

TCA



\$1⁰⁰

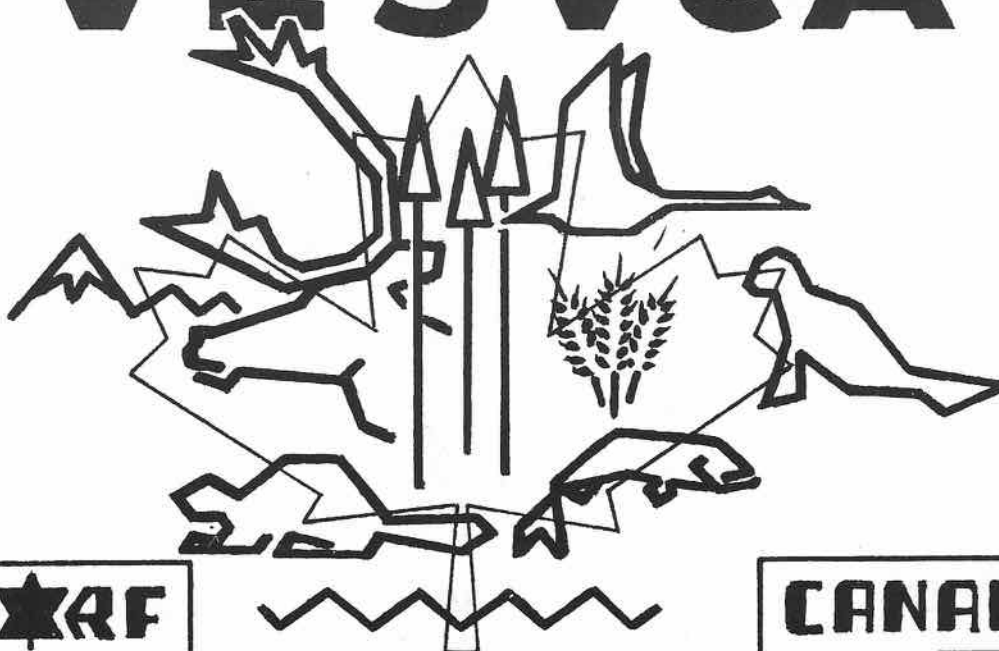
FEBRUARY 1982

The Canadian Amateur Radio Magazine

New CARF QSL Card for VE3VCA

See Page 18

VE3VCA

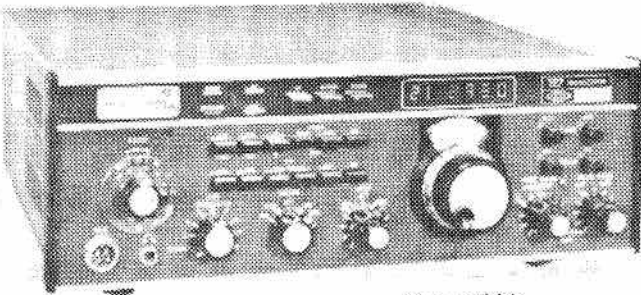


CARF

CANADA

Inside:

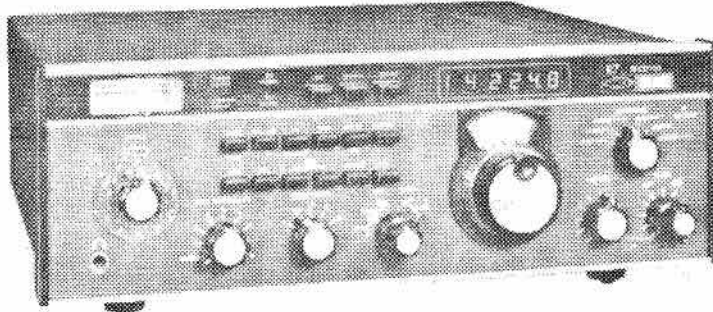
- Proposed Regs Changes
- DX Column
- Contest Scene
- Technical Section



Model 1336

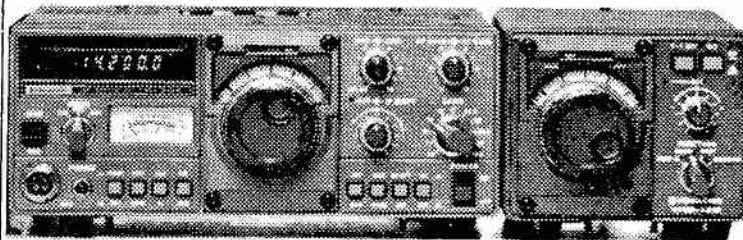


TR7 Solid State
Continuous Coverage
Synthesized HF System



Model 1240

R7 Synthesized General
Coverage Receiver



TS-130S

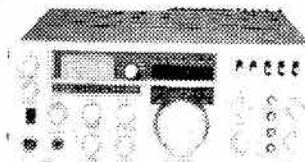
VFO-120

Kenwood
TS-130S/V
'Small wonder'... processor,
N/W switch, IF shift, DFC option



YAESU

107 SERIES



FT-107M



R-1000

Write for Catalogue Sheets
c/o J.H. Williams VE3XY, Brian Riley VE3JEO

C.M. PETERSON CO. LTD.

Communications Electronics Division

Head Office C.M. Peterson Co. Ltd.

220 Adelaide St. North, London, Ont. N6E 3H4

519-434-3204

Toronto Amateur Dept.: 47A Colville Road, Toronto 15, Ont.

EDITOR

Cary Honeywell VE3ARS
1082 Apolydor Ave.,
Ottawa, Ont. K1H 8A9
(613)-521-2386

ASSISTANT EDITOR

Dave Nessman VE3GEA
10 Fallow Court
Ottawa, Ont. K1T 1W8

DESIGN & PRODUCTION

Steve Campbell
RR#2 Bloomfield,
Ont. K0K 1G0
(613)-399-2209

**ADVERTISING
REPRESENTATIVE**

Don Slater VE3BID
RR 1 Lombardy
K0G 1L0
(613)-283-3570

TECHNICAL EDITOR

Ed Hartlin VE3FXZ
P.O. Box 356, Kingston
Ont. K7L 4W2

CRAG COLUMN

Hugh Lines VE3DWL
P.O. Box 192, S.S. 11 Belleville,
Ont. K8N 4Z3

CONTEST SCENE

Dave Goodwin VE2ZP
4 Victoria Place
Aylmer, Que. J9H 2J3

DX EDITOR

Douglas W. Griffith VE3KKB
33 Foxfield Drive,
Nepean, Ont. K2J 1K6

EmCom COLUMN EDITOR

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

PRINTED IN CANADA

**THE CANADIAN AMATEUR**

February 1982

Vol. 10 No. 2

Contents

Letters to the Editor	11
CRAG Column	12
DX Column	
Canadian Contest Scene	16
New QSL card for VE3VCA	18
220— The Non-Forgotten Band	19
Check your Cable	19
New money for Quebec Space Program	22
Can RF be healthy?	23
Book Review: 10 Metre FM	23
In Defense of Contests	24
Norway joins SARSAT Project	25
BC Winter Games Award	26
DOC proposes changes to Regulations	27
CARF Phone Commonwealth Contest	31
Infosection	37
Swap Shop	37
TECHNICAL SECTION	
Not Another Keyer?!	32

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 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.

The contents of this publication are copyright and may not be reproduced without prior consent except by a bonafide Amateur organization which may reproduce them provided the source is acknowledged.

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 available for \$10 per year or \$1 per copy. It is recommended by the Canadian Amateur Radio Federation, Inc. and members receive it automatically.

Indexed in the Canadian Periodical Index: ISSN 0228-6513

Second Class Mail Registration Number 5073.

CANADA'S RTTY made easy Distributors

SEND FOR OUR CATALOGUE (\$2.00. CREDIT ON FIRST ORDER) or FREE
BROCHURE AND PRICES ON SPECIFIC ITEMS

Canadian
Distributor
For:

INFO-TECH **FLESHER CORP.** **MICROLOG** **IRL**
A-TRONIX **TRAC** **»XITEX** **CROWN**
MicroProducts

DEALERS
For:

ROBOT



BUTTERNUT

MACROTRONICS

YAESU

PRICES ON
REQUEST



PALOMAR ENGINEERS

UNADILLA / REYCO

**New
for
'82**

ROM-116
RTTY/CW Operating System



\$450.00



ROBOT 400
\$1075.00



FSK-1000
\$796.85



\$1350.00



TU 170 - \$252.95 - Kit



ROBOT

Model 800 Super Terminal \$1250.00



Microlog
ATR 6800
\$2932.00

INFO-TECH

M 500
ASR
with 12" Monitor

\$1995.00



Colin Macintyre
VE7 BXX

COLMAY PRODUCTS

Telephone: (604) 536-3058

(Regd Trade Name Jan 1985)

14903 Beachview Avenue
WHITE ROCK, B.C. CANADA V4B 1N8

VISA

We pay freight or postage at regular rate.

Air Freight and insurance extra

master charge
515 123 501
1070 002
FAXES PARSED

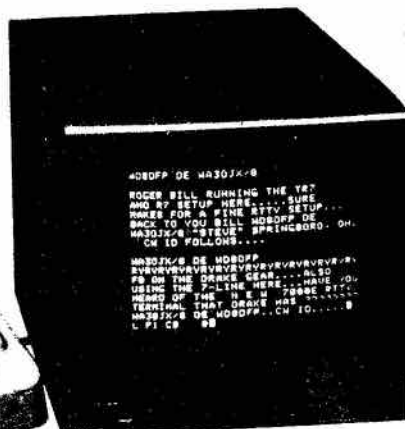
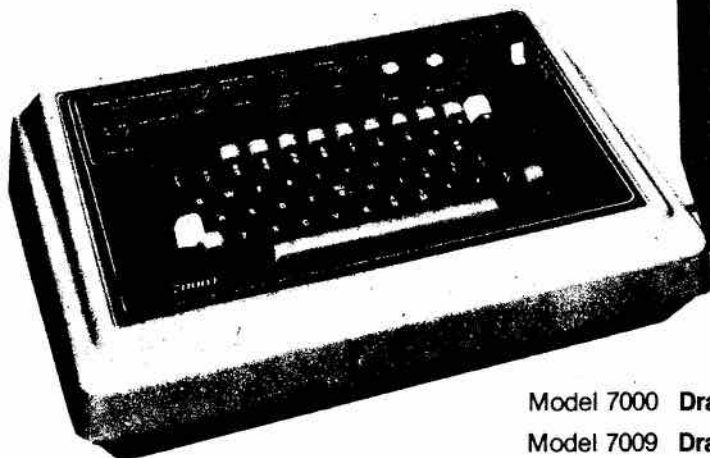


DRAKE® Theta 7000E

Microprocessor-Controlled Communications Terminal

FREE 2 PAGE SPEC SHEET IS AVAILABLE BY WRITING TO WSI RADIO C/O DOUG VE3EHC

Complete, automatic send/receive of morse code (cw), Baudot code (RTTY) and ASCII code (RTTY) with the addition of any video monitor for display. The perfect addition to complement any amateur radio installation. Below are a few of its outstanding features:



Model 7000 **Drake Theta 7000E Terminal** \$1549.00

Model 7009 **Drake TR-930 Video Monitor** \$279.00

S&H for complete package is \$15

7-channel Battery Back-Up Memory

The Theta 7000E has seven keyboard-selectable, non-volatile, random access memory channels each of which can hold 64 characters. Data in these memories is alterable at any time and is retained when power is removed. Messages in these memory channels can be repeated 1 to 9 times via keyboard command. All channels may be daisy-chained for continuous read-out. Channel number in use is indicated on display.

Wide Range of Transmitting and Receiving Speeds

Cw: 5 to 50 wpm in 10 keyboard selectable steps. Autotrack on receive.
RTTY: 9 keyboard selectable speeds with fine up/down speed adjust cover standards speeds of 60, 67, 75 and 100 wpm Baudot code and 110, 200, and 300 Baud ASCII code.

Variable Cw Weight

Keyboard selectable weight control from 1:3 to 1:6.

Crystal Controlled AFSK Modulator

For transceivers without direct FSK connections. High stability oscillator provides following outputs in both Baudot code and ASCII code:

WSI RADIO

SWL RADIOS—HAM RADIOS—ANTENNAS

18 SHELDON AVENUE NORTH

KITCHENER, ONTARIO N2H 3M2

Telephone (519) 579-0536

High Tone Pairs	Shift	170 Hz	425 Hz	850 Hz
	Mark	2125	2125	2125
	Space	2295	2550	2975
Low Tone Pairs	Shift	170 Hz	425 Hz	850 Hz
	Mark	1275	1275	1275
	Space	1445	1700	2125

WRITE FOR COMPLETE SPECS ON THETA 7000E + FREE WSI 1982 CATALOG + FREE LUMINOUS KEY TAGS....
WSI STOCKS 1982 CALLBOOKS, DRAKE, YAESU, KENWOOD TRADE INS, PALOMAR ENGINEERS, NYE, B&W, HUSTLER, ETC...



AMATEUR RADIO SALES

(416) 636-3636

THE LARGEST
EXCLUSIVE HAM GEAR DISTRIBUTORS
IN CANADA



YAESU

Henry Radio

 **SWAN**

 **DRAKE**

 **ICOM**

 **hy-gain**

Dentron
Radio Co. Inc.



ALL OTHER MAJOR
HAM LINES — RIGS
AND ACCESSORIES AVAILABLE
TOWERS AND ROTORS ETC



LOWEST POSSIBLE PRICES



LARGE INVENTORY ALL ITEMS



IMMEDIATE DELIVERY

PERSONAL SERVICE FROM FELLOW HAMS WHO
UNDERSTAND YOUR PROBLEMS

**COMPLETE CATALOGUE
OF EQUIPMENT AND PRICES
AVAILABLE ON REQUEST**



**AMATEUR
RADIO
SALES**

378 WILSON AVE.
DOWNSVIEW, ONT. M3H 1S9
PHONE (416) 636-3636 TELEX 065-24751

TR-7730

Miniaturized, 5 memories, memory/band scan



\$449

TR-7730 FEATURES:

- **Smallest ever Kenwood mobile**
Measures only 5-3/4 inches wide, 2 inches high, and 7-3/4 inches deep, and weighs only 3.3 pounds. Mounts even in the smallest subcompact car, and is an ideal combination with the equally compact TR-8400 synthesized 70-cm FM mobile transceiver.
- **25 watts RF output power**
Even though the TR-7730 is so compact, it still produces 25 watts output for reliable mobile communications. HI/LOW power switch selects 25-W or 5-W output.
- **Five memories**
May be operated in simplex mode or repeater mode with the transmit frequency offset ± 600 kHz. The fifth memory stores both receive and transmit frequency independently, to allow operation on repeaters with nonstandard splits. Memory backup terminal on rear panel.

- **Memory scan**
Automatically locks on busy memory channel and resumes when signal disappears or when SCAN switch is pushed. Scan HOLD or microphone PTT switch cancels scan.
- **Extended frequency coverage**
Covers 143.900-148.995 MHz in switchable 5-kHz or 10-kHz steps, allowing simplex and repeater operation on some MARS and CAP frequencies.
- **Automatic band scan**
Scans entire band in 5-kHz or 10-kHz steps and locks on busy channel. Scan resumes when signal disappears or when SCAN switch is pushed. Scan HOLD or microphone PTT switch cancels scan.
- **UP/DOWN manual scan**
With UP/DOWN microphone provided, manually scans entire band in 5-kHz or 10-kHz steps.

- **Offset switch**
Allows VFO and four of five memory frequencies to be offset ± 600 kHz for repeater access (or to be operated simplex) during transmit mode.
- **Four-digit LED frequency display**
Indicates receive and transmit frequency during simplex or repeater-offset operation.
- **S/R bar meter and LED indicators**
Bar meter of multicolor LEDs shows relative receive and transmit signal levels. Other LEDs indicate BUSY, ON AIR, and REPEATER offset.
- **Tone switch**
Activates internal subaudible tone encoder (not Kenwood-supplied).

Optional accessories:

- **MC-46** 16-button autopatch (DTMF) UP/DOWN microphone
- **SP-40** compact mobile speaker

SPECIFICATIONS

[GENERAL]

Frequency Range:	144.000 to 147.995 MHz
Mode:	F3
Power Requirement:	13.8 V DC $\pm 15\%$
Grounding:	Negative
Current Drain:	Less than 0.4 A in receive mode with no input signal Less than 5.5 A in HI (25 W) transmit mode Less than 2.5 mA for memory back-up (power OFF)
Operating Temperature:	-20°C to $+60^{\circ}\text{C}$
Audio Output Impedance:	8 Ω
Audio Input Impedance:	500 Ω (with UP-DOWN microphone)
RF Output Impedance:	50 Ω
Dimensions:	147.5(5.9)W x 51.5(2.1)H x 198(7.9)D mm (inch)
Weight:	1.5 kg (3.3 lbs) approx.

[TRANSMITTER]

RF Output power:	HI = 25 W LOW = 5 W approx. Less than ± 20 PPM (-10°C to $+50^{\circ}\text{C}$)
Frequency Tolerance:	Less than -60 dB (HI) Variable Reactance Direct Shift
Spurious Radiation:	Less than ± 5 kHz
Modulation:	Double Conversion Superheterodyne
Maximum Frequency Deviation:	1st IF = 10.7 MHz 2nd IF = 455 kHz
[RECEIVER]	Less than 0.25 μV for 12 dB SINAD Better than 0.5 μV for 30 dB S/N Better than 12 kHz (-6 dB) Less than 25 kHz (-60 dB) Better than 60 dB
Circuitry:	Less than 0.16 μV (threshold) More than 2 W (8 Ω)
Intermediate Frequency:	
Sensitivity:	
Selectivity:	
Spurious Response:	
Squelch Sensitivity:	
Audio output:	

IN STOCK



GLENWOOD TRADING COMPANY LTD.

278 East 1st St., North Vancouver, B.C. V7L 1B3

If you have not yet received our latest catalogue write for your free copy, today.

ORDER DESK

(604) 984-0405

ATB-34



ATB-34 \$199.



4 ELEMENT BEAM 10-15-20 METERS

Cushcraft engineers have incorporated more than 30 years of design experience into the best 3 band HF beam available today. **ATB-34** has superb performance with three active elements on each band, the convenience of easy assembly and modest dimensions. Value through heavy duty all aluminum construction and a price complete with 1-1 balun.

SPECIFICATIONS
 FORWARD GAIN - EXCELLENT LONGEST ELEMENT - 32.8'
 F/B RATIO - 30 dB TURNING RADIUS - 18.9'
 VSWR - 1.5-1 WIND SFC - 5.4 Sq Ft
 POWER HANDLING - 2000 WATTS PEP WEIGHT - 42 Lbs
 BOOM LENGTH/DIA. - 18' x 2 1/8" WIND SURVIVAL - 90 MPH

UPS SHIPPABLE COMPLETE

ENJOY A NEW WORLD OF DX COMMUNICATIONS WITH ATB-34

USED EQUIPMENT

FT101E \$625
 NCX500 \$375

Rotors \$289.
 RG8U Coax 49¢ ft.
 RG213 65¢ ft.
 RG58 70¢ ft.

DELHI SPECIAL

DMXHD40 \$339
 McCoy Ultimate Transmatch \$199

DROP A NOTE FOR A QUOTE

Contact us for prices
 on Used Equipment
 Trade-Ins Welcomed

OPTO 7000 10 Hz-550 MHz
 Counter Kit \$129.

