

TCA



\$1⁵⁰

The Canadian Amateur Radio Magazine

JUNE
1983

CRAG Repeater Directory

CANADIAN REPEATER ADVISORY GROUP — 1983 Spring Directory			
NOVA SCOTIA			
Bear River	VELASQ	146.190	146.790 Q
Big Harbour	VELRVH	147.720	147.120
Blockhouse	VELLCA	147.840	147.240
Bridgetown	VELBO	146.460	147.060
Dartmouth	VELDAR	146.250	146.850
Gore	VELOM	146.040	146.640
Halifax	VELCBC	146.340	146.940
Kemptville	VELYAR	146.340	146.940 P
Liverpool	VEIVO	147.900	147.300
Mt. Blomidon	VELAEH	147.780	147.180
Mulgrave	VELNTI	146.220	146.820
New Glasgow	VELHR	146.160	146.760
North Sydney	VELAUY	147.840	147.240 A
Rear Boisdale	VELHAM	146.280	146.880
Shelburne	VELSCW	146.010	146.610
Springhill	VELSPR	146.400	147.000 1
Springhill	VELSPR	443.300	448.300 A,2
Sydney	VELCBI	146.010	146.610 R
Sydney	VELSYD	146.340	146.940 A
Truro	VELLHD	147.810	147.210 D
Truro	VELKK	146.190	146.790
Truro	VELTRO	147.810	147.210
Yarmouth	VELYAR	146.130	146.730
PRINCE EDWARD ISLAND			
Charlottetown	VELAHC	146.070	146.670 A,1
Charlottetown	VELHI	146.340	146.940
Charlottetown	VELAHC	448.300	443.300 1,2
Charlottetown	VELCRA	146.070	146.670
Charlottetown	VELUHF	449.400	444.400 A,1
O'Leary	VELATN	147.720	147.120
Summerside	VELCFR	146.250	146.850
NEW BRUNSWICK			
Bathurst	VELPL	146.340	146.940
Caracquet	VELBRF	146.160	146.760
Dalhousie	VELBKX	146.040	146.640
Fredericton	VELBM	147.720	147.120 A
Fredericton	VELGT	146.340	146.940
Fredericton	VELPD	146.160	146.760
Moncton	VELMTN	147.690	147.090
Moncton	VELRPT	146.280	146.880 A
Mt. Champlain	VELTWO	146.100	146.700
New Castle/Chatham	VELNCR	147.750	147.150
Perth	VELBGR	146.220	146.820
Perth (60)	VELKMT	146.460	147.060
St. Stephen	VELIE	146.250	146.850
St. John	VELKI	146.220	146.820
St. John	VEL ?		P
Sussex	VELSMT	146.010	146.610
Woodstock	VELEMT	146.370	146.970
NOTES:			
1-(NS) = Linked with VELAHC (PEI)			
1-(PEI) = Linked with VELSPPR (NS)			
2-(NS) = VELAHC Link Frequency			
2-(PEI) = VELSPPR Link Frequency			
A = Autopatch P = Proposed			
R = RTTY/FAX Q = Temporary Location			
NEWFOUNDLAND & LABRADOR REPEATERS			
Corner Brook	VOIMO	146.340	146.940
Gander	VOIAV	146.340	146.940 Q
St. Johns	VOIGT	146.340	146.940
St. Johns	VOIEN	146.460	147.060 A

YL COLUMN
EDITOR'S COMMENT
TECHNICAL SECTION
etc. etc. etc.

Have a Happy
Summer

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YEAR
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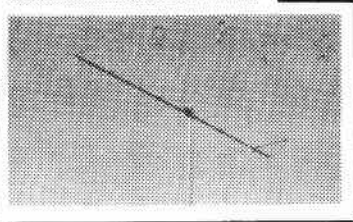
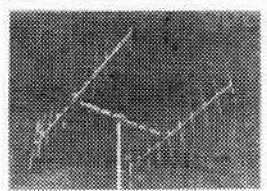
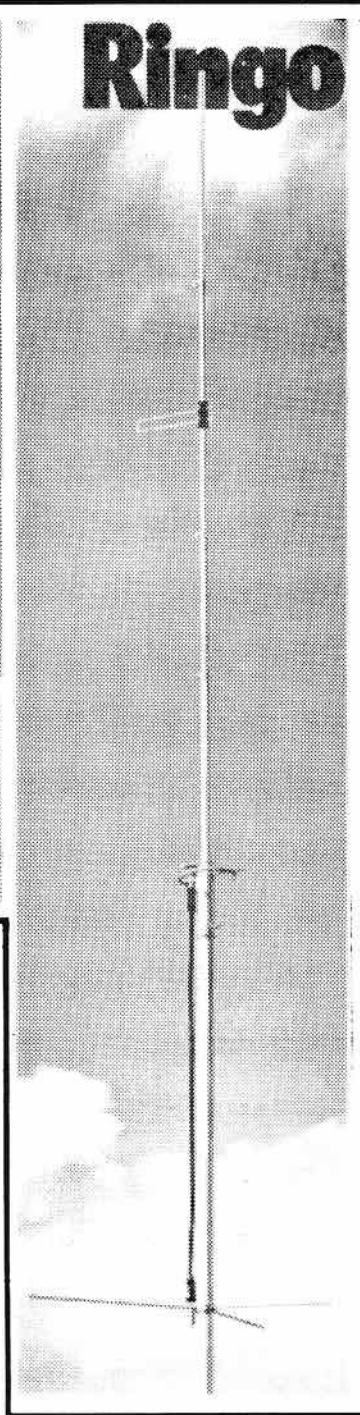
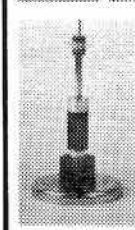
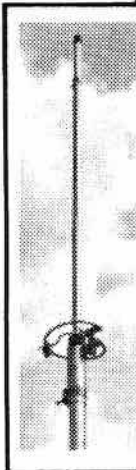
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RINGO RANGER

- ARX-2 134-164 MHz

RINGO

- AR-6 50-54 MHz
- AR-2 135-175 MHz
- AR-10 28-29.7 MHz
- AR-220 220-225 MHz
- AR-450 440-460 MHz

MOBILE ANTENNAS

- AMS-147 144-148 MHz Magnetic Mount
- ATS-147 144-148 MHz Trunk Lip Mount
- AMS-220 220-225 MHz Magnetic Mount
- ATS-220 220-225 MHz Trunk Lip Mount

YAGIS

- A147-4 145.5-148 MHz 4 Element
- A147-11 145.5-148 MHz 11 Element
- A147-22 145.5-148 MHz 22 Element
- 214-FB 145.5-148 MHz 14 Element
- A220-7 220-225 MHz 7 Element
- A449-6 440-450 MHz 6 Element
- A449-11 440-450 MHz 11 Element

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- A147-20T 144-146 MHz Horizontal
- 145.5-148 MHz Vertical



Write for Catalogue Sheets
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TCA

THE CANADIAN AMATEUR

June 1983

Vol. 11 No. 6

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PRODUCTION AND

PRINTING BY
Mutual Press Ltd.
Ottawa, Ont.

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

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

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TCA — The Canadian Amateur is published by C.A.R.F. Publications Limited, 370 King St., P.O. Box 356, Kingston, Ontario, Canada K7L 4W2. It is available for \$15 per year or \$1.50 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

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R-600 \$519

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LW	145 - 360 KHz	VHF1	30 - 50 MHz
MW	525 - 1600 KHz	VHF2	68 - 86 MHz
SW1	1.6 - 3.8 MHz	VHF3	88 - 108 MHz
SW2	3.8 - 9 MHz	VHF4	108 - 136 MHz
SW3	9 - 22 MHz	VHF5	144 - 176 MHz
SW4	22 - 30 MHz	UHF	430 - 470 MHz

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- Double conversion
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- Tape record/playback switch
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- Weighs 5.4 kg

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PS-430 Power supply TS-430S.....	189.00
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TR-7950 2 mtr mobile FM 45 watt.....	549.00
TR-9130 2 mtr mobile all mode 25 watt.....	695.00
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SMC-25 Speaker mike for TR-2500.....	45.00
TR-7730 2 mtr mobile 25 watt.....	449.00
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R-1000 S.W.L. receiver c/w/clock.....	639.00
R-2000 Super deluxe S.W.L. radio.....	795.00
HC-10 Digital world ham clock.....	179.00
P.C.-1A & P.C.-1 phone patch.....	89.00
MC-50 50K & 500 ohm desk mike.....	59.00

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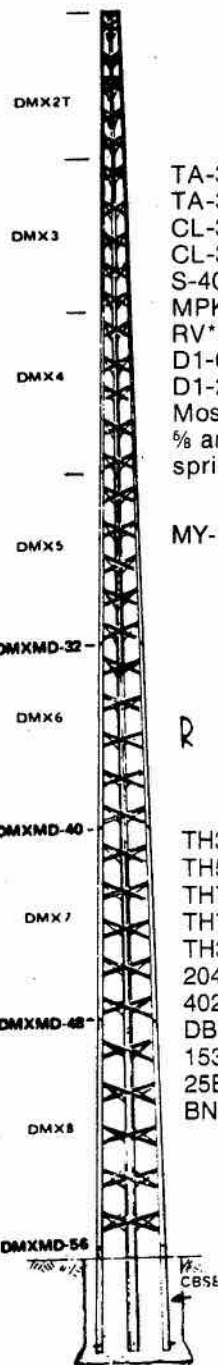




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- RV*4C & RV-8C 10-80 mtr. vertical 169.00
- D1-6 6 mtr. ground plane ... 79.00
- D1-2 2 mtr. ground plane ... 49.00
- Mosley BW-144 2 mtr trunk mount
5/8 antenna complete mount,
spring, etc. 55.00
- MY-144-9el 2 mtr beam 59.00

Cushcraft

- ATB-34 4 el tri-band beam 469.00
- 20-4CD 4 el 20 mtr. beam 429.00
- A-147-4 4 el 2 mtr. beam 55.00
- A-147-11 11 El. 2 mtr beam 85.00
- A-147-22 22 el. 2 mtr. power-pak . 239.00
- ARX-2 Ringo Ranger 55.00
- ARX-2B Ringo Ranger 11 79.00
- ARX-2K kit for Ringo ARX-2B 37.00
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- 25B 5 el. 2 mtr beam 39.50
- BN-86 balun 1.1 50 ohm 29.00

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Not all items listed stocked in depth, many one of a kind.

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Jennings Vacuum Capacitors:	UCS 300pf 7.5Kv new variable	\$42.00
VCCE 250pf 20Kvm new fixed	UCS 300pf 7.5Kv variable	\$36.00
UCSVH 35pf new variable	UCS 375pf 10Kv variable	\$42.00
UH 75pf 20kv variable	UCS 400pf 15Kv new variable	\$60.00
UCS 200pf 15Kv new variable	UCS 700pf 7.5Kv new variable	\$75.00
UCSF 250pf 10Kv variable		
	UCSXF 1500pf 10Kv variable	\$100.00

Full fluted black bakelite knobs, finger grip with brass metal skirt cal. 0-100 over 360 degrees.
 1¼ inch knobs with 1¼ skirt 25 cents each
 1 inch knobs with 1½ skirt 25 cents each
 Dial lock mechanisms, single hole mounting, clamps brass skirt, 10 cents each

Signal generators, military URM25F. 10KHz-50KHz in 9 bands. Cal attenuator, 1 MHz calibrator, 115V 60Hz input.
 Size 11x40x10. With most accessories in lid. Wt. 44 lbs. \$175.00

Video tape recorders, solid state Sony Model 320F for colour..... \$250.00

16mm sound on film projector, Graflex 16 arc light model 960 complete with reels, standard lense. anamorphic lense
 and power supply \$400.00

Dynamic microphones similar to NE 633A. Round cast aluminum bullet shaped housing 2 inches diameter by 4½
 long \$6.00

Another collectors item. Morse handkeys, military model F, black bakelite, screw terminals on top in original sealed
 boxes. Units have suffered some deterioration, namely inner zinc ring holding dust shield around base of key knob has
 oxidized away. does not impair operation, balance of components excellent..... \$3.00

HP digital voltmeters model 3440A. Four digit readout, 5% overrange
 With 3441A plugin, manual select 10, 100 or 1000 volts..... \$50.00
 With 3442A plugin, manual, remote or autoranging, 10, 100 or 1000 volts..... \$75.00

High power final components, set consisting of 4CX1000 tube, Eimac SK800 socket, Eimac SK806 chimney and
 filament xmfr. Removed from equipment..... \$90.00

Eddystone receivers, model 840A, .5-30MHz..... \$120.00

Aircraft transceivers military ARC38, 2-25MHz, minimum output 100 watts. Two Collins PTO's, motor driven roller coil
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 and manuals \$200.00

Military tuning units TN131, part of the APR-9 receiving system. Contains 2K48 klystron and 4 tube IF strip. Also a 135
 rpm DC motor geared to adjust klystron cavity, preselector and a selsyn for remote frequency indication .. \$20.00

Teletype sets, ASR33 models with paper punch and reader \$90.00

Collins aircraft receiver units 618F1A. Mech digital readout 118.00-135.95 in .05 MHz steps. Size 4x6x8 deep, xtals
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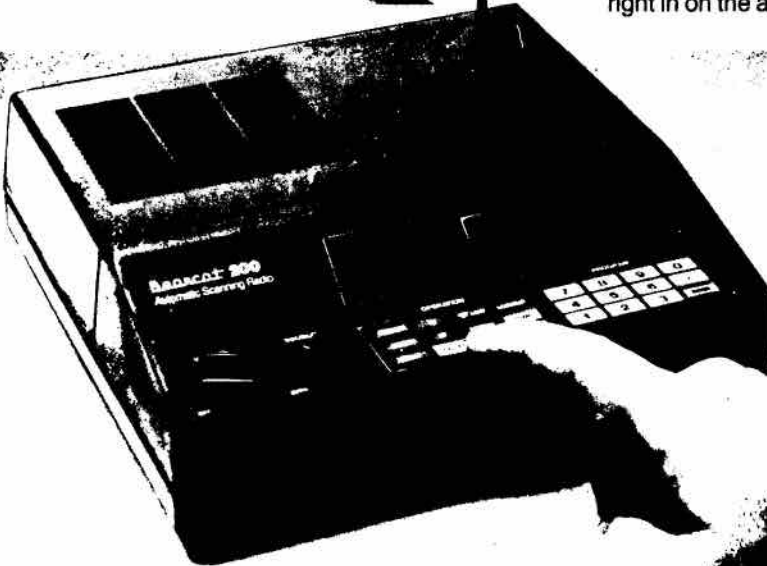


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Bearcat 100

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The ICOM IC-740 Cadillac



The IC-740 from ICOM contains all of the most asked for features, in the most advanced solidstate HF base station on the amateur market...performing to the delight of the most discerning operator.

Study the front panel controls of the ICOM IC-740. You will see that it has all of the functions to give maximum versatility to tailor the receiver and transmitter performance to each individual operator's requirements.

Features of the IC-740 receiver include variable width and continuously adjustable noise blanker, continuous, adjustable speed AGC, adjustable IF shift and variable passband tuning built in. In addition, an adjustable notch filter for maximum receiver performance, along with switchable

receiver preamp, and a selection of SSB and CW filters. Squelch on SSB Receive and all mode capability, including optional FM mode. Split frequency operation with two built-in VFOs for the serious DX'er.

The IC-740 allows maximum transmit flexibility with front panel adjustment of VOX gain and VOX delay along with ICOM's unique synthesized three speed tuning system and rock solid stability with electronic frequency lock. Maximum versatility with 2 VFO's built in as standard, plus 9 memories of frequency selection, one per band, including the new WARC bands.

With 10 independent receiver and 6 transmitter front panel adjustments, the IC-740 operator has full control of his station's operating requirements.

Options include:

- FM Module
- Marker Module
- Electronic Keyer
- 2 - 9MHz IF Filters for CW
- 3 - 455MHz Filters for CW
- Internal AC Power Supply

Accessories.

- SM5 Desk Microphone
- UP DWN Microphone
- Linear Amplifier
- Autobandswitching Mobile Antenna
- Headphones
- External Speaker
- Memory Backup Supply
- Automatic Antenna Tuner



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5 Memories Priority Scan/squelch on SSB.

FM Ease.

- Five memories - VFO's - store your favorite repeaters.
- Priority channel - check your most important frequency automatically.
- Programmable offsets - for odd repeater splits.
- 25k Hz, 5kHz or 1kHz tuning.

SSB/CW Convenience.

- Squelch on SSB - silently scan for signals.
- 2 VFO's with equalizing capability - mark your signal frequency with the touch of a button.
- RIT - receiver incremental tuning.
- 1kHz or 100Hz tuning.
- CW sidetone and semi-break-in.
- AGC - selectable slow or fast in SSB and CW.
- NB - Noise blanker - suppresses pulse type noises on SSB CW.

Full Capability Scanning.

- Scan the whole band/scan between VFO's/scan memories and VFO's.
- Automatic stop and automatic resume scan after carrier drop or predetermined adjustable delay.
- Adjustable scan rate.
- Stop on busy or empty channels.

ICOM Performance.

- 430 to 440MHz coverage.
- Remote tuning from supplied IC-HM11 microphone.
- Digital frequency display - significant digits only.
- Hi/Low power switch.
- LED indicators - RECV/SEND/PRIO/DUP.
- LED bar meter.
- Provision for retention of memory with optional NiCd battery system IC-BU1.
- Touch Tone B with optional IC-HM8 microphone.
- Compact size - (170 mm) W x (64 mm) H x (218 mm) D.

\$ 749

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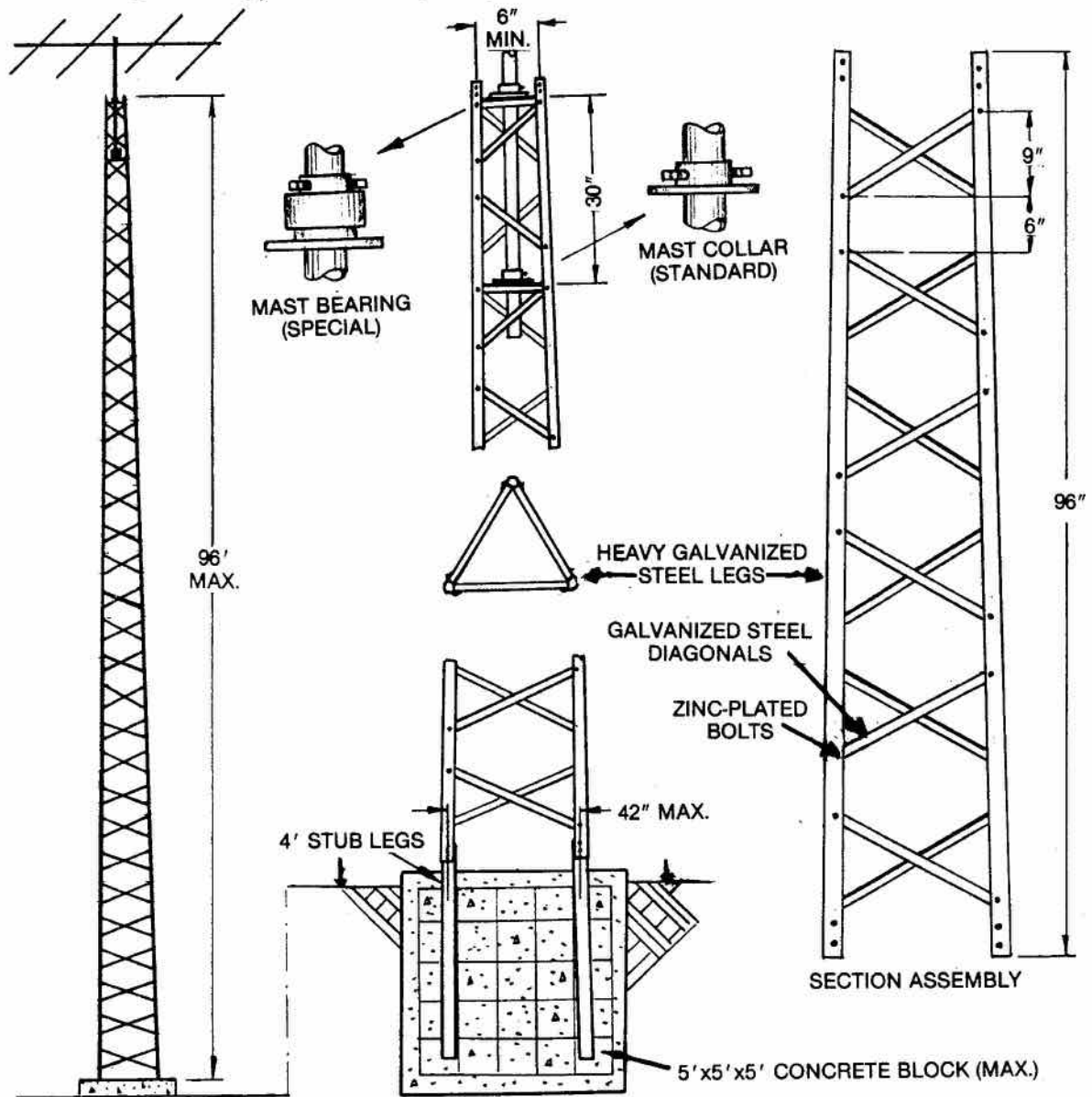
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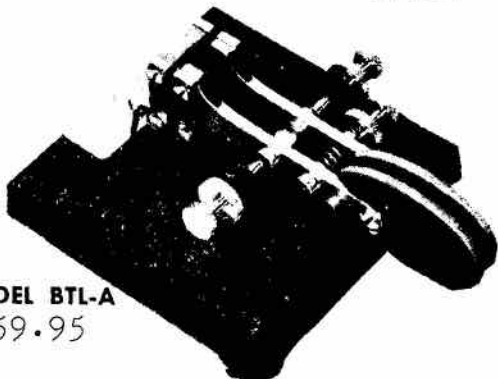
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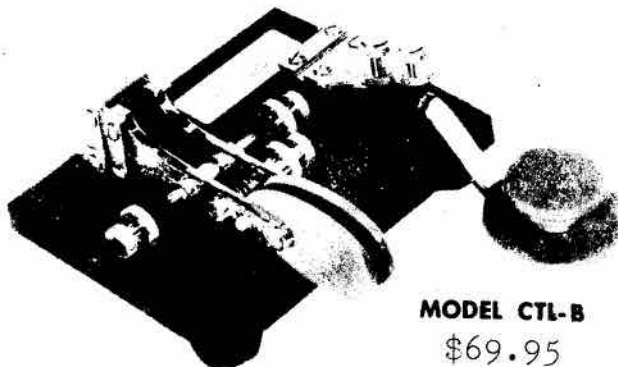
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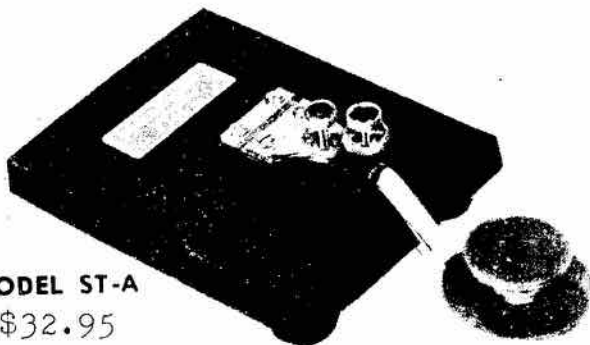
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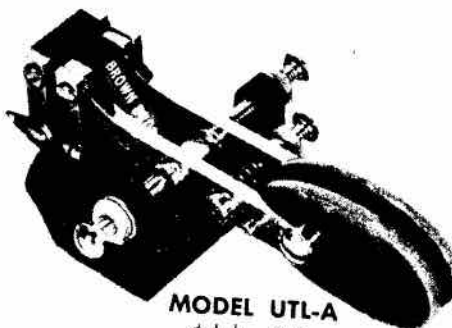
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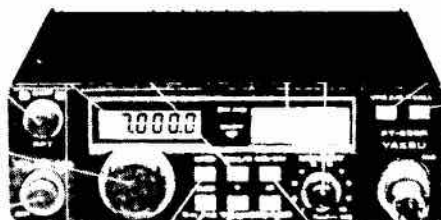
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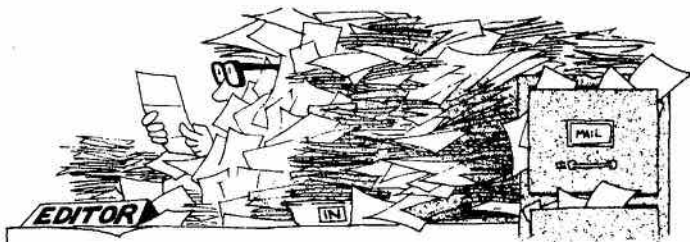
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LETTERS



Club a sight better

Dear Editor:

We have just started an amateur radio club in Wallaceburg. Our first venture was to put on a demonstration of ham radio for the benefit of a blind inmate of the Sydenham District Hospital. It worked out so well that it hit the front page of the local paper, which I am enclosing. Our president is VE3 DTR John, who was on the air in 1934. We just received our repeater call VE3 WAL. We have been active in field day and CW sweepstakes



There was a special meeting of amateur radio operators in Wallaceburg this week. Stewart Henry VE3 FFP (seated right) from Wingham visited Doug Lauzon (seated left) to tell him about the joys of being an amateur radio operator. Both Stewart and Doug are blind and the Wallaceburg amateur radio club felt Doug could get a good idea of how to overcome his handicap from Stewart and enjoy being a part of their organization. Watching in the back are, left to right, club secretary-treasurer Glenn Crowe VE3 BSM, and club member Doug Skinner VE3 1GT. (Photo and outline from the Wallaceburg Courier Press)

contests and are planning amateur radio classes for October. We are getting excellent response for a town of 12,500 people.

