Height of Tower	Tower Section Supplied	Wt. in lbs.
DMXHD-32	32	DMX3T, DMX4, DMX5, DMX6	170
DMXHD-40	40	DMX3T, DMX4, DMX5, DMX6, DMX7	241
DMXHD-48	48	DMX3T, DMX4, DMX5, DMX6, DMX7, DMX8	314

DMXMD-32	\$145.00
DMXMD-40	\$185.00
DMXMD-48	\$240.00
DMXMD-56	\$289.00
BBMB BEARING	\$15.50
HD mast 2" x 8' 12 ga	\$16.50

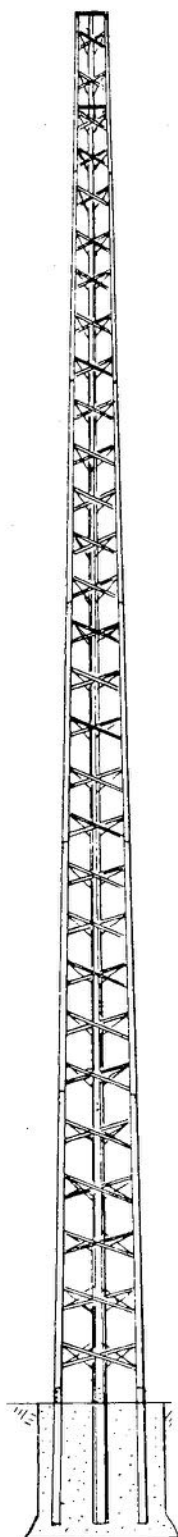
IMMEDIATE DELIVERY

Specials package	
Ta-33 jr. antenna	\$195.00
CDE Big Talk rotor	\$125.00
Delhi DME-5 tower 44'	\$145.00
100 ft. RG-8U coax	\$25.00
100 ft. rotor wire	\$14.00

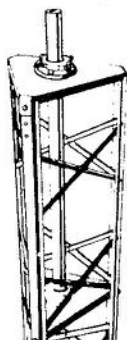
Total value - \$504.00

SPECIAL - \$485.00

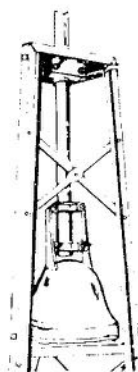
All antenna orders over \$450.00, you can deduct 5% or have shipment sent prepaid anywhere in Canada except VE8 land and Labrador.
Prices subject to change



DMXHD-48



Top of tower with mast clamp plate installed.



Any make of rotator can be mounted on rotor plate.

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Phone (613) 353-2800
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should be ignored during your salvage work. Similarly, if you cause such effects while unsoldering something, do not keep it. When removing transistors, diodes, and low power resistors, you should use a clip-on heat sink or grip the lead with the long nose pliers while you are applying heat.

All components should be extracted in such a manner that the wire leads are as long as is possible. While a pigtail of wire can always be added to a short lead, the soldering act will change the value of some components. I usually ignore resistors and capacitors with leads of less than one-half of an inch. On the other hand, a transistor lead length of one-quarter of an inch is acceptable since it can be inserted into a socket.

It is not unusual, upon opening a piece of equipment, to be dismayed by the wealth of components inside. Perhaps one is put off by the difficulty of deciding just where to begin the salvage operation. A suggestion is to work from the largest to the smallest component. So, with a television set, the chassis would be removed from the cabinet. The cathode ray tube would be dismounted and discarded. Remove any vacuum tubes and set them aside for later checking. Now, take out the power transformer, loudspeaker, and tuner(s). Potentiometers, I. F. transformers, and filter capacitors would be next on your list. Fin-

ally, remove the smaller items like transistors, resistors, and so on.

As you continue your salvaging work, you will collect a good number of components. Soon you will have to organize your parts collection so that you know what you have and where the items are stored. In order to know what you have, you must be able to identify the part and its value. Determining values can be tedious but not impossible. In many cases you can measure the value with your VOM while in other cases you will have to decipher a color code or look up the item in a catalog. Needless to say, it's a good idea to collect catalogs with the same fervency with which you collect parts.

So that you will be able to easily retrieve your components you should sort and store them in some organized fashion using drawers or boxes. Larger items, such as power transformers, can be labeled with the essential information and placed in a box or on a shelf. At my QTH, the medium and larger sized items are of necessity stored in two different locations. So that I know what I have, I made a short list of the items and where they are stored.

It's about time that we put some of this "good junk" to work. In a future article we'll do just that. If you have been doing a good job of salvaging components, you will be able to try your hand at a useful project.