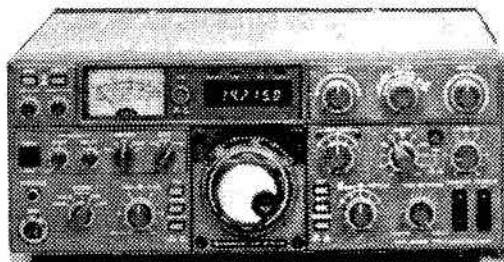
Benchmer BY-1 \$62.50
 BY-2 74.50

YAESU SUPER SPECIAL

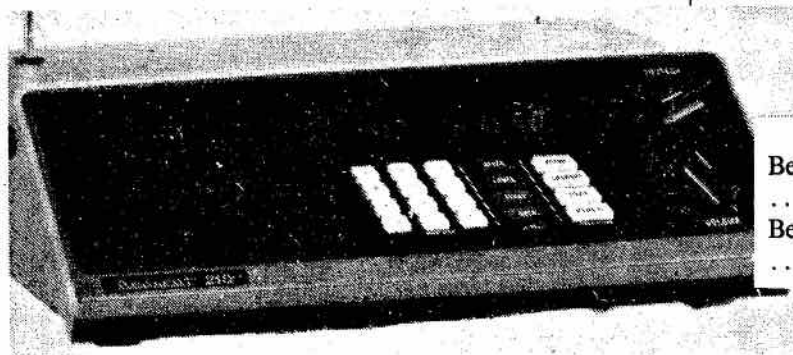
FT 101ZD Reg. \$1389.....\$1189.
 FT707 Reg. 1259\$1129
 FT207R Reg. \$469.....\$349

KENWOOD

TS130 \$1019
 R-1000 Receiver \$639
 TR7800 2m 25W \$549
 TR7850 2m 40W \$649
 TR2500 2m \$439
 SM220 Scope Monitor \$519
 VFO 240 \$239
 VFO230 \$419
 AT230 Tuner \$269
 AT200 \$209



TS-830S



BEARCAT SCANNERS

Bearcat 210 Scanner Reg. \$489.
 Special \$389.
 Bearcat 220 Scanner . Canadian Reg. \$649⁹⁵
 Special \$549⁹⁵

H.C. MacFarlane Electronics Ltd.

R.R. # 2 Battersea, Ontario. Phone: 613-353-2800 VE3BPM

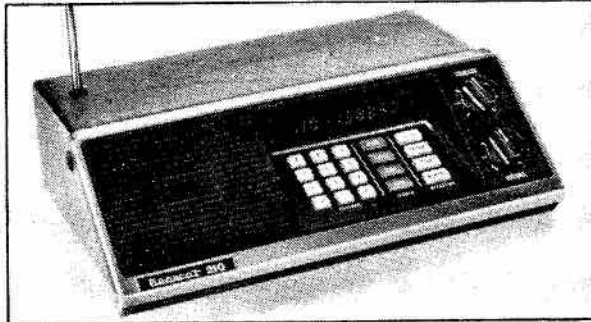
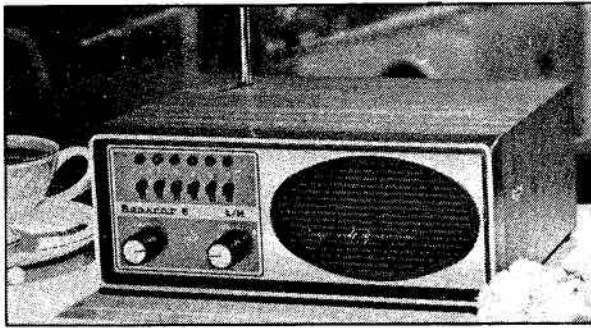
YOUR ONE-STOP HAM SHOP

ANTENNA SYSTEMS INSTALLED WITHIN RADIUS 150 KM.
 EXPERTISE FREELY GIVEN ANYWHERE



Dealer for Delhi Towers, CDE Rotors, Hy-Gain, Mosley, Cushcraft and Hustler antennas. MFJ and B&W products.





Bearcat®



The Bearcat scanners you see here represent just about the broadest range available. Whether you want economy or the ultimate quality in a scanner, Bearcat has it. Basic features include track tuning, single antenna, single manual scan switch, light emitting diodes, decimal display. Specific model features will

SCANNING MADE EASY.

help you choose the Bearcat you want.

But no matter which model you select, you've made the right choice with a Bearcat scanner.

A.C. Simmonds & Sons Limited

975 Dillingham Road • Pickering • Ontario L1W 3B2 • Phone (416) 839-8041 • Telex 06-981383

Glenwood Trading Co. Ltd.
278 East 1st Street
North Vancouver, B.C.
V7L 1B3

Les Services V.E. Inc.
1375 Charest Blvd., E., Suite 9,
Quebec, Quebec.
G1K 7W9

Hamtraders Inc.
45 Brisbane Road, Unit 18,
Downsview, Ontario.
M3J 2K1

Payette Radio Ltd.
730 St. Jacques Street, West
Montreal, Quebec.
H3C 1G2

H.C. McFarlane Electronics Ltd.
R.R. No. 2,
Battersea, Ontario.
K0H 1H0

Electronic Wholesalers Co. Ltd.
1935 Church Ave.
Montreal, Quebec.
H4E 1H2



Meet the New Breed.



IC-730

ICOM's portable/affordable 80-10 meter HF ham band transceiver. IF shift/AM, SSB, CW/8 memories/microphone included standard.

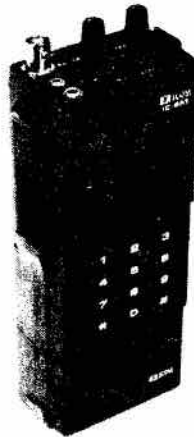
\$ 1095



IC-290A

2 meter multimode mobile, 12 VDC, 10 W. out, FM, SSB, CW, Priority channel, scanning, CW sidetone, squelch on SSB.

\$ 649



\$ 339

IC-2AT

ICOM's popular 2 meter, 800 channel, compact, handheld transceiver with Touchtone® built-in. Comes standard with BP3 (250 mAh) battery, wall charger, belt clip, flexible antenna. A wide variety of batteries and accessories available.

NEW: Quantity discounts on this radio for clubs!
Call or write for details.



IC-25A

ICOM's small size (only 5½" wide) 2 meter FM transceiver. Featuring 25 W. out, Priority channel, scanning, 5 memories. Touchtone® mic standard at no extra cost.

\$ 429

Dollard Electronics Ltd.



P.O. BOX 58236, 810 S.W. MARINE DRIVE
VANCOUVER, B.C. V6P 6E3 (604) 321-1833 TELEX 04-54315



PACK A PUNCH.



ICOM IC~730

COMPACT.

Only 3.7 in (H) x 9.5 in (W) x 10.8 in (D) will fit into most mobile operations (compact car, airplane, boat, or suitcase)

AFFORDABLE.

Priced right to meet your budget as your main HF rig or as a second rig for mobile/portable operation.

COMFORTABLE.

- Unique tuning speed selection for quick and precise QSY choice of 1 KHz, 100 Hz or 10 Hz tuning.
- Electronic dial lock, deactivates tuning knob for lock on, stay on frequency operation.
- One memory per band, for storage of your favorite frequencies on each band.
- Dual VFO system built in standard at no extra cost.

FULLY ENDOWED.

- 200W PEP input — powerful punch on SSB/CW (40 W out on AM)
- Receiver preamp built-in
- Noise blanker (selectable time constant) standard
- VOX built-in
- Large RIT knob for easy mobile operation
- Amateur band coverage 10-80M including the new WARC bands.
- Speech processor — built-in
- IF shift slide tuning standard (pass band tuning optional)
- Fully solid state for lower current drain
- Automatic protection circuit for finals under high SWR conditions.
- Digital readout
- Receives WWV.
- Selectable AGC.
- Up/down tuning from optional microphone



ICOM

\$ 1095

Prices subject to change without notice

Dollard Electronics Ltd.

P.O. BOX 58236, 810 S.W. MARINE DRIVE
VANCOUVER, B.C. V6P 6E3 (604) 321-1833 TELEX 04-54315

Extra!

Extra!

Read
all
about
it!



**TCA— The Canadian
Amateur Radio Magazine
brings you news and
information on the
Canadian scene... 11 times
a year. Add this to feature
stories, photos, technical
articles and swap shop, and
you've got the complete
Canadian picture.
Check your mailing label,
and keep your subscription
up-to-date.**

TCA 

The Canadian Amateur



Letters:

BAND CHART

As a relatively new Amateur (Fall of 1979) I would like to see TCA print a bar chart of all of the HF bands, showing the preferred operating frequencies, i.e. the regs show only the 'legal' bands, whereas the bands are divided up for CW, phone, DX window, RTTY, etc.

Some months back, TCA printed a bar chart for the forty metre band. I have a photocopy on the wall of the shack. Very useful. Another newcomer mentioned the above to me, so I'm not alone.

If you could print the bands on one page, with any special notes, then it could be photocopied.

Stu Taylor VE1BTZ
Good idea Stu. I will try to accommodate you in the near future.

Here it is the 5th of December and my November issue of TCA hasn't arrived yet. Remember that rash promise in the last issue that we would get the November issue by the middle of November, pronto, forthwith, etc.

Well now I finally got so frustrated that I tied a figure eight in the cat's tail, pulled all the feathers out of the rooster's head, grabbed the wife by the bugle and led her three fast laps around the house then sat down to pen you these few lines.

Now don't blame it all on the posties as they have enough troubles with putting up with their raises and such.

A noble suggestion from us westerners would be to move CARF further west, say around the Alberta oil fields, then it wouldn't be so far to send it; on the other hand you could put another press here in Vancouver and we poor Westerners could print up our own TCA.

Trusting you will find time to print my copy of TCA and forward it as soon as possible as it would save my wife a lot of embarrassment and my rooster would thank you too.

C.M. (Ches) Allen VE7CMA
Maple Ridge, B.C.

OK, Ches. I won't blame it all on the post... most of it, but not all of it. Although our readers have, for the most part, put up with all the nonsense, it is not fair to allow it to carry on much longer. There are only two 'paid' positions in TCA: one is the advertising rep, Don Slater VE3BID, who is also president of CARF, and the production man, Steve Campbell. Neither of them will get rich on what they are making off TCA. The rest of us are not paid. C.A.R.F. Publications couldn't afford us and we, in turn, wouldn't take the pay. We have full time jobs, aside from our hobby. We also have families to support and take care of. Our please for help in writing articles for TCA fall on deaf ears. Our printing equipment breaks down, etc., etc. We cannot solve all of our problems, but we are working on some of them. Soon we will be back to normal. Bear in mind that all our work is done by mail. A major disruption there spells disaster for us for months.

**TCA WELCOMES LETTERS
TO THE EDITOR. PLEASE
SEND ALL CORRESPONDENCE
TO EDITOR TCA,
1082 APOLYDOR AVE.,
OTTAWA, ONT. K1H 8A9.**

AMATEUR CHRISTMAS

I would like to report that the spirit of 'Ye Olde Fashioned Christmas' is not dead.

Many of your readers will recall the good old days of barn raising, country dances and hay rides, but most of all the old fashioned Christmas parties with real candles on the tree and the exchange of homemade gifts.

Yesterday, Dec. 14, was such a day for members of the Victoria New Horizons Amateur Club and their wives, who enjoyed a Santa Claus breakfast at Paul's Crown House. Each member brought an inexpensive gift which went into Santa's bag, and Santa with the help of his two elves, distributed gifts to all the ladies. Many of the gifts were homemade, reminiscent of the Dirty Thirties when homemade was a necessity.

The 50 Hams and their XYLS attending represented several hundred years of Christmas experiences as well as a few hundred years of Amateur Radio expertise from the days of the spark gap to the modern day computers and microprocessors.

In addition to the many excellent gifts for the ladies, Vancouver's electronic dealers, Glenwood Trading, Dollard Electronics and R. Mack and Co., supplied valuable door prizes for the Hams. We owe them a vote of thanks.

I would like to end this letter by saying that this is the third time I have written without success to have a notice published in TCA asking other New Horizon Amateur Radio Clubs in Canada to write and let us know how their club was formed, what equipment is being used, activities and membership, etc. and forward it to me at the address below.

We now have a membership of

60 and our periodic breakfast meetings with the XYLS makes our club activities much more interesting. It also enables us all to talk about the 'old days'.

Eric Colmer VE7CCJ
1236 Chapman St.
Victoria, B.C.

Third time lucky, Eric. Sorry for the other two tries. I don't really remember getting them, but I see so much it is hard to keep track of it all.

PEI BREAKFAST

Thank you for bringing to the attention of your readers our 'Breakfast Get-togethers'. I wish to report that the Charlottetown ARC holds these informal gatherings each Saturday morning at 10 a.m. local time at the Kirkwood Motel and during the summer months, meetings are also held on the third Saturday, same time and place, and not on Sundays as reported.

These get-togethers are, as you reported, open to all Amateurs and their families.

I would like to add to your mention of the Sunday night VHF net run by the PEI Amateur RA that it is held at 9 p.m. local time with net controller the very capable 16-year-old Mike VE1CCO.

Dave MacLean VE1BPZ
Secretary CARC
Charlottetown, PEI



Canadian
Repeater
Advisory Group

Hugh Lines VE3DWL P.O. Box 192,
R.R.#3 Belleville, Ont. K8N 4Z3

Well, here we are back again after another short absence. All in all, there has not been a lot of news coming this way since before the holidays. However, here's what I have received via the mail and on the air.

First, from Geoff VE3KCE in Aurora, Ont. via the Chicken Junction Net on 75 metres, comes a change in the Campbellford repeater VE3KBR. It has changed frequencies and now operates with an input of 147.99 and an output of 147.39. It is working quite well, and I can hit it here from my QTH.

From Terry VE8TF comes news of the first two-metre repeater in the Northwest Territories. VE8YK is on the air in Yellowknife on 146.340/146.940. The repeater is situated on the highest building in the NWT, on the Cominco Robertson Shaft and is about 265 feet above ground level or 350 feet above Great Slave Lake. Autopatch facilities are being considered for the future.

Mel VE2DC sends in some information on a new Montreal area repeater. VE2CAR is on the air from Ste. Martine, Quebec with an input of 147.345 and an output of 147.945. It has a power output of about 150 watts erp and covers the West Island area as well as Chateaugay, Beauharnois, Ste. Martine and Valleyfield. The antenna is a 4-bay dipole and is

about 275 feet above sea level.

Fred VE3GCA advises that VE3DRW in Hamilton as changed call signs and is now VE3NCF. It is still operating from the same location, and they hope to be installing a new 'Spectrum SCR100' repeater by the end of 1981 (should be in now!). The new repeater will operate for at least a few months without any links or

phone patch, but these may be added later.

Well, that's it for this report. I plan to publish a repeater list in June. To do that, I must have any changes or additions in to me no later than the 1st of April. Please send them to me, or catch me on the air on the Chicken Junction Net (3790) or the Quebec Radio Net (3775) most evenings.

National Symposium Committee Members

National Organizers

- Don Slater VE3BID, CARF President, RR 1 Lombardy, Ont. K0G 1L0.
- Bill Wilson VE3NR, CARF Past Pres., 1427 Cavendish Rd., Ottawa K1H 6C1
- Art Blick VE3AHU, CARF Gen. Mgr., via Box 356, Kingston, Ont. K7L 4W2
- Craig Howey VE3HWN, Ont. Director, 304-598 Silverbirch Rd., Waterloo N2L 4R5 519-885-4545
- Jeff Smith VE3KCE, Ont. Director, 7 Johnson Rd., Aurora, Ont. L4G 2A3 416-727-6672
- * RSO Rep

* A request has been made for RSO representation on the National subcommittee.

Host Organizers

- Scarborough Amateur Radio Club
- Thelma Woodhouse VE3CLT, SARC CARF Rep. 44 Innisdale Dr., Scarborough, Ont. M1R 1C3 416-757-5593
- Gord MacEachern VE3MUF, 58 Firstbrooke Rd., Toronto M4E 2L1 416-694-0024
- Reg Pearson VE3RG
- Jerry Slattery VE3MBL Com. Cord. 36 Allister Ave., Scarborough, Ont. 416-267-7154
- Bill Roorke VE3MBF, 4 Cudham Dr., Agincourt M1S 3J6 416-293-6983
- Steve Claire VE3DBT
- George Bennett VE3DHU, SARC Pres 81, 58 Blakemanor Blvd., Scarborough, Ont. 416-431-7209

DX

Douglas W. Griffith VE3KKB
33 Foxfield Drive,
Nepean, Ont. K2J 1K6

This month I enter the computer age. This is the first of what I hope will be many columns written and edited on an Apple II micro-computer. With the word processing program that I am using now, and a PASCAL-based filing program, I believe that I can make the column far more comprehensive, and include far more DX information and much more current QSL data than I have been able to so far.

Conditions have been remarkably good on the low bands, 40, 80 and 160M. 40 metres at times sounded like 20M (if one discounts the BC QRM), with signals blasting in from all over Europe. On 80M, during the Canada Contest on Dec. 27, I was running Europeans faster than Canadians, and I just couldn't believe the signal strengths. 160M has been very productive and several Europeans and a North African station (EA9) were worked recently. The European countries included: EI, YU, GD, G, GW, DL and HB9.

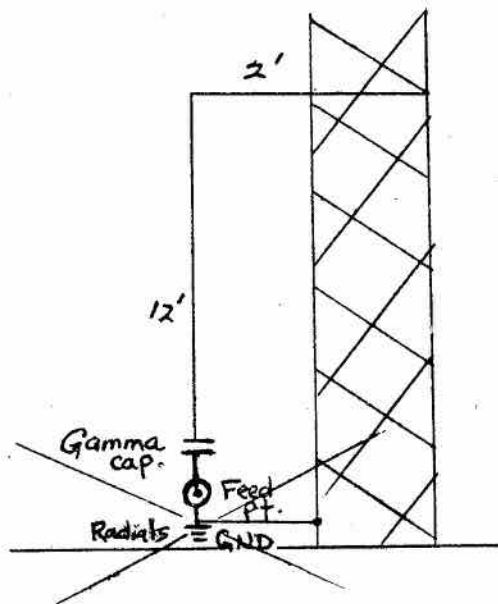
The antenna I use on 160M, by the way, is a shunt-fed 115-ft. tower which, as close as I can guesstimate, appears to be about $3/8$ wavelengths high on that band, the additional electrical length being a function of the top-loading effect of the yagis on the tower.

The ground system for the tower is right into the water table, and there is an adequate radial system consisting of 8 $1/4$

wavelength long pieces of No. 19 wire. Although normally a rather noisy receiving antenna, this vertical appears to be quite quiet, probably due to the absence of any man-made noise in the rural environment.

Brian Summers VE3JKZ also uses a shunt-fed tower on 80 metres. His tower is 48 feet high with a Hy-Gain TH3 on top, and radials run wherever he can get them on his 60x100 foot city lot and, thanks to cooperative neighbours, onto their property as well. Running between 400-500 watts, Brian has had incredible success working DX on 80M, having worked some 95 countries so far. A cross section of what he has worked in recent months include: C5, EA9, FO, FW, HC8, J5, JA, KH6, KL7, SV, VK, VK9, T2, T30, ZK2, ZL, ZS, 4X4 and 6W8. All in all, a very impressive list.

As Brian points out, it is possible to work DXCC on 80M with a modest station. All that is really required is determination, patience and a good knowledge of propagation (grey-line). For anyone who has wanted to try DXing on 80M but has been deterred by a limited-size city lot and a relatively short tower, I strongly urge you to try this method of shunt-feeding your tower. It will outperform an inverted V (sorry, make that an inverted dipole) at 45-50 feet, and is very easy to do. It may take a while to fine-tune the system, but the basics can be done in a few hours once the hardware has been accumulated.



A piece of copper pipe that will support the gamma-rod, or wire, is clamped to the side of the tower at the 12-foot mark. One could use an elbow and extend the copper pipe down as the gamma-rod, but a 12-foot piece of shorted RG-8, 11, 213 or 214 will do just as nicely. The gamma capacitor can be anything from an air-variable to a piece of coax. I prefer using the inherent capacitance of a piece of coax because it is cheap and readily available. Capacitance values per foot of various types of coax are available from tables in many electrical handbooks, including the ARRL Handbook.