Sincerely

Glenn A. Crowe
N8A 4L2

P.S. Four of our members are members of CARF.

See what DOC expects

Dear Editor:

I received the April 83 issue of TCA on 29 April 83.

I most strongly support the suggestions of Ivor J. Mills, QSL Manager, Burnaby ARC, which he made in the April 83 issue of TCA.

"That TCA reproduce the exam papers after each sitting, with the answers supplied according to D.O.C. expectations".

Percy Buzza
VE1 AOS

With help from friends

Dear Editor:

Please note that on 20 October 1982 I was successful in obtaining my Amateur license. My call is VE3 NVF. I attribute much of my success to the CARF study guides and TCA.

Many thanks!

John Drajewicz

Congrats John. (Ed.)

Waiting in the west

Dear Editor:

The November issue with the announcement of "Canada Contest 82" on December 19th was received here December 30. This is slightly better than the October issue which arrived Decem-

ber 6 but still useless on this item. I don't know what your mailing date is, but as our son living on the B.C. mainland recently received four successive issues of Maclean's Magazine in the same mail delivery, TCA is not the only sufferer. Our basic problems due to proximity of a "ten-to-one" neighbor include of course the CARF-CRRL rivalry which divides us, but "Canada Post" (or whatever) is a strictly internal one.

In my 60-year Amateur span I have supported all the efforts that have been made to maintain a viable Canadian organization and periodical, and I sincerely hope that CARF-TCA will not follow them into limbo. I am no longer able to participate in amateur club activities, and am disappointed in the lack of Western items in TCA.

GL and 73, Sincerely,

Frank Reeves
VE7CT

Thanks for your comments Frank. The Post Office has promised us better results to come. I'll wait and see. As for CARF disappearing into limbo, not a chance. We are too big. A former ARRL Canadian director once stated that he could not see Canada supporting its own national organization. He said "CARF just will not fly!" We laughed then, and laugh today. (Ed.)

Bad light on hams

Dear Editor:

Enclosed is an article from the April 4th 1983 issue of Maclean's Magazine about the seal hunt off the east coast of Newfoundland. It would be interesting to know who the so-called "Ham" oper-

LETTERS

ators were; or has the reporter from Maclean's talked to some CB operators? Of course it could have been a "Ham" operator like the one who called Mayday on 2 mtrs, when the lights went out on his car!

It doesn't shed a good light on the Ham population in regards to accuracy and handling traffic. Maybe one of your readers has more information on this incident.

73

Henry
VE7 BYP

We had a report from Rowland Beardow, VE3 AML, and others, that there was a bootleg "Ham" with the protesters. Doug Burrill, VE3 CDC gave a report on it in the CARF News Service Bulletin. Such tactics on the part of these protesters will gain their cause little sympathy from legitimate Amateurs. (Ed.)

April 4th 1983

Maclean's

The seal hunt's bitter fallout

For ham radio operators who tuned in from as far away as Toronto and Washington, the messages last week sounded as though the War of the Worlds had taken place off the east coast of Newfoundland. One report said that a Canadian Forces airplane had fired on Paul Watson and his black antisealing ship, the Sea Shepherd II. Another ham operator said that a missile-bearing plane was dive-bombing the ship. Watson himself reported that an RCMP helicopter had tried to lower a man aboard the vessel. Said Watson: "I would have scuttled the ship if they had come on board."

Let's hear about heros

Dear Editor:

Congratulations on the Tenth Anniversary Issue of TCA. May its

success long continue!

Congratulations also to VE3 BSF, Vern H. Bohlender for his article on my old friend Shorty Mac. The short man with the big voice. I first knew Shorty about 1921/22, When I worked at the opposite end of the lane in Moose Jaw Saskatchewan. Day after day I would hear this booming voice and in time my curiosity got the better of me. When I finally walked down the lane to discover the author I was very much surprised.

Vern's philosophy must be the same as mine. If you have any roses to pin on a guy, do it while he can smell them. They will not do him any good once he is in the box! There are many unsung heroes in our Canadian Ham Fraternity. To you who know, let's hear about them. TCA will welcome your contributions.

Frank Meadows
VE7 EHG

Lou Beaubien's (VE7 CGE) letter in our March issue, in which he commented on the fact that the exams seemed geared to engineers rather than hobbyists brought him a fan letter from Bill Rook, VE3 MBF, who supplied the statistics on failures which we used in our May issue editorial. Lou thought it put the case clearly and suggested that it appear in TCA. Bill agreed, so here it is:

Dear Lou:

Enjoyed your letter in the March TCA re the Advanced Theory exam. I am 66 — a retired engineer/manager from battery business. Thought I might share a few thoughts with you, since I have studied very hard for 2½ years but have filed the advanced theory three times. I have designed, managed and installed battery plants all over North America for 43 years.

First, I got the CARF books. From these I developed over 1300 questions and answers plus around 75 diagrams. I got a 61%. Next, I thought I would try Zabarsky's books; I got a 38%!

No reflection on either set of books. The problem is DOC does not define specifically what they want candidates to learn. If the DOC would define *precisely* what they want, candidates would know what to study. The way it is, TRC-24 does not help much, because each exam they bring in things we did not study. So the guessing game goes on. I have an idea to improve the situation while keeping standards high. Here it is.

1. Using CARF books as example, I extracted over 1300 questions and answers.
2. DOC exams give 12 questions, of which we are to answer 10. This is less than 1 percent of the CARF STUDY GUIDES.
3. If a candidate fails the Advanced Theory several times, but feels he has a good grasp of the material, why not let him apply to DOC for a re-examination at a regional DOC office? The exam would be in-depth of say 200 to 500 multiple choice questions.

I would like to have your comments on my suggestion. I believe we should keep standards high, but I also believe the level of proficiency should be less than that required for commercial use of the material! After all, it is just a hobby.

I also believe each candidate should receive a copy of his marked paper so he can see how he did on each question. I once requested a copy of one of my exams. I finally got it months later after many letters, some registered.

Bill Rook
VE3 MBF

Bill also wrote to us and while not wanting to flog this subject to death, it is a very important one, so here are some more thoughts on the subject of exams from that letter:

I have received a copy of the new TRC-24 released April 1. I agree completely that it does *not* meet the need. What is the need?

The problem is that DOC does not define specifically what it wants candidates to learn and know. Key words and phrases as in existing and new "draft TRC-24" does not do it. DOC should spell out specifics either in their own or an existing study guide . . . and base exam questions only on such published study guide material. What would be wrong with publishing exactly what candidates should know in order to pursue the *hobby* of ham radio?

I have often wondered what the DOC policy is with respect to amateur radio. It would appear it must be one of the following:

1. To keep as many Amateurs off the bands as possible. If this indeed is the policy, though unstated, we can only conclude an excellent job is being done.
2. Encourage the growth of the Amateur radio service by certifying as many qualified candidates as possible. If this indeed is the DOC policy, great improvements in system are possible.

I would like DOC to issue a policy statement.

Bill Rook
VE3 MBF

About now we wonder if that TRC-24 date of issue was for real or related to the contents?!

BARC joins in

Dear Editor:

On January 21, 1983, on the recommendation of the Executive Committee of the Burnaby Amateur Radio Club ("BARC"), the Club members approved a motion that BARC join CARF. We would like to make it clear that BARC is not joining CARF because we agree with all of their viewpoints or that we believe they alone best represent Canadian Amateurs.

BARC is also a member of CRRL. The CRRL has encouraged us to express our views on various matters and have always had the courtesy to reply to any

correspondence sent directly to them and have also acknowledged receipt of copies of letters sent to them. As a result, the lines of communication between BARC and the CRRL are very good. We hope this same standard will be achieved in our relationship with CARF.

We are concerned about the antagonism between CRRL and CARF and the fact that it occurs on a frequent basis. We would like to see a "united front" in Canada. That is, to see all groups working for the betterment of amateur radio in Canada and doing so in a civil, if not friendly, fashion.

As a member of CARF, we hope you will listen to our views and communicate with us to make things work better. We will criticize you when we deem it necessary and, accordingly, will support you when we are in agreement with you. We are a large club (150 members) and trust that you will deal with us in a fair manner which reflects the fact that we represent a substantial group of Amateurs.

Yours truly,

G. Shortreed,
President Burnaby A.R.C.
VE7 AVU

Net not nasty . . .

Dear Editor:

In Letters to the Editor March TCA it appears VE3 ABG has some hard feelings about CTN.

Perhaps, if a little more patience was shown, this unfortunate incident would not have happened.

Instead VE3 ABG continued interrupting net control with "QNP" even after being acknowledged and asked to "stand by". Net control can only handle one station at a time and I doubt any net would survive if they had to tolerate the antics of one such as ABG.

Perhaps he should have listened to the net a couple of nights before checking to see how things operate. His message NR1 was eventually passed

through region 7 to VE6 BLY for routing to the NWT. Incidentally, this is the same station that had traffic for Ontario, not VE6 BLQ as stated in his letter. In fact VE6 BLQ didn't even check into the net.

CTN is quite willing and capable of handling all traffic routed through it and we have a number of experienced traffic handlers willing to give assistance to all, but if net procedures are not followed it would not be long before the net disappeared completely. We have enough problems operating on forty as it is.

We certainly welcome all newcomers to traffic handling, as appears to be the case by his NR1, however I believe the expression "listen first" should still take precedence.

As VE3 ABG did not wait to be QNX by net control how can he come to the conclusion that net control would not relay his traffic. When his turn came he was already gone, having said he would never check again.

In closing, I was somewhat surprised by the importance placed on this isolated issue by both CARF and VE3 ABG who has only checked the net on this one occasion that I'm aware of.

I hope it won't discourage other Amateurs from taking an interest in public service message handling.

Dave
VE5 BAF

Thanks for your comments Dave. It seems that this is a problem concerned with a lack of communication. Traffic nets are not always easy for outsiders to understand. It is not always possible to stop a net and explain things to someone who does not seem to understand what is happening, but you cannot blame them if they seek to find an answer on their own. The importance placed on this isolated incident was not due in any part to an action by CARF so don't blame them. Blame ABG for asking the question, and me for publishing it. (Ed.)

Editor's comment:

The effects of imaginative journalism: The bad type

by VE3ARS

During the course of a month, I will receive several hundred club bulletins, letters, pamphlets and other documents that give me a pretty good idea what is going on in Amateur Radio in Canada. When the need arises to clarify a comment made or an action taken, I will phone the individual involved or ask one of my associates in TCA to investigate the matter and report back to me so that the facts can be presented to all Amateurs. That is the job of a good journalist. That is my duty to all my readers. I never participate in the sort of "imaginative journalism" that others promote in their attempts at one-upmanship. It is not fair to anyone interested in truth, facts or logic.

Included in all the literature I receive are usually one or two letters written to third parties, sent to me as a courtesy. These are rarely published unless the author wishes them to be. Quite often, letters of a rather sensitive nature pass over my desk. There are usually divided into three areas:

1. Amateur Politics,
2. Government politics,
3. Nasty letters.

In 3, I am not talking about the nasty letter to the editor; those come with the Territory. I am discussing nasty letters sent from one party to another saying unkind things. Some of these are amusing from the standpoint of one who knows and understands

the facts. Others are alarming from the same standpoint. A quiet letter of explanation is usually all that is required to settle the matter. There are times when that quiet letter will not suffice. This occurs when the nasty letter is published somewhere, leading more than one person astray with half-truths. This is one of those occasions.

The following letter was published in "HOT BANANAS" (April 83 edition). This is the bulletin of the Oakville (Ont.) Amateur Radio Club. Considering the claim made in the letter, I am appalled that the editor chose to print it without obtaining all the facts. The letter was written and signed by Harry MacLean, VE3GRO, the "Vice-Director" of the Canadian Division of the ARRL. The letter dated Jan. 31/83 and reproduced in full below, sets the stage.

Dear Jim,

Glad to read in Hot Bananas that you took Bill, VE4AFO, up on his offer for a set of beam headings. Bill is one of our most faithful workers.

Also note where you mention that CNR will be contacting the SEC in event of emergency. Alas, this is no longer the case. CARF read of the CNR-Ontario Section agreement and wrote a letter to CNR, in effect asking, "What's going on here?" CNR became concerned the agreement could become a political football between CRRL and CARF, and they cancelled it. Thought you would like to know. 73.

Harry, VE3GRO (signed)

Here are the facts. I first learned of the so called agreement between CRRL and CN-rail by reading it in CRRL Bulletin 34, dated September 26, 1982. Item 4 read "CN Rail has officially recognized ARES, the ARRL-CRRL Amateur Radio Emergency Service. Emergency co-ordinators in Ontario are now listed in CN Rail's "crash book". They will be called for assistance if a need arises. Similar listings of ARES emergency co-ordinators in other provinces is expected soon." Item 2 of CRRL Bulletin 35 closed off by stating "CN-Rail has recognized ARES — officially." These remarks were repeated in QST later on.

Knowing Harry MacLean's aptitude for the expedient exaggeration, I asked Ken Kendall, VE3IHX, the EMCOM column writer for TCA, to find out if this bulletin was correct. Ken has always maintained a neutrality towards the politics of Emergency communications. He was fired from his position as EC for the Ottawa EC because he would not tow the ARRL-CRRL line. Despite this, he is recognized in Ottawa as the Emergency Co-ordinator for area Amateurs. Ken was reluctant to accept an official position with CARF stating that there was more at stake in emergency communications than the existence of a national Amateur organization. I offered him space in TCA, as I did to QCWA and others, on a purely non-political basis. He, as others did, accepted the invitation. It was also on this basis that I, as editor of TCA, asked Ken to investigate the CN agreement.

Cadets look for links

ATTENTION: The Royal Canadian Air Cadets need you.

How nice it would be to link up all the Air Cadet Squadrons across Canada via Amateur Radio. The only requirement is an advanced Amateur licence and a sincere interest in helping young Air Cadets (ages 13-19) by devoting a small portion of time (usually one night a week), as a civilian instructor. Your efforts will be remunerated by the Department of National Defence. Funds are also available from the squadrons for teaching aids and Amateur equipment, to start your local Air Cadet Squadron in the direction of a club station.

Let me explain how the 779 Royal Canadian Air Cadet Squadron, located at the Hamilton Civic Airport became involved in Amateur Radio. With the dedicated efforts of VE3 KTS, Jim Friend, a local Amateur in Hamilton, the 779 Squadron acquired a Yaesu FT 101E, and other equipment. That's when I, VE3 JUR, was invited to assist Jim with the instruction of Amateur Radio classes.

Between the two of us and with the kind cooperation of the Department of Communications, we were able to acquire a club station licence, VE3 YHM.

We would be grateful if you were to forward this idea on to your local Amateur radio club members. With your help we can hopefully introduce Amateur radio to the Royal Canadian Air Cadets Nation Wide.

For additional information please contact:

Jim Friend VE3 KTS
129 Clarendon Avenue
Hamilton, Ontario
L9A 3A4

or

Dave Webb VE3 JUR
149 Memorial Avenue
Stoney Creek, Ontario
L8G 4C6

Ken's first action was to bring the "bulletin" to the attention of CN-Rail's communications headquarters in Montreal. These are the people set with establishing any agreements concerning communications, emergency or otherwise, with any other body. They had heard of neither an official nor unofficial agreement with any Amateur organization. With over 1 million dollars worth of communications gear for the purpose, they wondered why anyone would think of such an agreement. (see July/Aug. 82 TCA page 38 for further details). They agreed to look into the matter. The next word heard from CN-Rail is that they wanted no part of Amateurs or their support. It seems that the "official recognition" of "ARES" was only an unauthorized concord with a group in Ontario. There were a lot of embarrassed people at CN-Rail, who realized they were being using as pawns in a power struggle. How would you feel? Thanks to Mr. MacLean's "imaginative journalism", Amateur Radio has lost credibility with CN-Rail.

In MacLean's letter, he blames CARF for scuttling the agreement. This is not so. I was the only official of CARF that pursued the matter, and I did so out of the need to know the truth. Having read MacLean's previous attempts at news, I knew that the truth would be far more interesting than the published material. In trying to obtain the truth, I allowed CN officials to see what was being published on their be-

half. Neither MacLean nor the Canadian Division can blame CARF or myself for the outcome. The results became inevitable once MacLean chose to blow the importance of a regional agreement up to national size. We would not have had to ask the question; we only refused to postpone the inevitable in our quest for the truth. Should we be blamed, then there is no hope for Amateur Radio in Canada.

There is no room for politics in Emergency Communications. No one should have to tow the ARRL line or the CARF line or the IARU line or whatever so long as the emergency organization works. The official Government organization with responsibility for Emergency preparedness has already stated that there is to be no politics where lives and property are at stake. Amateur Radio is the only place where this is not so. CARF has tried to keep out of it, but we are continually being "baited" by announcements such as those that caused this latest episode. For our own sake and the sake of our members, we cannot let these pass without comment. The Canadian Division, and particularly Harry MacLean, seem less willing to get on with the job, and more willing to score brownie points at everyone's expense. Meaningful discussions between CARF and the Canadian Division ARRL can never proceed while people like MacLean continue to run loose in Amateur Radio politics. Who does he answer to?

YL News and Views

Cathy Hrischenko VE3GJH
56 Stockdale Crescent
Richmond Hill, Ontario
L4C 3S9

Certificate hunting for Canadian YLs

The Canadian Ladies Amateur Radio Association and the Ontario Trilliums both sponsor YL certificates that are truly Canadian in design and most colourful. Earlier I gave you a list of YL net frequencies and times. Now that you know where to look for Canadian YL's here are four very worthwhile certificates to work on.

The basic CLARA certificate was finally designed by Donna, VE7 ARR and yours truly. The DXCC-YL and the family certificate were designed by me. The idea for the Canadian Family certificate came from Al, VE7KC, the OM of one of our members.

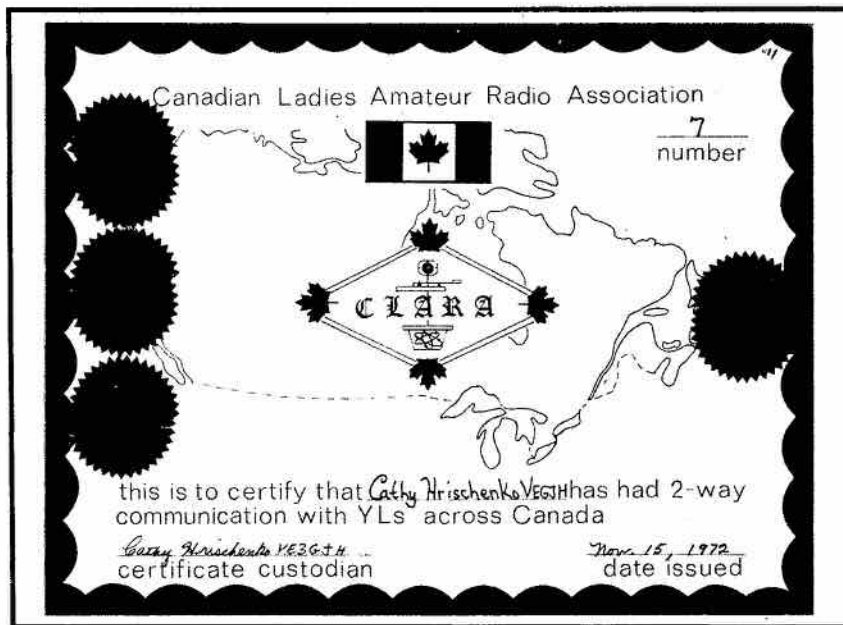
The Ontario Trillium certificate was designed by Doris Taylor, VE3 FRN and the daughter of Doreen, VE3 FUR. I am sorry but I do not know her name. I have mentioned the designers because they put a lot of effort and thought into their certificate designs, and though the certificates go on to glory, the designers are sometimes forgotten; and so to all certificate designers, we say *thanks for your help.*

Good luck on your Canadian YL Certificate hunting.

If you have any comments on this column, or suggestions on topics that I could cover, I would be pleased to receive them. Please write to me care of the above address.

I'll leave you with this thought: Suburbia is where developers dig up trees and then name streets after them.

73/33/88 as the case may be.