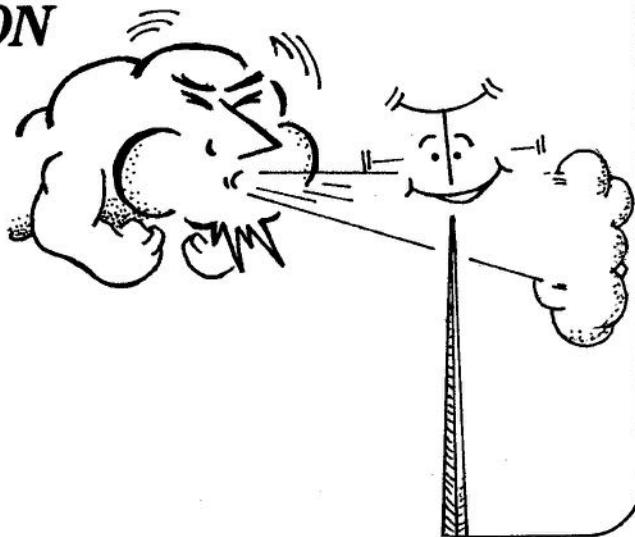
Technical Talks

VE3AHN, Jim Fathers.

FROST PROTECTION

In virtually all areas of Canada, frost "heaving" will have an effect on the design of structures buried in the ground. The east and west coast are least affected but to the rest of us it can be a problem with nearly disastrous effects; cracked walls, tilting towers or posts popped out of the ground. In order to solve the problem of frost heaving we must first look at its mechanics.

Frost penetration is one of nature's greatest earth movers, it is the sole reason for farmers harvesting a new crop of field stone every Spring. How does this happen? Firstly frost heaving is



caused by a combination of effects all of which must be present for heaving to occur. There must be a daily freeze-thaw cycle; there must be a water table within 10 feet of the surface; but not closer than 2 feet; the preceding winter (heaving only occurs in the Spring) must have had a long sustained cold period during which the subsoil to a depth of 4 feet has become chilled to or below the freezing point. The last point can be less of a factor if we have a great blob of concrete to conduct the cold directly down 4 to 5 feet. Other factors to be considered are proximity to a heated structure and snow cover.

A very heavy blanket of snow will insulate the ground and prevent frost heaving only so long as the snow does not receive sufficient sunlight to initiate melting during the Spring freeze-thaw cycle; that is, if the snow stays until the nights stop dipping below freezing and then you can shovel it all away (10 feet at least) you will not be bothered by frost heaving; needless to say this is hard to arrange short of spreading a plastic cover on the ground to stop the melt water from percolating down to the base of the concrete slab. By this I am sure you are now aware that free or unfrozen water plays a major part in frost heaving.

As the ground is undergoing the freeze-thaw cycle, water from the surface or sucked up from the ground water table, finds its way into voids in the earth--very small voids--and there the water comes in contact with soil at or below the freezing point, freezes and begins to form what we call an "ice lens" as the freeze-thaw cycle continues a daily layer of ice is built up around the lens until it reaches such a proportion that the effect of frost heaving occurs. Actually the heaving is little more than the outward sign that water expands on freezing; but the mechanics are of interest.

If we can stop the freeze-thaw cycle from affecting the area around our tower base then we can eliminate the problem of heaving. To all of you sitting back and chuckling that their great blob of concrete is down over 5 feet let me point out that farmers are still finding field stone every Spring after almost 100 years of cultivation, these stones must have been more than 5 feet down to start with; also that "ice lenses" work

equally as well on flat-vertical faces as they do on the underside of a slab.

Now if we use the tower design described in a recent issue - the slab with 5 post holes and buried in six inches of earth we can greatly reduce the effect of frost heaving by:

- 1) Stopping surface water penetration and hence the freeze-thaw cycle;
- 2) Place the vertical legs under this protection;
- 3) Eliminate flat, vertical surfaces that "ice lenses" can act against;
- 4) Cut down on the conduction of the cold into the surrounding earth by forming separated footings that do not act as a massive reservoir of cold for the adjacent soil to draw from and finally;
- 5) The six inches of soil over the slab allows an additional buffer of time against the freeze-thaw cycle. If we can slow down the cycle by even a couple of hours we are virtually halting the formation of massive "ice lenses" -- the smaller lenses still form but they do not grow into what we could alternatively label as tower-tilting titans.