The transmission line may be 75 ohm or 50 ohm coax. Make sure that you run a piece of wire from the ground side of the feed-point to the base of the tower. This will cut down on some of the

ground losses which may occur between these two points.

For a radial system, use whatever you can squeeze into the space available to you. Obviously, the closer to an electrical $\frac{1}{4}$ wavelength in length, and the greater the number, the greater the efficiency of the antenna, but also remember there is a law of diminishing returns. Two to four radials will certainly get you going.

Matching the antenna to the transmission line is done by simply trimming the gamma-capacitor (if coax), or adjusting the air-variable, until the lowest SWR exists.

The usable bandwidth of the antenna is not tremendous, but if you centre the phone portion around 3780, and then cut a second gamma-capacitor for CW, tuned to about 3515, and use a relay to select between the two gamma-capacitors, then at a flip of a switch in your shack you will be able to work SSB or CW in the DX segments of 80M in each mode. One word of caution: if your tower is more than a couple of years old, and if you don't like neighbours complaining of Hi-Fi interference, then it's worth the extra time to run a piece of wire from the top of the tower to the bottom along each leg.

Above, I described a technique for shunt-feeding towers, using 80M as the resonant band. The same method may be used on either 40 or 160M. On 40M, place the gamma-rod one foot out from the tower, and the gamma capacitor should be about $\frac{1}{2}$ the value as that for 80M. The gamma rod will also be $\frac{1}{2}$ as long, i.e. 6 feet... this is one time that a lower tower has a better chance of success.

If your tower is higher than 45 or 50 ft., physically, then by the time you figure the increased electrical length due to such things as the capacitive loading of the beam, or quad, 2M antenna(s), etc. and the diameter of the tower, you

may find that it is greater than $\frac{5}{8}$ wavelengths high. It has been my experience that a vertical antenna any greater than that begins to demonstrate a poorer performance. Similarly, a tower may be fed for 160M. Again it is really only the dimensions that change. Ball-park figures would be: gamma rod- 24ft. long, 4 ft. out from the tower and a gamma capacitor-about 42 ft of RG-11.

The problem with short towers on this band is obvious. Not only are they physically short, but electrically short as well. You may end up with an antenna which is about $\frac{1}{8}$ wavelengths long on 160M. This means that the radiation resistance will be very low, and the antenna will be rather inefficient. Nevertheless, the antenna will work, and get you out on 160. Elsewhere in this column is a 160M band plan, for those of you who are unfamiliar with the band.

On Dec. 31, 1980, the continental U.S. chain of Loran-A stations shut down. Loran stations are still active on a frequency of 1950 kHz in Eastern Canada, and probably will remain operational until the end of 1982.

Since June 10, 1981, U.S. Amateurs have had full Amateur privileges on the 1800-1900 kHz segment, including full 1KW input power privileges. In Canada, we are still restricted in both power and frequency spectrum, as outlined in Part 2 of the radio regulations. Hopefully we will be given the same rights as our American counterparts when our East coast Loran chain closes down at the end of this year.

A very effective short range band during daylight hours, the entire characteristics of the band shifts with the coming of nightfall, especially during the Winter months and during the years of minimum sunspot activity. Strong signals can be heard from hundreds of miles away and on many nights of the month DX is possi-

ble. Because the signal strengths of DX transmissions on 160M are so weak, *DX Windows* have been created. These DX windows are frequencies in which no North American transmissions are made, providing a QRM-free 'window' through which the N.A. stations can 'see' the DX. It should be pointed out that these quiet frequencies are observed by a 'gentleman's agreement' and that there are no radio regulations governing them. However, unless you are looking for a real earful from some ardent 160M DXer, I suggest in the strongest terms that you observe them. The DX station will advise people listening in the window where he is listening, usually using either QSX, followed by a frequency, or QSU followed by a frequency. Most DX on 160M is on CW but, if conditions are good enough, most stations will switch to SSB upon request (bearing in mind any licence restrictions). Of course, Canadian Amateur Class licensees may now use A3 on 160, which is something to keep in mind for a few years down the road, when 10M dies completely.

The following is a list of the normally observed modes and DX Windows on 160M:

1800-1810: CW only
1810-1825: SSB
1825-1830: DX Window (mainly for Europe- outside USSR)
1830-1850: mixed, CW & SSB
1850-1855: DX window, USSR and satellites
1855-1900: SSB
1907.5-1912.5: DX window to Japan
1900-2000: SSB, subject to geographic restrictions.

A good place to check out the band might be during the CQ 160M Contest which starts at 2200Z on Jan. 29, 1982, and ends at 1600Z on Jan. 31, 1982. This contest is very popular, and generates a tremendous amount of activity, so it would be an opportunity to see the band at its best. If

conditions are good, you might even hear some choice DX. Good luck.

Bits & Pieces

BV2A/B Taiwan - Tim Chen is now active on 15 metres. WED. 12-1400 GMT, SAT. 23-2400 GMT and on the following frequencies: 21.030, 21.100, 21.270, 21.300.

D2A Angola - OK3TAB is reported to be returning to Angola about Jan 3 and expects to be there for three months.

Pacific Ocean - PA0GMM will be on an extensive Pacific tour early in 1982. His tentative schedule is Jan. 14-18: KX6; Jan. 20-23: YJ8; Jan. 25-26: C21; Jan. 28-Feb.3: T2. All QSLs go direct to PA0GMM.

C9 Mozambique - SM2DWH/C9 was very active Dec. 19-20/81. He stated that there will be another Swedish operator going there in early Jan. and that he will be there for about one year, active on both SSB and CW. He is reported to be taking a beam and linear, so he should be easy to work. QSL to SM2DWH or via the SM buro.

FB8WG Crozet: Georges has been very unpredictable lately, often keeping a sked and then disappearing immediately after. He has been heard on both 15 and 20M. He is reported to have stated that he will be very active again early in the new year, and since he now has an external VFO, hopefully this means that not all of his activity will be restricted to nets and lists. QSL's go to George de Marrez, Santa Severa, 20228 Luri, Corsica, France. Return of QSL's is reported to be very prompt.

K4YT African Tour: Karl expects to be in TR8 on Feb.2; TN8 on Feb. 9; TL8 on Feb. 16; 9Q5 on Mar. 3; 5Z4 on Mar. 18; S79 on April 2; and ET3 on April 9. QSL for all to W2TK.

KP1 Navassa: Look for a late January or February DXpedition

to this semi-rare Caribbean Is. Apparently 3 separate requests for permission to operate have been received by the U.S. Dept. responsible for the Is. Well-known DXpeditioner KP2A sent one, and one other request comes from the International DX Foundation (IDXf).

LU5ZI S. Shetlands: Ron LU2AH will be on from the S. Shetlands from Jan. 19-Feb. 23. The operation will be mostly SSB, 10-16M. QSL route is not known at this time.

PA0GMM Pacific Tour: T30 from Feb. 5-10 and T32 from Feb. 11-16. Watch 14.200, 21.300 and 28.600. All QSL's go direct to PA0GMM.

S2 Bangladesh: JA8MWU will be in Bangladesh early in 1982 and hopes to be active as S21JA.

T5TI Somalia: Watch 21.295 at 1800Z on Tues., Sat. and Sun. QSL's go to I0SSW. This station is still not being accepted for DXCC.

YI Iraq: YI1BGD is active again. Watch 14.225 LP around 12-1300 GMT. Also watch 14.250, 0700-0900 GMT.

9U5 Burundt: At the present time, the only station that is good for DXCC credit is 9U5WR. Often found at 1900 on 14.028; 1600 on 21.030 and also 1600 on 28.030. QSL's go to SP6FER, although what is happening to foreign mail going to Poland these days is unknown.

9N1MM Nepal: Father Moran is being heard again, having returned from his trip Stateside. Try 14.235 around 0130Z Mon. and Fri. and 14.212 at 0100Z. QSL via N7EB.

The All India Propagation Net meets daily at 1530 GMT on 14.150. The net will pick up DX check-ins at 1550.

QSL Information
Station
A6XJC
A9XDO
A22GM
CN8BX
J88AQ

QSL via
PE0MGM
KA4S
N4FD
AK3F
W2MIG

J28DM
JW6MY
TJ1GH
T30AT
T32AF
TU2GA
ZD8BM
3B8ZZ
3C1AB
3V8AA
5T5RR
5T5ZZ (op:W4LZZ)
YB0ACP
ZD8DM
3D6BS
4S7MX
5B4JE
5N0WRA
5W1DT
8Q7KK
9X5AP

F2GA
LA6MY
DJ6SI
G3XZF
JA1NVG
K9KXA
ZD8AR
K4YT
EA1QF
IS0LYN
F1ANH
W4FRU
K6MQG
G4HJV
N7RO
SM3CXS
DF4FX
DF3FN
AA6AD
SM2DYS
G3ADC

That's it for this month. Thanks to VE2ZP, Long Skip and DX Report.

SARC News Award

Audrey Cuthbert VE3ILT has informed us that Jack Botner VE3LNY has once again been selected to win the *SARC News Award* for his series of articles on apartment antennas. Jack is now twice winner of the award.

Audrey initiated the award last year as an incentive for club members to submit good articles for publication in our club bulletin, *SARC News*. We were fortunate this year to have several articles that qualified. We appreciate the efforts of all the contributors.

Bob VE3IEL
Scarborough ARC News

MILITARY NET

Attention all ex-Royal Canadian Signals or ex-military men. Tune in to 7.084 (SSB) every Saturday at 0900 EST (1400Z) for the JIMY Net.

Contest Scene

Dave Goodwin VE2ZP., 4 Victoria Place, Aylmer,
Quebec J9H 2J3.

CONTEST CALENDAR

February

6-7 RSGB 7 MHz SSB
13-14 YU DX WW CW
20-21 ARRL DX CW
26-28 CQ 160m SSB
27-28 RSGB 7 MHz CW

March

6-7 ARRL DX SSB
13-14 RSGB Commonwealth CW
20-21 BARTG RTTY
27-28 CQ WPX SSB

April

3-4 Polish DX CW(?)
10-11 CARF Commonwealth Phone
17-18 Polish DX SSB
24-25 Helvetia H-26
24-25 H.M. King of Spain Trophy

The second running of CARF's Canada Contest came off quite well, with only one major hitch. Due to the rush to get the November issue together, the rules for the contest were lost, and consequently not published. Fortunately, the good word was spread by the Bulletin service, CANAD-X, CQ, 73, QST and various foreign journals. Participation was reasonably good, but not quite as high as last year. A number of comments to this effect have been seen on logs received thus far.

Repeating his excellent performance of last year, Jim VE5DX broke his year old record of 773k, with an outstanding score of 875k. Jim made exactly 1000 QSOs this year, almost 700 of which were with Canadians. Among the other single op all-band prominents this year were VE7SK, VE7VX,

VE3KKB, VE7AB and others I have forgotten since the contest.

There was plenty of participation by more casual operators this year, helping keep those scores up. In the multi-single class, VE1ASJ, operated by Andy and myself, managed to beat the mark set last year by VE7WJ, with a score of about 687k, managing 131 multipliers. That multiplier score was especially hard work, and may only be beaten by another entrant from the Maritimes, or maybe the West coast or Newfoundland.

Single band types saw most of the heavy competition on 10 metres, where VE6CKW, last year's record scorer, and VE6CNO went head-to-head. CNO's score of almost 39k came dangerously close to CKW's record of 39.1k. There were lots of stations active on 10, 20 and 80, the normal bands where Canadians are to be found and a surprising level of activity on 15 metres. There was very little activity, I'm sorry to say, on either 160 or 80 metres.

Conditions were very good on all bands except 160. There was plenty of backscatter on 10 and 15, and strong coast-to-coast singals on all bands 10-80 metres. At one point, when signals began to sound fluttery on 10 and 15, we at VE1ASJ were getting ready to work some VE3's and VE2's via the aurora on 6 metres. The opening never materialized.

On 160 there were plenty of contacts made among stations in VO, VE1, VE2 and VE3 on one hand, and among VE4, VE5, VE6

and VE7 stations on the other, but I have not yet heard of anyone making a contact from one half of the country to the other. Skeds were arranged, but the band did not seem to be in. VE5DX worked W1 and W3, but not the adjacent areas of this country.

Happily, PEI, NWT and Yukon QSOs were in good supply, thanks to VE1DX, VE1ATJ, VE8XO, VE8BE, VY1CM and VY1DD. VE8XO was quite a serious entrant, all bands, and was quite cooperative when asked to QSY to another band or mode for additional multipliers. Being where he is, however, he was asked about every second QSO to move off to another band. Bulk skeds would be his answer.

Among the comments received in logs so far, there was one plea for some sort of bonus point system to try to equalize propagation advantages. I must say right off that I am opposed to this. I feel if everyone plays by the same rules, the contest will operate in a most fair manner.

Stations who are unable to work the major populated areas on 10 and 20 metres, that is VE2 and VE3, will have to adapt their tactics to their location. If any system of 'bonus points' were to favour any region, I am sure that the others would howl 'unfair'. In point of fact, as most Amateurs in this country are in Quebec and Ontario, the most of the contest activity is on 10 and 20 metres, where working stations less than 1000-1500 km away is rather hard, any such system of 'bonus points'

would have to favour VE2 and VE3 entrants. Seeing as the fellow who suggested this is in BC, I don't think he or too many others in other regions would go for it.

In the Maritimes, where multipliers are easy, and VE2s and 3s are hard to work, you would have to concentrate your effort on collecting multipliers to put in a winning score. The same holds true for Quebec and Ontario, and possibly Manitoba. From Saskatchewan west, working central Canada on the high bands is duck soup, as it is from eastern Newfoundland. Stations in these regions can't work the multipliers at the extreme ends of the country so easily, but they sure can make the contacts, right VE5DX?

If you apply yourself to working with your strengths and trying to overcome your weaknesses, it may be possible for the winning scores to come from any region, any year. Part of contesting is meeting this kind of challenge. If anyone has any other comments on the contest rules, please send them to me and maybe we will find some truly constructive ideas lurking around out there.

The results for this contest will appear about the time of the Canada Day Contest. In future years, results should follow the contest by about four months of TCA.

Canadian participation seemed to be fairly good in ARRL's 10 metre contest, with VE6OU and VE5XK (the reborn VE4VV) making lots of noise. So far no word of estimated scores has been heard.

Coming up in the next couple of months are the RSGB CW and CARF SSB Commonwealth contests. Hopefully the change of date for the CARF event will result in higher participation. There are official entry and prefix checklist sheets now available, from my own or the committee's address. Rules are unchanged, and hopefully the new weekend is close enough to the equinox that inter-hemisphere QSOs can be made on

the low bands. A few of the prefixes have changed, however, so don't ignore those V2s and V3s calling you.

There was some comment last year about the rules calling all of the UK, the Isle of Man and the Channel Islands all one call area. The RSGB, whose rules we borrowed, decided that creating separate call areas for each real call area would give too much help to the GD, GI, GJ, GM, GW and GU types, at the expense of everyone else. That seems like a reasonable policy, although I have some suggestions that will be made to help the rest of us make additional bonus QSOs. That will be discussed with our UK counterparts, and any change will be made by both contests together.

The dates for the Polish DX contests are presented, but it remains to be seen whether Polish Amateurs will be allowed to operate by that time. Polish Amateurs have disappeared since martial law was declared, and their reappearance will be subject to how quickly the military feels order has been regained.

The 73 Magazine 40 and 80 metre Phone contest was quite a success, and a good deal of casual Canadian participation was noted. VE5DX went single band 40 and rolled up an impressive 1000 unduped QSOs and 94 multipliers. VE5XK, operating from the same station went full bore on 80, with about 600 QSOs and 64 multipliers. VE2ZP, operated by VE3MHI and I were multi-single both bands, and rolled up almost 1300 QSOs and 166 multipliers.

Among the casual participants were VE7s SK and VX, a large number of VE3s and very few from anywhere else. The contest was lots of fun, and there was lots of good DX to be worked. There is an incentive in the rules to try to make daytime QSOs on both bands, but I feel that this may act to keep down scores in the centre of the continent, where population is more sparse and, correspon-

dingly, daytime activity very low. As it stands, VE4 through 7 and W0 suffer some propagation disadvantages on 40 and 80, and the bonus point idea, while good for activity, is bad for Western scores.

RSGB COMMONWEALTH CW

Period: 1200z 13 Mar to 1200z 14 Mar

Classes: All or single band, single operator only.

Bands: 80 thru 10 metre bands. It is recommended that contest activity take place in the bottom 30 kHz of each band.

Scoring: Work only stations in the Commonwealth or Mandated territories. Do not work stations in your own call area. 5 pts/QSO. 20 bonus points may be claimed for the first, second and third QSO in each call area on each band. See the rules for CARF's Phone Commonwealth Contest elsewhere in this issue for a list of call areas.

Exchange: RST and serial number.

Entries: Must include dupe sheets, a call area checklist and a summary sheet detailing QSOs, bonus QSOs and points claimed on each band. Separate log sheets must be used on each band. Entries should be received by 17 May 1982 and sent to Dennis Andrews G3MXJ, 18 Downsview Cres., Uckfield, East Sussex, TN22 1UB, U.K.

Awards: Trophies will go to the first and second place scorers, and certificates will be awarded to the first, second and third place entrants in the U.K. and Overseas, to top scorers in each call area and to the top UK and Overseas single band scorers.

CQ WPX CONTESTS

Period: SSB: 0000z 27 Mar to 2400z 28 Mar. CW: 0000z 29 May to 2400z 30 May.

Classes: Single operator, all bands; single operator, single band, including separate QRP (less than 10w) single op classes; multi-operator, single transmitter;

and multi-op multi transmitter. Single op stations may work only 30 hours. Multi-singles must stay on any band not less than 10 minutes, with no exceptions. Multi-multis may only transmit one signal per band.

Bands: 160 thru 10 metre bands, with the exception of the 10 MHz band, if it is available by this time.

Scoring: 0 points for QSOs with other Canadians. On 14/21/28 MHz bands, 2 points/QSO inside North America, 3 pt for others. On 1.8/3.5/7 MHz, these values are doubled.

Multiplier: Total of callsign prefixes worked, regardless of band.

Entries: Should include dupe sheets and a summary sheet. Summary and log sheets are available from CQ Magazine for an SASE. Logs must be received by 10 May for the SSB, and 10 July for the CW and sent to: CQ Magazine WPX Contest (indicate CW or SSB), 76 North Broadway, Hicksville, NY 11801, USA.

Awards: Trophies are awarded to the top scoring single op, all band, and single op, single band entrants from Canada in the SSB, and for the top single op, all band (offered by CARF) and multi-single in the CW contest. Certificates are awarded to the top scoring entrant in each class in each call area.

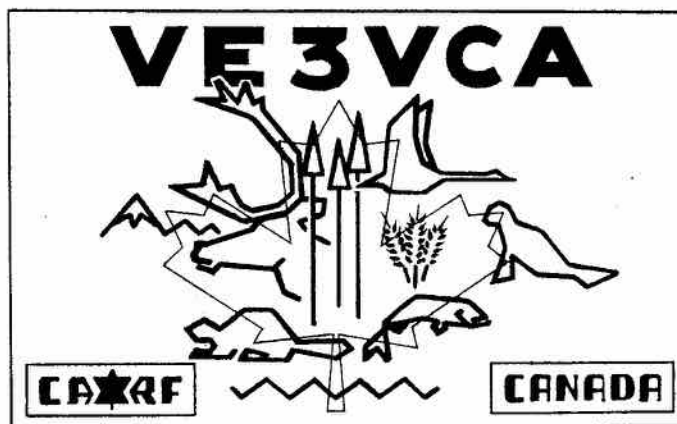
Results, RSGB Commonwealth CW, 1981

Canadian entrants

Pos	Call	Score
1	VE6OU	5436
3	VE5RA	4794
10	VE2WA	4024
15	VE3JKZ	3590
21	VO1AW	2823
27	VE1ASJ	2260
50	VO1HP	1558
61	VE4RF	1165

Thanks to VE3JKZ for jogging my memory.