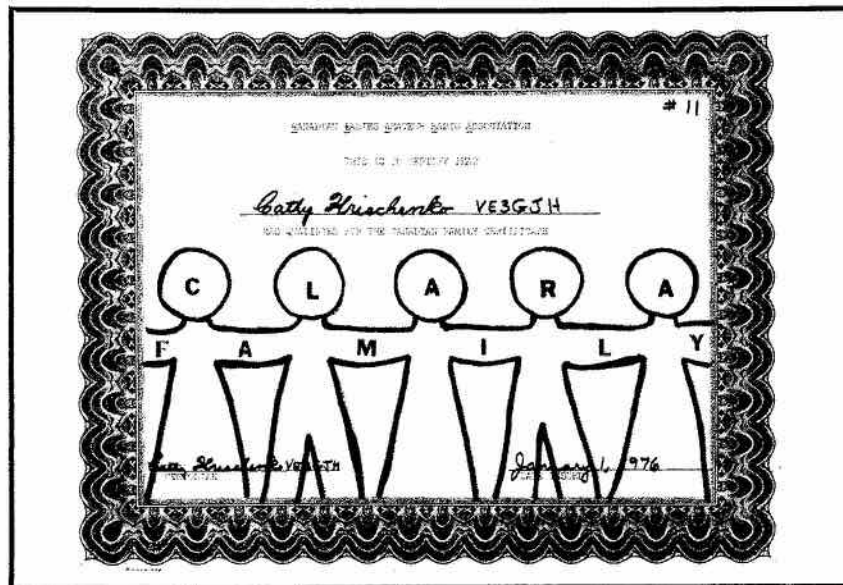
Basic CLARA certificate CLARA members must work 12 YLs in 6 Canadian call areas (limit of 5 YLs in VE3 land).

YLs and OMs in Canada must work 10 YLs in 5 call areas with a limit of 4 VE3s.

DX stations including the U.S. must work 5 YLs in 3 call areas with a limit of 2 VE3s.

Endorsements are available for further groups of 5, 10 or 12 Canadian contacts. All contacts must be made after September 12, 1973.

Send log data and \$2.00 to certificate custodian: Hallie VE6 AUP. All QSLs must be in your possession for the award.





CLARA DXCC-YL Certificate
Amateurs must work YLs in 100 different countries according to the ARRL DXCC list.

With each additional 10 countries endorsements are available.

Send a varified log data with signature and \$2.00 to certificate custodian Hallie V36 AUP.

Do not send QSLs for these certificates.

The certificate custodian address is: Hallie DuPreez VE6 AUP, P.O. Box 420, Bon Accord, Alberta T0A 0K0.

CLARA Family Certificate Families must reside in Canada. You must work 2 or more members of the same family to get family status. The awards starting date is January 1, 1975. One point is given for the first family member and 2 points for each additional family member. You must work 2 or more from the same family. 22 points are needed for the basic certificate. Endorsements are given for each additional 22 points.

example:

- Cathy, VE3 GJH mother 1 point
- George VE3 DCX father 2 points
- Dot VE3 HLO daughter 2 points
- Cathi VE3 FBL daughter 2 points
- Kevin VE3 HYQ son-in-law 2 points

and so on with other families until you have 22 family points. Send complete log data and include full name, relationship of family members and send to certificate custodian Hallie VE6 AUP. \$2.00



The Ontario Trillium Award Work club members are as follows:

Canadians and Americans must obtain 6 points; 1 point for each member contacted; 2 points for contacting VE3 TOT, the club station.

Seal endorsements for each additional 6 points.

DX require only 3 points. TOT club members must obtain 12 points.

Send log data, TOT number of member and \$1.00 to Marion Course VE3 CLP, Oxford Ranch, R.R. #1, Welland, Ontario L3B 5N4.



Bill Deacon VE3 BDO

This article will be a potpourri of reminiscences of some of my sea-going experiences on various ships. It is not possible to have them follow any logical sequence.

One event that I can recall with amusement now, although it was far from amusing at the time, occurred on the RMS Empress of Russia back in about 1938. We were just commencing a trans-Pacific voyage to the Orient; and we had a new 3rd Operator who was still pretty green behind the ears. This latter fact was soon to be demonstrated.

Because the Chief Operator ran a film developing and printing job on board that occupied most of his spare time, he talked me into handling all the usual functions of a Chief such as record keeping, setting up regular maintenance tests and doing any repairs that became necessary. For the latter, there was a buzzer system from the operating position to just over my bunk, so that if a failure occurred while I was "in the sack", I could be summonsed without delay.

On the Third Operator's first night watch (00:01-04:00) the ship was just heading out of the

Life on the ocean wave

Straits of Juan de Fuca into the Pacific. There was a moderate gale blowing; and our initial course put the seas pretty well on our port beam. The ship was rolling quite heavily and suddenly there was a big thud, a tremor through the ship, and a very noisy crash in the radio room. Along with this, my buzzer went on and stayed on without any break.

I dragged myself out of the bunk, put on a dressing gown, and staggered sleepily out to the radio room which was immediately adjacent to mine. What a sight!!! There was about a half inch of sea water sloshing around the deck; all the messages and log sheets for the current month were floating around on this half-inch of water. The MF receiver was on the deck receiving a salt water bath; batteries likewise; and the Third Operator was sitting in his chair with his legs braced out to keep steady in the heavy rolling, one hand holding on grimly to the edge of the desk, and the other firmly pressing on my buzzer. All the time he was looking down at the mess in horror and disbelief. The stupid clot had left a port open just over the operating desk; and a sea had smashed against the hull, sending some of the water right up to the fidley deck where we were located. The sea had simply poured in through the open port.

I had to give the Third quite a prod vocally and physically to get him off his prat to help to pick up all the documents before they got ruined, as well as getting the receiver and batteries back on the table before too much damage was done. I called the bridge and had them send down a seaman with mops to clean up that part of the mess. Then we had to lay out all the wet papers on spare desk space, hanging some of them up with paper clips on a few lines of string that we rigged up.

Fortunately, the equipment was not immersed in the salt water long enough to do any damage. The message and log file was a bit of a mess; but there was nothing one could do about that. Needless to say, the Third was not our fair-haired boy, nor did he distinguish himself at radio operating. How in Hades he ever passed either his code or technical exams is a mystery. Oh well, there are jerks in every walk of life.

Writing about first impressions, etc. reminds me of an incident at Victoria back in the Fall of 1930 just a couple of months after I took over my first ship.

I was assigned to the SS Nootka, a CP freighter in the B.C. Coast Service that was equipped to carry not only cases of canned fish (mostly salmon); but special tanks for holding fish oil. We also carried fish meal. The latter is for fertilizing; and the fish oil was used for oil-based paint.

Anyway, the Nootka used to go to fish canneries and reduction plants on the West Coast of Vancouver Island whenever there was cargo to be picked up. There had just been a big fish run and we were called out of a long period of inactivity to sail up the coast for a load.

I remembered, on boarding the ship, that the previous Operator was a classmate of mine; and that he had come over to my ship (the Princess Victoria) one evening to talk about his problems. He asked me how I got along with my Chief Engineer (I hardly ever saw the guy), and remarked that he was constantly being criticised by his Chief Engineer for dragging too much power out of the ship's dynamo. With this recollection in mind, I was very soon starting up the ¼ kw rotary spark transmitter to do a test transmission. The rig produced a very ragged signal, and this was only cleaned up by increasing the power input (thus dragging more

amps out of the ship's dynamo). This, of course, told me that the spark gaps were too wide and that they would have to be narrowed down.

It would be too difficult for me to try to describe the physical arrangement of a rotary spark gap. Suffice to say that the rotary gap assembly and some other equipment were in a "sound proof" oak cabinet, the gap being close to the deck and accessible with some difficulty through a small door at one end of the cabinet.

I went to the engine room to borrow spanners, screwdrivers, etc.; and soon I was lying on my back attacking the locking nuts and so on that held the two major electrodes in place. What I was going to do was to adjust the gap much like we used to do with spark plugs — adjust the gap width so one could just comfortably slide a sheet of paper through it. One had to be careful to not make the gap too narrow, since the heat of the sparks under keying caused expansion of the electrodes; and the smaller rotating electrodes could get badly damaged.

Back to white paint for the Empresses: the Russia outbound for the Orient, Vancouver, April 7, 1928.

— CPCA

2nd last and most favorite ship. Radio room immediately ahead of 2nd funnel.

Anyway, in the process of fiddling around with the electrodes, a shadow fell across my work; and I look up to see a stern looking man with a ferocious black moustache standing in the doorway and looking rather perturbed. I got up to introduce myself and found that I was facing the Captain, who was one of the MacDonald clan from Cape Breton. He got pretty disturbed at seeing this skinny young teenager tearing apart the transmitter; and I guess, after the experience with my predecessor, he felt more than somewhat insecure about what was happening. I explained to him what I was doing and why, and I assured him that everything would be back in shape well before sailing time. Being a canny Maritimer, he wasn't going to take any chances, so he asked me to get the Radio Operator from another ship (Princess Kathleen) when it arrived in about an hour's time, and to have him check over my work and confirm that all was OK. In the meantime, I proceeded with my job, put the rig back together again, called local coast station at Gonzales Hill (VAK) and got a satisfactory signal check. Incidentally, this was with the power down fairly low.

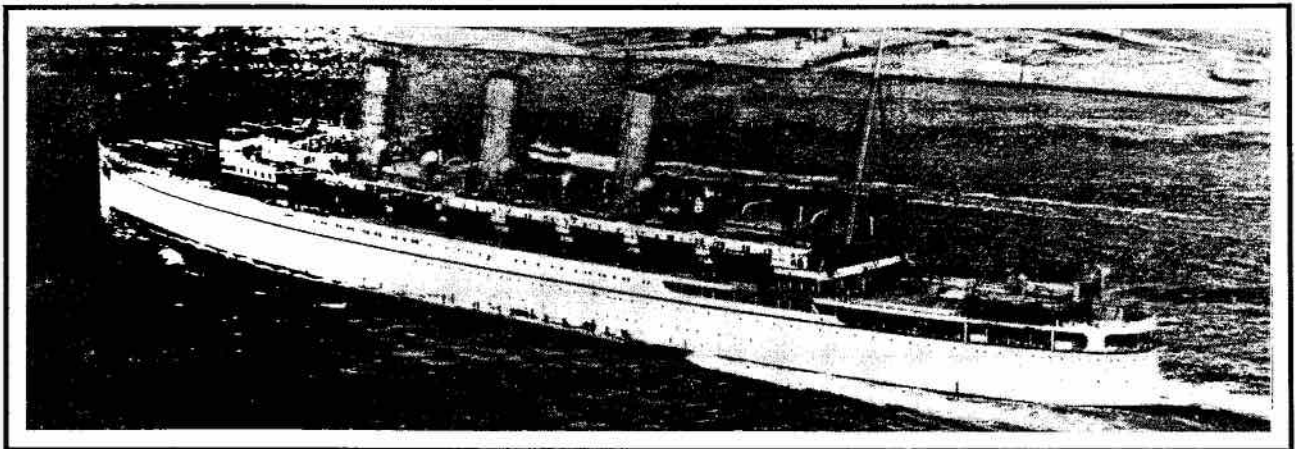
Eventually, the Kathleen's Operator came over and confirmed that all was just fine, so the skipper relaxed. When the Chief Engineer found that his dearly beloved dynamo was no longer being unduly burdened he became very friendly with me,

and like the story book goes, we all lived happily ever after.

There is a sequel to the foregoing story: I was assigned to the Nootka again the following spring when the canneries got busy again I was already in the good graces of the Captain and Chief Engineer over the cleaning up of the transmitter. In addition, I carried along my own portable typewriter, so that the skipper got all his traffic neatly typed instead of in a hand-written scrawl. Also, there was never a substantial gap between the filing time of incoming messages and their deliver to the skipper. Also, I had made my first trip to the Orient since I was last on the Nootka, so I was now more or less accepted as having passed the "apprentice" stage.

The skipper (known as Black Thompson) loved girls and loved dancing. CP had a regular weekly service up the West Coast of Vancouver Island, and, if there was sufficient interest among the passengers on board, a dance would be held usually while docked at Riley's Cove. One of my informal tasks was to contact the Radio Op on the other ship (either the Princess Maquinna or Princess Norah) to find out if, when and where there was to be a dance. If one were to be held, the skipper, Purser and myself would sit down and dream up some excuse for leaving whatever area we were in to proceed to Riley's Cove.

The skipper's cabin and the radio room were adjacent to each



other on the lower bridge. So if we were going to the dance we would get out of our old muck-about clothes we usually wore on board, wash and shave, and deck ourselves out in our gold braid and brass buttons. I can still remember the faint thud of the razor strop against the bulkhead as the skipper got shaved up for the event. Usually it was he, the Purser and myself who would go over to dance. The passengers usually thought we were one of their ship's crew — not having been on the ship long enough to know who was who.

On one occasion there was no extra wharf space at the Cove, so we tied up right alongside the Princess Norah, the latter's skipper looking down at us from his bridge in great disdain. We were well loaded with fish meal, which has a very strong and most unattractive odor. The skipper told me later that he was most dismayed to have a sweet young thing with whom he was dancing look up at him with her big blue eyes and say: "I think it was horrible of that smelly old boat to tie up beside us, don't you?", to which the skipper could only nod his head in faint assent. It was a great blow to his pride to have his beloved Nootka referred to in such derogatory terms.

In later times, I served on both the Princess Norah and Princess Maquinna, both of these ships serving the West Coast of Vancouver Island out of Victoria, B.C. Most of the points we served were fish canneries or reduction plants. Anyway, as noted above we did have one dance per trip for the benefit of the tourists who were on board. Many of the latter were stenographers, teachers and nurses on a brief vacation. The Federal Government had a geodetic survey ship out there most of the time — the William J. Stewart; and the radio operator would call me up much like I used to do on the Nootka to see if, when and where our dance was to be held. I would give him the info, together with a brief

summary of available females on board. He would let me know his preference, and I would make the date by proxy with a suitable young lady. The operator, a fellow called MacDougall, was a good looking guy, so I invariably received a warm "thanks" from the girl later for arranging such a pleasant date.

Another service I provided from those ships was for some of the operators at the coast station at Estevan Point, VAE (now moved to Tofino). On our southbound trip, VAE would call me and give me a list of groceries they were short of — usually a few loaves of bread, jam, etc., together with some special requirement of the wife such as thread or needles or some such thing. On the northbound trip, before we hove to off Estevan Point to offload cargo into a launch, I would call VAE, advise them what I had secured and the cost; and the boys always sent the money out promptly with the launch to reimburse me without delay. By the way, Estevan Point made the newspapers in WWII when a Japanese sub, for some stupid reason, fired a couple of shells at the lighthouse there.

Since many of you have shown great interest in the old spark installations, I will close this episode with a description of an experience in joining one of the old coasting ships for the first time. This was the old Princess Mary of the B.C. Coast Service; and I knew, from having heard its signal before, that it had an asynchronous rotary spark transmitter. That is to say, the rotary gap was not physically connected to the motor generator. Consequently, the gap speed was not in phase with the AC, so that the result was a very raspy signal. In synchronous gaps, the rotary section is an extension of the motor generator shaft, keeping it in phase.

Anyway, after getting into the wireless room and setting out my personal effects, I thought that I should fire up the rig and see

how it was working. I was a bit surprised to note that the rotary gap was not to be seen. I pulled over the starter handle to the first tap, only to find that there was no sound of the motor generator starting up. I let go the starter and noted that the usual arc occurred at the disconnect, indicating that current was being dragged somewhere. I screwed up courage and moved the starter handle over a couple of notches, noting that there was some sign of AC on the AC voltmeter. Thus emboldened, I put the starter full over and saw that indeed I did have normal voltage, so that meant that the motor generator was located in some mysterious spot yet to be determined. I did hear a weak whirring of a motor somewhere behind me; but didn't locate it. I pressed the key and LO! a ragged spark sound rasped out behind me. Behold, there was the rotary gap perched up on top of the clothes cupboard behind my back.

I should mention that the wireless room was in the officers' quarters below the bridge. This would be about half way between midships and the bow. I left the motor generator running and then went out on the deck to find out if I could locate the sound of the motor generator. I finally found it in a canvass covered box back about midship or slight abaft that. I guess the noise of that unit running up in the officers' quarters would be too hard on those watch-keepers who were trying to get their sleep. I was only on that ship a very few days and very glad to leave it. The gear was lousy, the room small and inside, so that there was no view of anything but the bulkheads and gear, and there was darn-all traffic.

This ends Episode Six. I think I may be able to squeeze out one more article of this type. I must thank those of you who sent encouraging letters and notes to me, particularly those who identified some excellent reference books on West Coast shipping.

An end to the hamfest torture chamber

Doug Burrill VE3CDC

Even as I write this, I know, that out there, somewhere, someone is concocting a program for another hamfest . . . so I'm offering some suggestions on what NOT to include in the festivities.

Over the years I have been at many a hamfest working the old butt off at a CARF booth. At the end of the usual frantic Saturday, selling publications and memberships, there was always the 'banquet' to look forward to. This varied from place to place but most of them have been a notch above the rubber chicken stuff of most hotels so there was always the prospect of a reasonably good feed in the offing, if nothing else.

Unfortunately, the "nothing else" always manifested itself in after-dinner goings-on of doubtful interest to say the least. These usually consisted of the reminiscences of one or more 'old-timers' rambling on for what always seemed like hours about the good old days. This inevitably included the stories of building their first transmitters and how the hobby has gone to the dogs with the advent of 'store-bought' rigs; all this larded with copious amounts of mostly uninteresting accounts of experiences on the air for decades past.

These monologues were either preceded or followed by round after round of 'awards' of certificates, plaques, or cups for this, that and the other things which, except for the donors and the recipients, held about as much interest for most of the banquetters as a 1930 call book. The mutual admiration society would drone on and on, more or less ignoring the fact that the majority of the captive audience . . . YLs, XYLs and ordinary Amateurs who don't contest, DX, read high speed morse, handle insignificant traffic or aren't the type to

make 'Amateur of the Year' or whatever, are fidgetting in their seats waiting and hoping for a quick end to it all. Some don't know what all the head table fuss is about, some can't hear due to the inevitable poor P.A. system and others just aren't interested. So it drags on and on, while the fidgetting, abetted by pre-dinner drinks and the coffee, becomes more pronounced in those with weaker kidneys. These latter sit and suffer, being unable to summon the courage to clatter down the rows of tables to the exit and relief for fear of appearing to disapprove of the head table activities. (Only once did I ever see anyone with the moral fibre to say to his bored table companion in a loud voice, "To hell with this!" then stride out of the banquet hall.)

The chairman, who inevitably has prefaced all of this with strained humor by saying he "was warned not to take too much time", or some equally irrelevant phrase, finally, after an hour or more of tedious talk, mercifully winds up the whole tedious affair. The split-second response of scraping chairs, as numb bottoms spring gratefully up from those uncomfortable metal folding contraptions almost hides the collective sigh of relief. The headlone rush out of the torture chamber to the bar, washrooms or to the door for a breath of fresh air and the rising babble of voices all speak for the thankfulness of the diners at their overdue release.

One other part of the traditional banquet is the saying of 'grace'. If it must be included, the choice of the individual to undertake this ritual is preferably not from the ranks of the clergy as they on occasion have been known to make a miniature sermon of it. I recall one such event when the reverend gentleman in-

toned a grace which lasted for what seemed like ten minutes but to all appearances neither the souls nor appetites of the banquetters appeared the better off for it.

An exaggeration? Well, having talked with many survivors of such a scene I don't think that this description of your average hamfest banquet is too far off.

All of this leads up to the points which I would like to make . . . at the inevitable banquet either have a speaker who can hold all of the audience with a subject all can understand or don't have one at all AND if the back-patting awards ritual is deemed an absolute necessity then have it included as a specific event in the daytime program, NOT the banquet. I can hear the program planner's immediate objection: "no one will turn up for such a limited interest event". So why, then, inflict it on a largely uninterested captive audience?

I remember one Amateur banquet where the speaker's only connection with radio was the fact that he was on the program staff of a local broadcasting station. He probably believed that Hertz owned a car rental agency but he held his audience spellbound with a dramatic story of how his fellow prisoners-of-war in the infamous Stalag Luft 3 built and hid clandestine receivers.

That's the sort of stuff which makes a successful evening. A topic which held everyone's interest and yet related to the main theme of the gathering . . . radio.

The ultimate solution to the problem is to eliminate the head table. This would have more than one advantage; it would cut out the rigamarole already described and would eliminate the politics associated with just who will sit at the head table and where they will be placed. The necessary

minimum of emceeing can be done by the officials of the sponsoring organization right from a table on the floor. This eliminates the embarrassing hush and standing at attention when the 'head table' elite march in to take their places on a dais, well above the peasantry.

Elimination of the raised head table may, of course, also eliminate such ice-breakers as when one of the anointed being not only anointed but oiled, misses his step up to the dais. This is a guaranteed crowd pleaser.

Almost as good was the incident at an unnamed convention when CARF was a fledgling and hence your author, although rating a seat at the head table, was to be placed well below the salt . . . in fact at the tail end of the march-in. Due, however, to some misunderstanding, I found myself at the end of the line alright but it turned out to be the head end right behind the inevitable piper. Unaccustomed to such VIP treatment I followed the piper into the hall and up the dais in first place. The resulting spectacle of double shuffling and stomping about the platform in order to put me in my correct position was a real opener for the evening's entertainment.

So much for my advice to the banquet committee; now here's some for the program planners . . . skip the multi-organization 'forum'.

Amateur organizations have the time and opportunity to discuss their business and answer questions at their booths. These combined forums have on more than one occasion drawn an audience which would have done credit to 100 B.C. Saturday afternoon entertainment at the Roman Coliseum. I was once set up and suffered a rather nasty roasting at one of these so-call forums in CARF's younger days and since then I have seen a similar though milder performance at subsequent conventions which unfortunately also boasted a composite performing circus on the



platform. The mercifully small audience seemed mainly interested in viewing the event as a blood sport.

One accidental exception to this sort of potential verbal donnybrook was one held last year which included DOC representatives. Those attending may have been disappointed at the lack of fireworks but certainly they learned a lot when, happily, the whole session was spent in questions and answers to and from the DOC officials. This forum turned out to be what it really should be — a means of informing Amateurs what the Department was doing or intended to do in various matters and a means for Amateurs to make their views known to DOC and to get first-hand answers to their questions. In short, dear program planners, let's have adequate time for such information meetings with DOC alone, rather than the usually negative and poorly attended combined affairs. A DOC forum, with responsible officials attending is a must and a plus for both the Department and Amateurs.

In the unlikely event that there are any hamfest officials who may wish to extend me an invitation to their affair or there are readers who may be incited to mayhem by this article, I can be reached care of General Delivery, Marseilles, France, as I think it wise of me to join the French Foreign Legion about this time.

CARF NEWS SERVICE

The special call prefix for World Communication Year goes into effect on World Communication Day, May 17th, for two months. VO stations can use Charlie India, VE stations can use Charlie Yankee and VY can be replaced with Charlie Kilo.

* * *

The exam dates for 1984 have been set. They are February 8th, April 18th, June 20th and October 17th. Applications are due in DOC a month beforehand. Again, those dates are for next year. The next set is on June 15th.

* * *

Speaking of exams, CARF is to meet with DOC on June 10th to review the comments received on Amateur participation. Deadline for your ideas to CARF is May 10th. One apparent outcome of the 'TCA' articles and letters on the code tests is that in at least three offices headphones were provided and the tape quality was reported to be good.

* * *

Western operators, please note; the International Glacier-Waterton Hamfest is scheduled for July 15 to 17, and the Calgary club will be co-ordinating an electronic exhibit, including Amateur stations, at the 15th World Scout Jamboree, July 4th to 14th.

* * *

In the U.S.A. there are hopeful signs in some areas that cable television QRM is being ended by the companies ceasing to use the offending channels. According to WESTLINK REPORT, a California newsletter, Amateurs in the Chicago area have won a decision over several cable companies which "have agreed to refrain from using channels E and K in that area rather than facing the prospect of cleaning up leakage problems". The FCC in the States has taken a tough line as well in the matter of cable interference by siding with the Amateurs in this matter.