Now how do we protect the in-place monster blocks of concrete everyone likes to use? Well those of you with foresight left the block six inches below the surface so that you could bury your mistakes rather than dig them up should you ever decide to move. (Fig 1 a,b). Those of you who didn't are still in luck, but the effect is not as guaranteed. (Fig. 2 a,b)

Either over the block or beside it and extending out 4 feet minimum, place 2 inches of styrofoam covered by at least 4 inches of earth and then sod.

This will have two effects:

- a) It will stop surface water from percolating down to form "ice lenses";
- b) It will eliminate the freeze-thaw cycle; since one inch of styrofoam is the equivalent of two feet of earth; you have in effect "buried" your base under 4 feet of earth; and this is enough to place it in the frost free zone.

Why 4 feet out from the base and all around? Since frost is not too smart it does not only work down, as does water, but also to each side. Hence there is a 45 degree cone of frost effect at every point on the surface.

Four feet out at 45 degrees means this cone is 4.5 feet down (4 inches of cover on the 2 inches of foam) before

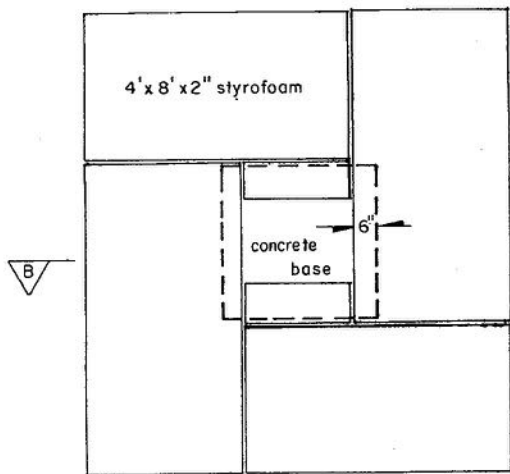


Fig. 1(a)

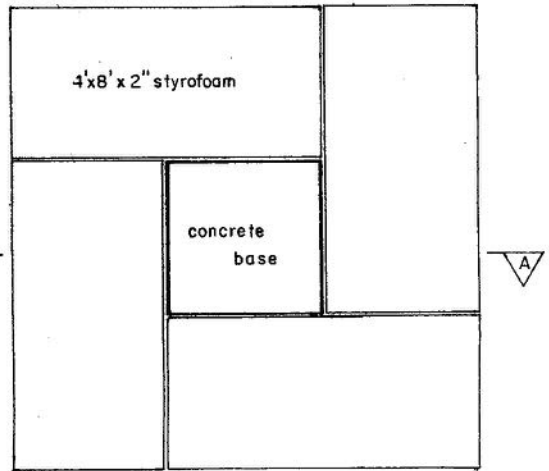
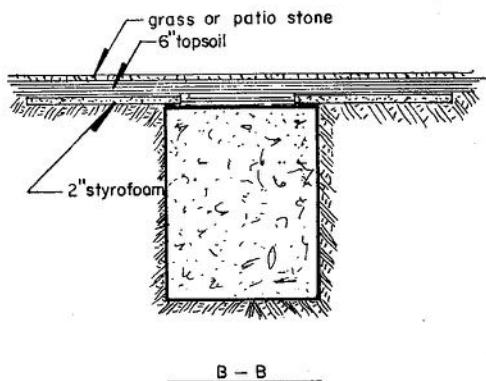
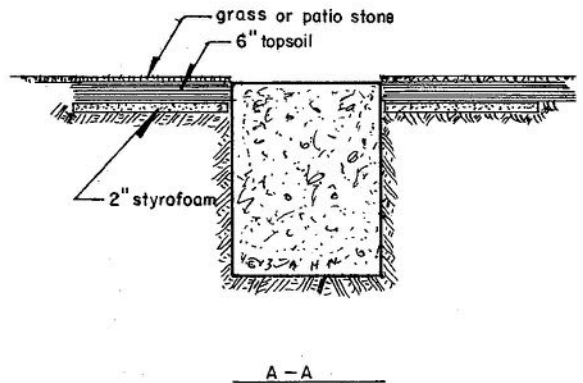


Fig. 2(a)



TOWER BASE SET BELOW GRADE

Fig. 1(b)



TOWER BASE SET AT GRADE

Fig. 2(b)

it reaches the base of the tower and this is enough to bring it below the "normal" zone of frost in Canada.