New CARF QSL card for VE3VCA



There have been several suggestions that the new VE3VCA card be a new, unique Canadian design. When the present stock of cards ran out, a search for a new design was started. The ideals behind CARF and the idea of a purely Canadian organization led to asking John R. Bates to design a new card.

John is the cousin of Ron Walsh VE3IDW and he designed a certificate for the Walsh family. John took the information given and developed the unique design displayed on our cover.

The symbolic Inuit-type art brings in all the natural aspects of Canada from sea to sea. This is superimposed on the red Maple leaf, our Canadian symbol. John's design was submitted to various CARF officials and local Amateurs to see if they like the design. This led to the submission of the design to Bruce McCoy for printing. Bruce did his usual fine job on this card.

John Bates was born and raised in Kingston, Ont. He has worked in a family-owned screen printing business for over 25 years. John and his father, Reg, specialize in the design and manufacture of crests. He enjoys all forms of art, sailing, fishing and hunting (An annual expedition to Northern Ontario with Bert

Walsh VE3KBW to hunt moose and ? is an example). John is a GRS operator and a member of the CGRSA.

John said he would invite inquiries from anyone wishing a hand-drawn, personalized card or certificate. He will design the artwork for the Amateur, who can then work with a local printer to have them produced. Requests for crests will also be discussed. Contact John at Screencraft Studio, RR 6 Kingston, Ont. K7L 4V3. 613-542-2711.

U.S. DROPS

PHONE BAND CHANGES

CARF has received a welcome reply from DOC to its letter expressing concern and opposition to the agitation in the U.S. for expanded phone bands on 10, 15 and 20 metres. The Department, after contacting the F.C.C. in the U.S., stated in its letter that it had been informed by the U.S. regulatory body that it has no intention at present of expanding any of the phone band sub-allocations in the Amateur bands.

CARF News Service

160M INFO

The Canadian Top Band Net meets every Tuesday evening at 0200 Z on a clear frequency between 1.815 and 1.825 MHz to exchange info on 160 operation. All Amateurs are welcome.

220: The Non-Forgotten Band

The 220 band in Canada is currently undergoing some rapid advances in activity. It seems to be on the boom verge that 2 had in the late 60's.

The introduction of the digital certificate has not generated too many new people on the VHF bands, but instead, as a fallout of the controversy surrounding its introduction, interest has been kindled in the existing Amateur population.

There are several 220 MHz FM repeaters in operation with 223.34/224.94 being available in Ottawa, Waterloo ont., Winnipeg and possibly in B.C., with others accessible from other Canadian locations. Terry VE3CAB and associates are about to open up a

repeater on 223.28/224.88 in Toronto and Collingwood, Ont. Diz VE3ZK and the VE3TTT group in London are actively building a machine on 223.18/224.78 MHz. There are four other areas in Ontario that have or will have active machines shortly that I know of.

On my latest western trip, I was quite pleased to find VE5WJ and others have the band active in Regina and the Winnipeg group with Tom VE4MJ and their 220 FM repeater VE4TTR are actively pushing 220 there.

Larry VE3QB and others are busily linking Ottawa to southern Ontario digitally and the Carleton University ARC VE3OCU, home

of the VE3TCA bulletins, in conjunction with the Montreal group have linked Ottawa and Montreal. Montreal, of course, seems to be very active on 220 digital.

On the west coast, Doug VE7APU and others have at least one digital network in the Vancouver area.

I've heard rumours that the East coast is far from being dead with Randy Smith and others active on several modes.

No doubt there are other pockets of activity out there that have not heard about and I invite them to write to TCA and toot their horns about activity on the non-forgotten band.

Craig Howey VE3HWN

Check your TV Cable system

By George Acton VE3EQH

Cable TV is a popular source of entertainment these days, particularly if your TV is equipped with a converter that provides many more channels for your enjoyment.

But like many other things, you don't get something for nothing; this rule applies also to radio frequencies and their use. Contrary to what a local group is saying, radio frequencies are not public property. Because transmissions may cross many international boundaries, use of radio (or TV) frequencies must be coordinated by international agreement. This is done through the International Telecommunications Union (ITU) in Geneva, Switzerland, of which Canada, the USA and many other countries are members.

Radio Frequencies are assigned within bands allocated by the ITU for such services as broadcasting, navigation, air safety, police and

fire departments, Amateur radio, and many others. Broadcasting, in turn, is further broken down into AM and FM radio frequencies and TV channels. The latter assignments are numbered 2 to 6 and 7 to 13. There are only so many available and when they have all been used, there are no more.

With a TV cable system, additional channels (frequencies) belonging to others can be used providing they don't leak out of the cable. If they can leak out, others can 'leak' in and we wind up with a mess of interference problems—interference to those who actually 'own' the frequencies by TV transmissions and interference to TV programs caused by transmissions from these 'owners'. And none of this interference can be blamed on the station to which the frequency was assigned; he is using it legitimately. Sometimes the cable itself is the culprit.

So the next time you experience

interference on your favorite cable TV channel, don't assume it is being caused by that Amateur radio operator in your area; he's probably even more aware of interference problems than you are. Call your cable TV company and ask them to investigate. It could be nothing more than a loose connection at an outside junction box.

The Printed Circuit
Computing Devices
Company Bulletin

RUSSIAN SATELLITES

Six Russian satellites, RS3 through RS8, were launched on Dec. 17. Orbiting 1700 kilometres altitude, their beacon frequencies are: RS4 on 29.360 and 29.403 megs; RS6 on 29.411 and 29.453 megs and RS8 on 29.461 and 29.502 megs. Terrestrial station interference will be a problem when their transponders are activated, according to HR Report. Look for more info in the next TCA. CARF News Service

AZDEN PCS-3000

2 METER TRANSCEIVER AND
PCS-300 2M HT HERE AT LAST!!!

PCS 300 HT HAS THE SAME
FEATURES AS THE PCS3000
IN STOCK NOW !!



PCS3000 IS STILL THE LEADER IN 2M RIGS !!

PCS3000 \$429 comes with complete touch-
tone pad kit.

EXTRA DC CORD \$7; SERVICE MANUAL \$5;
REMOTE CABLE AND MOUNT \$65; ASSEMBLED
TOUCH-TONE PAD IN EXTRA MIKE BACK \$65;
ASTRON RS7A POWER SUPPLY \$95 S&H \$4;
EXTRA T.T. PAD KIT \$29.

NEW PCS300 HAND HELD !!

PCS300 \$429 comes with Nicad Pack, Wall
Charger, Rubber Ducky, Stand
which allows desk use while
charger is plugged in.

SPEAKER MIKE \$45; LEATHER CASE \$49; DC-DC
CHARGE CORD \$25; EXTRA NICAD PACK \$44.

CONTESTING?



THE NEW LOW COST
AEA CONTEST
KEYER MODEL CK-1
WILL MAKE YOU
MORE COMPETITIVE
THAN EVER!

\$ 199

SUGGESTED AMATEUR NET

- Automatic Serial Number Generator From 01 to 9999.
- 500 Character Soft Partitioned™ Memory That Can Be Divided Into as Many as 10 Messages.
- Exclusive AEA Memory Editing Capability.
- Two Presettable Speeds With Fast Recall Plus Stepped Variable Speed Selection.
- Iambic Operation From 1 to 99 wpm and Complete Weighting Control.
- Extreme R.F. Immunity. Will Key Any Modern Transceiver. Operates from 12 ± 3 Volts D.C.

SORRY, NO CHARGE CARDS
AT THESE SALE PRICES!!

ISOPOLES !!

144 JUNIOR \$45
144 \$59

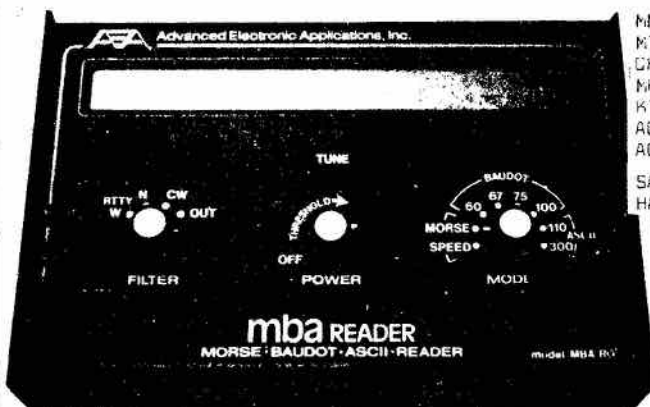
A. E. A. SALE !!

	REG.	SALE
MBA READER	\$459	\$399
MM-1 MORSMTC	\$309	\$249
MT-1 TRAINER	\$149	\$119
CK-1 CONTESTER	\$199	\$155
MK-1 KEYS	\$119	\$95
KT-1 KYR TRNR	\$199	\$155
AC-2 ADAPTOR MBA, MM-1	\$23	
AC-1 ADPTR ALL OTHERS	\$15	

SALE LIMITED TO STOCK ON
HAND, CALL AND CONFIRM..

SHIPPING & HANDLING
POSTAL CODES A-P +2%
POSTAL CODES R-Y +3%
MINIMUMS: A-P \$2
R-Y \$3

UNLESS OTHERWISE
STATED..



hy-ga

HY-GAIN SALE !!

Sorry, NO Ch
at th

LA-1 LIGHTNING ARRESTOR
18V ECONOMICAL VERTICAL 10-80M
18AVT/WB 10-80M VERTICAL
14AVT/WB 10-40M VERTICAL
12AVQ 10-20M VERTICAL
TH3JR 3 ELEMENT TRIBAND 300W cont.
TH3MK3 3 ELEMENT TRIBAND
TH5DX 5 ELEMENT TRIBAND
TH6DX 6 ELEMENT TRIBAND **SUPER SALE!!**
DB10/15A 10/15M DUBBAND
203BA 3 ELEMENT 20M MONOBANDER
204BA 4 ELEMENT 20M MONOBANDER
2M 3-Pole 4 ELEMENTS
BN-86 BALUN @ \$25 RECOMMENDED WITH ALL
INTRODUCTORY SPECIAL ON NEW 7 ELEMENT
TH7DX NEW 7 ELEMENT TRIBANDER
TH6/TH7 KIT CONVERTS TH6DX to TH7DX

BEARCAT® SCANNERS



Now you can have the
one scanner you've always
wanted—a no crystal, fully
synthesized hand-held
scanner. The incredible,
new, Bearcat 100.

IN STOCK NOW !!

BC-100 \$559

SORRY NO CHARGES

AT THESE PRICES!!

BEARCAT SALE

Model	Canadian List	Sale
BC-150	\$399	\$329
BC-160	\$479	\$339
BC-210XL	\$539	\$379
BC-220	\$659	\$459
BC-250	\$649	\$499

SALE LIMITED TO STOCK ON HAND.....

in

ge Cards
e. prices
EG. SALE
85 \$ 69
45 \$ 39
173 \$155
105 \$ 95
72 \$ 65
299 \$265
390 \$349
435 \$390
525 \$439
270 \$229
240 \$209
405 \$365
135 \$115
EAMS.....

IBAND
749 \$675
299 \$269

ANTENNAS for 2-meter Hand-Helds

1/2-Wave Gain Antenna

Provides nearly 10-dB gain over a rubber ducky when extended. It's full 47" yet telescopes to only 8" for stowing or carrying. Works with any BNC equipped radio.

5/8 wave by Icom \$35 Canada made 5/8 \$14
1/4 wave by Trionyx \$12 Ugly Duck VoCom \$22
SHIPPING INCLUDED UNTIL MARCH 31, 1982...

NEW! Short, Compact "UGLY DUCKLING"

Only 4 1/2" short, yet performs like a "full size" ducky. Available for either BNC or threaded mounts.

VOCOM AMPLIFIERS
135
1 watt in 25 watts out
2 or 25 watts in 100 watts out \$269
10 or 25 watts in 100 watts out \$269
2-25 or 10-25 module
15



\$299 NOW IN STOCK

ATTENTION ALL ICOM 2A(T) OWNERS !!

INCLUDES: 25 watt RF amplifier for big mobile power. AUDIO amplifier that delivers 2 1/2 watts to a 4" speaker. Lots of audio at low volume settings to save battery power. Accepts AND CHARGES ALL ICOM battery packs. Built in mike preamp to accept any mobile mike even the Icom speaker mike!!

THE VoCom "POWER POCKET" WILL MAKE YOUR IC2A(T) THE TRUE "DUAL DUTY" RIG YOU HAVE ALWAYS WANTED IT TO BE

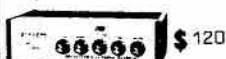
1982 callbooks

NOW READY!

U.S. CALLBOOK \$23
DX CALLBOOK \$22
BOTH CALLBOOKS \$42
MAP LIBRARY \$7
SHIPPING INCLUDED...

MFJ KEYERS

Uses Curtis 8044 IC. Iambic operation, dot-dash memories, weight control, solid state keying. RF proof.



\$120

The MFJ-408 Deluxe Electronic Keyer sends iambic, automatic, semi-automatic, manual. Use squeeze, single lever or straight key. Speedometer lets you read speed to 100 WPM. Socket for external Curtis memory, random code generator, keyboard.

Iambic operation with squeeze key. Dot-dash insertion. Semi-automatic "bug" operation provides automatic dots and manual dashes.

Dot-dash memory, self-completing dots and dashes, jam-proof spacing, instant start, RF proof. Solid-state keying: grid block, solid state xmtrs.

Front panel controls: line speed, weight, tone, volume, function switch, 8 to 50 WPM.

Weight control adjusts dot-dash space ratio; makes your signal distinctive to penetrate QRM.

Tone control. Speaker. Ideal for classroom. Function switch selects off, on, semi-automatic/manual, tune. Tune keys transmitter for tuning.

Uses 4 C-cells. 2.5 mm jack for power (6-9 VDC). Optional AC adapter MFJ-1305, \$15. Eggshell white, walnut sides. 8x2x6 inches.

MFJ-406, \$105, like 408 less speedometer.

MFJ "Dry" 300 W and 1 KW Dummy Loads.

\$98

\$40

MFJ-262

MFJ-260

Air cooled, non-inductive 50 ohm resistor in perforated metal housing with 50 239 connectors. Full load for 30 seconds, de-rating curves to 5 minutes. MFJ-260 (300 W), SWR: 1:1 to 30 MHz. 1.5:1 for 30-160 MHz. 2 1/2 x 2 1/2 x 7"

MFJ-262 (1KW), SWR: 1.5:1 30 MHz. 3 x 3 x 13"

Model 173DM
Dual, independent clocks/Solid walnut case/
Functional and beautiful
\$119 (plus \$3.00 shipping)



Model 173B
Internal backlight/Aluminum
and Poly case/Portable
\$59 (plus \$3.00 shipping)



BENJAMIN MICHAEL
24 Hour Clocks...
AA BATTERY LASTS
FOR ONE YEAR....
DEALERS WANTED..
WRITE FOR CLUB
DISCOUNTS (+12).

USED GEAR

* 10 day Trial (pay only Shipping Charges)

DRAKE TR4C HF TRANSCEIVER \$499
DRAKE AC4 POWER SUPPLY \$159
DRAKE MS4 SPEAKER \$39
PACKAGE DEAL ON ABOVE \$599
DRAKE T4XC R4C AC4 MS4 \$999
DRAKE TR6 with LUNAR PREAMP \$550
ASTATIC D-104 MIKE \$49
YAesu FT3040 FP3040 \$799
YAesu FT707 USED DEMO \$849
YAesu FT7B TRANSCEIVER \$599
YAesu YC7B DIG DISPLAY 7B \$119
SWAN ASTRO 150 TRANSCEIVER \$799
SWAN PSU5(A) POWER SUPPLY \$149
SWAN ST3B ANTENNA TUNER \$179
N.P.C. 12amp POWER SUPPLY \$69
DAIWA RF440 SPEECH PROC. \$119
KANTRONICS FIELD DAY IIDEMO \$499
KENWOOD TR7400A 2M 25W FM \$225
T.T. MIKE FOR ABOVE MFJ-408 \$35
YAesu CPU2500RK 2M 25W FM \$349

ALL OF ABOVE ONE OF A KIND.
CALL AND CONFIRM PRESENT OR NEW
STOCK OF TRADE INS.....

YAesu



FT-101 ZD-III \$1195

CALL FOR LOWER CHECKE
WITH ORDER PRICES !!

ALL YAESU PRICES ARE
NOW LOWER THAN EVER.



FT-ONE \$2995

- Fully synthesized in 10 or 100 Hz steps
- Ten VFO's with A-B access
- 150 kHz through 29.999 MHz
- A four bit CPU for control functions
- Full CW break-in



FT-208R \$419

2 Meter FM Hand-Held

- LCD Display with Lithium Backup Cell
- Selectable 5 kHz/10kHz Scanning
- 10 Memories with Auto/Resume Scan
- 16 Button Tone Encoder

Special

FV707DM \$299



FT-707 MOBILE

- Frequency coverage: 10-80 Meters
- Variable Bandwidth
- VOX with semi CW break-in
- Digital plus Analog Frequency Display
- Power: SSB/CW 240 watts DC, AM 80 watts DC

RAPID MOBILE CHARGER

FINAL CLEARANCE \$25



Charge your handheld radio off 12 volt source in 4-6 hours. Will not overcharge your batteries due to automatic shut-off circuitry. Equipped with cigarette lighter plug on the input side and the appropriate charging plug on the output side. Cord lengths allow for convenient use while charging!

DC-DC QUICK CHARGER (4 HOURS)
FOR FT207R, FT208R, WILSON II, IV

BUTTERNUT ELECTRONICS

Butternut's new HF6V automatic bandswitching vertical lets you use the entire 26-foot radiator on 80/75, 40, 30, 20 and 10 meters (full quarter-wave unloaded performance on 15 meters). No lossy traps. Butternut's exclusive Differential Reactance Tuning™ circuitry uses rugged ceramic capacitors and large-diameter self-supporting inductors for radiation efficiency and DX performance unmatched by conventional multiband designs of comparable height. HF6V \$149 + \$9 S&H AFTER MAR 15 \$189

30M kit for HF5 \$45
RMK-II \$65+\$6 S&H
STR-II \$39+\$4 S&H
TBR-160 \$59+\$4 S&H

4 1/2 DIGIT MULTIMETER/THERMOMETER

MODEL TRMS: 5000

Imagine a 4 1/2 digit true RMS reading multimeter AND a precision digital °C/°F thermometer for the price of one unit. A large .5" display and easy to use control format make the TRMS:5000 a pleasure to operate.

Use it in the lab or portable with the optional rechargeable battery pack which installs inside the case. The Hi-Lo switch for resistance reading enables in-circuit resistance measurements without forward biasing semiconductors in the circuit.

State-of-the-art design, dependable LSI circuitry and precision components such as the laser trimmed resistor module offer the performance and reliability you need in a modern multimeter.

- 4 1/2 DIGIT DISPLAY • TRUE RMS READING • .04% DC ACCURACY
- PRECISION °C/°F THERMOMETER • 10 AMP RANGE • TEST LEADS AND TEMPERATURE PROBE INCLUDED • ALUMINUM CASE • FULL YEAR PARTS AND LABOR GUARANTEE

All antennas include antenna wire, traps, 50 feet of RG-8/U coaxial cable and PL-250 connector, two end insulators, and a B&W Model CC-50 Dipole Center Connector. Traps weigh approximately 9 ounces each.



save
\$30

FIVE BAND TRAP ANTENNA

1,000 Watts
2,000 Watts PEP
All Band Antenna
One Feed Line

Model 370-11

Pre-assembled antenna, 80-40-20-15-10 Meters. Only two trap adjustments and terminations and ready to use. Approximate length only: 110 feet.