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Full Break-in CW

Special features for CW operation include top cover switch selectable semi break-in or QSK, and a built-in iambic keyer with dot-dash memory, also adjustable on top of the transceiver... not an option.

All Accessories Installed

Every item normally sold as an extra is installed at the factory and provided as standard, including AM and FM modes, a 600Hz narrow CW filter, iambic keyer with dot-dash memory, 25kHz marker generator, IF shift and width filters, effective noise blanker and AF speech processor... all at no extra charge. About the only option is the CAT Interface Unit for external computer control.

CAT System

Yaesu's Computer Aided Transceiver (CAT) System provides for external control of VFO frequency and memory functions from the operator's personal computer when linked with the CAT Interface Unit. (4800 Baud TTL level)

Programmable Memory Scanning

The FT-757GX can scan between any two adjacent memories programmed by the operator, through the entire frequency range or any selected portion. Automatic scan stop threshold can be set by the RF Gain control, or by the squelch control for FM.

True All Mode Transceiver

Along with sideband selectable SSB and QSK CW, AM and FM are included as standard features, for both receive and transmit. No optional boards or filters to buy. Squelch operates on all modes.

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Only the controls needed during actual operation are on the front panel, which is uncluttered and extremely convenient to operate. Presettable controls and connectors are all on the rear panel, including VOX gain, anti-trip and delay, AM carrier and SSB processor levels, marker switch, remote controller I/O port, external speaker and 600-ohm AF outputs, patch input and external ALC, and band data for the FC-757AT Automatic Antenna Tuner.

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The remarkable new heatsink design includes a whisper quiet cooling fan, with a new duct flow cooling system that incorporates the heatsink right into the body of the transceiver. This allows forced-air circulation through the chassis and increases the cooling surface area substantially, permitting 100W PEP/DC output at 100% transmitter duty cycle on all modes.

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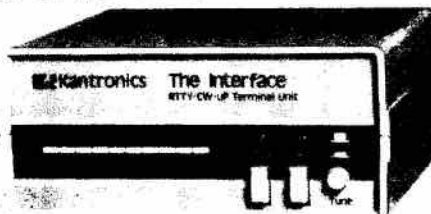
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**SWR POWER & FS METER
MODEL SWR-3S**

This model is a compact through-line type Power SWR & FS meter designed for the wide frequency range measurement for the amateur radio station. Equipped "On the Air" LED light up in accordance with the output power. Reversible two antenna systems or antenna and dummy load by easy switch operation.

Specifications:	\$49.95
Impedance	50 - 52 ohms
Frequency Range	3.5 - 150MHz
Power Range	0 - 20, 200W - 2 ranges ±10%
SWR Measuring Range	1:1 - 1:3
Punctual Power	3.5 - 30MHz (HF Band) 200W 50 - 150MHz (VHF Band) 50W
Meter Sensitivity	100 uA F.S.D.
Connector	M Type (ISO-239) 1 x TX, 2x ANT
Dimensions	150(W) x 65(H) x 70(D) mm
Weight	400 g.
Accessory	Bar Antenna 1pc.

Hansen

BOTH HAVE LIGHTED METERS WITH 12VDC



**SWR POWER METER
MODEL FS-5S**

This model is an easy to operate compact Power & VSWR Meter. This model consist of independent Power meter and SWR meter adaptable to 50 - 52 ohm coax cable. Power meter can be measured for 0 - 1000 watts and SWR meter for 1 - 5 VSWR on antenna circuit. Equipped "On the Air" LED light up in accordance with the output power.

Specifications:	\$79.95
Frequency Range	1.8 - 150MHz
Power Range	0 - 20, 200, 1000 watt - 3 ranges ±10%
VSWR	1:1 - 1:5
Impedance	50 - 52 ohms
Punctual Power	3.5 - 30MHz - 1000 watt 50 - 150MHz - 50 watt
Connector	M TYPE (ISO-239)
Accessories	Connector cable for illumination lamp. Magic Fastener x 2, pcs.
Dimensions	180(W) x 75(H) x 90(D) mm
Weight	800 g



CN-620A CN-620A

Cross Needle Meters

BIT

**BIT-02 : 144 ~ 148 MHz
(150 ~ 160 MHz)**

BIT-B : Special power pack

**Highly Functional Linear Amplifier
for Portable Transceivers**

BIT-02+BIT-B=20+Watt PORTABLE !!!

- Can be used for all types of portable transceivers.
- In addition to the standard functions of traditional amplifiers, it is equipped with special functions of BIT.
- In spite of its small size and light-weight body, it shows top-quality performance.
- It weighs only 165g, and the dimensions are only 36φ x 96mm; it is ideal to be used directly connected to transceivers.
- High performance with low costs.
- Can be used outdoor. Special power pack is also available.



**BIT-02
\$99.95**



BIT-B

**BIT-02 & BIT-B
\$199.95**

\$119.95



Use in the car



Use in the car



Indoor use



Indoor use



Antenna for mobile use



BIT-B Outdoor use



BIT-B Special power pack (with case)

*Power from cigarette lighter
This tiny 2 meter power amplifier mounts on your handheld between your antenna and HT. You can also mount it separately with a cable.

It provides 7 to 20 watts output for .1 to 3 watts input. Transmit-receive switching is carrier operated. Covers 144-148 MHz. Die cast aluminum body is 1 1/2 inch diameter x 3/4 inches long. Weighs about 6 oz. BNC connectors.

Requires 12 to 13.8 VDC at 50 ma. for receive and 1 to 2 amps for transmit.

BIT-02
 • Frequency: 144 ~ 148 MHz (150 ~ 160 MHz) • Power source voltage: 12 ~ 13.8V • Input power: 0.1 ~ 3W
 • Wave type: FM
 • Output power: 7 ~ 20W • Input/output impedance: 50Ω • With built-in highly sensitive carrier and control
 • Power consumption: receiving 50mA, transmission 1 ~ 2A • Input connector BNC-P, output connector BNC-R
 • Dimensions: 36φ x 96mm
 • Weight: 165g

BIT-B
 • For 120-minute operation of BIT (10W)
 • For 600-minute operation of transceiver (1.5W): 1-minute transmission, 3-minute receiving • Equipped with battery check meter • Dimensions: 36 x 70 x 190mm
 • Weight: 950g

BIT-B RECHARGES ON YOUR STANDARD 12VDC POWER SUPPLY.

IN LEATHER CASE.

Reliable VHF/UHF Ga-As FET design for outstanding sensitivity and low noise. Can be placed directly into the antenna feed line.
RF activated/Manual T/R switching.

CW is one of the most enjoyable modes of amateur radio communication. DAIWA makes CW easy with the DK200/DK210 electronic keyers. These keyers do most of the work for you by eliminating fatigue and improving your "fist". Features include semi-automatic, automatic, and tune modes as well as dash/dot memories, 8.50 WPM capability, an L.E.D. speedmeter (DK210 only), and two types of keying outputs to suit almost any transmitter. A variable frequency sidetone monitor is also included. If you like CW, you'll love DAIWA'S DK200/DK210 electronic keyers.

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ATLANTIC HAM RADIO LTD. is proud from our trip to Japan with the distributing rights for KDK, DAIWA, HANSEN, PUMA, KURANISHI, and more in the future.

The manufacturers represented above in their field of technology. Names: DAIWA, and HANSEN are no doubt you. For the first time the products pages will be available to Canadian Radio Dealers FROM A DISTRIBUTOR. If your favourite dealer carry these lines show him this advertisement tell him to get in touch with us. If you buy these products contact us direct.

DEALERS: Contact us quickly for direct. The first shipments start arriving in near receive attractive discounts, support with your store listed (if you carry shown), and you get geographical. Contact us NOW to carry these products lines in your area. They are ideal summer sellers.

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DAIWA cross needle meters make SWR and Power measurement quick and easy. Why bother with the inconvenience of the "older type" meters? With DAIWA there is only one meter to read and no tedious sensitivity adjustments to make - ever! DAIWA cross needle meters indicate forward and reflected power simultaneously. The SWR is read directly at the point where the two needles intersect. DAIWA quality insures reliability and accuracy. Once you've used this meter, you'll wonder how you ever managed without it in the past. The DAIWA SWR/Power meters cover a wide range of frequencies from 1.8 MHz to 2.3 GHz



	CN-620A	CN-630 (INI)	CN-720
FREQUENCY	140-450MHz	140-450MHz	1.8-150MHz
INPUT/OUTPUT IMPEDANCE	50 ohm	50 ohm	50 ohm
POWER	20-2000W	20-2000W	20-2000W
SWR DETECTION SENSITIVITY	4.4V 200W	4.40V	4.40 200W
TOLERANCE (full scale)	±10%	±10%	±10%
CONNECTORS	50-239 (N type)	50-239	50-239
DIMENSIONS (W x H x D mm)	180 x 85 x 120	180 x 85 x 120	180 x 120 x 130

	CS-201/CS-201M	CS-401
FREQUENCY	600MHz	800MHz
VSWR	below 1.2	below 1.2
POWER RATING	2.5kW PEP 1kW CW	1kW CW
IMPEDANCE	50 ohm	50 ohm
INSERTION LOSS	Less than 0.2dB	Less than 0.2dB
ISOLATION	better than 50dB at 300MHz better than 45dB at 450MHz adjacent terminal	better than 50dB at 300MHz better than 45dB at 450MHz adjacent terminal
CONNECTORS	SO-239 (N type)	SO-239
OUTPUT PORT	2	4

AMPLIFIER

BE HEARD! GIVE YOUR HAND-HELD THE BOOST IT NEEDS!

The New Daiwa LA-2035 two meter linear amplifier. A compact amp at a compact price. Only \$99.95 Suggested Retail.

This amplifier is designed for use with hand-held transceivers in either mobile or fixed station configurations. Because of its light weight and compact size, the LA-2035 can be mounted under the dash, under the seat, or in any other convenient location. The LA-2035 is equipped with RF attenuated stand by circuitry. Easy operation. Simply connect your antenna and your hand-held to the LA-2035. Connect the LA-2035 to a suitable power supply and go.

Specifications
Band: 144-148 MHz
Mode: FM/CW/SSB
Input power: 1-3 watts
Maximum output power: 30 watts plus.
Power consumption: 13.8VDC at 5A. Max.
Dimensions: 100W x 35H x 125Dmm
Weight: 500 grams
Coaxial input cable supplied with a BNC connector.
Output connector: SO-239



DAIWA

RX-430G
99.95 159.95

	RX-110G	RX-430G
FREQ.	144-148 MHz	430-440 MHz
Q.M.T. IMPEDANCE	15 dB min	13 dB min
SWR BYPASS RATING	30 W CW FM	30 W CW FM
POWER SUPPLY	13.8 V DC 100 mA	13.8 V DC 100 mA
DIMENSIONS (W x H x D mm)	90 x 25 x 92	90 x 25 x 92

CS-201 \$35
CS-401 \$109

DK-210
\$119.95 \$99.95

	DK-210	DK-200
POWER	5 W FM	5 W FM
OPERATING MODES & FREQUENCY	FM 144-148 MHz	FM 144-148 MHz
REVERSE BATTERY PROTECTION	YES	YES
POWER CONSUMPTION	13.8 V DC 100 mA	13.8 V DC 100 mA
DIMENSIONS (W x H x D mm)	90 x 25 x 92	90 x 25 x 92

KURANISHI

DUAL BAND LINEPASS METER

LM-1 \$79.95

FREQ : 145-430MHz
POWER : 0.5-5.0W
Zo : 50ohms
VSWR : 1:1.5以内
ACCURACY : MS ± 10%
ATTENUATOR :
OUTPUT :
CONNECTOR : BNC
SIZE : 55 x 96 x 48.5mm
WEIGHT : 120g

THIS IS NOT A TOY LIKE SOME LOOK-ALIKES. PROFESSIONAL QUALITY AND MATERIALS THROUGHOUT.....

LM-1 + SK-1 WHEN THE SK-1 OPTION IS INSTALLED IN THE LM-1 IT TURNS INTO A S/R/F METER. THE SK-1 CONNECTS WITH A SMALL 2mm WIRE TO THE MC-3357 IC FOUND IN MOST HAND-HELDS. MAKES YOUR HAND-HELD IDEAL FOR TRANSMITTER HUNTS. S METER CAPABILITY IS THE FINISHING TOUCH TO MOST HAND-HELDS ON THE MARKET TODAY. LM-1 + SK-1 \$119.95

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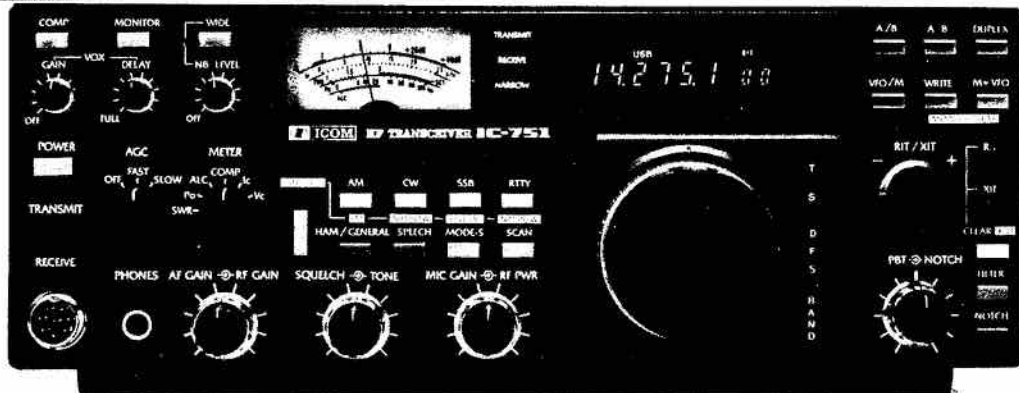
FM2030

NEW!

1. ATLANTIC HAM RADIO LTD. IS NOW AN ICOM DIRECT DEALER.
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3. ATLANTIC HAM RADIO LTD ICOM SALES WILL NOW QUALIFY FOR ICOM REBATES*.

NEW
Competition
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ICOM IC-751



ICOM is proud to announce the most advanced amateur transceiver in communications history. Based on ICOM's proven high technology and wide dynamic range HF receiver designs, the IC-751 is a competition grade ham receiver, a 100kHz to 30 MHz continuous tuning general coverage receiver, and a full featured all mode solid state ham band transmitter, that covers all the new WARC bands. And with the optional internal AC power supply, it becomes one compact, portable/field day package.

Transmitter. The transmitter features high reliability 2SC2097 transistors in a low IMD (-32dB 103W), full 100% duty cycle (internal cooling fan standard), 12 volt DC design. Quiet relay selection of transmitter LPFs, transmit audio tone control, monitor circuit (to monitor your own CW or SSB signal), XIT, and a high performance speech processor enhance the IC-751 transmitter's operation. For the CW operator, semi break-in or full QSK is provided for smooth, fast break-in keying.

Dual VFO. Dual VFO's controlled by a large tuning knob provides easy access to split frequencies used in DX operation. Normal tuning rate is in 10kHz increments and increasing the speed of rotation of the main tuning knob shifts the tuning to 100kHz increments automatically. Pushing the tuning speed button gives 1kHz tuning. Digital outputs are available for computer control of the transceiver frequency and functions, and for a synthesized voice frequency readout.

32 Memories. Thirty two tunable memories are provided to store mode, VFO, and frequency, and the CPU is backed by an internal lithium memory backup battery to maintain the memories for up to seven years. Scanning of frequencies, memories and bands are possible from the unit, or from the HM 12 scanning microphone. In the Mode-S mode, only those memories with a particular mode are scanned; others are bypassed. Data may be transferred between VFO's from VFO to memories, or from memories to VFO.

Features. All of the above features plus full function metering, SSB and FM squelch, convenient large controls, FM option, a large selection of plug-in filters, and a new high visibility multi-color fluorescent display that shows frequency in white, and other functions in white or red, make the IC-751 your best choice for a superior grade HF base transceiver.

Receiver. Utilizing an ICOM developed J-FET DBM, the IC-751 has a 105dB dynamic range. The 70.4515MHz first IF virtually eliminates spurious responses, and a high gain 90° 15MHz second IF, with ICOM's PBT selectivity. A deep IF notch filter, adjustable AGC and noise blanker (can be adjusted to eliminate the woodpecker), audio tone control, plus RIT with separate readout provides easy-to-adjust, clear reception even in the presence of strong QRM or high noise levels. A low noise receiver preamp provides exceptional reception sensitivity as required.

Options. FM unit, external frequency controller, external PS-15 power supply, internal power supply, high stability reference crystal (less than 100Hz, -10 C to +60 C), HM12 hand mic, desk mic, filter options:
SSB: FL30, FL44A
CW: FL52A, FL53A
AM: FL33

JUNE - JULY DELIVERY
PLACE YOUR ORDER NOW !!
DON'T BE DISAPPOINTED

2 METER TRANSCEIVER IC-290H

FM CW SSB



Canadian List \$599

The IC-290H features a powerful 25 watt output and a highly sunlight readable green readout, in the same compact package as the IC-290A. Other features and styling of the IC-290H are the same as the previous model - the IC-290A.

FEATURES

- 5 memories - store your most worked frequencies
- Call channel - your favorite frequency instantly available
- 50kHz FM tuning or 1kHz/100kHz tuning on SSB
- FM/USB/LB/CW modes
- Programmable offsets
- Priority channel - monitors 2 frequencies
- Scanning of memories or band



ENLARGED HEATSINK
FOR 45 WATTS

Canadian List

IC-25A \$429 IC-25H \$489 (45Watts)

The New 45 Watt IC-25H. Only slightly longer than its companion IC-25A, the IC-25H packs a powerful 45 watt punch. This 45 watts of power eliminates the need for an external power amplifier in fringe areas and gives a savings of space and wiring.

The IC-25H has all of the standard features of the IC-25A that have made it the most popular 2 meter mobile ever, plus the new green LED readout, new HM14 microphone and extra power. These new features make the IC-25H the best 2 meter mobile value on the market.

Now with green display and encoding mic with up/down controls.

IC-740

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Included With IC-740

Now the world's only completely self contained solid state 200W PEP, 12VDC/117VAC 9 band HF ham transceiver with a **Competition Grade Receiver** can be yours... at a special price.

Until July 31, 1983, the IC-740 and the optional IC-740PS (\$220 value) internally mounted power supply are available at your authorized ICOM dealer for the price of the IC-740 alone. **PLUS you get a \$50 cash rebate directly from ICOM.**

Canadian List \$1295

\$50
Cash Rebate
For the purchase
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Expires July 31, 1983

The ICOM 740 provides competition grade receiver performance with superb dynamic range in excess of 100dB and an intercept point of +18dBm plus pass band tuning, variable AGC, and a noise blanker that works, all standard.

The IC-740PS AC power supply installs in under 30 minutes, making the IC-740 the ideal self contained rig for both summer vacation portable operation, as well as your main home rig... The benefits of 12 VDC and AC operation in one compact package.

For the ham who appreciates quality, get a competition grade receiver, rock solid solidstate transmitter, internal AC/DC power supply with cooling fan, and a microphone all for the price of the transceiver. Get extra savings while getting an ICOM IC-740... simply the best ham transceiver in the world today...

Offer subject to equipment availability... at your authorized ICOM dealer...

INSURED SHIPPING AND HANDLING: Ont. and East add 2% MIN \$3.50, Man. and West add 3% MIN \$4.50 UNLESS OTHERWISE STATED. IF TWO PRICES ARE SHOWN THE FIRST PRICE IS THE REGULAR PRICE WHICH ALSO APPLIES TO CHARGES, THE SECOND PRICE APPLIES TO ORDERS ACCOMPANIED BY CHEQUE OR MONEY ORDER. FOR INFORMATION OR PRICE REQUEST, SEND 64c STAMP —

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More U.S. phone band expansion proposed

Doug Burrill VE3CDC

The U.S. phone band expansion down to 14.150 megs was legal as of May 22nd . . . but that's not all, folks. The FCC is proposing more elbow room for American phone stations by proposing expansion on other bands as well. On 80 metres the Extra class would go down to 3750 kilohertz and Advanced operators would go down to 3775. On 40 metres it is proposed to allow U.S. ops in the Hawaiian Islands area to slide into a 7075 to 7100 kilohertz slot. Fifteen-metre phone would go to 21.200 megahertz for Extra class, 21.255 for Advanced and 21.300 for Generals. The ten-metre expansion proposal puts all three classes down to 28.300. Canadians will suffer most on 80 metres if the proposals are adopted. CARF asked DOC to intercede with the FCC on this HF band expansion but with the FCC's track record for ignoring foreigners there is little doubt that the expansion will go through as proposed. The Canadian answer the last time was to expand 80-metre phone operation down to 3725 kilohertz. CARF is asking for comments from individuals and clubs on expansion of Canadian phone sub-bands in the almost certain event that the FCC will eventually go ahead with the proposed expansion of the U.S. phone bands.

CARF would like to have comments on what, if any, Canadian action should be taken in the event that the FCC proposal for U.S. phone band expansion on 80, 40, 15 and 10 metres is adopted.

The last time there was an expansion in the U.S. phone band, about ten years ago, DOC, at CARF's request extended the Canadian 80 metre phone band down to 3725 kilohertz. Faced with what may be a similar situation, CARF would like to get feedback from Canadian operators on their reaction if the U.S. FCC proposals are adopted.

A good picture of Canadian reaction can be obtained by clubs discussing the matter and passing on to CARF any consensus reached concerning possible changes to Canadian phone band operation. Bulletin stations could ask for reaction on the air after reading Bulletin 10/83. Comments and suggestions can be sent to:

Art Stark, DOC/CARF Liaison
22 Lyall St.
Nepean, Ont.
K2E 5G8

Question 1. Should Canadian phone bands be expanded in the event that those in U.S. are extended as proposed by the FCC?

Question 2. If the answer to (1) is affirmative, then what bands should be expanded and to what extent?

Question 3. Should Canada dispense with phone sub-bands allocation *by regulation* and rely on voluntary agreements reached by Canadian Amateurs!

(Before discussing this one, it should be noted that only a very few countries, among them the U.S. and Canada have phone sub-bands set up *by regulation*. Most countries set up phone frequencies by informal voluntary agreements among the Amateur community.)

More bad news . . . The FCC is forging ahead with a no-code license proposal despite ARRL protests. It looks like the Amateurs are running into a manufacturers' lobby.

* * *

Now a little good news for the very limited number who may visit Yugoslavia. We have a reciprocal operating agreement with that country. It was effective March 16th.

* * *

From time to time we get inquiries asking the number of the Tariff Item under which certain Amateur gear enters duty free. Here are the facts as printed in bulletin number 35, dated November, 1980 — The 14.3 to 16.6 percent rates formerly applied on various equipments from the U.K., U.S.A., Japan and other countries in the Customs category of Most Favored Nations, was dropped in favor of free entry, effective October 29, 1980. The following equipment, under Tariff Item 44534-2 was affected: transmitters, receivers, transceivers and transverters assembled or in kit form, designed for use only on the Amateur bands as defined by the Radio Regs; linear amplifiers, variable frequency oscillators and power supplies designed for use with the foregoing and parts of all of the foregoing. Microphones, antennas and other accessories, however, are still dutiable. The full story was reported in "TCA — The Canadian Amateur" for December, 1980.