Earlier I mentioned "proximity to a heated structure as having an effect on frost penetration and then apparently ignored this factor; I really wish I could. There are two lines of approach: one rather shallow approach is to assume that the heated structure will keep the ground relatively frost free. This is certainly not without consideration especially if there is good snow cover and the side of the building in question is shaded from the sun. Under almost all other combinations of circumstances this proximity could double the effect of the freeze-thaw cycle by causing one more

cycle per day. Mainly since most basements do not get used until after supper, when the freeze cycle begins, then the heat is turned up in the recreation room or shop for 3 to 4 hours and a new cycle begins in the soil, just outside the daytime or ambiently thawed soil.

On the last point, proximity to a heated structure, I cannot caution enough against constructing a tower base right next to the heated portion of the basement wall. Leave at least 1 foot of earth between the base and the wall or use the post hole-slab method (described in a recent issue) in which the slab may be poured adjacent to the wall with only a thickness of 'black-joe', full slab depth, to prevent cracking.

CANADAWARD

The Canadian Amateur Radio Federation Inc. is pleased to announce the following awards available to all Radio Amateurs, worldwide.

CANADAWARD -- A colourful certificate will be issued to any Amateur who confirms two-way QSO's with all Canadian Provinces and Territories. All Separate awards are issued for each band on which the applicant qualifies. (12 cards per band - see list below) A Mode endorsement is available if all QSO's are made on the same mode (CW, SSB, RTTY, SSTV). Contacts made after 1 July 1977 only will count for this award. Submit the 12 cards with One Dollar (\$1.00) Canadian or US funds or 10 IRC's plus sufficient funds for return postage. CARF members need send only funds for return postage.

5 Band CANADAWARD -- A special plaque will be issued to any Amateur who confirms two-way QSO's with all Canadian Provinces and Territories on each of five separate bands. (total of 60 cards - 12 cards per band - see list below) Contacts made after 1 July 1977 only will count for this award. Submit the 60 cards with Seven Dollars (\$7.00) Canadian or US funds or 70 IRC's plus sufficient funds for return postage. All CARF awards are FREE to CARF members. CARF members need send only

funds for return postage.

6 Band CANADAWARD, 7 Band CANADAWARD, etc. -- Special endorsements to the basic 5 Band CANADAWARD will be issued to any Amateur who confirms two-way QSO's with all Canadian Provinces and Territories on more than 5 Bands. Submit the additional cards with sufficient funds for return postage.

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VE1 Prince Edward Island

VE1 Nova Scotia

VE1 New Brunswick

VE2 Quebec

VE3 Ontario

VE4 Manitoba

VE5 Saskatchewan

VE6 Alberta

VE7 British Columbia

VE8 Yukon Territory

VE8 Northwest Territories

NOTE -- VO2, Labrador, is part of the Province of Newfoundland and counts for Newfoundland.

All Amateur bands may be used. Each distinct satellite mode (432in/144out, 144in/29out, 144in/432out, etc.) will count as a separate band.

Mail all applications for the CANADAWARDS to: P.O.Box 76752, Vancouver, B.C., Canada, V5R 5S7.

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This handsome QSL card is offered to CARF members at a special price of \$12.25 postpaid per 200 card lot (Ontario residents add 7% Sales Tax).

The standard design will be printed with your name, call and address, (in place of the CARF address), as shown -- Printed in blue ink on buff card stock with the outline map in silver. The 3 1/2 x 5 1/2" cards are printed on one side only. A plain reverse side gives lots of space for comments and the address.

Other card designs are available in larger lots and slightly higher prices. Send 25¢ in coin or stamps for a sample sheet and order form. (French texts are available.)

Send orders to CARF, Box 356, Kingston, Ont. K7L 4W2.

Outgoing and incoming QSL card service is FREE to all CARF members! Your cards will be sent FREE to other countries and to provincial QSL Bureaux in Canada.

Sort your cards alphabetically by country and call and send to CARF QSL BUREAU, Box 66, Islington, Ont. M9A 4X1, along with a stamped self-addressed envelope (5"x7" preferred) with your membership number in the lower left hand corner of both envelopes.

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Iraq, Khmer Republic**, Libya, Pakistan, Somalia, Turkey, Viet-Nam*, Peoples Democratic Republic of Yemen.

*-Stations XV5AA, XV5AB and XV5AC were authorized to exchange communications with Amateurs of other countries by the former Saigon regime.

**-Station XU1AA has been authorized to exchange communications with Amateurs of other countries.

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Note: all Commonwealth countries are eligible for reciprocal operating privileges to Canadian Amateurs.



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All Members receive Membership Certificates plus FREE QSL Service; Full and Associate Members also receive The Canadian Amateur.

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 - Adhesive sticker _____
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- CARF Name Badge \$2.50 _____

(Print Name and Call desired)

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