Supply Limited

Reg. \$105

\$75

HAM RADIO ATLANTIC

HOURS: MON-FRI 6pm-11pm
SATURDAY noon-6pm
SUNDAY 1pm-6pm
ATLANTIC TIME

MIN \$50



P.O. Box 755
Saint John, N.B.
Canada E2L 4B3
(506) 652-5753

New money for Quebec Space Program

The space industry in Quebec will receive a major injection of new money with the federal government's approval of a \$132 million addition to Canada's space program over the next four years, federal Communications Minister Francis Fox announced recently.

Fox said that more than 75% of the new funding involves major new satellite and technology development programs managed by DOC. More than one half of the new DOC money for industrial contracts will be spent in Quebec and more than half of the new jobs created will also be in Quebec.

The new space program additions "will create one of the largest high technology programs of any kind being carried out in Canada. The federal government regards this program as an excellent investment in Canada's high technology future, in terms of both domestic and export markets, and in terms of creating knowledge-intensive jobs."

Fox also said, "The new program is expected to lead directly to more than 1,000 new high tech jobs in the space industry by 1985, on top of the present level of 2,500."

The Minister said that this new program will be of major consequence to Spar Aerospace's Ste. Anne de Bellevue facility. "Many of the new jobs will be created here because this is where Spar developed the expertise and capability for providing the overall systems concepts for new satellites and where it manufactures much of the new space hardware."

The funding includes \$17 million for engineering and

economic studies for a mobile satellite (MSAT) which would, if built and launched, provide new communications services for the growing number of mobile communications users in Canada, such as ships, aircraft and motor vehicles for resource industries, telephone companies, the government and the general public. A final decision to go ahead with the MSAT program will await government consideration of these studies.

Fox said the federal government's support of such a major project—the MSAT would be a world's first—would not only respond to national needs, but could lead to international sales for Canadian industry.

The demonstration satellite system could cost about \$400 million and be launched by 1987. A recent survey of potential users shows a demand for MSAT services by the year 2000 of 140,000 user terminals in Canada. The projected world demand for this type of satellite and terminal is estimated to be in the many billions of dollars in the next 20 years.

"Canada would be in an ideal position to capture a significant amount of the world market, especially since we have a solid base of satellite expertise to draw on, with 20 years of cooperation by government and industry."

"It will also establish the Canadian claim to our share of the limited UHF frequencies and orbital positions for a mobile communications satellite system," Fox said.

\$68 million has been allocated

for L-SAT development and manufacturing. The L-SAT, or large communications satellite, program is being carried out by the European Space Agency with British Aerospace as prime contractor. Canada's Spar Aerospace would be a major sub-contractor and Com Dev will provide specialized components for the spacecraft.

The L-SAT program is designed to produce a next-generation commercial spacecraft capable of carrying a range of communications and other payloads.

Canada's contribution would enable Spar to build the spacecraft's solar array and have a major responsibility for the final integration and test of the spacecraft at the David Florida Laboratory at the DOC's research centre.

"Our participation in this program is vital to Canada's credibility for future high technology programs with Europe," Fox said.

Among the benefits to Canada are obtaining access to use of the L-SAT on favourable commercial terms; follow-on sales of subsystems to other users of L-SATs, follow-on sales of integration and test services and a closer relationship between Canadian and European space firms and customers for space hardware.

\$18.8 million is intended mainly for subsystem development, which will provide continuing manufacturing work, primarily at Spar. The funding will enable Spar to develop highly competitive and marketable satellite sub-systems and components.

\$6 million is allocated to

research and development of new components for communications satellite systems— such as second generation 12-14 GHz transponders for both fixed service and direct broadcast applications; 20-30 GHz transponders, antennas, low cost message, TV and radio terminals. Canadian companies which may benefit include Spar, Com Dev, SED Systems, Raytheon Canada Ltd., Canadian Astronautics, AEL Microtel, among others.

Half a million dollars will be used for continuation of some Anik B pilot projects funded by DOC until commercial services in the 12-14 GHz band become available in Fall 1982 with the launch of Telesat Canada's Anik C satellite.

Can RF be healthy?

For some time there have been reports and rumours about possible harmful effects of UHF on the health of people working close to equipment for long periods of time. But the biological effects of RF may not be all bad, as I recently learned from a medical scientist at Queen's University, Kingston, Ont.

Dr. C. Romero-Sierra has been studying the effects of VHF (27 MHz) radiation on the healing time of skin wounds in animals. In studies extending over seven years so far, he has applied the field between two plate-electrodes held a half cm. from the wound within 12

hours of the time the wound was made. After only 24 hours, the wound healing process was one to two days more advanced than in the controls (no RF).

Unfortunately, in the papers I read, no mention was made of the strength of the field. But who knows... maybe CB really does have something going for it, and maybe ten metre buffs operating close to unshielded rigs might be more unblemished than they thought, hi.

Don VE7AKU
Zero Beat,
Victoria SW Club

Book Review

By H. Bernard Sax VE3JBU

10-Meter FM for the Radio Amateur by Dave Ingram K4TWJ (published by Tab Books Inc. 1980) 140 pages.

As the title states, this book provides an introduction to 10-metre FM operation.

10-FM activity has been growing steadily since early 1979. 10-metre FM occupies the 29,500 to 29,700 kHz range with most listening done on the International Direct Frequency of 29,600 kHz. Once a contact has been made, the participants usually move to an unoccupied 'channel'.

At first, most Amateurs operating 10 FM used modified commercial equipment, modified Amateur equipment and converted CB sets. In 1979 Comtronix Inc. started selling the Comtronix 80, an 80 channel, 10-metre FM transceiver, complete and ready to operate. (For a review of the Comtronix, see Ingram's article in the Nov. 1979 issue of 73 Magazine. The last time I checked, the Comtronix could be ordered for about

\$200 US from the manufacturer.) Also in 1979, other manufacturers added FM capability to their HF rigs and Yaesu's FT901-DM offered 10 FM as a standard feature.

Like 2 metres did, ten metre repeaters are springing up with some areas having 2-to-10 metre links. 10 FM has 100 kHz repeater input/output spacing (for example, input 29,540 kHz, output 29,640 kHz) and whether operating repeater or simplex, the DX activity can be quite surprising.

Most 10 FMers run between 10 and 50 watts with DX band openings usually occurring in late mornings or late afternoons. Antennas chosen to work 10 FM vary from triband beams to verticals to longwires matched by a tuner as well as other variations.

Ingram's book contains nine chapters as follows: 1) Introduction to 10-Metre FM, 2) The Assets of 10 Metres including propagation overview, equipment resources and antenna factors, 3)

operating on 10 FM, 4) 10-Metre FM Equipment, 5) Remote Bases and Repeaters on 10 FM, 6) Antennas for 10 FM with information on beams, wires, helical-element minibeams, minicurlains, knapsack dipoles and modified CB beams, 7) FM Theory, 8) Medium Scan TV and 10 FM, and 9) 10 FM Accessories such as antenna tuners, encoders/decoders and frequency counters.

It is a well-written book full of information for those interested in and those operating on 10-Metre FM.

SATELLITE INFORMATION

For up-to-date info on AMSAT, European and Russian satellites, tune in to the AMSAT Nets. The Eastern one meets every Wednesday at 0200Z (tuesday p.m. in North America) followed by the Mid-Continent AMSAT Net at 0300Z and the Pacific net at 0400Z. All use the same frequency, 3850 kHz. Control station for the Eastern Net is WA2LQQ.

In Defense of Contests

An open letter to Gordy Webster VE7BIR

Gordy:

I read your letter in October TCA, and I must disagree with you on every charge you have made against contests.

First, while it may be true that on almost every weekend there is some sort of contest, there are only two weekends per year when contests dominate all activity on the HF Amateur bands. These are the ARRL Field Day and the IARU Radiosport. On every other weekend it is possible to avoid contest activity. The big DX contests always allocate separate weekends for CW and SSB activity, so one can avoid the hustle and bustle on these weekends by choosing the mode that is not used that weekend. As well, at extreme high ends of each band, there is relatively less contest activity and, correspondingly, more space for the non-contest activity. Most of the smaller contests attract a more specialized following, and activity is usually restricted, by suggestion, to specified parts of each band.

As for your charge that improper procedures are used by contest operators, that is resoundingly false. If one uses unorthodox or confusing procedures, how can you expect to make thousands of contacts in a matter of a few hours?

While it is true that contesting requires very efficient and specially adapted techniques, so does every aspect of Amateur Radio. Other experimental fields like meteor scatter or EME use

specially-adapted techniques to make their contacts. Packet Radio users define their own techniques or protocols, and contesters have adapted themselves to find the most efficient means of making their contacts. Any form of experimental radio requires its own unique operating techniques. The ten minute monologue has no place in the world of 3000 QSO weekends.

Four contests per year are not enough, as different contests have different objectives, and articulate interest in different aspects of our hobby. The big DX contests promote world-wide communication on all bands, and encourage all the learning about radio that that involves. Contests like the Canada Contest which encourages contacts with one country generate interest in operating awards like the Canadaward. All contests promote individual learning of techniques for efficient processing of information, so essential in emergencies.

I have not read the rest of the text from which you pull the line "pleasure and public service", and I suspect it does not exist. In any set of radio regulations I have read, those words do not appear. Even if they did, no one can argue against the pleasure of contest work. On big contest weekends, the bands fill up with thousands of signals, all making contest-style contacts, so they must therefore find some sort of pleasure or

satisfaction in making these contacts.

As for public service, what could be more beneficial to the public than a fleet of very capable Radio operators, with high-performance radio stations, capable of spending hours efficiently processing information? How can the self-training and education functions of contests do anything but help our society? You may disagree, but I say there is nothing wrong with people bettering themselves, while doing something they enjoy.

As for your charge that contesters will not stop to handle emergency traffic, where is your proof? Have you ever tried to pass some sort of emergency message to a contester and been told to go away? (Yes! Ed.) As there have been very few disasters over the few years where Amateur Radio played a premier role in communications, fewer still on the Field Day or IARU contest weekends (the only contests capable of dominating all activity), and fewer still in Victoria B.C., I suspect your statement was merely an impression based on a negative *opinion* rather than being based on any sort of experience.

As for the mystical 'code' you refer to, I never remember taking any such oath. Even so, I suspect that contesters, among the most active Amateurs, would be the first to speak up for its principles. I believe that a well-trained contest

operator, with his efficient and effective station would be more useful in time of need than a more relaxed, casual operator with a poorer station and a lessened capacity to analyze situations. I can't dispute the pleasure to be found in nice, long ragchews, but that is only one small part of Amateur Radio. Amateurs of different interests should be able to coexist, despite their differences, without conflict.

Please remember why the Amateur bands are so crowded during Contest weekends. Thousands become active in pursuit of a common general goal, that of achievement. That achievement is often uniquely defined by each individual. A contest can take over a band because there are more people contesting than not contesting. That situation puts non-contesters, as a minority, in a position where they have to bend their operating habits to a temporary situation, dictated by the majority. When the contest ends, other non-contest activity will take over, assuming its role as the majority. I think it is a tribute to other interests that they are able to change in reaction to changed conditions of activity, and they are still able to enjoy their interests during contest weekends.

I am willing to say that the benefits of Contesting, insofar as it encourages learning about radio, operator self-training and experimentation outweigh whatever short-term inconvenience is caused to other interests.

Most interests in radio are able to use the forum of a contest to their own advantage. DXers are able to find new countries when they normally might not be active. Traffic handlers are able to improve their personal operating efficiency. Experimenters with new transmission techniques, such as 'spread spectrum' or coherent CW can use the contest as a real-life laboratory to prove the value of their experiments under conditions of extreme crowding and high

signal levels. Everyone who wants to can use the contests to learn, and by learning we all gain.

I have set out to disprove the allegations you made against contesting, Gordy. As you can see, I feel very strongly about my chosen field in the hobby, and I become resentful when someone tells me I am doing something wrong, and should limit my fun to four weekends per year. Tirades do no one any good, except the author. I see contests as a progressive force in Amateur Radio, to be respected and encouraged. Everyone, even you, Gordie, can learn by doing new things. If you cannot respect contesting for any of the reasons I have described, perhaps you will respect contests as an aspect of the hobby that has been part of Amateur Radio much longer than you have.

Thanks for inspiring me to write this letter. You have given me the opportunity to sort out a lot of the feelings I have had about my hobby.

Dave Goodwin VE2ZP

If all the different operating activities of the Amateur fraternity decided to operate on one weekend, there would be wall-to-wall chaos. It is necessary to use restraint in organizing events. We have only so much bandspace for too many Amateurs. Not everyone wants to ragchew, or contest, or handle traffic. Making room for all of our activities is impossible as long as one group decides that because there is no rule saying they can't do something, the world is giving them the right to do what they want in spite of everyone else.

Restraint! My two cents worth...Ed.

Norway joins SARSAT Project

Communications Minister Francis Fox said recently that Norway has signed a Memorandum of Understanding to become a participant in the satellite-aided search and rescue system (SARSAT) project.

The objective of the project is to use satellites in low polar orbits to help search and rescue teams quickly locate any aircraft or ships in distress. The satellite detects the distress signals and relays the information to a network of ground control stations. Their task is to process the signals, locate the endangered vehicle, and report findings to a search and rescue co-ordination centre.

Norway is to establish a receiving station in Tromsø, in the northern part of the country, to cover areas in the Arctic and North Atlantic used by the Norwegian fishing fleet.

Canada, the U.S. and France agreed in 1979 to co-operate in the

SARSAT program. This year, Canadian and French electronic packages will be put aboard U.S. weather satellites for an initial 15-month orbital demonstration and evaluation.

The Soviet Union is participating in a joint evaluation of the system, and will also launch a similar system (COSPAS) that is compatible with SARSAT. Discussions are also underway with Japan and U.K., which have expressed interest.

Experiments by DOC's research centre have shown that such a system could locate aircraft crashes or marine mishaps with an accuracy of 10 to 20 kilometres in a matter of minutes.

"This SARSAT trial could lead to an operational international satellite-aided search and rescue system that will save countless lives, time and resources," Fox said.

BC Winter Games Award

The city of Trail, British Columbia, Canada will be hosting the BC Winter Games on March 5-6-7-8, 1982. The Beaver Valley ARC will sponsor a special award to honour the event, known as the BCWG Award.

To qualify, submit proof of one contact on any of the Amateur bands with any Amateur from the surrounding area. QTHs to look for will be: Trail, Rossland, Castlegar, Nelson, Fruitvale, Montrose and Salmo, B.C., Canada.

This distinctive award, about 8"x10", will be free. Only contacts made from 0001 UTC March 5, 1982 to 2400 UTC March 8, 1982 will be valid. Enclose a copy of your log entry and 3 IRCs to cover mailing costs to: Award, Beaver Valley ARC, Box 413, Fruitvale, BC, Canada V0G 1L0. club patrols for hallowe'en

A few days before Hallowe'en, the Moose Jaw EMO asked the Amateur Radio Club to supply radio-equipped cars to assist police in patrolling the city streets Hallowe'en night. The club members responded with six mobiles complete with operator and driver. Personnel were briefed

WHERE ARE THEY?

John Nosotti, the Department of Communications, 55 St. Clair Ave. E., Toronto, Ont. M4T 1M2 is trying to trace the following Amateur operators:

VE3EJU Kenneth Johnson;
VE3ESL Wm. Robert McCullagh;
VE3MLF Michael H. Cotton;
VE3MCJ Willie Repluk; VE3GVK
Clark J. McCarron; VE3DUQ
David Blake Montrait; VE3IBI
Barry Collins.

Anyone knowing the present whereabouts of the above is asked to contact Mr. Nosotti (Telephone 416-966-6282) or the CARF Office.

in the EMO office shortly after 2000 hours and the mobiles were assigned to various districts of the city.

A 2-metre base station was set up in the police station and communication between mobile and base was established by 2100 hours. Hallowe'en night was fairly quiet and orderly and very few incidents were reported by the mobiles. Someone driving around the city opened several hydrants and reports of water on the streets

were received. Suspect cars were described to our mobiles and they were requested to remain on duty an extra hour. The Amateur mobiles were on patrol from about 2100 hours until 0100 hours. Members of the Moose Jaw Club who worked on this project were: 5AAB/m & driver, 5QY/m & driver, 5AED/m & 5NG, 5AV/m & 5DW, 5IL/m & VE5AU, 5AAY/m, 5AQ base station.

QSO Newsletter
Moose Jaw ARC

Lady Luck and Eric VE3GGO

Eric's wife read her horoscope in the Star newspaper Nov. 2, and insisted that Eric buy a Wintario Lottery ticket on Tuesday, Nov. 3. Eric says, "As I don't believe in these things, I bought one to humour her." Anyway, here is the result.

Her horoscope read, "Sagittarius (Nov. 22-Dec. 21) You could hit the financial jackpot. Prizes appear to be part of exciting scenario. Individuals who were neutral regarding your efforts will now become enthusiastic supporters. Family relationships improve, harmony is restored at home."

The headline above the horoscope for Tuesday, Nov. 3 read: "Sagittarius could hit financial jackpot."

The winning ticket number was 553824 for \$100,000 Grand Prize. Eric's ticket number was 553825, a winner for \$5,000, a sum not to be sneezed at. His wife grabbed the \$5,000 and put it in one of those bank certificates where the minimum deposit is \$5,000, as it was her idea. Eric says that he couldn't even get a cup of coffee out of it! Was she wrong as they

missed the jackpot by a single digit? Well, \$5,000 is \$5,000 and that ain't hay!

Eric says, however, the moral of the story is: "Always listen to your wife, even when she's wrong!"

Scarborough ARC News

TEN MEG BAND TO OPEN SOON

The new 10.1 to 10.150 MHz band was made legal in a number of ITU Region 1 and 3 countries on Jan. 1. Canada will follow suit, hopefully around the end of February or shortly thereafter, according to a DOC official. Preliminary steps have been taken to promulgate the opening of the new band. Australia, West Germany, the British Isles, one of the Scandinavian countries and some African countries have already opened up the band. The U.S. is having difficulty in doing so as there are commercial and government stations already in this segment of the band. It is unoccupied by any DOC assignments which makes its allocation to Canadian Amateurs free of any such problems.

CARF News Service

DOC proposes changes to Regulations

As a result of recommendations made by Amateurs attending CARF National Amateur Symposiums, the DOC has proposed a number of changes to the regulations. These have been published in the Canada Gazette, Part I, of January 9, 1982. DOC has allowed 90 days from that date for the

mailing of any comments on the proposals.

When reading the frequency schedules which bear the new mode of emission designations, note that the spectrum slice from 221 to 223 is not included as it is reserved exclusively for 'packet radio' in Schedule III which does

not change; hence it does not appear in the Gazette notice which shows only proposed *amendments*.

The French text of the proposed changes is available free to members from CARF, Inc., Box 356, Kingston, Ont. K7L 4W2.

CARF News Service

DEPARTMENT OF COMMUNICATIONS RADIO ACT

Notice No. DGTR-026-81

Proposed Amendments to the General Radio Regulations, Part II (Amateur Service)

The Department intends to amend Part II of the General Radio Regulations governing the Amateur Service in accordance with the attached proposal. The amendments were developed as a result of discussions with amateur associations, clubs and representations received from individual amateurs.

The proposed amendments would:

(a) permit repeater operation in the 29 MHz band;

(b) permit slow-scan TV in the HF bands;

(c) permit 6 MHz bandwidth for television; and

(d) permit foreign amateurs operating in Canada on the basis of reciprocity to use the 144-148 MHz band.

In addition:

(a) emissions are designated in accordance with the new requirements of the International Frequency Registration Board (I.F.R.B.); and

(b) some of the power restrictions presently applicable to stations operating in the 1.8 to 2.0 MHz band are removed because of the phasing out of all but three Loran "A" stations.

Anyone wishing to respond to this notice should address their comments to the Director, Operations Branch, Telecommunication Regulatory Service, Department of Communications, 300 Slater Street, Ottawa, Ontario K1A 0C8. All replies should be postmarked not later than 90 days after the date of publication of this notice.