We pay for
technical articles.
Send contributions to:
CARF Technical Editor,
Box 356,
Kingston, Ont. K7L 4W2.

Packing a portable into the park

by Gordon E. Murray
VE3 JSJ
in OARC Groundwave

For the past eight years or so, I have spent many weekends in Algonquin Park, canoeing during the summer months and snowshoeing/winter camping in winter. More recently, I have been on more extended canoe trips of up to two weeks, and I hope to extend the period to perhaps a month during the next few years. For the past five years, I have operated both VHF and HF portable while in the bush and I think my experience might be of interest to others.

At first I packed along an Icom 22S two metre rig powered by a 4.5 AH gel cell, together with a collapsible (very!) portable five element beam with twenty feet of coaxial cable. This weighed in at about fifteen pounds — 6.8 kg for you metric nuts — and was really quite useless, since it was before the Whitney and Dwight repeaters were put into operation. From some areas of the Park I was able to hit VE3 STP, and from even more limited areas I could hit VE3 NRR in Deep River. However, I soon tired of packing such equipment up mountain tops in order to try unsuccessfully for a contact. So I assembled an HW-8. I was experimenting with antennas and, at that time, packed along a trapped dipole which was supposed to give me 80, 40, 20 and 15 metres. It was a pain to set up in the trees, even in its simplest inverted Vee mode. Two watts input will do the job — barely though when the summer static is up. However, I could always be assured of checking into ONTARS between 0700 and 0730 EDT on 3755 kHz. Static is usually at a minimum at that time and propagation doesn't fade out until about 0800. VE3 BGZ would invariably recognize my chirpy signal, and even when he couldn't

read it, someone else was sure to relay my "QRU". Mels VE3 FSO must have unbelievable ears as he was able to read my signal one time, even when static was at an all time high one Sunday afternoon in August at 1730 local time.

The next phase in my operations came after I received my advanced ticket. I had decided that SSB capability was needed, since I usually canoe with five or six other people who enjoy the occasional phone patch to their homes and relatives. When operating portable I calculate battery requirements from the "emergency" cycle of 1:10 transmit/receive times. Thus, the crucial factor is current drain during receive. This led me to the Kenwood TS-130S which pulls about 800 ma on receive compared to 1.5 amps for most other rigs of similar size and performance. I packed along a 25 AH pack of sealed lead acid cells — the type used in some burglar alarm systems. They seem to be more durable than gel cells, and though heavier than NiCds, are more forgiving of abuse. The Kenwood pulls 17 amps key down, which works out at about 8 amps average SSB talk power at 150 watts input. So on the 1:10 cycle, I would have about 15 hours operating time on one charge. 100 watts portable is great; no more problems getting through static on SSB. I used an MFJ-941C antenna tuner into a 120' foot wire antenna. I found the long wire/tuner combination to be more effective than the trapped dipole without a tuner, probably because the dipole did not always present a good match — proximity to trees varied from site to site and this did change the SWR. Also, the configuration was dependent on convenient trees and varied from straight to a very narrow inverted Vee. With the tuner, I could at least always get a

good match, even if I were loading up the tent pole on its own! The long wire was a lot simpler to set up; just throw it over tree limbs as long and as high as conveniently possible. There was no coax feed-line to bother about. The tent poles are inside the tent, protruding a couple of inches above the ridge line outside. So just clip the long wire to the top of the pole with an alligator clip outside and use another clip to connect a wire from the tuner to the pole inside the tent. No need to use a ground wire as it didn't make any difference. On one occasion, during a thunderstorm, I disconnected the long wire from the tent pole, of course, and just loaded up the four foot pole itself. It worked — just readable in Toronto on 80 metres SSB.

But Oh! The Weight, even with a specially built back-frame! The equipment weighed in at around 45 pounds, fully waterproofed. This was in addition to other camping equipment. Those portages were long. At one time I had 95 pounds on my back. The canoe had to be carried separately, of course. Still, the batteries did hold out, giving me one-half hour a day for two weeks. A check into ONTARS in the morning, again in the early evening, and a check into early evening, and a check into the CJ or Quebec Radio Net in the evening. Many Amateurs responded to my calls for phone patches, and I would like to thank especially VE2 SD, VE3 HTJ and VE3 FSO for their assistance. I think VE3 HTJ and I may have made a first the time he dialed up my sister in England on the regular telephone line and completed a phone patch to me in Algonquin.

Anyway, two years of 45 pounds or so was tiring. It can be done, and I know that I can have a backpackable five band station

ready to go anywhere it would be needed and operate for about ten hours non-stop. However, in the interests of my own enjoyment of canoeing etc., I decided to cut weight drastically. The Tentec Argonaut draws 250 ma on receive and 450 ma average on SSB transmit. A 2.5 AH battery pack weighs only a couple of pounds and should give me about 7 hours. I exchanged my Kenwood TS-130S with a friend for a two week period. I used a 2.5 AH battery pack and a 90 foot wire antenna (#22 stranded) with the MFJ mini-tuner; fortunately, the Argonaut has a built-in SWR meter. At one campsite on an island, there were no trees so I just strung the wire around the perimeter of the site about six feet above the ground along the tops of bushes. My SSB was readable by VE3 HTJ, but not phone-patch quality! On another occasion, I

had four near perfect patches into Hamilton, Ontario one evening. My battery pack went dead after 10 days (about five hours of use) and I used flashlight batteries collected from the rest of the group for the contacts over the next five days. A mixture of AA, D and even AAA cells were pressed into service, but the SSB was very distorted and the CW chirpy, but readable.

Now I have my own Argonaut. And, oh yes, the weight! I check in now with just ten pounds including an ICOM 2-AT for VHF, Argonaut, battery pack, tuner, antenna and a small 100 ma/14 v solar panel for charging whenever the sun shines!

What of the future? Dentron have come up with a very small 80 metre SSB rig with 25 watts input and weighing only 4.5 pounds. However, it takes 1.2 amps on receive or 800 ma with the digital

readout off! Thus, I decided in favour of the Argonaut. It gives me five bands, and 40 metres has quite a number of useful nets such as ONTARS on 7.055 MHz and COMSONT on 7.072 MHz at 1000 hours. It seems to me that it would be within the bounds of present day technology to have a small (less than four lbs.) SSB five band rig with 20 watts input, liquid crystal frequency readout and with CMOS circuitry in the receiver, it should not draw more than 25-35 ma with the volume low or the audio fed into an ear-piece. VHF handhelds don't use much more than that these days. If anyone hears of such a rig, please let me know!

I have just been looking at a digital watch with an AM radio built in. I hear that there is an FM stereo version on the way. Hmmm! I wonder where I could get a 5-band digital watch?

Guidelines for the Preparation of Articles
for
TCA — The Canadian Amateur

1. Both the Editor and the Printer have to gauge article lengths in order to layout the magazine properly. The present format of TCA runs about 900-1,000 words to a page. Therefore it is most helpful if articles can be typed out at a rate of about 250 words to the page, i.e. about 50-60 spaces per line and about 25 lines per page. This will also leave space on a normal page needed for minor corrections and editorial directions to the Printer.
2. Double space lines and indent paragraphs 5 spaces.
3. Articles should be typed or in clear, legible handwriting, also double spaced with adequate margins.
4. The author's name and full address must be included.
5. Drawings, tables and graphs must be on separate pages with good, clear printing and they must accompany the article. Size is not too important if the lines are clear; the Printer can make adjustments.
6. Black and white photographs on glossy paper reproduce best of all in print. This presumes that they are clear and have good contrast. Colour prints can be used but they do not reproduce as well.
7. Clear, crisp writing in which the ideas flow logically and smoothly through to the article's end is much preferred to that in which the writing is verbose, wandering and repetitive.
8. Amateur should always have a capital 'A' and ham should never be used. A complete description of component parts in terms of basics (mmfd, mH, volts, mA, turns, diam. etc.) is to be preferred over a distributor's part number as Amateurs may have the part in their junk boxes, may have a substitute or may be able to make it.
9. Remember, articles which are of interest to the broadest cross-section of Amateurs are preferred to those which are of interest to a small number.
10. Deadline for material in the Editor's hands is the first of the month preceding the publication date.

Banned countries list

The lists which appear in TCA showing banned countries, reciprocal operating agreements and third party traffic arrangements come from different sources.

The latter two lists come from DOC which concludes bi-lateral agreements with the countries listed either through direct contact with the communications administrations concerned or through External Affairs Department on a diplomatic basis. Arrangements made through the diplomatic route can be long and tedious.

DOC is receptive to third party traffic arrangements made by other countries as it is to reciprocal operating requests. In the latter case, however, equal privileges must be accorded to Canadian operators in the other country before DOC would conclude any agreement.

Complaint has been made by some readers that the banned country list does not seem to reflect the actual circumstances

and that countries shown under that heading quite frequently are heard on the Amateur bands. A country which unilaterally wishes to ban Amateur traffic in or out of its domain notifies the International Telecommunications Union which in turn notifies the communications administrations of member countries. Those organizations (in our case, DOC) is then responsible for notifying Amateurs of the request made to ITU. All of this can take many months before it even reaches DOC. Even then, some countries wink at their own prohibition or allow selected stations to go on the air.

It should be pointed out that Amateurs who contact such stations should realize that there can be risks involved for the station at the other end. Countries on the banned list are not noted for their civil liberties nor a benevolent attitude towards citizens who fool around with radio transmitters.

TCA WELCOMES LETTERS
TO THE EDITOR.
PLEASE SEND ALL
CORRESPONDENCE
TO EDITOR TCA.
P.O. BOX 2610 STATION D
OTTAWA, ONTARIO K1P 5W7

DX disaster

Doug Burrill

A DX expedition to the Spratly Islands in the South China Sea came to a shocking and sad end in the middle of April. Here are some details gleaned from the Vancouver Sun and The Montreal Gazette, thanks VE2ZP and VE7HL.

Radio distress signals heard across the Far East prompted a stepped-up search for a West German yacht with six people aboard, missing since it was attacked near a Vietnamese-held island in the South China Sea.

The six people hoped to set up a ham radio transmitter on one of the uninhabited Spratly Islands, a string of small coral atolls midway between the Philippines and Vietnam.

Radio contact with the 15-metre vessel was lost after it sent a distress message saying it was afire following an attack. It did not identify the attackers or give its exact location.

The latest transmission indicated two people aboard the yacht *Siddhartha* died and the other four were ill, Japan's Maritime Agency reported.

West Germany's embassy said the double-hulled yacht was shelled by a Vietnamese garrison on Amboyna Cay, 650 nautical miles (1,175 km) southwest of Manila and 500 nautical miles (905 km) east of the southern tip of Vietnam.

The Spratly group is a cluster of islands occupied by forces from the Philippines, Taiwan and Vietnam. China and Malaysia also have laid claim to the islands, which are believed to have rich offshore oil reserves.

"But what we cannot understand is why they had decided on the voyage to an area well publicized as a dangerous zone," a senior official said.

Dave Goodwin, VE2ZP, filled us in on a bit of background to this tragic event.

Spratly is in the South China Sea, and there are countervailing claims on the group by China, Vietnam and the Philippines. It is considered to be a separate country by ARRL for their DXCC award, by reason of distance from other parts of land.

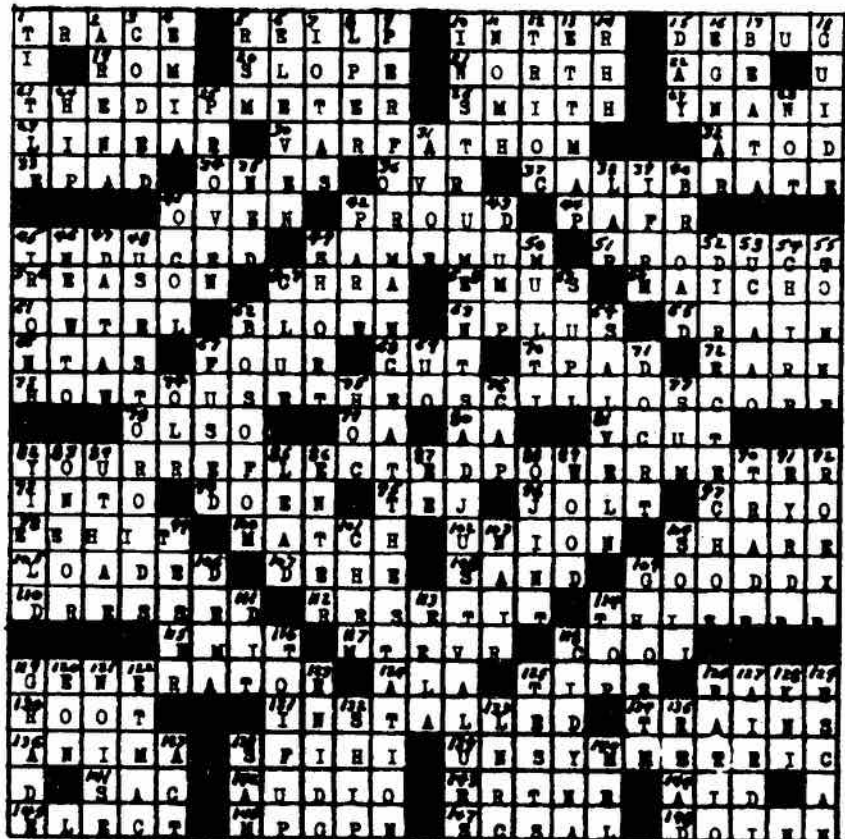
A West German group set out on a yacht in early April to conduct an operation on the group for about a week. The operators were to be DJ3NG and DJ6SI, and they were planning to use the call signs 1S3NG and 1S6SI. The whole 1A to 1Z call sign block is unallocated by ITU, and this block has been used by numerous operations from territories that are essentially unadministered.

The last Spratly operation, con-

ducted by an Australian and two Austrians, was also shot at. Two shells were loosed over the bow of their yacht as a warning, and they took this friendly advice to heart and left. The Vietnamese appear to be the most present of the three countries claiming the group, which has strategic value as it sits in the middle of an important shipping corridor and may as noted have oil prospects.

As Spratly is uninhabited, there is very little regular operation from there, and with the Vietnamese acting toward visitors as they have been lately, it seems Spratly will continue to be much in demand, and the subject of several more SAS-style Amateur Radio raids. One can only hope that the death of two people will act as a brake on the ambitions of the more adventurous DXers.

Crossword answer



TECHNICAL SECTION



An outdoor power system that's safe

Bill McCaslin VE3ARX
Certified Electrical
Safety Inspector

The year was 1971 . . . it would be my first field day exercise. . . . I arranged to meet the club president at the time honoured "signal hill" to plan our station layout. What a sight met our eyes . . . grass 2 ft high . . . swarms of black flies and mosquitoes . . . a dumping ground of oil cans, old tires, etc. . . . we were appalled! "The club deserves better than this," I said . . . Jim follow me . . . we are going to rattlesnake point!

In comparison this was Utopia! . . . the grass freshly cut . . . a clear 1000 ft circle off to one side . . . no mosquitoes . . . a new well . . . toilet facilities . . . and best of all, high ground on the escarpment.

We planned our layout . . . then shock #2 arrived when I discovered that the club "electrics" just did not exist. There was an old 1500 watt Signal Corps generator . . . and beyond this whatever could be scrounged to put field day together. Safety wasn't a main concern . . . just something that would work . . . and hope for the best. Fortunately, Jim being an ex-naval signals type, supported me, an ex-army signalman, in setting up a "once and for all" power distribution system that would meet both Field Day and Emergency demands. Calling an executive meeting, we laid out our plans for an adequate power system to be built around

a 10 KVA generator. The end result was that a 20 KVA mobile diesel generator was supplied . . . the dummy load of which poured enough heat out to the sky that would have heated all the tents!

Through the years I have modified our setup to be more practical and easily obtained by any club. Originally we set up for 12 stations . . . but in practise, eight stations are more realistically manned. We have found that three, 3000 watt generators spotted 120 degrees apart works quite satisfactorily. This supplies in addition the hospitality tent and various cooking tents with lightin, . . . cooking being done by propane or other fuels.

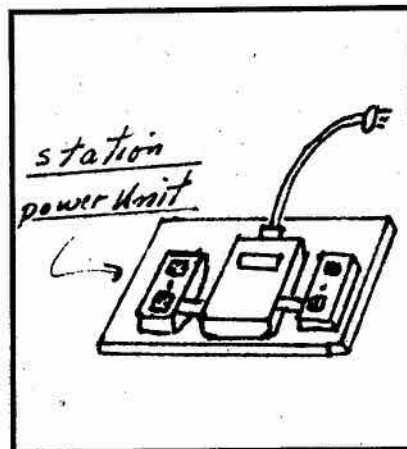
Experience has shown that the club should have in its inventory a minimum of 150 ft of 3-wire #16 type SJ extension cords per station. (Band captains of each station should bring an additional 100 ft cable in case of emergency.) Each tent should have a pow-

er unit consisting of a 30 amp single pole fused switch (used at 15 amps) which supplies two duplex receptacles . . . all mounted on a painted board 7½" × 11". The 30 amp switch box is supplied by an 18" length of #16 3-wire type SJ cord terminating in a "U" grd. rubber cap. Now it just so happens that single-pole 30 amp switch boxes are readily available, usually free, from your electrical contractor. With the changeover by the Electrical Utilities of domestic waterheaters from 115 volts to 230 volt units, the existing single pole switch must be replaced by a 2 pole 115/230 volt fused switch . . . the former switch now is doomed to the scrap yard!

To make up these station power units you will need the following parts:

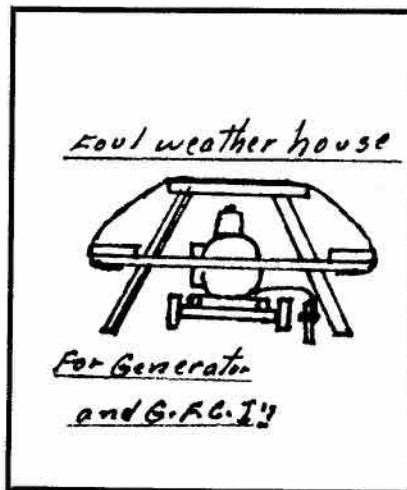
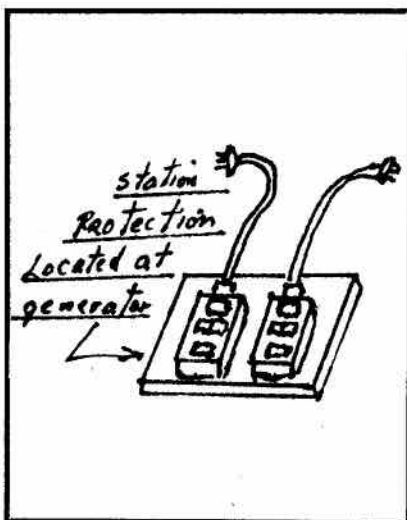
- 1 — single pole 30 amp fused switch — fused at 15 amps.
- 2 — duplex receptacles . . . 2 utility boxes.
- 2 — ½" close conduit nipples
- 4 locknuts — 4 bushings.
- 8 — ¾" #8 woodscrews — 1 cord grip connector (for ½" knockout in switchbox)
- 1 — 3 wire "U" grd. rubber cap — 18" of #16 3-wire type SJ cord.

At the generator, 1 — 5 ft grd. rod is hammered in the ground and is bonded to the generator frame using a piece of #8 stranded conductor, insulated or bare. Using a piece of ½" rope, one man can handle a generator if it is mounted on ¾" plywood cut to fit an old lawn mower base.



Now up to this point it looks like we have a "classy electrical system" . . . but is it safe??? The answer may be "yes" or "no" depending on the thoroughness of the station operators and the condition of the station equipment. Will it pass electrical inspection? The answer is no! The grounding is inadequate and present-day laws say that outdoor receptacles must be protected by ground-fault-current-interrupters. This is where the cost comes in . . . but we are buying safety!

A single GFCI duplex receptacle sells at \$35.00 wholesale. We need two of them at each generator because the generator supplies two 115 volt 15 amp circuits. This will handle 2 stations per circuit or 4 stations per generator. So now we purchase 2 GFCI duplex receptacles per generator and install them in a pair of utility boxes . . . mount the boxes on a painted board $7\frac{1}{2}'' \times 11''$ and supply each utility box with about 24" of 3-wire #16 type SJ cord and "U" ground rubber caps, and plug these two cords into the two 15 amp outlets supplied by generator. Now you will have complete safety . . . but you must be careful not to get these units wet . . . or they will *trip off!*



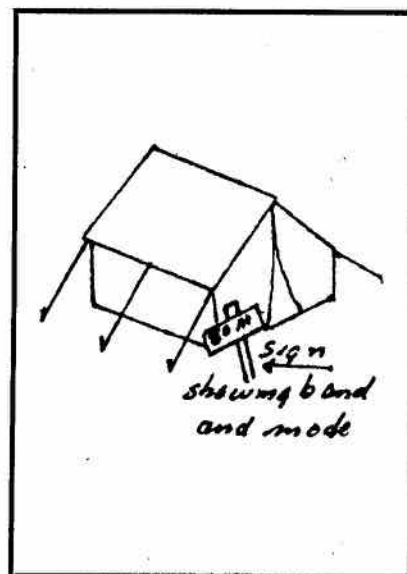
The GFCI works on the principle that what current leaves it on the black (hot wire) must return through it on the white (neutral) wire. If more goes out than returns on the neutral wire, it must be returning via some other path . . . and that path could be *through* a station operator. If the discrepancy between outgoing and incoming current exceeds 5 milliamps, the GFCI shuts its circuits down, but not the generator. The GFCI is set to this low current value because above 10 milliamps the heart may go into fibrillation resulting in heart failure. However moisture could create sufficient current leakage to trip the GFCI. Therefore the generator and GFCI units must be kept dry. A simple way this can be done is as follows: Using a picnic table, staple a piece of plastic ($8' \times 10'$) under one seat and draw up and over the picnic table and staple under opposite seat . . . fastening the ends to the seat cross bars. Now you have a neat dry house with adequate ventilation to straddle over your generator. To service the generator, just tip up the picnic table. The GFCI receptacles located adjacent to generator would then be kept dry.

Some further hints on handling extension cords. Never wind them

up around your arm! This stresses and twists them too much resulting in premature aging. Take a 5 ft section of cord, tape this loop and roll up the cords hand over hand. Secure this coil in two places with a binding of tape. We have handled our cords for 12 years now with no apparent damage . . . and expect to get another 12 years out of them.

One last thing . . . while your carpenters are making up wooden bases for your power boxes . . . have them make up an equal number of boards $7\frac{1}{2}'' \times 16''$ and fasten 2" from the top of a $24'' \times 2'' \times 2''$ pointed stake . . . for use of station identification. Paint these boards and identify on them the band and the mode and stick it in the ground adjacent to your station. Field Day visitors will find visiting the various stations thus more interesting.

So good luck to you . . . and wish me luck also as I attempt to convince our executive of the necessity of the safety provided by GFCIs. We would all be in serious trouble in the event of an accident . . . so let's play it smart . . . the life we save may be our own! "73"



Antenna brewers search for a better system

George W. Goodwin, VE2DQ

As I switched on the transmitter that blustery, stormy morning, the SWR was noted to be a rather high 2. to 1. instead of the hard won 1.2 to 1. which was customary for my 3 element Yagi.

Rain was the obvious answer but how was this happening and what, exactly, was going on to cause this?

Investigation showed only too well what was going on.

The rain was running down the sides of the square aluminum watertight gamma matching enclosure in torrents as this was a real downpour. Before the droplets of rain had gathered enough weight to fall to the ground, the blustery wind, no doubt aided by the rocking boom, was blowing the rain-drops along the smooth bottom of the enclosure, there to find their way into the threading of the SO 283 and PL 259 co-ax connectors. These had originally been taped over but weathering had deteriorated the taping so that it was now useless for its intended purpose.

Essentially, the weak link was the SO 283 socket which needed better weather protection.

A PL 259 plug, by the very nature of its overlapping type of construction, would not allow any rain to enter by itself and the weak link is the threading where it is mated with the SO 283 socket.

This whole observation gave rise to the idea that outdoor enclosures should likewise be made with a similar overlapping type of construction.

The top, or lid, should overlap the sides and these should overlap the bottom thus providing more protection for the transmission line connectors. In other

words, the bottom plate should be recessed within the sides by about a quarter inch or so.

There was the main problem but more problems were also visible.

It was noted that the thrust bearing, originally packed in grease, had become devoid of grease and was sitting in its housing in a pool of water instead and rust was showing on the bearing. It still worked but it hardly augured well for the future.

Another fault was a rubber hood over the top bearing of the rotor which was supposed to provide some weather protection for this vulnerable bearing. This had now deteriorated to such an extent that it was utterly useless.

The top of the tower bearing, or more properly a shim, which I had made up with a series of tele-

scopic tubing to make up the difference of diameters between my 1¼" diameter mast and the larger aperture of the tower, was in sad shape too.

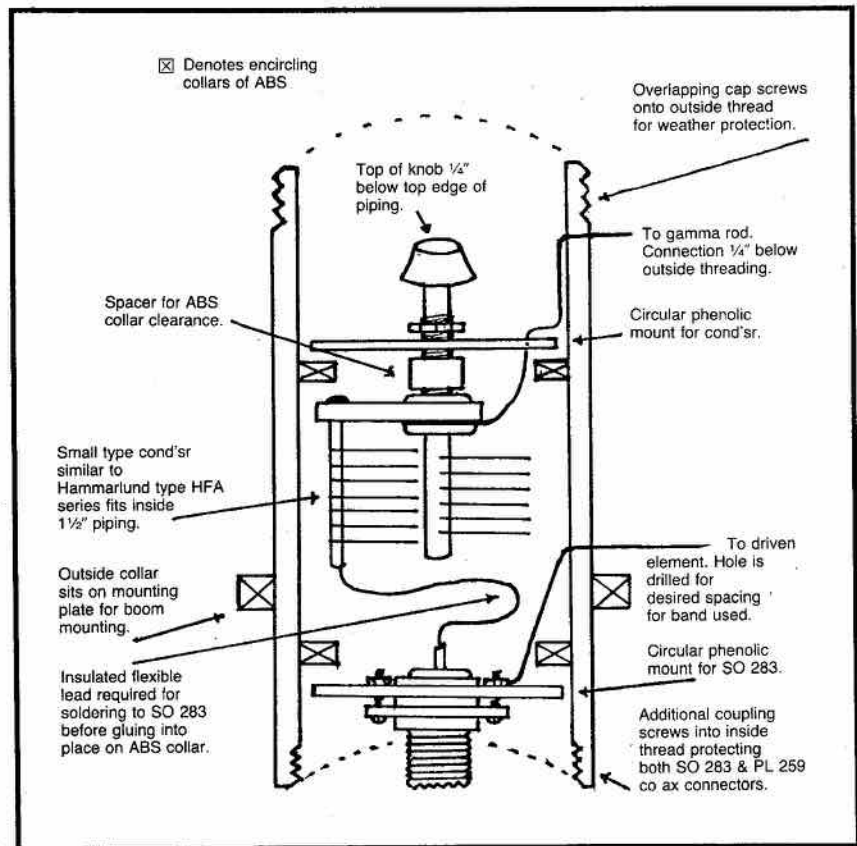
Being a loose fit it probably did not require any greasing but certainly it was showing signs of weathering with some rusting taking place.

Some form of weather protection should also be devised and some form of hood was required along with a new type of bearing or shim.

There was the sad story and a complete overhaul was indicated. Some major modifications were going to have to be made although at this point I had no idea as to just how I was going to accomplish this.

With this in mind, down came the antenna and also the tower to facilitate the job in hand.

Cutaway sketch showing details of gamma tuning unit mounted inside ABS pipe or pipe fittings. Sketch not to scale for clarity.



The weather sure can play havoc with anything outdoors in our Canadian climate or perhaps it's the acid rain which we hear so much about today.

Subsequently the PL 259 co ax connector was snipped off the transmission line for an examination of the inside of the line and there was that horrible green verdigris all down the line for a distance of about twelve feet before petering out.

Well it was about time for a new transmission line anyway as this stuff was getting on in years being surplus WW II vintage.

While it was on the ground, the first order of business was to paint the tower with TREMCLAD rust proof aluminum paint while the brain worked overtime cogitating on the best methods of overcoming my antennas shortcomings.

While overhauling the rotor

Cutaway sketch showing construction of bearing hoods. Choose short tailpiece to suit diameter of mast and suitably sized plastic fitting for desired application.

and pondering on just how best to fashion some sort of hood around my 1/4" diameter mast which would be watertight, the light dawned and all my problems were solved at once.

ABS plastic pipe fittings were the answer. If this material was capable of containing water without leaking, certainly it must be capable of shedding water from the outside without leaking to the inside when properly put together.

No more rusting or other deterioration and easy to assemble and would obviate the necessity of rebuilding another aluminum gamma enclosure, a big bonus indeed.

The physically small gamma tuning condenser could certainly be mounted somehow in some kind of ABS fitting and be made watertight and a fitting known as a short tailpiece was the answer to the protective hoods to be fitted to the mast.

This is the fitting which is intended to screw onto ones kitchen sink drain pipe, that brass tube leading from the sink drain.

It was made in three parts, a coupling, to which any other extensions may be cemented, a nylon ring and a screw cap.

Screwing the body and the cap together compresses the nylon ring around the pipe, or mast in this case, thus creating a watertight seal.

By itself the tailpiece was not wide enough to do much protecting of the rotor or other bearings which I had in mind but it did provide a watertight seal around the mast.

It was now necessary to glue or otherwise fasten another coupling of such diameter which would be suitable for the intended application to the tailpiece in order to provide ample protection.

This could have been done with appropriate ABS fittings and couplings or whatever but from what assortment I could see at the time it would have made for a rather large and bulky arrangement. I then had to settle for cementing and bolting the top cut out from plastic bottles to the short tailpieces.

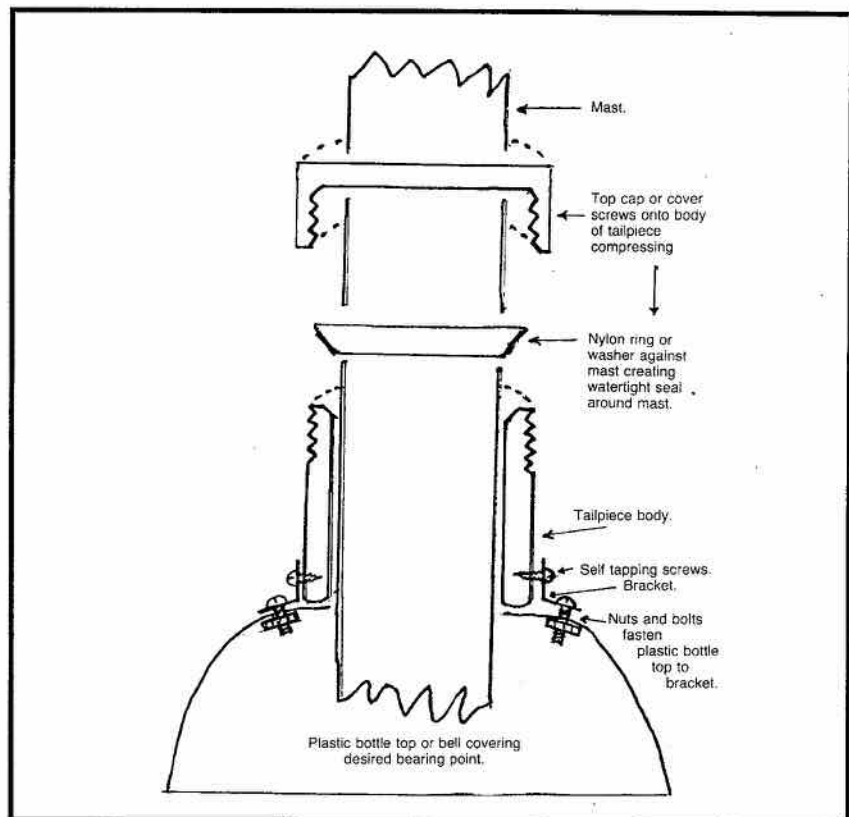
Murphy's Law came into play here, as after the antenna was once more assembled and serviceable I was to find the exact ABS coupling I desired.

I believe this is known as a bell and was flared from three inches in diameter down to the required 1/4" diameter. This would have been the perfect solution but it came to my notice too late for my application.

However, plastic bottles serve admirably although requiring some work in sawing and fitting.

A suitable saw cut is made across the neck of the chosen plastic bottle which will allow for the diameter of ones mast to pass through, after which the required depth is chosen and another saw cut is made and one ends up with ones own bell shaped fitting.

Four small metal brackets are then fashioned which are placed equidistantly around the circumference and fastened to the



bottle top with small nuts and bolts. Small self tapping screws are used to fasten this to the ABS tailpiece, as the same time gluing the two pieces together in the approved ABS manufacturers recommendations for joining ABS fittings together.

The brackets and screws were used as a back up method as I was not too sure just how suitable the ABS cement would be when plastic bottle material was being used instead of proper ABS fittings.

When working with ABS material do not attempt to use just the cement alone without first using the special ABS cleaner on both pieces to be glued or one will surely end up with insecure joints.

The cleaner has the effect of removing the shiny finish from the ABS material, not simply to clean any dirt off the material and is done to provide better bonding.

Do not make any mistakes as once glued one will be unable to break the joint and start over again with the same pieces.

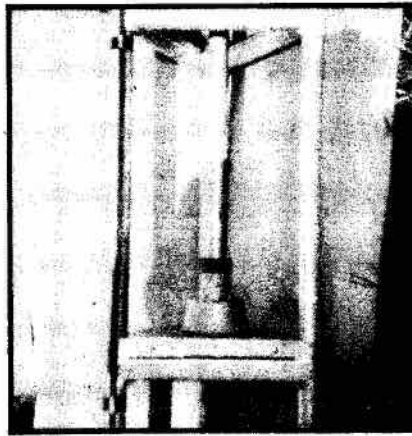
Also, be particularly careful with both the cleaner and the cement when working around any pipe threading as the least bit of either will really foul up the threading.

Stick to the manufacturers instructions as they made the product and they know best.

Two more hoods were similarly made but using different sized plastic containers. Before in-



Thrust bearing hood and showing bearing to be protected.



Protective thrust bearing hood mounted into place.

stallation all were roughened up somewhat by sanding the outside to allow a couple of coats of paint to adhere.

The previous metal top bearing, or shim, was removed and was substituted by a couple of ABS fittings cemented together to give me a proper fit between the tower and mast without being a tight fit around the mast.

The mast was greased at this point and a protective cover installed but it is doubtful if ABS would require this treatment. However, I was on the job making protective covers and it certainly wouldn't do any harm to be on the safe side.

Antifreeze grease was used throughout during the overhaul and the thrust bearing in particular now literally sat in a pool of grease instead of rain water for lubrication.

Trouble was certainly ahead during the coming winter with such a situation but this had now been circumvented with the overlapping hoods.

Possibly the grease could eventually become dried out to some extent by the hot summer sun but it certainly wasn't going to be washed out by rain anymore.

The gamma housing is also constructed with ABS fittings. This is simplicity indeed compared to the labour involved in constructing a square type of aluminum box affair.

Basically, the gamma matching

condenser and the SO 283 socket are mounted inside suitable ABS fittings and the completed unit mounts in a vertical, rather than horizontal, position as generally depicted.

The diameter of the fittings employed is governed by the physical size of ones gamma tuning condenser which will allow free rotation of the rotor plates. In the interest of bulkiness, the smaller the better for this application.

The length of the completed unit is governed by the length of ones particular condenser but more particularly by the band for which the gamma is to be designed.

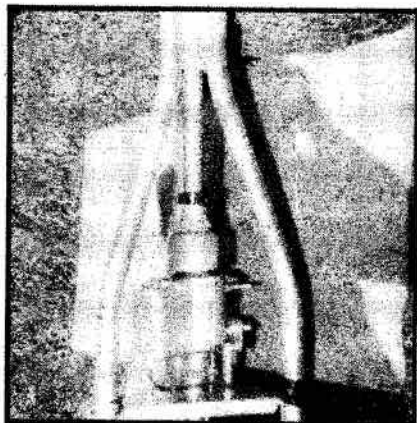
Just remember that the driven element and gamma rod spacing varies from band to band, namely 4" for 28 MHz, 5" for 21 MHz and 6" for 14 MHz. This, plus another couple of inches to allow the unit to be mounted to the antenna boom are all that is required for the length.

However do not be scared off by reference to any spacing or lengths as it will be quite permissible to bend the gamma rod either up or down a couple of inches if necessary to alter the spacing. Also, the completed unit can likewise be adjusted for height when it is being installed to its mounting plate.

Remember the previous observations that overlapping construction should be used for outdoor enclosures, a short length of pipe or a suitable com-



Protective rotor bearing hood showing bearing to be protected.



Hood installed in place over top rotor bearing.

bination of ABS fittings glued together with an outside threading at one end and an inside threading at the other end is required.

The outside threaded end is the top and is to provide easy access to the gamma tuning knob. This is protected from the weather by a cover which screws onto the outside threading once the final tuning is accomplished.

I was unable to locate such a cover or cap already made and had to make use of a suitable mating ring from another short tailpiece into which I cemented a phenolic disc cut to fit the inside of the ring.

When dry, another smaller disc was similarly made and this was cemented on top of the first, thus forming a flat surface for what was to be the top cap or cover which, when screwed on, would overlap the sides.

Many plugs were available but these were not required as plugs would defeat the whole purpose of the desired overlapping construction.

At the other end of the pipe, or fitting, that with the inside threading, the SO 283 co ax connector is to be mounted on the inside just clear of the threading. Into this threading a coupling with an outside thread which will mate will form the protective shroud around the transmission line co ax fittings, thus providing weather protection for both fittings.

In practice this shroud is first slipped over ones transmission line, the line is connected to the SO 283 and the shroud is screwed into the inside of the pipe. Ergo, overlapping construction all the way. No more taping or gunking over the co ax connectors with roofing cement, or whatever and certainly no more contaminated transmission line.

I will not be specific with the pipe diameters or lengths as each individuals requirements are not necessarily the same.

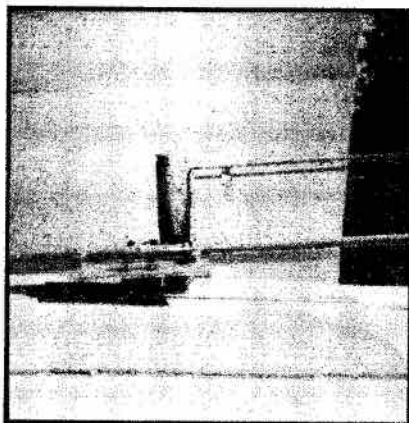
It would also perhaps be difficult to obtain any one specific part suitable for ones own particular project of this nature where the requirements are bound to vary.

However, by improvisation, suitable couplings and other fittings can be obtained which may require some sawing, fitting and gluing together but one can end up with a respectable and practical unit.

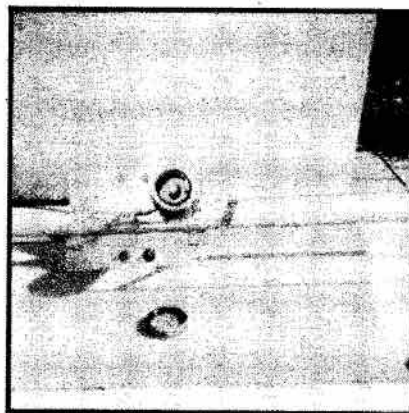
The condenser is mounted to a piece of phenolic or plastic material cut into a circle and which will just fit inside the fitting.

A small knob is then attached to the shaft, or even through an insulated coupling or shaft if one desires that feature. Remember that the shaft will be "hot" for RF when tuning the gamma.

The phenolic disc is then scribed so that one can see where minimum, mid range and maximum settings of the con-



The completed gamma matching unit installed on the driven element mounting plate.



Top view of gamma unit with top cap removed showing easy access to gamma tuning knob in center of unit.

denser are when the knob is rotated.

The SO 283 co ax socket is likewise mounted to another circular shaped piece of phenolic which will also just fit inside its fitting.

Two collars, or rings, about 1/4" deep are then fashioned from ABS material and which will slide inside the housing and serve as the mounting points for the condenser and co ax socket.

Before these are cemented into place however it is first necessary to judge as to their location inside the housing by a tentative fitting.

The condenser is positioned so that the top of the knob is just below the top edge of the piping, that with the outside threading, by about 1/4".

If it is too high the final gamma tuning is going to be upset when the top weatherproofing cap is screwed on as any friction between the two will likewise turn the rotor of the condenser.

The condenser is removed and the location of the ring is marked when it also is removed and the ABS cleaner is applied to the mounting point and also to the ring. When dry the ring is cemented into place and before the cement dries the condenser is once more tried for correct placement.

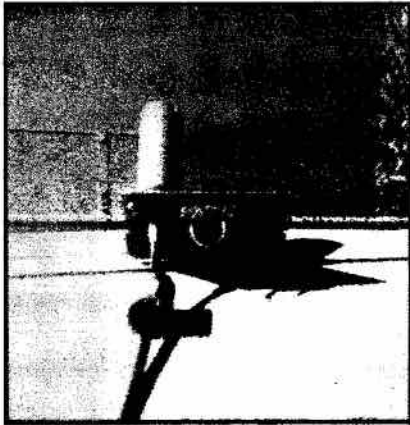
Do not cement the condenser to the ring at this point as access

to the rotor and stator will be needed for wiring.

The same procedure is used for the SO 283 socket at the other end of the piping, that with the inside threading.

The socket is placed so that the leading edge is just even with the edge of the piping and the mounting position will just clear the inside threading of the piping.

Some care in cementing is required here, otherwise the threading of the ABS will be fouled up by either the cleaner or the cement. A small cheap artists type brush will be ideal for this and after gluing is easily cleaned with the ABS cleaner.



Transmission line connected to gamma unit and showing ABS coupling ready to be installed protecting both co ax fittings.

To the stator of the condenser, a length of heavy flexible insulated wire, equivalent to #12 or better, which will reach out just beyond the SO 283 end of the piping, is soldered.

Wiring the rotor of the condenser, that which terminates at the gamma rod, I elected to do things the hard way by using #12 solid wire fed through a small hole in the wall of the ABS.

No more nuts and bolts for me if it could be avoided where antennas were concerned and my idea was to insert the end of the wire into the gamma rod, after first tinning both and then make a soldered connection.

The exit hole for this connec-

tion is placed about a quarter inch below the outside threading of the housing so that there is no interference between the screw cap and the gamma rod.

If following my system of feeding the #12 solid wire through the wall of the housing and not the nuts and bolts route, make this hole as small as possible so that one has a good pressure fit. This also applies to the SO 283 exit connection which will lead to the driven element. These are to be gunked over later with cement but why take unnecessary chances?

Purposely, I used an undersized drill and practically forced the wire through with brute force.

The routing for the rotor wire is directly across to the inside wall of the housing where it is bent upward to the exit hole while making sure that there is no interference to either the rotor or stator plates of the condenser. It will then be seen that a small notch must be cut into the mounting plate for passage of the wire.

Once everything is in order the underneath side of the mounting plate is cemented to the mounting ring and another few dabs of cement are placed inside and out where the wire enters and exits the wall.

The shell of the SO 283 connector is similarly wired with a length of #12 solid wire and fed through another small hole, leaving some slack to the socket.

The placement of this hole depends somewhat on the band for which the gamma is designed, remembering the difference in the required spacing of element and gamma rod.

At the appropriate point the hole is made, on the same line as the previous hole, this time taking care that the hole does not interfere with the mounting sleeve or, particularly, the inside threading of the enclosure.

The end of the flexible wire from the stator is then soldered to the center pin of the SO 283

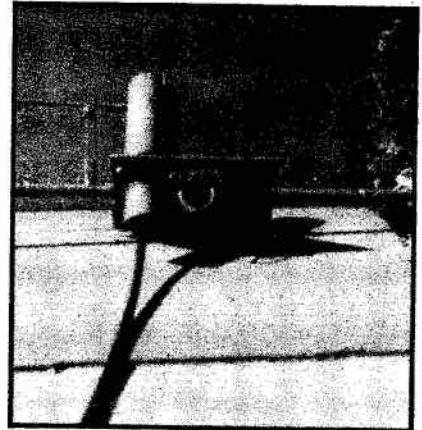
after angling the connector for the shortest possible connection.

The underneath side of the mounting plate is then cemented to the mounting collar, at the same time pulling the #12 wire through the hole and giving it a dab of cement at its outside exit point.

In the interest of fewer joints I elected to keep such length of wire as would reach to the driven element rather than cut it off short.

Essentially, the mount for the unit is a plate with a hole drilled out through which the unit will fit and the plate is held to the boom by a couple of U bolts.

The gamma unit has a collar of



The completed unit ready for all kinds of weather.

ABS cemented to the outside at the appropriate point for the required spacing between driven element and gamma rod. This rests on top of the plate and on the underneath side of the plate is an encircling metal clamp which is bolted to the metal plate thus fixing it in place so that there is no play which would put a strain on the gamma rod at the other end of the unit.

The gamma rod is soldered to the top connection and the bottom connection is made to the driven element thus completing the unit and its installation.

The short coupling with the outside threading is slipped over the transmission line, the co-ax connected and the coupling

screwed into place inside the unit thus protecting the co-ax connectors and transmission line from any more contamination problems.

What a difference in tuning up the gamma. No more searching for a slot cut into the end of a condenser shaft with an insulated screwdriver through a hole through which one could not see and tuning the gamma was as simple as tuning a receiver.

This was particularly notable during final installation at the top of the tower when the gamma had to be readjusted. This was no problem at all to simply unscrew the top cap, tweak the knob to the desired 1. to 1. ratio SWR and screw the cap back on.

The 1. to 1. ratio had been obtained at more or less ground level before installation but raising the antenna had seen the SWR climb to 2. to 1.

Some body capacity was noticeable while tuning but this is not a fault of the unit as any body, mortal or otherwise, creates body capacity when brought in close proximity to ones antenna elements as witness the difference in SWR as the antenna was raised to it's final tower position from ground level.

The advantages are numerous, not the least of which is freedom from a varying SWR and contaminated co-ax. Certainly weather protection and ease of tuning had been accomplished. The laborious job of constructing another aluminum box-like housing was avoided along with the messy job of waterproofing the seams with roofing cement or other such like gunk. Additionally, no stand off insulators are required as is the case with a metal enclosure.