Dated at Ottawa, this 26th day of December, 1981

JOHN DEMERCADO

*Director General
Telecommunication Regulatory Service*

PROPOSED AMENDMENTS TO THE GENERAL RADIO REGULATIONS, PART II (AMATEUR SERVICE)

1. Subsections 43(1), (2) and (3) of the General Radio Regulations, Part II, are revoked and the following substituted therefor:

"43. (1) No person shall operate an amateur mobile station on any frequency in the band 1.9 to 2.0 MHz.

(2) Any person operating an amateur station using frequencies in the band 1.9 to 2.0 MHz at a permanent location in the area set out in an item of Schedule X shall comply with the frequency and transmitter power for day and night operation set out in that item."

2. Paragraphs 47(a) to 47(r) of the said Regulations are revoked and the following substituted therefor:

"(a) "NON" means an emission that is unkeyed or unmodulated;

(b) "A1A" means telegraphy by the on-off keying of an unmodulated carrier;

(c) "A2A" means telegraphy by the on-off keying of an amplitude modulating audio frequency signal or by the on-off keying of the amplitude modulated carrier;

(d) "A3E" means telephony by amplitude modulation;

(e) "A3C" means facsimile by amplitude modulation of a carrier, either directly or by a frequency modulated sub-carrier and includes slow scan television;

(f) "C3F" means television by amplitude modulation;

(g) "F1A" means telegraphy by frequency shift keying where one of two unmodulated carriers is being emitted at any instant;

(h) "F2A" means telegraphy by the on-off keying of a frequency modulating audio frequency or by the on-off keying of a frequency modulated emission;

- (i) "F3E" means telephony by frequency modulation;
- (j) "F3C" means facsimile by direct frequency modulation of the carrier and includes slow scan television;
- (k) "F3F" means television by frequency modulation;
- (l) "PON" means a pulsed emission without any modulation intended to carry information (e.g. radar);

(m) "K1A" means telegraphy by the on-off keying of a pulsed carrier without the use of a modulating audio frequency;

(n) "K2A" means telegraphy by the on-off keying of a modulating audio frequency or audio frequencies or by the on-off keying of a modulated pulsed carrier;

(o) "K3E" means telephony by pulse modulation;

(p) "K3C" means facsimile by pulse modulation;

(q) "K3F" means television by pulse modulation; and

(r) "XXX" means any type of pulse modulation not described in paragraphs (l) to (q)."

3. That portion of the French version of section 48 immediately preceding paragraph (a) thereof is revoked and the following substituted therefor:

"48. Est habilité à faire fonction d'opérateur d'une station d'amateur quiconque possède"

4. The said Regulations are amended by adding thereto immediately after section 48 thereof, the following heading and section:

"Exemption from Licensing"

48.1 A foreign amateur is exempt from the requirement to hold a Canadian radio licence while temporarily operating his amateur station in Canada

(a) if he is a citizen of a country that grants a reciprocal exemption from licensing to Canadians in respect of their amateur radio stations, and

(b) if he is qualified pursuant to paragraph 48(c) or (d) and is authorized pursuant to section 50 to operate an amateur station in Canada."

5. Section 50 of the General Radio Regulations, Part II, is revoked and the following substituted therefor:

"50. (1) A foreign amateur who is qualified pursuant to paragraph 48(c) may operate his station or a station licensed by the Minister while temporarily in Canada.

(2) A foreign amateur who is qualified pursuant to paragraph 48(d) may operate his station or a station licensed by the Minister while temporarily in Canada if the Minister authorizes him, in writing, to operate the radio station.

(3) The foreign amateurs mentioned in subsections (1) and (2) shall use while temporarily in Canada the radio frequencies and types of emission authorized under the licences issued by the governments of the countries of which they are citizens, if those frequencies and types of emission are authorized by these Regulations.

(4) Without limiting the generality of subsection (3), the

said foreign amateurs may also use frequencies in the range 144 to 148 MHz with corresponding types of emission as shown in Schedule IX.

(5) The foreign amateurs mentioned in subsections (1) and (2) shall, in identifying their transmissions, use the call signs assigned to them in their station licences."

6. Paragraph 57(b) of the said Regulations is revoked and the following substituted therefor:

"(b) permit a person who is qualified pursuant to section 48 to operate his station using only such frequencies and emissions as the licensee is qualified to use or, if the person is not as qualified as the licensee, using only such frequencies and emissions as the person is qualified to use."

7. All that portion of subsection 58(1) of the said Regulations preceding paragraph (a) thereof is revoked and the following substituted therefor:

"58. (1) Subject to subsection 50(5), the operator of an amateur station shall transmit the call sign assigned to that station"

8. Paragraph 59(1)(b) of the said Regulations is revoked and the following substituted therefor:

"(b) his station is not used to retransmit types A3E or F3E emissions on frequencies below 28 MHz if such emissions are received from a station that is not authorized to use such emissions on frequencies below 28 MHz;"

9. Section 64.2 of the said Regulations is revoked and the following sections and sub-headings are substituted therefor:

"Frequency and Power Measurement"

64.2 The licensee of an amateur station shall ensure that his radio station is equipped with a reliable means

(a) of determining the operating radio frequency;

(b) of preventing or indicating overmodulation in the case of a radiotelephone transmitter; and

(c) of measuring the direct current power input to the anode or collector circuit of the final stage where such power input exceeds four hundred watts.

Occupied Bandwidth

64.3 The licensee of an amateur station shall ensure

(a) that the amplitude modulation of his transmitter does not exceed one hundred per cent or that the occupied bandwidth of his signal does not exceed

(i) 6 kHz where A2A, A3E or A3C is authorized; and

(ii) 6 MHz where C3F is authorized;

(b) that when using type F1A emission (frequency shift keying) the occupied bandwidth of his emission does not exceed 900 hertz;

(c) that the frequency modulated signal does not occupy, except where packet transmissions are used, a bandwidth in excess of

(i) 6 kHz where type F2A, F3C or F3E emission is authorized on any frequency below 52 MHz,

(ii) 15 kHz where type F2A, F3C or F3E emission is authorized in the frequency bands 52 to 54 MHz, 144.1 to 148 MHz, 220 to 225 MHz and 430 to 450 MHz, and

(iii) 6 MHz where F3F is authorized; or

(d) that the pulse modulation signal does not occupy a bandwidth in excess of

(i) 15 kHz in the frequency band 145.5 to 145.8 MHz, and

(ii) 30 kHz in the frequency band 434 to 434.5 MHz.

Frequency Stability

64.4 The licensee of an amateur station shall ensure that the frequency stability of his transmitter in the frequency bands below 220 MHz is comparable to that which is obtainable using crystal control.

"SCHEDULE IV

[ss. 52 and 56]

Item	Column I Lower Frequency Limit	Column II Higher Frequency Limit	Column III Types of Emission
1	144.000 MHz	144.100 MHz	A1A,
2	144.100 MHz	145.500 MHz	N0N, A1A, A2A, A3E, A3C, F1A, F2A, F3E, F3C,
3	145.500 MHz	145.800 MHz	N0N, A1A, A2A, A3E, A3C, F1A, F2A, F3E, F3C, P0N, K1A,
4	145.800 MHz	148.000 MHz	N0N, A1A, A2A, A3E, A3C, F1A, F2A, F3E, F3C,
5	220.000 MHz	221.000 MHz	N0N, A1A, A2A, A3E, A3C, F1A, F2A, F3E, F3C,
6	223.000 MHz	225.000 MHz	N0N, A1A, A2A, A3E, A3C, F1A, F2A, F3E, F3C,
7	430.000 MHz	433.000 MHz	N0N, A1A, A2A, A3E, A3C, F1A, F2A, F3E, F3C,
8	434.000 MHz	434.500 MHz	N0N, A1A, A2A, A3E, A3C, F1A, F2A, F3E, F3C, P0N, K1A, K2A, K3E,
9	434.500 MHz	450.000 MHz	N0N, A1A, A2A, A3E, A3C, C3F, F1A, F2A, F3E, F3C, F3F,
10	902.000 MHz	928.000 MHz	A3E, F3E,
11	1 215.000 MHz	1 300.000 MHz	N0N, A1A, A2A, A3E, A3C, C3F, F1A, F2A, F3E, F3C, F3F, P0N, K1A, K2A, K3E, K3C, K3F, XXX,
12	2 300.000 MHz	2 450.000 MHz	N0N, A1A, A2A, A3E, A3C, C3F, F1A, F2A, F3E, F3C, F3F, P0N, K1A, K2A, K3E, K3C, K3F, XXX,
13	3 300.000 MHz	3 500.000 MHz	N0N, A1A, A2A, A3E, A3C, C3F, F1A, F2A, F3E, F3C, F3F, P0N, K1A, K2A, K3E, K3C, K3F, XXX,
14	5 650.000 MHz	5 925.000 MHz	N0N, A1A, A2A, A3E, A3C, C3F, F1A, F2A, F3E, F3C, F3F, P0N, K1A, K2A, K3E, K3C, K3F, XXX,
15	10 000.000 MHz	10 500.000 MHz	N0N, A1A, A2A, A3E, A3C, C3F, F1A, F2A, F3E, F3C, F3F, P0N, K1A, K2A, K3E, K3C, K3F, XXX,
16	24 010.000 MHz	24 250.000 MHz	N0N, A1A, A2A, A3E, A3C, C3F, F1A, F2A, F3E, F3C, F3F, P0N, K1A, K2A, K3E, K3C, K3F, XXX,

SCHEDULE V

[ss. 53(1)]

Item	Column I Lower Frequency Limit	Column II Higher Frequency Limit	Column III Types of Emission
1	1.800 MHz	2.000 MHz	A1A,
2	3.500 MHz	4.000 MHz	A1A,
3	7.000 MHz	7.300 MHz	A1A,
4	14.000 MHz	14.350 MHz	A1A,
5	21.000 MHz	21.450 MHz	A1A,
6	28.000 MHz	29.700 MHz	A1A,
7	50.000 MHz	50.050 MHz	A1A,
8	50.050 MHz	51.000 MHz	A1A, A2A, A3E, F1A, F2A, F3E,
9	51.000 MHz	54.000 MHz	N0N, A1A, A2A, A3E, A3C, F1A, F2A, F3E, F3C,
10	144.000 MHz	144.100 MHz	A1A,
11	144.100 MHz	148.000 MHz	N0N, A1A, A2A, A3E, A3C, F1A, F2A, F3E, F3C,
12	220.000 MHz	221.000 MHz	N0N, A1A, A2A, A3E, A3C, F1A, F2A, F3E, F3C,
13	223.000 MHz	225.000 MHz	N0N, A1A, A2A, A3E, A3C, F1A, F2A, F3E, F3C,
14	430.000 MHz	433.000 MHz	N0N, A1A, A2A, A3E, F1A, F2A, F3E, F3C,
15	434.000 MHz	450.000 MHz	N0N, A1A, A2A, A3E, A3C, F1A, F2A, F3E, F3C,
16	902.000 MHz	928.000 MHz	A3E, F3E,
17	1 215.000 MHz	1 300.000 MHz	N0N, A1A, A2A, A3E, A3C, F1A, F2A, F3E, F3C,
18	2 300.000 MHz	2 450.000 MHz	N0N, A1A, A2A, A3E, A3C, F1A, F2A, F3E, F3C,
19	3 300.000 MHz	3 500.000 MHz	N0N, A1A, A2A, A3E, A3C, F1A, F2A, F3E, F3C,
20	5 650.000 MHz	5 925.000 MHz	N0N, A1A, A2A, A3E, A3C, F1A, F2A, F3E, F3C,
21	10 000.000 MHz	10 500.000 MHz	N0N, A1A, A2A, A3E, A3C, F1A, F2A, F3E, F3C,
22	24 010.000 MHz	24 250.000 MHz	N0N, A1A, A2A, A3E, A3C, F1A, F2A, F3E, F3C,

Carrier Restrictions

64.5 The licensee of an amateur station shall ensure that

(a) the carrier is suppressed during periods of reception when the transmitter is operating on frequencies below 51 MHz except for the frequency band 29.50 to 29.70 MHz; and

(b) an unmodulated carrier is not emitted on frequencies below 51 MHz except during brief tests and adjustments that shall be terminated by the transmission of his assigned call sign."

10. Section 64.3 to 64.5 of the said Regulations are renumbered as sections 64.6 to 64.8 respectively.

11. Schedules IV, V, VI, VIII, IX, and X of the said Regulations are revoked and the following substituted therefor:

SCHEDULE VI

[ss. 53(2)]

Column I	Column II	Column III	
Item	Lower Frequency Limit	Higher Frequency Limit	Types of Emission
1	1.800 MHz	2.000 MHz	A3E,
2	3.500 MHz	3.725 MHz	F1A,
3	7.000 MHz	7.050 MHz	F1A,
4	7.100 MHz	7.150 MHz	F1A,
5	14.000 MHz	14.100 MHz	F1A,
6	21.000 MHz	21.100 MHz	F1A,
7	28.000 MHz	28.100 MHz	F1A,
8	28.100 MHz	29.700 MHz	A3E, F3E,

SCHEDULE VIII

[ss. 53(3)]

	Column I	Column II	Column III
Item	Lower Frequency Limit	Higher Frequency Limit	Types of Emission
1	434.000 MHz	450.000 MHz	C3F, F3F,
2	1 215.000 MHz	1 300.000 MHz	C3F, F3F,
3	2 300.000 MHz	2 450.000 MHz	C3F, F3F,
4	3 300.000 MHz	3 500.000 MHz	C3F, F3F,
5	5 650.000 MHz	5 925.000 MHz	C3F, F3F,
6	10 000.000 MHz	10 500.000 MHz	C3F, F3F,
7	24 010.000 MHz	24 250.000 MHz	C3F, F3F,

"SCHEDULE IX

[ss. 54, 55 and 56]

	Column I	Column II	Column III
Item	Lower Frequency Limit	Higher Frequency Limit	Types of Emission
1	1.800 MHz	2.000 MHz	A1A, A3E, F3E,
2	3.500 MHz	3.725 MHz	A1A, F1A,
3	3.725 MHz	4.000 MHz	A1A, A3E, A3C, F3E, F3C,
4	7.000 MHz	7.050 MHz	A1A, F1A,
5	7.050 MHz	7.100 MHz	A1A, A3E, A3C, F3E, F3C,
6	7.100 MHz	7.150 MHz	A1A, F1A,
7	7.150 MHz	7.300 MHz	A1A, A3E, A3C, F3E, F3C,
8	14.000 MHz	14.100 MHz	A1A, F1A,
9	14.100 MHz	14.350 MHz	A1A, A3E, A3C, F3E, F3C,
10	21.000 MHz	21.100 MHz	A1A, F1A,
11	21.100 MHz	21.450 MHz	A1A, A3E, A3C, F3E, F3C,
12	28.000 MHz	28.100 MHz	A1A, F1A,
13	28.100 MHz	29.700 MHz	A1A, A3E, A3C, F3E, F3C,
14	50.000 MHz	50.050 MHz	A1A,
15	50.050 MHz	51.000 MHz	A1A, A2A, A3E, A3C, F1A, F2A, F3E, F3C,
16	51.000 MHz	54.000 MHz	N0N, A1A, A2A, A3E, A3C, F1A, F2A, F3E, F3C,
17	144.000 MHz	144.100 MHz	A1A,
18	144.100 MHz	148.000 MHz	N0N, A1A, A2A, A3E, A3C, F1A, F2A, F3E, F3C,
19	220.000 MHz	221.000 MHz	N0N, A1A, A2A, A3E, A3C, F1A, F2A, F3E, F3C,
20	223.000 MHz	225.000 MHz	N0N, A1A, A2A, A3E, A3C, F1A, F2A, F3E, F3C,
21	430.000 MHz	433.000 MHz	N0N, A1A, A2A, A3E, A3C, F1A, F2A, F3E, F3C,
22	434.000 MHz	450.000 MHz	N0N, A1A, A2A, A3E, A3C, C3F, F1A, F2A, F3E, F3C, F3F,
23	902.000 MHz	928.000 MHz	A3E, F3E,
24	1 215.000 MHz	1 300.000 MHz	N0N, A1A, A2A, A3E, A3C, C3F, F1A, F2A, F3E, F3C, F3F,
25	2 300.000 MHz	2 450.000 MHz	N0N, A1A, A2A, A3E, A3C, C3F, F1A, F2A, F3E, F3C, F3F,
26	3 300.000 MHz	3 500.000 MHz	N0N, A1A, A2A, A3E, A3C, C3F, F1A, F2A, F3E, F3C, F3F,
27	5 650.000 MHz	5 925.000 MHz	N0N, A1A, A2A, A3E, A3C, C3F, F1A, F2A, F3E, F3C, F3F,
28	10 000.000 MHz	10 500.000 MHz	N0N, A1A, A2A, A3E, A3C, C3F, F1A, F2A, F3E, F3C, F3F,
29	24 010.000 MHz	24 250.000 MHz	N0N, A1A, A2A, A3E, A3C, C3F, F1A, F2A, F3E, F3C, F3F,

SCHEDULE X Authorized Frequency Bands (MHz) and Transmitter Power in watts for day (dj) and night (n) Operation

[see section 43]	1.900 to 1.925	1.925 to 1.975	1.975 to 2.000
British Columbia	1000 dj	1000 dj	1000 dj
	200 n	200 n	200 n
Alberta	1000 dj	1000 dj	1000 dj
	200 n	200 n	200 n
Saskatchewan	1000 dj	500 dj	500 dj
	200 n	100 n	100 n
Manitoba	500 dj	250 dj	500 dj
	100 n	50 n	100 n
Ontario	250 dj	125 dj	250 dj
North of 50° N. Lat.	50 n	25 n	50 n
Ontario	125 dj	0	125 dj
South of 50° N. Lat.	25 n		25 n
Province of Quebec	0	0	0
North of 52° N. Lat.			
Province of Quebec	0	0	0
South of 52° N. Lat.			
New Brunswick	0	0	0
Nova Scotia	0	0	0
Prince Edward Island	0	0	0
Newfoundland (Island)	0	0	0
Newfoundland (Labrador)	0	0	0
Yukon Territory	1000 dj	500 dj	1000 dj
	200 n	100 n	200 n
District of Mackenzie	1000 dj	500 dj	1000 dj
	200 n	100 n	200 n
District of Keewatin	500 dj	250 dj	500 dj
	100 n	50 n	100 n
District of Franklin	0	0	0

CARF Phone Commonwealth Contest

When: From 1200z Saturday April 10 to 1200z Sunday April 11, 1982. All entrants may use the full 24 hour period.

Eligible Entrants: Radio Amateurs licensed to operate within the Commonwealth or British Mandated Territories.

Contacts: SSB (A3j) only in the 3.5, 7, 14, 21 and 28 MHz bands. Suggested frequencies are plus or minus 20 KHz of 3600, 3780, 7080, 14180, 21200 and 28480 KHz. Only one contact may be claimed with a specific station on any one band, and duplicate contacts must be clearly marked as such, without claim for points. Contacts may be made with any station using a Commonwealth call sign, except those within the entrant's own call area. UK stations may not work each other for points.

Exchange: A contact consists of an exchange and acknowledgement of an RS report and a three figure serial number, starting at 001 and increasing by one for each successive contact throughout the contest period. Do not send a separate series of serial numbers on each band.

Scoring: Each completed contact will score five points. In addition, a bonus of 20 points may be claimed for the first, second and third contacts with each Commonwealth call area on each band. See the accompanying table for a list of Commonwealth call areas.

Logs: Separate logs are required for each band. Each band log should be separately totalled and should include a checklist of call areas worked on that band. Logs should include, for each contact: Time in GMT, Call sign of station worked, exchange sent and received, points claimed, separate band totals should be added together and total claimed score entered on a summary sheet.

Entries: Entries may be multi or single band. Single band entries

should show contacts for one band only. Only single op entries will be accepted. Single op entries are manned by one operator only who receives no assistance whatever during the contest period. Multi band entries are not eligible for single band awards. Each entry will consist of the separate band logs, call area checklists, a summary sheet and dupe sheets.

Entries should be addressed to: CARF Contests and Awards Committee, P.O. Box 2172, Station D, Ottawa, Ont. K1P 5W4. Under no circumstances should entries for the CARF Phone Commonwealth

Contest be sent via RSGB, nor should entries for RSGB's CW contest be sent via CARF. The closing date for entries will be *June 1, 1982*. Official summary sheets are available for an SASE.

Awards: The CARF Phone Commonwealth Contest Plaque will be awarded to the top-scoring entry in the multi-band class. Certificates will be awarded to top-scoring entrants in each class in each Commonwealth call area.

The following are recognized as call areas for the contest:

VK0/VP8/ZL5 and all other calls operated from Commonwealth controlled areas of the Antarctic count as one call area.

A2	Botswana	VP8	South Georgia
A3	Tonga	VP8	South Orkney Is
A5	Bhutan	VP8	South Sandwich Is
C2	Nauru	VP8	South Shetland Is
C5	Gambia	VP9	Bermuda
c6	Bahamas	VQ9	Chagos
G	United Kingdom	VR6	Pitcairn Is
H44	Solomon Is	VS5	Brunei
J3	Grenada	VS6	Hong Kong
J6	St. Lucia	VY1	Yukon
J7	Dominica	VU2	India
J8	St. Vincent	VU	Laccadive Is
P2	Papua New Guinea	VU	Andaman & Nicobar Is
S2	Bangladesh	YJ8	New Hebrides
S7	Seychelles	ZZ	Zimbabwe
T2	Tuvalu	ZB2	Gibraltar
T3	Kiribati	ZC4/5B4	Cyprus
V2	Antigua	ZD7	St Helena Is
V3	Belize	ZD8	Ascension Is
VE1	Maritime Provinces	ZD9	Tristan da Cuhana Is
VE1	Sable Is	ZK1	Cook Is
VE1	St. Paul Is	ZK1	Manahiki Is
VE2	Quebec	ZK2	Nuie
VE3	Ontario	ZL1	New Zealand
VE4	Manitoba	ZL1	Kermadec Is
VE5	Saskatchewan	ZL2	New Zealand
VE6	Alberta	ZL3	New Zealand
VE7	British Columbia	ZL3	Chatham Is
VE8	Northwest Territories	ZL4	New Zealand
VK1	A.C.T.	ZL4	Auckland & Campbell Is
VK2	New South Wales	ZM7	Tokelau Is
VK2	Lord Howe Is	3B6/3B7	Agalega & St Brandon Is
VK3	Victoria	3B8	Mauritius
VK4	Queensland	3B9	Rodrigues Is
VK4	Willis Is	3D2	Fiji
VK5	South Australia	3D6	Sawziland
VK6	Western Australia	4S7	Sri Lanka
VK7	Tasmania	5H	Tanzania
VK8	Northern Territory	5N	Nigeria
VK9	Christmas Is	5W	Samoa
VK9	Cocos Is	5X	Uganda
VK9	Norfolk Is	5Z	Kenya
VK9X	Christmas Is.	6Y5	Jamaica
VK9Y	Cocos Is.	7P8	Lesotho
VK9N	Norfolk	7Q7	Malawi
VK0	Heard Is	8P	Barbados
VK0	Macquarie Is	8R	Guyana
VO	Newfoundland	9G1	Ghana
VP2E	Anguilla	9H	Malta
VP2K	St Kitts,	9J2	Zambia
VP2M	Montserrat	9L1	Sierra Leone
VP2V	British Virgin Is	9M2	W Malaysia
VP5	Turks & Caicos Is	9M6/9M8	E Malaysia
VP8	Falkland Is	9V1	Singapore
		9Y4	Trinidad & Tobago

TCA: Technical Section

Not Another Keyer?!

Don Prickett VE5KP
41 McAskill Cres.
Saskatoon, Sask.

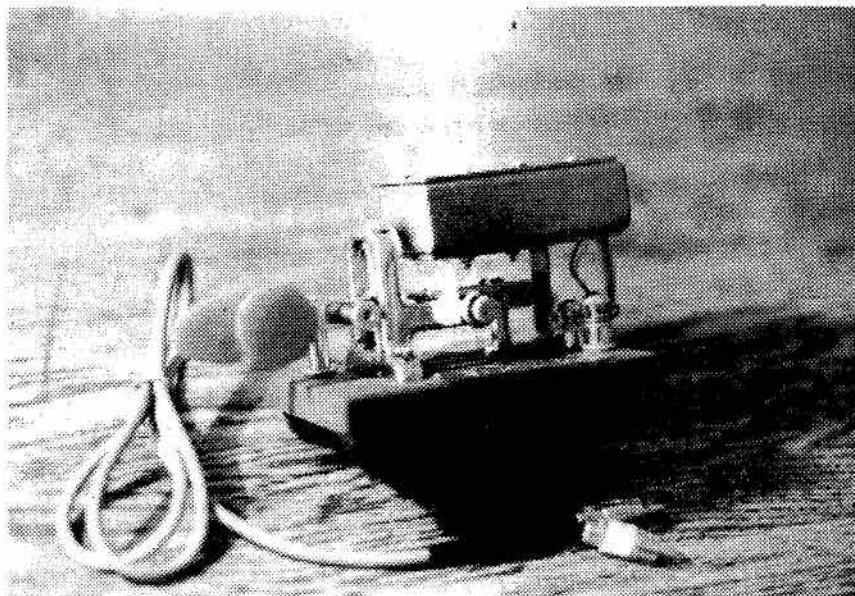
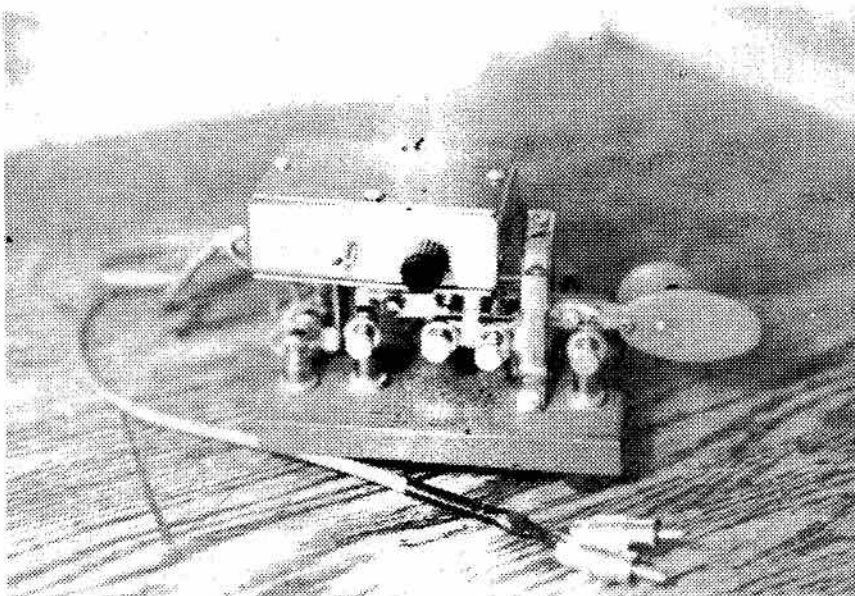
No doubt every Amateur has often sat back and looked at the station operating position with the hope of finding some way to create more space. Usually the most pressing problem is lack of desk-top area.

While engaged in just such a pursuit, it occurred to me that my keyer was taking prime space, although seldom requiring more than speed adjustment. The obvious answer was to have the controls right at the key lever as in the newer combined key-lever units.

Why not, then, mount either a keyer or its controls onto the present 'Vibro-Keyer' key lever? Since my rig is an Omni, which provides spare 12v jacks on the back, a CMOS circuit was preferred, as CMOS will accept 12v directly. (Could it be sheer coincidence that one of these jacks is located right next to the key jack?)

While there is no lack of keyer circuits available in the various Amateur magazines, fortune took that moment to present just what I wanted, with an article in QST, May 1980. The article is entitled 'The Nor-Gate Break-In'. A logical choice, since the only major active components are two CMOS IC's containing Nor-gates. Basic keyer function is provided, with no 'bells and whistles'. For my purposes the sidetone oscillator was not needed, so was not included.

I used the 2N3906-2N3904 pair as the keying transistors. They are



quite adequate to key the Ten-Tec rigs (and the Kenwood TS-180S). However, before building this circuit for any other rig, the reader should check the keying requirements. I substituted the 3906-3904 pair for the choice in the QST article simply because they are smaller than the 2N4888-2N697 pair and, more importantly, I had them on hand.

Although not mentioned in the original article, and seldom in any article, the parts values given are not carved in stone. In other words, I would suggest that anyone with a modest junk-box (such as my own) try the circuit first in some sort of bread-board version. Use IC sockets, of course, or one of the extremely handy solderless prototype boards. Thus it can likely be made to work with available parts. I'm sure that many Amateurs are discouraged from attempting projects in the belief that one must stick slavishly to the values as listed. Within reason, try what you have, it will probably work.

A final comment about the QST article. It is recommended as a fine introduction to IC's for those who, for varying reasons, have tried to ignore their existence.

For a relatively simple circuit such as this, and on a 'one-only' requirement, etching methods were not used. Instead, a circuit board measuring $1\frac{1}{2} \times 2\frac{1}{2}$ was prepared using a combination of X-acto knife and hand grinder. This method, for anyone who has not heard of it, requires only a piece of 'perf-board' pre-drilled on .1"x.1" centers, to serve as a drilling guide, some graph paper with the same grid, and the appropriate piece of circuit board material.

The first step is to lay out the circuit on the grid paper. Once that has been finalized, the hole positions are marked onto the perf-board using a felt marker or whatever will show up on the board. Before beginning the marking procedure, a final check

should be carried out to make doubly sure that the 'views' are correct. (It is slightly disconcerting to discover that you have carefully marked the component side layout onto the copper side of the board.)

The marked perf-board is then taped into position on the copper-clad circuit board and the hole positions drilled. (I have found that marking and drilling from the copper side tends to eliminate most of the 'burring' that results when drilling from the component side.) Before starting to drill, once again check to see that you have the 'views' correct.

The next step is to remove the perf-board from the copper-clad material and, again using the felt marker, indicate the required tracks onto the copper. Then with the hand grinder or X-acto knife, the copper is removed where necessary. Lo and behold, you have a 'printed circuit board'. You need only remove enough copper to separate the required pads, it is not necessary to remove most of the metal to leave the thin tracks as in the usual PC board. Not as elegant, but certainly easier and less critical.

A potentially painless source of miniature grinding burrs for hand-grinders is one's friendly dentist. To my knowledge, these burrs are used only once and then discarded. Check with your dentist, he may provide you with a few years' supply just for the asking.

Perhaps it bears mention that the perf-board is undamaged and should be usable again and again as you get carried away making your own custom circuits by the hundreds! The use of the perf-board as a drilling guide is not absolutely necessary, but is strongly advised. The alternative requires that you carefully center-punch each hole location and drill to that mark. That can be tedious and chancy, especially when drilling locations for DIP IC's.

The completed circuit board was installed in a box measuring

$3 \times 2\frac{1}{4} \times 1$ ", with a speed control and tune switch included. The box was then mounted onto the key lever as shown in the accompanying photos. A shielded cable runs to the rear of the transceiver to the key jack and +12v jack. The rear mounting bracket doubles as the ground connection, leaving just two wires to be connected, one to the dot and one to the dash posts. The front mounting strap is notched to slip over the keyer frame. Make this strap of Lucite or similar material to prevent scratching of the chrome. The beauty of the mounting method is that it does not require any modification to the key lever and can be detached in seconds.

This keyer is far from the ultimate in circuitry, nor is there anything new in ideas. However, it is a quite reliable keyer and would be great for the sometime CW operator, a spare keyer, or for the cottage. At the same time, some of the construction ideas and PC board techniques may not be known to the newer Amateurs.

While this model was designed for the 'Vibro' lever and mated to the Omni, most rigs will provide some source of voltage for the CMOS circuit. A mounting method for almost any lever could also be derived since the unit weighs next to nothing. In fact, if I can convince a certain SSB op to take a more serious attitude toward CW, I have most of the preliminary work done toward building an even smaller version to mount on her Brown Bros. key lever. The circuit board will be about $1\frac{1}{2} \times 1$ " double-sided.

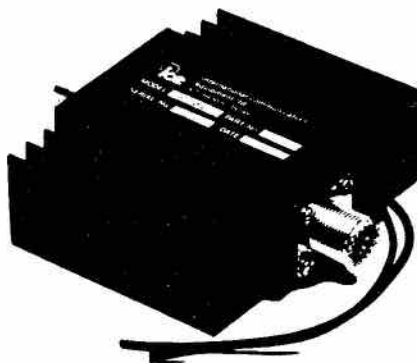
Thanks to Shirley VE5ZE for the photography. While on that subject, a first attempt at producing a picture was tried by Roy VE5XS and myself, using a Polaroid camera. The experience quickly resulted in the picture taking costs exceeding the cost of the keyer! The myriad of conclusions to which one could therefore jump absolutely boggles the mind.

Get that phone ringing!
Got some gear you'd like to
move? Use the TCA Swap
Shop and get *action!*

Swap Shop



30 Watt Modular Power Amplifier 20 dB Gain



- Converts your handheld to high power
- A full 30 watts from as low as 250 mW and up to 4 watts input
- Broadband, no tuning required from 142 - 148 MHz
- Modular, one piece PA with high efficiency heat sink
- Output protected from infinite VSWR
- RF keyed T/R relay
- DC voltage 13.8 volts at 6 Amps

\$169.90 (add \$5.00 for shipping handling and Ins.)
Ontario residents add sales tax.



international communication equipment ltd.

100 PARK ST. - KITCHENER, ONTARIO, CANADA N2G 1M6 - 2191 743-0662

SURPLUS Government Electronic Equipment

Receivers, Transmitters
Test Equipment & Components
Large transit chests 22x26x22.
Aluminum lined inside and out.
Carrying handles and gasket sealed
cover. Originally used for electronic
equipment transport. Priced at \$30.00
each.

Pkgs. of 100 assorted resistors, all new \$1.00
Pkgs. of 25 assorted capacitors, all new \$1.00

Save these ads for future reference

Send Stamp for 1982

Illustrated Catalogue No. 8

**William J. Ford
VE3KHB**

RR 6 Smith Falls, Ontario K7A 4S7

SEND US YOUR *Service* HEADACHES

Fast Professional Service!

HAM TRADERS INC.
and Canadian Communications Co.

AUTHORIZED SERVICE FOR

- Kenwood • Yaesu • Icom • Swan
 - Ten-Tec • Drake • Collins • Dention • MFJ
- And all other Leading Lines of
Amateur Equipment

**WE GUARANTEE OUR SERVICE
Call (416) 661-8800**

Ham Traders Inc., 45 Brisbane Road,
Downsview, Ont. M3J 2K1

Store Hours: Mon. thru Thurs. 10 a.m. - 6 p.m.
Fri. 10 a.m. - 9 p.m., Sat. 10 a.m. - 3 p.m.

ndi

HC-1400



TWO METER TRANSCEIVER,
800 Channel,
Digitally Synthesized,
144-148 MHz,
All Solid State
25 Watts Output
3 Channels of Memory

See Product Review in QST Magazine
November, 1979

Optional TOUCH-PAD Microphone
available \$69.95

New Low Duty Free Price

\$ 389.00 ea.

HC-1400 available at leading Ham Dealers or direct from:

LENBROOK INDUSTRIES LIMITED,
1145 Bellamy Road, Scarborough, Ontario M1H 1H5 Telephone (416) 438-4610



HAMS - call for our
free catalog PC-80

DEALERS - join over 400
dealers world-wide. Call
us today for no-risk deal.

HAMFEST MANAGERS -
UNADILLA cooperates!
Call us.

US - TOLL-FREE 1-800-448-1666
NY/Hawaii/Alaska/Canada -
COLLECT 1-315-437-3953
TWX - 710-541-0493

Ask for Bonnie, or Emily.

See your Canadian dealer or call 1-800-448-1666

UNADILLA / REYCO Division Microwave Filter Co., Inc., E. Syracuse, NY 13057

UNADILLA

FULL POWER - QUALITY

HAM ANTENNA ACCESSORIES

at your dealer

the Big Signal
W2AU
Balun



For over 20 years, the choice
of Hams, Armed Forces and
Commercial Communications - world-wide.

LONDON:
VICTORIA:
CONCEPCION:
BUENOS AIRES:
COL. ANAHUAC:
HELSINKI:
AUSTRIA
FRANCE
GERMANY

AMCOMM 01 804 1166
Scalar 725 9677
Telecom Trans Chile 25471
Multi-Radio 773-1266
Radiac 2-50-32-40
Erikoismediat (90) 611258
Renox Telex: 76021
SFL (90) 5339 40
Williges (0421) 504021

the Old reliable
W2VS Traps



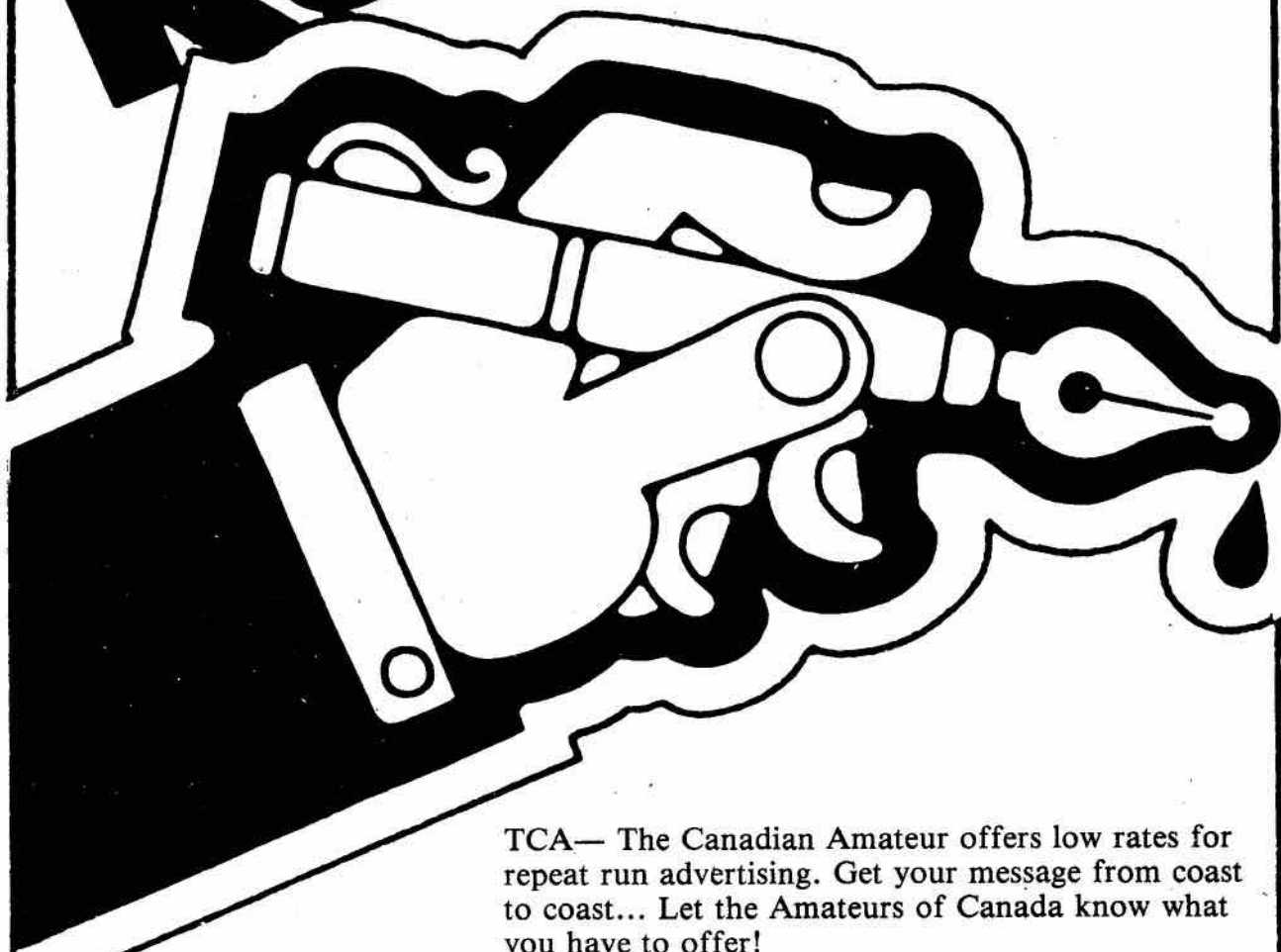
- Lo-Pass Filter 2000W
- Quad Parts
- Baluns / Traps
- Insulators
- Wire & Cable
- Connectors
- Antenna Kits

"HELICAN-10"

10-Meter
Indoor
Helix
Antenna



Get Results!