Certainly something for the better had been accomplished and it is a real pleasure to switch to transmit and see just a faint twitch of the SWR meter in the reflected position whether the weather be fair or foul.

Foiling the pirates

by Rowland VE3 AML

So! You are being pirated, or have been. What do you do? You might think that it will never happen. Some misguided individual sooner or later will latch on to your call and not having one, will think it would be a lot of fun. I have had it happen twice in my 4 $\frac{3}{4}$ decades, the first one was caught effectively. Now what do you do? Plan your campaign carefully; of course inform the D.O.C. especially if this is a continuing problem. Unless it is continuing they have a problem in identifying the person. Directly you are aware that someone is using your call, if they are operating using a slant VE1 or VE5 this makes your job much easier, inform all the QSL bureaus in N.A. especially the Trilliums; ask them to destroy all cards addressed to you with the slant VE1 or whatever. Send the information via the Amateur frequencies to all the QSL Bureaus that you know of. This will serve two purposes: one it will inform the bureau; two, hundreds of Amateurs will hear and spread the news. You will eventually receive dozens of QSL cards, from many sources, the law of numbers says most of these will come from the U.S.A. My average is 40 to 1. NOW: my plan will cost you nothing. How? Easy. Some of the envelopes will contain I.R.C. coupons, some with money, some with U.S.A. stamps, the odd one with Canadian stamp (under paid). Now what you do: write on each one

received — "Sorry you worked a pirate". Reutrn the QSL card in the envelope supplied, with 37¢ for U.S.A., and 64¢ for Overseas. Send back any U.S.A. stamps received with an entry; U.S.A. stamps not useable in Canada. Cards received without envelope, write on them sri and bulk pack them back to the C.A.R.F. Bureau, Box 66 Islington, Ontario M9A 4X1 Canada.

As a member of C.A.R.F. this will cost you only the stamp to post the envelope, which would contain your normal cards. Those with money will subsidize those without, i.e., some come with S.A.S.E. only with U.S.A. stamps on the envelope.

NOW, if the guy uses your Call alone, Plan your operation:

1. *Keep off the air* except to inform the Q.S.L. Bureaus.
2. *Keep a good log book.*
3. *Times, frequencies, mode used.*
4. Check the frequencies used by the *pirate*, the mode used, if he used DX frequencies, if so inform DX clubs by Amateur radio.

It will be intriguing and something new. Do not worry about the *pirate*, *he is the loser*.

You will come out of the experience with a lot of new knowledge and with a better understanding of Amateur Radio. Good Luck.

By the way, VE3 AML/VE1 was a pirate. I have never been to Sable Island, and I do not operate a portable!

THE CARF QSL BUREAU IS A FREE SERVICE TO ALL CARF MEMBERS. WHEN USING THE SERVICE, PLEASE INCLUDE YOUR MEMBERSHIP NUMBER. FOR NON-MEMBERS, PLEASE INCLUDE ONE DOLLAR. THIS WILL HANDLE THE ADMINISTRATION COSTS. BETTER YET, JOIN CARF AND GET THIS AND OTHER SERVICES FOR ONLY \$15 A YEAR.

EXPRESS YOUR OPINIONS TO ALL AMATEURS. WRITE FOR TCA. CONTACT THE EDITOR OF TCA AT P.O. BOX 2610, STATION 'D', OTTAWA, ONTARIO K1P 5W7. THE TCA NEWSLINE IS ALWAYS OPEN. CALL (613) 824-3467 IF YOU NEED INFORMATION ABOUT TCA OR NEED FAST PUBLICITY. WE WERE THE FIRST, BUT WE CAN'T BE THE FASTEST.

Swap Shop

Single insertion is \$1.00 (minimum charge) - 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 2W2.

WANTED: Schematic for trio communication receiver — Model 6R-4S. — M. R. Fox, 208 University Drive, Thunder Bay, Ont. P7C 2C1. Telephone: 807-577-4005.

FOR SALE: FDK Multi-2000 2 meter 144-148 MHz FM-SSB-CW transceiver, A.C. and D.C., R.I.T., Hi/Low power, fully synthesized, excellent condition. Jim Miller 396 52nd Ave., Lachine, Quebec H8T 2X2 (514) 634-6069.

FOR SALE: YAESU FL2100B linear spare 872's 80 through 10 SWR extras. VE3 AML (519) 542-3658 before 8 p.m. Rowland.

WANTED: Wireless Set No. 19 equipment and accessories. Especially looking for power amplifier and pocket watch. I am willing to buy and/or trade equipment. Please write to Chris Bisailon VE3 CBK, 91 Varley Drive, Kanata, Ont. K2K 1H5.

WANTED: Vintage battery radios (1920's); Magazines; Tubes. Collector. A. Nolf, 620 Auburn Cr., Burlington, Ontario L7L 5B2 (416) 634-3267.

FOR SALE: FT101ZD — has fan, narrow C.W. filter, matching land liner, speaker/patch, spare set tubes, manual, immac — \$900.00. FL2000B linear \$250.00. Scope — Heath 3" model IO-7 — manual — \$75.00. Wattmeter Heath HM2140 as new \$100.00.

WANTED: FL2100B or SB221 linear. Brian James, VE7EJ, 5888-124 St., Surrey, B.C. V3W 3W5. Ph: (604) 596-9839.

SELL COLLECTION of 30 years new boxed receiving tubes only one dollar each. Send list of your needs for availability. Sell Collins 75A4 with 3 filters only \$295 Drake 1A Triple Conversion receiver only \$125.00. W5QJT, P.O. Box 13151, El Paso TX 79913. Coronado Station.

GAMMA MATCHES: 10, 15, 20 meters. Legal power, commercially manufactured, instructions, guarantee. \$22 each post-paid VE7 CRU Box 144, Moyie, B.C. V0B 2A0

FOR SALE: ICOM 551D 6M transceiver plus matching PS-20 power supply, mint condition, 80W output. \$950 negotiable. Allan Stuart, 604 Hopkins St., Apt. 5, Saskatoon, Sask., S7J 0N2, (306) 343-6737.

FOR SALE: 2 metre transceiver 144-148 YAESU FT227R synthesized. Power supply MIC manual \$350. Monitorscope Y0100 monitors ANY outgoing \$250. FT101ZD \$850. VE3 AML G978 (519) 542-3658 Rowland Beardow, R.R. 5, Sarnia, Ontario N7T 7H6 Canada.

FOR SALE: YAESU FV101B remote VFO \$140. Ed (416) 638-2642, Downsview M3J 1S5



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SATURDAY, JULY 9, 1983**

PRE-REGISTRATION FORM FOR ONTARIO HAMFEST '83

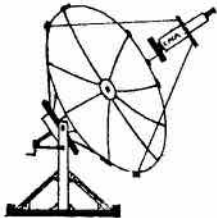
NAME _____	Registration after June 15 will be \$4.00
CALL _____	Please make cheques payable to:
ADDRESS _____	ONTARIO HAMFEST '83
CITY _____	MAIL TO:
POSTAL CODE _____	TICKETS:
PLEASE SEND THE FOLLOWING	ONTARIO HAMFEST '83,
_____ Registrations @ \$ 2.50 ea. _____	P.O. BOX 836,
Weekend Campsite Res. @ \$10.00 ea. _____	BURLINGTON, ONTARIO,
_____ Superprize _____	L7R 3Y7
_____ Tickets @ \$ 2.00 ea. _____	DON'T HESITATE TO PRE-REGISTER AS ALL
TOTAL ENCLOSED _____	ACTIVITIES WILL BE HELD INSIDE IN THE EVENT
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T 2 X Tailtw.	\$ 359.00	(\$ 384.13)	\$ 374.00	(\$ 400.18)
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TH 3 JRS	\$ 249.00	(\$ 266.43)	\$ 259.00	(\$ 277.13)
TH 2 MK 3 S	\$ 215.00	(\$ 230.05)	\$ 224.00	(\$ 239.68)
TH 3 MK 3 S	\$ 340.00	(\$ 363.80)	\$ 354.00	(\$ 378.78)
TH 5 MK 2 S	\$ 495.00	(\$ 529.65)	\$ 515.00	(\$ 551.05)
TH 7 DXS	\$ 595.00	(\$ 636.65)	\$ 619.00	(\$ 662.33)
TH6 Conv. Kit	\$ 215.00	(\$ 230.05)	\$ 224.00	(\$ 239.68)
HQ 2 S Quad	\$ 435.00	(\$ 465.45)	\$ 453.00	(\$ 484.71)
BN-86 Balun	\$ 30.00	(\$ 32.10)	\$ 31.00	(\$ 33.17)
12 AVQS	\$ 69.00	(\$ 73.83)	\$ 72.00	(\$ 77.04)
14 AVQ/WBS	\$ 85.00	(\$ 90.95)	\$ 89.00	(\$ 95.23)
18 AVT/WBS	\$ 139.00	(\$ 148.73)	\$ 145.00	(\$ 155.15)

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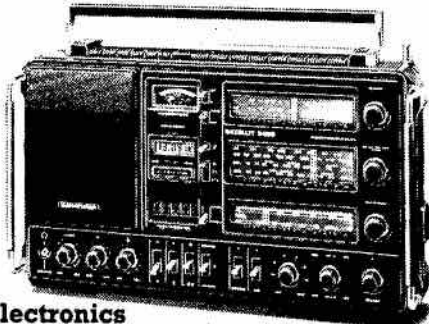
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The Maple Ridge A.R.C. is hosting Hamfest 83 on the 2-3 July 1983. Location: Maple Ridge Fairgrounds, 30 miles east of Vancouver on #7 Hwy. Registration: Hams \$5.00, Non-Hams over 12, \$2.00.

Food, displays, swap & shop, bunny hunts, at least 2 major prizes plus many more, ladies and children's programs. Lots of camper space with some electrical hookups. Talk in freq. 146.20/80 - 146.34/94.

For registration info.: (20% off for pre-registration) contact Bob Haughton VE7 BZH, Box 292, Maple Ridge, B.C. V2X 7G2.

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

OFFICERS

President	VE3BD	Don Slater
Vice-President	VE6XX	Fred Towner
Imm. Past President	VE3NR	Bill Wilson
Secretary	VE2ZP	Dave Goodwin
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.

VE7AB Peter Driessen, 13142-69 'A', Surrey, B.C. V3W 6N9. 604-732-3298.

VE5AE Norm Waltho, 1547 Glendale St., Moose Jaw, Sask. S6H 7B3.

VE3HWN Craig Howey, No. 304 598 Silverbirch 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.

OPERATION 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), Italy, Jamaica, Luxembourg, Malta (Republic of), Netherlands (Kingdom of the), New Zealand, Nicaragua, Norway, Panama (Republic of), Papua, Peru, Philippines (Republic of the), Poland (People's Republic of), Portugal, S. Lucie, Senegal (Republic of the), Sweden, Switzerland (Confederation of), United Kingdom, United States of America, Uruguay (Oriental Republic of), Venezuela (Republic of), Yugoslavia.

Negotiations for the establishment of similar agreements or arrangements with the Republic of Bolivia, Cuba, Japan 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 Return Address CARF Membership No.	PRINTED MATTER	Correct Postage
CARF National QSL Bureau P.O. Box 66 ISLINGTON, ONTARIO M9A 4X1		

BANNED COUNTRIES LIST

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

CARF is Canadian Amateur Radio!!!

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\$15⁰⁰ per year

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Canadian Amateur Certificate Study Guide \$7⁹⁹

Canadian Amateur Radio Regulations Handbook \$7⁹⁹

Advanced Amateur Certificate Study Guide \$7⁹⁹

Instructor's Guide \$5⁰⁰

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30/\$2⁰⁰ Third Class Mail

Money Order or Cheque Total _____

MY CALL _____ FAMILY CALL(S) _____

NAME _____

ADDRESS _____

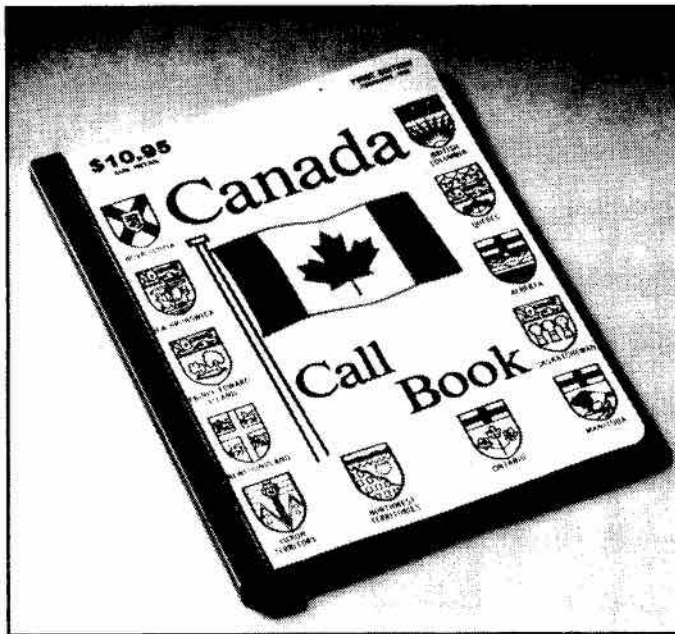
POSTAL CODE _____ DATE _____

* If renewing, Membership No. is: _____

Canadian Amateur Radio Federation

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CANADIAN REPEATER ADVISORY GROUP — 1983 Spring Directory

NOVA SCOTIA

Bear River	VELASQ	146.190	146.790	Q
Big Harbour	VELRVH	147.720	147.120	
Blockhouse	VELLCA	147.840	147.240	
Bridgetown	VELBO	146.460	147.060	
Dartmouth	VELDAR	146.250	146.850	
Gore	VELOM	146.040	146.640	
Halifax	VELCBC	146.340	146.940	
Kemptville	VELYAR	146.340	146.940	P
Liverpool	VELVO	147.900	147.300	
Mt. Blomidon	VELAEH	147.780	147.180	
Mulgrave	VELRTI	146.220	146.820	
New Glasgow	VELHR	146.160	146.760	
North Sydney	VELAU	147.840	147.240	A
Rear Boisdale	VELHAM	146.280	146.880	
Shelburne	VELSCW	146.010	146.610	
Springhill	VELSPR	146.400	147.000	1
Springhill	VELSPR	443.300	448.300	A, 2
Sydney	VELCBI	146.010	146.610	R
Sydney	VELSYD	146.340	146.940	A
Truro	VELLHD	147.810	147.210	D
Truro	VELXK	146.190	146.790	
Truro	VELTRO	147.810	147.210	
Yarmouth	VELYAR	146.130	146.730	

PRINCE EDWARD ISLAND

Charlottetown	VELAHC	146.070	146.670	A, 1
Charlottetown	VELHI	146.340	146.940	
Charlottetown	VELAHC	448.300	443.300	1, 2
Charlottetown	VELCRA	146.070	146.670	
Charlottetown	VELUHF	449.400	444.400	A, 1
O'Leary	VELATN	147.720	147.120	
Summerside	VELCFR	146.250	146.850	

NEW BRUNSWICK

Bathurst	VEIPL	146.340	146.940	
Caraget	VEIBRF	146.160	146.760	
Dalhousie	VEIBKX	146.040	146.640	
Fredericton	VEIBM	147.720	147.120	A
Fredericton	VEIGT	146.340	146.940	
Fredericton	VEIPD	146.160	146.760	
Moncton	VELMTN	147.690	147.090	
Moncton	VEIRPT	146.280	146.880	A
Mt. Champlain	VEITWO	146.100	146.700	
New Castle/Chatham	VEINCR	147.750	147.150	
Perth	VEIBGK	146.220	146.820	
Perth (60)	VEIKMT	146.460	147.060	
St. Stephen	VEIIE	146.250	146.850	
St. John	VEIKI	146.220	146.820	
St. John	VEI ?			P
Sussex	VEISMT	146.010	146.610	
Woodstock	VELEMT	146.370	146.970	

NOTES:

- 1-(NS) = Linked with VELAHC (PEI)
- 1-(PEI) = Linked with VELSPP (NS)
- 2-(NS) = VELAHC Link Frequency
- 2-(PEI) = VELSPP Link Frequency
- A = Autopatch P = Proposed
- R = RTTY/FAX Q = Temporary Location

NEWFOUNDLAND & LABRADOR REPEATERS

Corner Brook	VOIMO	146.340	146.940	
Gander	VOIAY	146.340	146.940	Q
St. Johns	VOIGT	146.340	146.940	
St. Johns	VOLEN	146.460	147.060	A

QUEBEC REPEATERS

Alma	VE2RCA	146.070	146.670 A	Montreal	VE2RKO	146.040	146.640
Alma	VE2RCR	146.340	146.940 E,L	Montreal	VE2RM	146.400	147.000 A
Amos	VE2RYE	146.160	146.760	Montreal	VE2RM	146.400	224.060
Amqui	VE2KH	146.280	146.880	Montreal	VE2RM	444.000	449.000
L'Assomption	VE2RBB	147.810	147.210	Montreal	VE2RMB	146.100	146.700 E
Bagotville (CFB)	VE2RYB	146.040	146.640	Montreal	VE2RMP	146.160	146.760
Baie Comeau	VE2RPR	146.100	146.700 A	Montreal	VE2RY	147.900	147.300
Brownsburg	VE2RWC	146.205	146.805	Montreal	VE2 ?	223.500	223.500 D,6
Carleton	VE2IN	146.220	146.820	Montreal	VE2RMT	146.130	146.730 E
Chambord	VE2RTG	146.430	147.030	Mt. Tremblant	VE2RMG	147.690	147.090 E,L
Chicoutimi	VE2RIT	146.250	146.850	Parc Des Laurentides	VE2ELC	146.190	146.790
Chicoutimi	VE2RIU	146.160	146.760 A	Perce	VE2CRP	146.130	146.730
Donacona	VE2RAP	146.430	147.030	Plessisville	VE2TG	146.430	147.030
Dolbeau	VE2RCD	146.100	146.700 A	Port Alfred	VE2ASU	146.100	146.700
Dorval	VE2RAU	146.310	146.910 B	Quebec City	VE2DR	146.280	146.880 A
Drummondville	VE2RDV	147.690	147.090	Quebec City	VE2OM	146.340	146.940
Franklin Ctr.	VE2RBV	147.810	147.210	Quebec City	147.960	147.360 L	147.360 L
Gagnon	VE2RGA	146.340	146.940	Quebec City	VE2RAD	146.010	146.610
Gaspe	VE2ELE	146.280	146.880	Quebec City	VE2RAQ	146.250	146.850 R
Grand Fond	VE2CTT	146.400	147.000 A	Quebec City	VE2RCQ	147.780	147.180 E,A
Granby	VE2RTA	147.780	147.180 E	Quebec City	VE2RCQ	449.000	444.000
Grand Mere	VE2RGM	146.310	146.910 A,B	Quebec City	VE2SRC	147.720	147.120 A
Haute Rivie	VE2RJB	147.900	147.300	Quebec City	VE2UX	146.220	146.820 E,L
Hereford	VE2RDM	147.960	147.360 E	Quebec City	VE2VD	146.160	146.760 E
Hull	See National Capital Region			Rigaud	VE2PAK	223.050	223.050 D,L
Joliette	VE2RMA	146.430	147.030	Rimouski	VE2CSL	146.340	146.940 E
Jonguiere	VE2VP	146.220	146.820	Rimouski	VE2WM	146.010	146.610
La Tuque	VE2EH	146.190	146.790	Ripon	VE2RBA	147.945	147.345
Laval	VE2RVS	146.250	146.850	Riviere Du Loup	VE200	146.190	146.790
Matane	VE2RAS	147.720	147.120 A,E	Riviere Du Loup	VE2NY	147.660	147.060 E,L
Mont Dufor	VE2ES	146.280		Riviere Du Loup	VE2RAY	147.750	147.150 A
Mont Joli	VE2RAC	146.130	146.730 E,L	Rouyn/Noranda	VE2RON	146.220	146.820 A
Mont Laurier	VE2RMC	146.370	146.970 E	Sept Isles	VE2RRU	146.190	146.790
Mont Logan	VE2OE	146.160	146.760	Sept Isles	VE2RSI	146.340	146.940
Mont Siiric	VE2RJZ	147.810	147.210	Sherbrooke	VE2FX	147.930	147.330 L
Mont Valin	VE2RMV	147.840	147.240 P	Sherbrooke	VE2RSH	146.370	146.970
Montmagny	VE2RAB	146.370	146.970	Sherbrooke	VE2SS	146.250	146.850
Montreal	VE2BG	146.460	147.060	Sherbrooke	VE2TA	146.190	146.790 E
Montreal	VE2HH	222.900	224.500	Sorel Tracy	VE2RBS	146.010	146.610
Montreal	VE2RMC	147.720	147.120 A,E	St. Felicien	VE2RSF	146.010	146.610 A
Montreal	VE2RBD	444.600	449.600	St. Georges	VE2RMF	146.040	146.640
Montreal	VE2RED	147.870	147.270 A,E	St. Hyacinthe	VE2RBE	147.225	147.825 E
Montreal	VE2REP	146.280	146.880	St. Jean	VE2RVR	147.840	147.240

QUEBEC REPEATERS (Continued)

St. Martine	VE2CAR	147.345	147.945
St. Monique	VE2TG	146.430	147.030
Trois Rivieres	VE2RTR	146.070	146.670
Trois Rivieres	VE2CTR	146.460	147.060 A
Trois Rivieres	VE2QW	147.900	147.300 A
Val D'Or	VE2RYE	146.160	146.760 A
Victoriaville	VE2RBF	147.750	147.150

NATIONAL CAPITAL REGION

Hull/Ottawa	VE3CPC	147.750	147.150
Hull/Ottawa	VE2CRA	146.340	146.940
Hull/Ottawa	VE2CRA	443.300	448.300 O
Hull/Ottawa	VE2CSO	146.100	146.700 L
Hull/Ottawa	VE2KPG	147.960	147.360 A
Hull/Ottawa	VE3OCR	52.525	52.525 T,L
Hull/Ottawa (60)	VE3OCR	52.525	53.150 A,P,L
Hull/Ottawa	VE3OCR	53.150	53.150 L
Hull/Ottawa (40)	VE3OCR	146.250	146.850 A,E,L
Hull/Ottawa (45)	VE3OCR	223.340	224.940 A,E,L
Hull/Ottawa	VE3OEA	146.070	146.670 A
Hull/Ottawa	VE3ORA	146.280	146.880
Hull/Ottawa (30)	VE3PAK	223.050	223.050 D,L
Hull/Ottawa	VE3RST	146.010	146.610 A
Hull/Ottawa	VE3TEL	222.340	222.340 D
Hull/Ottawa	VE3TEL	146.430	147.030
Hull/Ottawa	VE3TWO	147.900	147.300
Hull/Ottawa	VE3TWO	449.200	444.200 P
Renfrew	VE3STP	146.460	147.060

NOTES:

For Quebec and National Capital Region

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- 6 = Soon to be changed to 222.300 222.300