TCA— The Canadian Amateur offers low rates for repeat run advertising. Get your message from coast to coast... Let the Amateurs of Canada know what you have to offer!

TCA



The Canadian Amateur

For details, contact
Don Slater VE3BID
RR 1 Lombardy, Ont. K0G 1L0
(613)-283-3570

Infosection

CARF Head Office

The CARF Office in Kingston, Ont. is open from 9 a.m. to 3 p.m. on weekdays; Phone 613-544-6161. Below is listed the names and positions of the CARF Office Staff for your convenience.

Office Manager Andy Cieszewski
Accounting Mary Watts
Secretary Hazel Holland
Membership Brian Juniper VE3CTE

Swap Shop

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 (e.g. Jan. 1 for Feb. issue). Put your membership number and call (not counted) 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. TCA accepts no responsibility for content or matters arising from ads. This feature is for use of members wishing to trade, buy or sell personal radio gear. It is not open to commercial advertising. Send to: TCA Swap Shop, Box 356, Kingston, Ont. K7L 4W2.

FOR SALE: Cleaning up. HA 350 Lafayette Amateur receiver, very good condition, also Heathkit DX 35 TRX, works well (band switch needs repair) lots of crystals, code key, home built transmatch, both equipment with diagrams and full instructions. \$100.00 for all. **WANTED:** I would like to buy a 2 metre transceiver 800 channels with power supply, 25 watts if possible not more than 4 years old. Gaston Dontigny, 391-10th Street, Quebec City, P.Q. G1L 2M8. Tel. 819-523-9104.

FOR SALE: Tribander Beam. Mosley TA-33 beam on Delhi 48 foot tower, CDE Rotator, 220 volt in shack. 3-4 Bedroom house on 60 foot view lot in North Burnaby 20 minutes from Vancouver close to schools and University. \$169,000. (604) 299-0431.

WANTED: Kenwood DG5 Digital Readout. Have A-Tronic code reader CR101; Ashai Vertical Antenna 10-40 with schematics and instructions. VE7EZN, 6035 Vedder Road, RR 7 Sardis, B.C. VOX 1Y0.

FOR SALE: Icom 2AT \$300 New in box with nicad pack, charger and rubber duckie. Xmas present but moving to 220 MHz! Steve Dunik VE3LNC, 162 Winchester St., Toronto M4X 1B6. (416)-923-8972 Evgs.

FOR SALE OR TRADE: SB301. VE4MF, Binscarth, Man. R0J 0G0.

WANTED: Atlas 210X, working condition. VE3HJY Gilles Bruyere, Box 316, Embrun, Ont. K0A 1W0. 613-443-2847.

FOR SALE: Yaesu FT101 with fan and filter, KW107 Super Match, Matric Model 60 speech processor, MFJ 484 Grandmaster keyer and bench iambic paddle, RSO low pass filter, Eico Model 710 Grid Dip, Armaco SWR and field strength indicator, 2400 digital clock, Metermaster oscilloscope 65625. Offers? Dave VE3GZX, 252 Zelda Cr., Richmond Hill, Ont. L4C 2Y5 416-884-8398.

WANTED: Collins 30S-1. C. Gutman, 7526 Mountbatten Rd., Montreal, Que. H4W 1J9.

FOR SALE: Yaesu New FT-720 RVH 25 watts 2 metre FM with warranty \$400. New YC-221 digital display for FT221 or other 135 MHz local osc. 2 metre rigs \$75. Roger Grandbois, 20352 40A Ave., Langley, B.C. V3A 2Y8

FOR SALE: MFJ LSP520 BXII Speech Compressor \$50; Vibroplex Original \$50; Heath Antenna Impedance Meter AM-1 \$15; Hammond cabinet (Desk) No.1460, 28" Rack Space \$25; Transformer 25A 16-14-0-14-16 V Mfg by Hammond \$50; Heath DX60B \$100; General Radio 583A Output power meter \$25; FOB Montreal. C. Gutman 7526 Mountbatten Rd., Montreal, Que. H4W 1J9.



Canadian Amateur Radio First!

WHAT IS CARF?

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 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.

OFFICERS

President	VE3BID	Don Slater
Imm. Past President	VE3NR	Bill Wilson
Secretary	VE3KJW	Don Emmerson
Treasurer	VE3IWH	Lorna Hill
General Manager	VE3AHU	Art Blick

BOARD OF DIRECTORS

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.

VE7BBQ Peter Driessen, 1946 York Ave., Apt. 203, Vancouver, B.C. V6J 1E3. 604-732-3298.

VE6HO Jim McKenna, Box 703, Ft. McLeod, Alta., T0L 0Z0. 403-234-4068.

VE3HWN Craig Howey, No. 304 598 Silverbitch Rd., Waterloo, Ont. N2L 4R5 519-885-4545.

VE3KCE G.R. (Geoff) Smith, 7 Johnson Rd., Aurora, Ont. L4G 2A3 416-727-6672.

VE2BIE Raymond Mercure, 208 Bourque St., Hull, Que. J8Y 1Y4. 776-6495.

VO1NP Nate Penney, Box 10, Shoal Harbour, Nfld. A0C 2L0. 709-466-2931.

Operating Information

RECIPROCAL OPERATING AGREEMENTS

Canada has concluded agreements or arrangements with the following countries to permit licensed Amateur radio operators to operate radio stations while temporarily in the other country: Australia, Austria, Barbados, Belgium, Bermuda, Botswana (Republic of), Brazil (Federative Republic of), Chile, Colombia (Republic of), Costa Rica, Denmark, Dominica, Dominican Republic, Ecuador, Finland, France, Germany (Federal Republic of), Greece, Guatemala (Republic of), Haiti (Republic of), Honduras (Republic of), India (Republic of), Indonesia (Republic of), Iceland, Ireland, Israel (State of), Luxembourg, Netherlands (Kingdom of the), New Zealand, Nicaragua, Norway, Panama (Republic of), Peru, Philippines (Republic of the), Poland (People's Republic of), Portugal, Senegal (Republic of the), Sweden, Switzerland (Confederation of), United Kingdom, United States of America, Uruguay (Oriental Republic of), Venezuela (Republic of).

Negotiations for the establishment of similar agreements or arrangements with the Republic of Bolivia, Cuba and Italy have been initiated.

How to use the CARF QSL Service

The CARF Outgoing QSL Service will forward your QSL cards to anywhere in the world. This service is **free to CARF members**. If you send a lot of cards, a CARF membership will soon pay for itself in view of the high cost of postage when cards are mailed direct.

Please observe the following rules when using the CARF Outgoing QSL Service:

1. Sort cards alphabetically by prefix.
2. Sort Canadian cards numerically by call area.
3. Place small lots of cards in strong, heavy envelopes and seal securely. Wrap heavier packages in strong paper or put in cardboard box. Tie securely. Do not staple!
4. Address your package as shown in the diagram.
5. **Do not register the cards.** This only delays them, costs more and is not really necessary.
6. If you want proof that CARF received your cards, enclose a self-addressed, stamped postcard or envelope with 'Receipt' marked on it.
7. If a package should be damaged on arrival (very rare), CARF will send you a list of cards received so that you can check if any were lost.

(For an explanation of QSL Bureaus in general, see the CARF Regulations Handbook chapter on QSLing.)

Name, call	PRINTED	Correct Postage
Return Address	MATTER	
CARF Membership No.		
CARF National QSL Bureau P.O. Box 66 ISLINGTON, ONTARIO M9A 4X1		
Use this address NOT Box 356 Kingston		

BANNED COUNTRIES LIST

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

Democratic Kamuchea, Iraq (Republic of), Libya (Socialist People's Libyan Arab Jamahiriya), Somali Democratic Republic, Turkey, Viet Nam (Socialist Republic of), Yemen (People's Democratic Republic of), Zaire (Republic of)

THIRD PARTY TRAFFIC AGREEMENTS

Canada has concluded agreements with the following countries to permit Amateur radio operators to exchange messages or other communications from or to third parties: Australia, Bolivia (Republic of), Chile, Columbia (Republic of), Costa Rica, Dominican Republic, El Salvador (Republic of), Guatemala (Republic of), Guyana, Haiti, Honduras (Republic of), Israel (State of), Jamaica, Mexico, Nicaragua, Paraguay (Republic of), Peru, Trinidad and Tobago, United States of America, Uruguay (Oriental Republic of), Venezuela (Republic of).

Negotiations for the establishment of similar agreements or arrangements with Ecuador and the Federal Republic of Nigeria have been initiated.

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

There's A GREAT DEAL

for you... from the Canadian Amateur Radio Federation

One Year

\$15

including

- TCA - The Canadian Amateur Radio Magazine
- FREE QSL Service. With postal rates going up, this is a real deal! Many Amateurs get their money's worth in this service alone!
- Representations to DOC and other areas of government.
- and much, much more!

Just check the prices on the handy order form (see next page) and send it off to CARF today!

Canadian Amateur Radio Federation

P.O. Box 356, Kingston, Ontario, Canada K7L 4W2
613-544-6161

CARF *is* Canadian Amateur Radio!!!

Mail this handy form today. Memberships include certificate, TCA - The Canadian Amateur, FREE QSL Service and much more.

Full Voting Member*

\$15⁰⁰ per year

\$40⁰⁰ for 3 years

\$65⁰⁰ for 5 years

Associate Member

(Foreign Call Sign Holders
and non-licensed supporters)

\$15⁰⁰ per year

\$40⁰⁰ for 3 years

\$65⁰⁰ for 5 years

Family Membership

\$1⁰⁰ for each year

extra per person

\$15⁰⁰ for LIFE

Life Membership

(Full or Associate)

\$225⁰⁰

Check Quantity Required:

Canadian Amateur Certificate Study Guide ☐ \$7⁹⁹

Canadian Amateur Radio Regulations Handbook ☐ \$7⁹⁹

Advanced Amateur Certificate Study Guide ☐ \$7⁹⁹

Instructor's Guide ☐ \$5⁰⁰

Log Sheets (Package of 50) ☐ \$2⁵⁰

Message Forms ☐ \$2²⁵

CARF Logos (6" x 2 1/2") ☐ 4/\$1⁰⁰

Check one: ☐ adhesive sticker

☐ window decal

CARF Name Badge ☐ \$3⁵⁰

Print name and call desired _____

(Ontario add 7% sales tax)

Public Service Cards

☐ 25/\$2⁰⁰ First Class Mail

☐ 30/\$2⁰⁰ Third Class Mail

Money Order or Cheque Total _____

MY CALL _____ FAMILY CALL(S) _____

NAME _____

ADDRESS _____

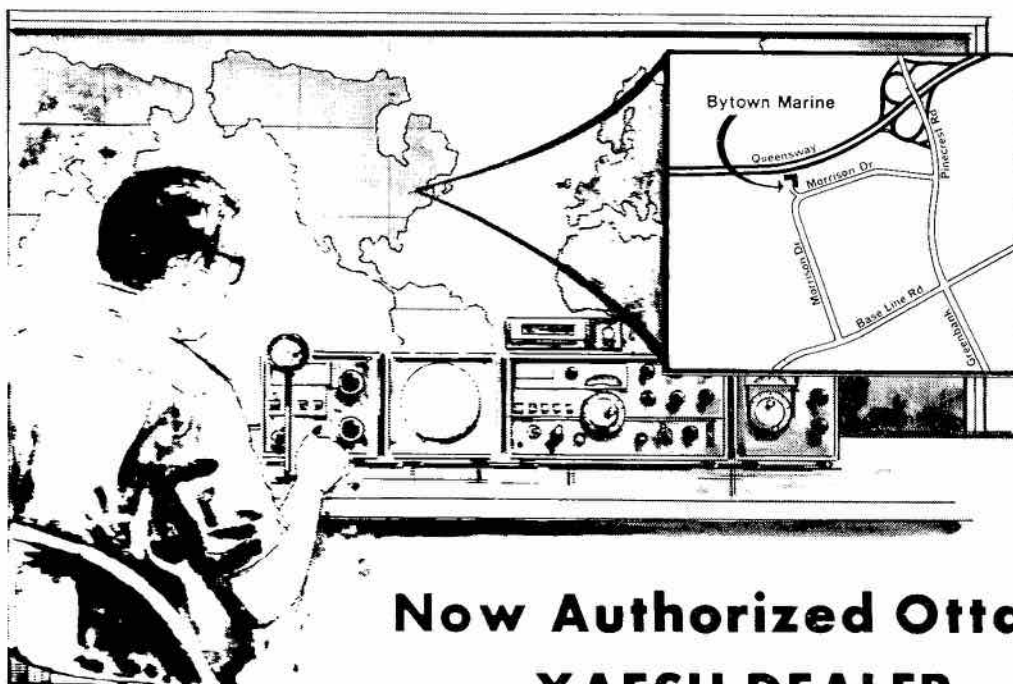
POSTAL CODE _____ DATE _____

* If renewing, Membership No. is: _____

Canadian Amateur Radio Federation

P.O. Box 356, Kingston, Ontario, Canada K7L 4W2
613-544-6161

Ottawa's Newest Ham Store...



Now Authorized Ottawa YAESU DEALER

MANUFACTURERS

ATLAS RADIO
KENDWOOD
MEL
HAGAN
MOSELEY
ARRL
CALLBOOK
NYE VIKING
V.H.F. ENGINEERING
SHURE
CORNELL-DUBILIER
AMPHENOL
ANTENNA INC.
INTERNATIONAL WIRE & CABLE
TIMES WIRE
BARKER & WILLIAMSON

PRODUCTS

HF/SSB TRANSCEIVERS
2M-VHF TRANSCEIVERS
AMPLIFIERS
REPEATERS
ANTENNAS
INSULATORS
ROTORS
ANTENNA TUNERS
KEYS
FILTERS
PHONE PATCHES
MICROPHONES
CALLBOOKS
PUBLICATIONS
CODE TAPES
CO-AX SWITCHES



LEISURE TIME COMMUNICATIONS
SPECIALISTS AMATEUR • CB • MARINE

1140 MORRISON DRIVE, OTTAWA, ONT.

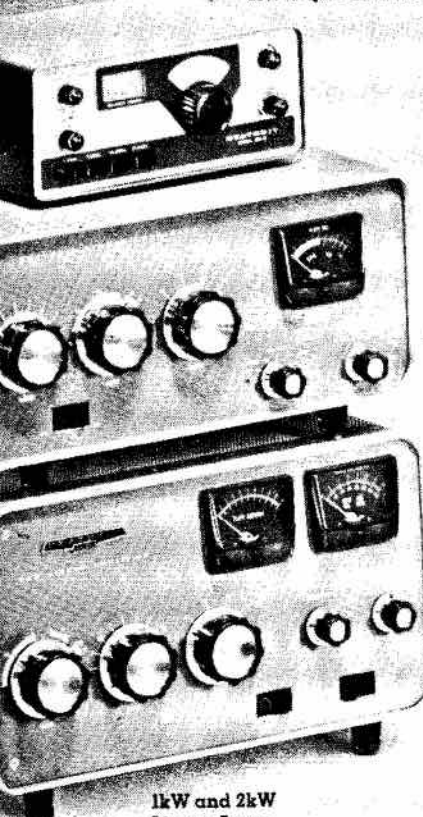
TELEPHONE 613-820-6910

Get Everything Ham Radio Has to Offer with Heath®

A big part of the enjoyment of Amateur Radio is firing up a rig that you built with your own hands. With Heathkit® Amateur Radio gear, you get more from your hobby by building it yourself...and you get more for your money, too. You save money over comparable assembled units, and you save by servicing your own equipment. Of course, technical assistance is available, if you need it. As Heathkit

sales and service locations from coast to coast. Just a phone call away. If you've never built a kit from Heath, you're in for a pleasant surprise. The instruction manual that comes with every kit is the best you'll find anywhere. As one first-time kit builder put it, "If you're not color-blind, the differentiating resistor and wire color code is a real thing in

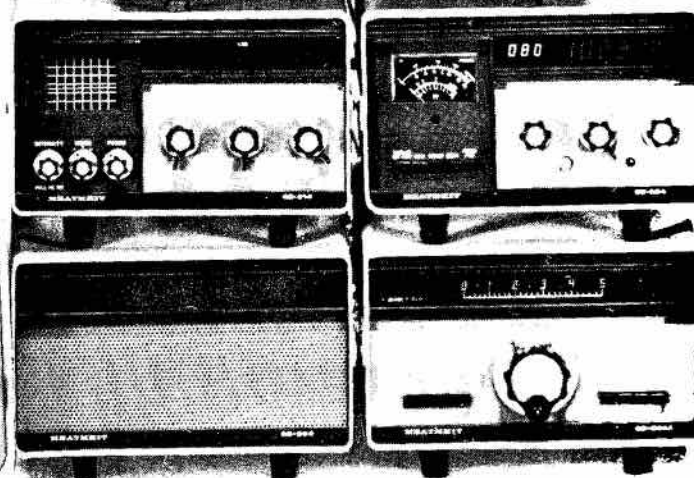
HW-8 QRP Transceiver



1kW and 2kW Linear Amps



HX-1681 CW Transmitter
HR-1680 Receiver

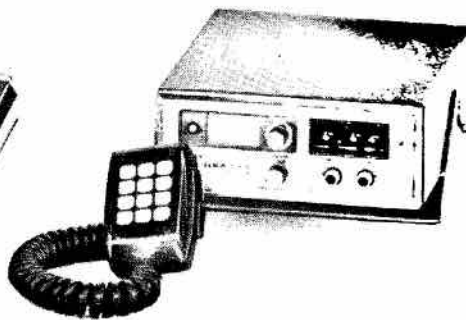


SB-104A All Solid State Transceiver and Station Aids



HW-101 SSB/CW Transceiver

VF-2031 Hand-held 2-Meter Transceiver



HW-2036A Synthesized 2-Meter Transceiver

The latest Heathkit catalogue features complete information on nearly 400 quality electronic kits you can build for pride, satisfaction and savings. Send for your FREE copy now. Catalogs also available at our 7 Heathkit Electronic Centres located in Montreal, Ottawa, Mississauga, Winnipeg, Edmonton, Calgary and Vancouver where Heathkit products are displayed, sold and serviced.

Credit Card Orders

CALL TOLL FREE 800-268-2949

Except residents of Toronto Area, Northwest Territories and Yukon. Please call 416-273-3797.



HEATH COMPANY DEPT. NC-80
1480 Dundas Street East
Mississauga, Ontario L4X 2R7

MAIL THIS
COUPON
TODAY

Please send me my FREE Heathkit Catalog.
I am not on your mailing list.

Name _____

Address _____

City _____ Prov. _____

Code _____

There's more for the Ham at Heath!