ONTARIO REPEATERS

Aurora	VE3YRC	147.225	147.825	Hensal	VE3OBC	146.310	146.910
Bancroft	VE3TBF	147.840	147.240 L	Huntsville	VE3MUS	146.220	146.820 P
Barrie	VE3RAG	146.070	146.670	Huntsville	VE3NMR	146.520	146.520
Belleville	VE3QAR	146.430	147.030 T	Ingersol	VE3OHR	147.870	147.220 A
Bracebridge	VE3MLR	147.690	147.090	Kenora	VE3LWR	146.430	147.030 A
Bracebridge	VE3MRT	146.280	146.880 A	Kincardine	VE3KIN	146.460	147.060 E
Brampton	VE3MHZ	146.280	146.880 E	Kingston	VE3KNR	146.340	146.940 A
Brampton	VE3SSS	146.835	146.235	Kingston	VE3KLR	146.190	146.790 O
Brantford	VE3TCR	147.750	147.150	Kirkland Lake	VE3IC	146.280	146.880 E,F
Brantford	VE3XPR	147.990	147.390	Kitchener	VE3KSR	146.865	146.285 E,F
Brockville (80)	VE3BAT	146.220	146.820 A	Kitchener	VE3KSR	146.370	146.970 P
Brownsburg	VE3BOW	146.025	146.625	Kitchener	VE3XR	146.190	146.790 P
Burlington	VE3RSB	147.810	147.210 A	Kitchener	VE3 ?	144.690	145.290 P
Burlington	VE3RAE	146.895	146.295	Lavant	VE3DVQ	146.610	52.525
Cambellford	VE3KFR	147.990	147.390	Leamington	VE3TOM	147.900	147.300
Carleton Place	VE3FXE	147.870	147.270 P	London	VE3LAC	147.660	147.060
Chatham	VE3KCR	144.810	145.410 E,L	London	VE3MGI	144.870	145.470 P
Chatham	VE3KCR	147.720	147.120 A,E	London	VE3NDT	146.340	146.940 A,E
Chatham	VE3KCR	449.900	444.900 E,L	London	VE3RGM	146.160	146.760
Chatham	VE3SOR	144.590	145.190	London	VE3TTT	147.780	147.180 A,E
Chelmsford	VE3JIQ	146.160	146.760	London	VE3TTT	449.400	444.400
Clairmont	VE3TNT	144.850	145.450	London	VE3 ?	144.630	145.230 P
Cobalt	VE3TAR	146.370	146.970	Lucan	VE3MCR	147.600	147.000
Collingwood	VE3MTR	146.190	146.790 L	McGregor	VE3SOT	144.690	145.290 C,Q
Copper Cliff	VE3ZZZ	449.400	444.400	Mississauga	VE3ACN	448.250	443.250
Cornwall	VE3SVC	147.780	147.180	Mississauga	VE3RDW	144.830	145.430
Elliot Lake	VE3TOP	147.600	147.000 Q	Morrisburg	VE3SVR	146.160	146.760
Finch	VE3SDG	147.840	147.240	Napanee	VE3KBR	146.985	146.385
Finch	VE3SDG	223.260	224.860 P	Newmarket	VE3YRC	147.225	147.825
Finch	VE3SDG	449.200	444.200 P	New Liskeard/Cobalt	VE3TAR	146.370	146.970
Fonthill	VE3WCR	147.900	147.300	New Liskeard/Cobalt	VE3TAR	146.460	146.940
Goderich	VE3GOD	147.630	147.030	North Bay	VE3NBR	147.750	147.150 A
Georgian Bay	VE3MGB	147.780	147.180	North Bay	VE3NFM	146.340	146.940 A
Georgetown	VE3OD	147.135	147.735	Oakville	VE3OAK	147.015	147.615
Georgetown	VE3IZU	52.130	52.130 P	Orangeville	VE3RSO	146.625	146.025
Grand Bend	VE3RGB	146.160	146.760	Orillia	VE3LSR	146.250	146.850
Guelph	VE3ZMG	147.960	147.360	Orillia	VE3ORR	147.810	147.210
Haliburton	VE3GTS	147.720	147.120	Oshawa	VE3OSH	147.720	147.120
Hamilton	VE3DRW	144.890	145.490	Ottawa	See National Capital Region		
Hamilton	VE3NCF	146.160	146.760	Owen Sound	on page	146.340	146.940
Hamilton	VE3MBR	147.705	147.105	Pembroke	VE3OSR	146.160	146.760
Hamilton	VE3TVI	146.805	146.205 L		VE3NRR		

ONTARIO REPEATERS (Continued)

Penetang/Midland	VE3PEN	147.750	147.150 E	Toronto	VE3MPU	147.870	147.270
Penetang	VE3MGB	147.780	147.180	Toronto	VE3TOR	146.340	146.940
Penetang	VE3SGB	146.160	146.760	Toronto	VE3TTY	146.100	146.700 A
Penetanguishene	VE3 ?	147.960	147.360 P	Toronto	VE3TWR	449.400	444.400
Peterborough	VE3PBO	146.340	146.940 A	Toronto	VE3UHR	449.250	444.250
Petrolia	VE3MGK	144.770	145.370	Toronto	VE3WAS	147.315	147.915
Pickering	VE3PIC	146.070	146.670	Toronto	VE3WHO	144.750	145.350 L
Pickering	VE3SPC	147.375	147.975	Trenton	VE3TRN	147.750	147.150
Port Colborne	VE3WCR	147.900	147.300	Waterloo	VE3WFM	147.690	147.090
Ramore	VE3TIR	146.460	147.060	Waterloo	VE3WWW	146.835	146.235
Renfrew	VE3STP	146.460	147.060	Waterloo	VE3WAR	223.340	224.940
Ridgeway	VE3LJJ	147.165	147.765	White River	VE3WRR	146.160	146.760 P
Rosseau	VE3YQA	222.340	224.940	Whitney	VE3WPR	146.400	147.000 L
St.Catherines	VE3NRS	147.840	147.240	Windsor	VE3IIE	144.870	145.470
St.Thomas	VE3STR	147.930	147.330	Windsor	VE3III	144.660	147.060 * *
Sarnia	VE3MGK	144.770	145.370	Windsor	VE3III	449.000	444.000 * *
Sarnia	VE3SAR	146.340	146.940	Windsor	VE3RRR	147.900	147.300
Sault St. Marie	VE3SAP	146.460	147.060 O	Windsor	VE3UUU	449.400	444.400
Sault St. Marie	VE3SSM	146.340	146.940	Windsor	VE3WAA	147.825	147.885 A
Sault St. Marie	VE3YAK	147.750	147.150 A	Windsor	VE3WER	147.795	147.195
Shelburne	VE3ZAP	146.220	146.820 L	Windsor	VE3WIN	146.400	147.000
Smiths Falls	VE3RLR	147.810	147.210 O	Windsor	VE3 ?	146.835	146.235
St. Ignace Island	VE3 ?	146.340	146.940 P,E	Woodstock	VE3OH	147.870	147.270
St. Joseph Island	VE3SJI	146.280	146.880 B				
Sudbury	VE3NRB	146.460	147.060				
Sudbury	VE3SRS	146.460	147.060				
Sudbury	VE3JIQ	146.160	146.760				
Temagami	VE3TEM	146.310	146.910 P				
Thunder Bay (40)	VE3TEB	146.220	146.820				
Thunder Bay	VE3YQT	146.460	147.060				
Timmins	VE3TIR	146.460	147.060				
Timmins	VE3TIS	146.340	146.940				
Tiverton	VE3TIV	146.010	146.610				
Toronto	VE3GER	144.770	145.370				
Toronto	VE3MHZ	146.280	146.880 D				
Toronto	VE3MOT	147.780	147.180				
Toronto	VE3PRT	448.300	443.300				
Toronto	VE3RPT	147.660	147.060 A,L				
Toronto	VE3SIX	52.030	53.030 O				
Toronto	VE3SKY	146.985	146.385				
Toronto	VE3SSR	144.870	145.470				
Toronto	VE3TDO	146.430	147.030				
Toronto	VE3TDX	147.930	147.330				

ONTARIO NOTES:

Including National Capital Region

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SASKATCHEWAN REPEATERS

Anglin Lake	VE5BBI	146.160	146.760
Grenfell	VE5GRP	146.070	146.670
Fstavan	VE5EST	147.780	147.180
Ituna	VE5ABO	146.310	146.910
Last Mountain	VE5AT	146.250	146.850 B
Lloydminster	VE5RI	146.340	146.940
Meacham	VE5HV	146.220	146.820 L
Melfort	VE5RPT	146.280	146.880
Moose Jaw	VE5CI	146.340	146.940 B
Moose Mountain	VE5MMR	146.220	146.820
Moosomin	VE5MRC	146.160	146.760
North Battleford	VE5BRC	146.280	146.880
Pilot Butte	VE5UHF	449.000	444.000 Q
Prince Albert	VE5EEE	146.460	147.060 B
Regina	VE5KE	146.460	147.060 B
Regina	VE5RRG	147.720	147.120 E
Regina	VE5SS	146.280	146.880 A
Rock Point	VE5XW	146.130	146.730 B
Rosetown	VE5 ?		P *
Saskatoon	VE5SCA	146.190	146.790
Saskatoon	VE5SK	146.040	146.640
Saskatoon	VE5SM	146.340	146.940
Awift Current	VE5SCR	146.280	146.880
Weyburn	VE5WEY	146.100	146.700
Yellowhead	VE5ESK	146.160	146.760
Yorktown	VE5RF	146.280	146.880 *

L = Linked
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 T = Tone Access

MANITOBA REPEATERS

Altamont	VE4HS	146.280	146.880
Altona	VE4SMR	146.070	146.670
Baldy Mountain	VE4BMR	146.430	147.030
Brandon	VE4TED	146.130	146.730
Brandon	VE4BDN	146.340	146.940
Flin Flon	VE4FFR	146.340	146.940
Gimli	VE4GIM	146.250	146.850
Hadashville	VE4EMR	-	-
Hazelridge	VE4INT	147.220	147.820 L
Killarney	VE4KIL	146.250	146.850
Letellier	VE4LET	147.960	147.360
Neepawa	VE4NEP	147.810	147.210 L
Pinawa	VE4PIN	146.340	146.940
Thompson	VE4TPN	146.340	146.940
Starbuck	VE4MAN	146.010	146.610 L
Winnipeg	VE4AGA	52.760	52.500
Winnipeg	VE4CNR	146.160	146.760
Winnipeg	VE4TTR	223.340	224.940
Winnipeg	VE4RAG	147.840	147.240
Winnipeg	VE4WDX	147.780	147.180
Winnipeg	VE4WPG	146.460	147.060 A,E
Winnipeg	VE4AGA	147.720	147.120 T
Winnipeg	VE4OMR	147.870	147.270
Winnipeg	VE4UHF	449.000	444.000

MANITOBA AND SASKATCHEWAN NOTES:

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 E = Emergency Power

ALBERTA REPEATERS

Andrew	VE6JET	146.040	146.640	A
Calgary	VE6OIL	146.610	146.010	L
Calgary	VE6GAS	.	.	L
Calgary	VE6AUY	146.460	147.060	A
Calgary	VE6RPT	146.340	146.940	A, L
Calgary	VE6RUM	.	.	
Calgary	VE6RYC	146.250	146.850	
Calgary	VE6 ?	.	.	B, P
Cold Lake	VE6OC	146.460	147.060	
Edmonton	VE6EAR	144.960	147.960	
Edmonton	VE6HM	146.460	147.060	
Edmonton	VE6MC	146.250	146.850	A
Elk Point	VE6SB	146.070	146.670	
Fort McMurray	VE6TRC	147.600	147.000	
Grand Prairie	VE6OL	146.460	147.060	
Grand Prairie	VE6XN	146.250	146.850	A
Hardisty/Camrose	VE6WW	146.250	146.850	
Innisfail	VE6SPR	146.370	146.970	
Hinton	VE6YAR	146.160	146.760	
Lethbridge	VE6CAM	146.280	146.880	
Medicine Hat	VE6HAT	146.460	147.060	
Medicine Hat	VE6COH	146.250	146.850	
Milk River	VE6BRC	146.190	146.790	
Namao	VE6CU	147.900	147.300	
Oyen	VE6CNK	146.340	146.940	
Pigeon Lake	VE6SS	146.280	146.880	
Porcupine Hills	VE6ROT	146.130	146.730	
Red Deer	VE6QE	146.400	147.000	
Rocky Mtn. House	VE6VHF	146.310	146.910	L
Swan Hills	VE6 ?	146.220	146.820	P
Three Hills	VE6FUN	146.220	146.820	
Whitecourt	VE6PP	146.220	146.820	
Willingdon	VE6RJK	146.190	146.790	

YUKON & NORTH WEST TERRITORIES

Fröbisher Bay	VE8 ?	146.340	146.940	
Whitehorse (140)	VY1RPT	146.340	146.940	B, E
Whitehorse (80) *A, B, E	VY1RBW	146.280	146.880	*
Yelloknife	VE8TF	146.340	146.940	

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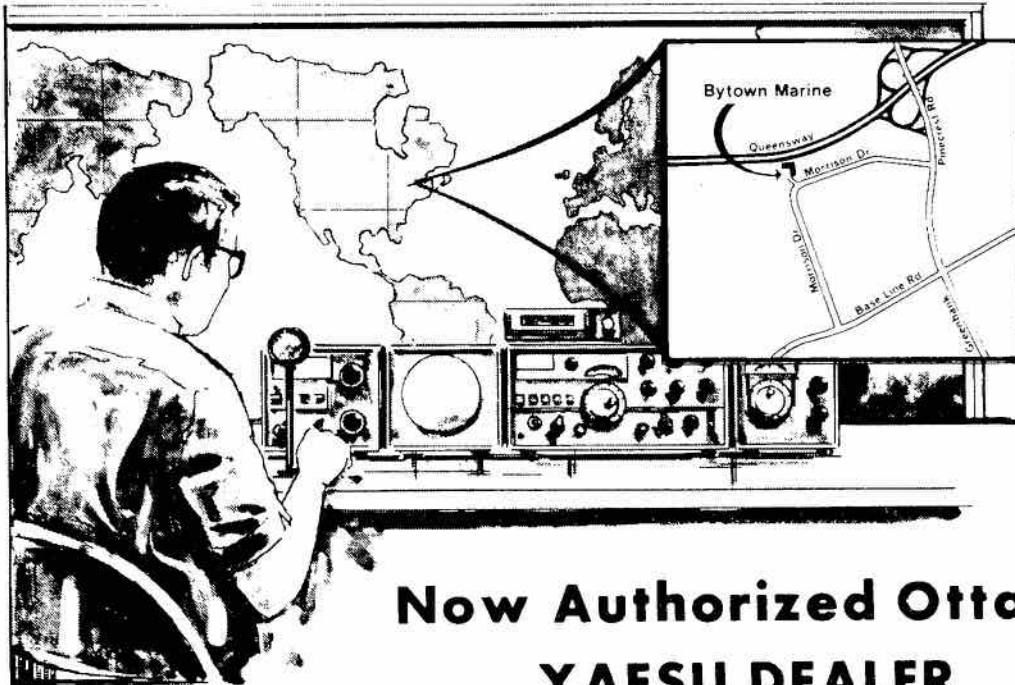
BRITISH COLUMBIA REPEATERS

Alert Bay	VE7RNC	146.080	146.680		Prince Rupert	VE7RPR	146.280	146.880
Alert Bay	VE7RNI	146.340	146.940	Q	Prince Rupert	VE7RPR	222.980	224.580
Burnaby	VE7RBY	144.750	144.350		Quesnel	VE3RQL	146.460	147.060
Chilliwack	VE7ELK	146.400	147.000		Salmon Arm	VE7RNH	146.160	146.760
Chilliwack	VE7RCK	147.700	147.100		Sandspit	VE7RQC	146.340	146.940
Courtney	VE7RCV	146.310	146.910		Shuswap	VE7 ?	146.160	146.760
Dawson Creek	VE7RDC	146.340	146.940		Smithers	VE7RHD	146.460	147.060
Dawson Creek	VE7RSP	146.280	146.880		Smithers	VE7RBH	146.280	146.880
Delta	VE7RTY	146.100	146.700	R	Terrace	VE7RDD	146.340	146.940
East Kootenay (80)	VE7CAP	146.340	146.940		Terrace	VE7RTK	146.250	146.850
Fort Fraser	VE7RFF	147.630	147.030		Trail	VE7CAQ	146.240	146.840
Fort ST. JOHN	VE7RSJ	146.220	146.820	A	Trail	VE7RBV	147.930	147.330
Fort ST. John	VE7RTR	438.100	445.100	L	Surrey	VE7RPM	449.200	444.200
Fort ST. John	VE7RSJ	445.100	438.100	L	Vancouver	VE7ESR	144.890	145.490
Fort Nelson	VE7RFN	146.340	146.940		Vancouver	VE7RAG	147.620	147.020
Fruitvale	VE7 ?	146.340	146.940		Vancouver	VE7RPT	146.340	146.940
Houston	VE7 ?	146.460	147.060	P	Vancouver	VE7UHF	448.800	443.800
Kamloops	VE7RKA	146.250	146.850	L	Vancouver	VE7URG	449.000	444.000
Kamloops	VE7KAR	146.340	146.940		Vancouver	VE7VAN	147.720	147.120
Kelowna	VE7ROK	146.220	146.820	A	Vancouver	VE7WRS	147.870	147.270
Maple Ridge	VE7RMR	146.200	146.800		Vancouver	VE7RBC	146.120	146.720
Maple Ridge	VE7RMR	448.625	443.625		Vancouver	VE7RHS	144.670	145.270
Mackenzie	VE7 ?	146.040	146.640	P	Vancouver	VE7RPT	222.700	224.300
Massett	VE7DRZ	146.340	146.940		Vancouver	VE7RPT	448.525	443.525
Mt. Bruce	VE7RSL	147.930	147.330		Vernon	VE7RAP	449.975	444.975
Mt. Thyne	VE7RTN	147.990	147.390		Vernon	VE7RSS	146.280	146.880
Nanaimo	VE7ISC	146.040	146.640		Vernon	VE7RVN	146.460	147.060
Nanaimo	VE7RNA	144.830	145.430		Victoria	VE7RVN	144.810	145.410
Nelson	VE7BTU	146.460	147.060		Victoria	VE7RSR	146.240	146.840
Nelson	VE7RCW	146.340	146.940	A	Victoria	VE7VIC	144.570	145.170
Nelson	VE7 ?	146.040	146.640		Victoria	VE7RPE	144.850	145.450
North Vancouver	VE7RDX	147.900	147.300		Victoria	VE7RMT	448.950	443.950
North Vancouver	VE7RTM	449.925	443.925	D	Victoria	VE7VIC	223.300	224.900
Penticton	VE7OKN	146.340	146.940		Williams Lake	VE7BEU	146.340	146.940
Port Alberni	VE7RAC	147.840	147.240		Williams Lake	VE7DSO	147.720	147.120
Port Alberni	VE7RPA	147.750	147.150		100 Mile House	VE7RWL	146.220	146.820
Port Edward	VE7RPE	146.400	147.000			VE7RKM		
Prince George	VE7AFG	146.340	146.940					
Prince George	VE3RPG	146.280	146.880					
Prince George	VE7RTI	52.525	52.525	P,L				
Prince George	VE7RTI	146.730	147.330	P,L				
Prince George	VE7RTI	446.000	446.000	P,L				

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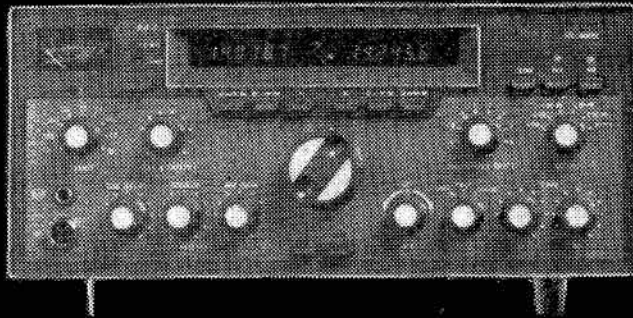
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More Transceiver

Contest or rare DX—the world is waiting to hear from a new breed of HF operators who'll have the power of a microcomputer at their instant command. The Heath SS-9000 signals a new era in Amateur Radio, full of exciting promise. Challenge. And opportunity...



MORE WORLD HORIZONS

In the SS-9000, we met a major design goal: *provide the highest-tech, most versatile transceiver possible.* Our objective? Nothing less than setting the pace for transceiver performance in the next decade. And transforming the state-of-the-art in amateur telecommunications potential.

As a microprocessor-based, fully-synthesized nine band Transceiver, your SS-9000 leads the new revolution in computer-enhanced hamshacks with an array of applications yet to be

discovered. At your command under direct or RS-232 control, it could break all known records for station performance.

MORE MICRO CONTROL

Harness the SS-9000 to a video terminal, ASCII teletype or home computer. Commands are available to select, display and change all 27 operating and memory frequencies, assign and toggle T/R/Tr status on the dual readout, and freely manipulate the three stored frequencies on each band, with full diagnostic error-prompting.

Keyboard command also allows you to set and switch the band, mode, passband shift, baud and scan rates, plus switch to one of five antennas automatically.

MORE POWER AS A PAIR

The PS-9000 AC Power Supply has an in-cabinet speaker and two digital 12 or 24-hour clocks.

Both units benefit from thermal and over-current protection with high VSWR cutback. Test-prove the assembled System 9000. Get a hands-on tryout at your nearby Heathkit Electronic Center.*

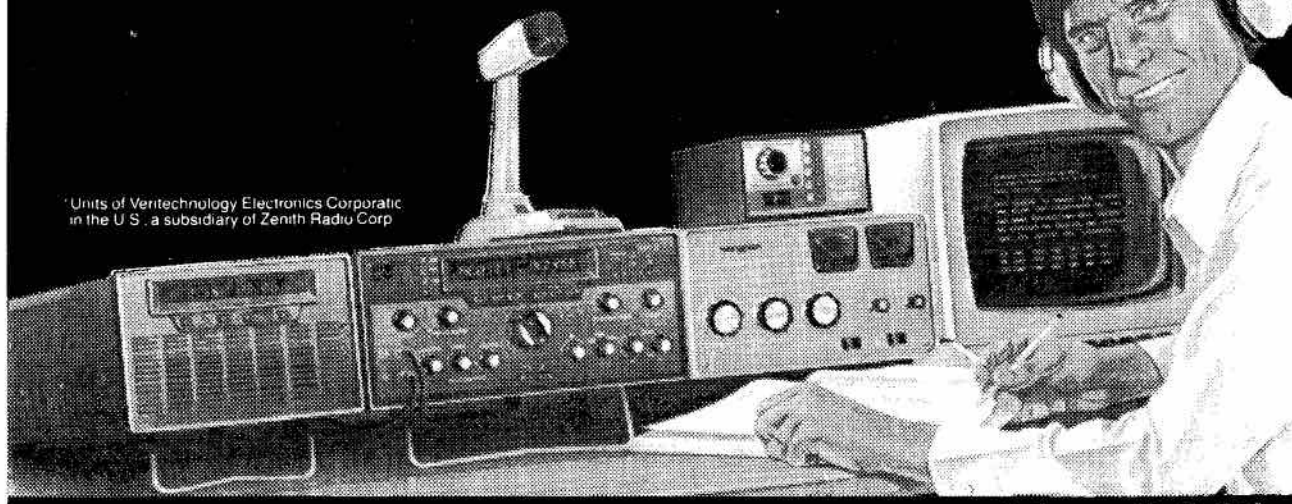
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There's more for the Ham at Heath

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