

TCA



The Canadian Amateur Radio Magazine

\$1⁰⁰

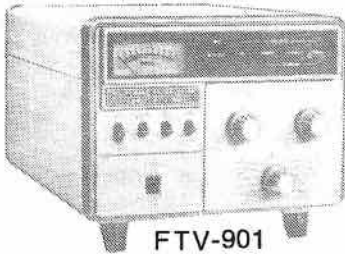
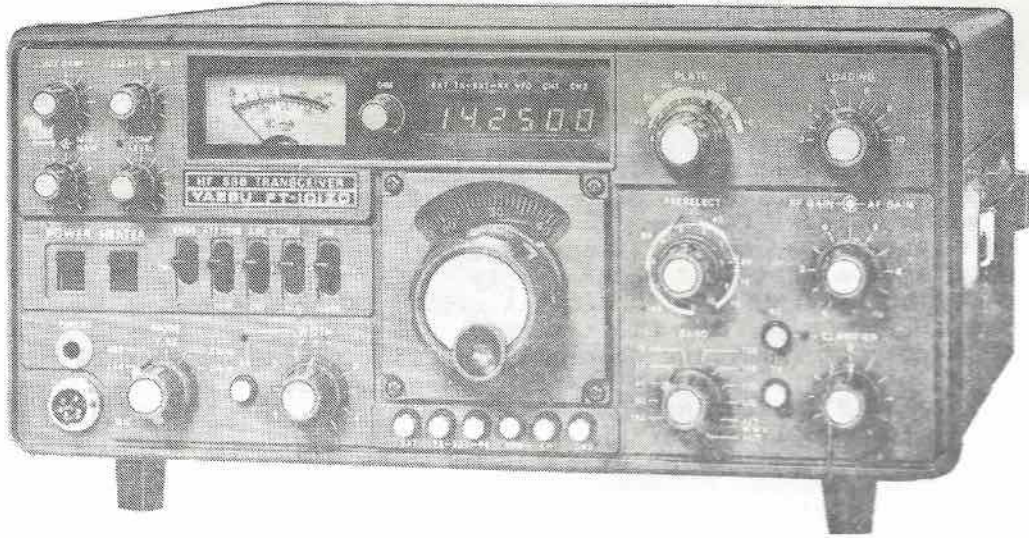
OCTOBER 1980

CARF proposes merger with CRRL

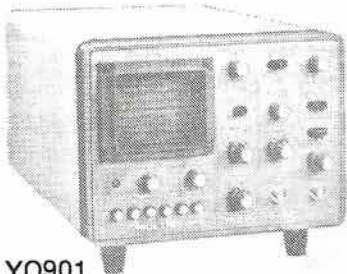
- see Page 18

- PACKET RADIO IN VANCOUVER
- RADIO PHILATELY
- CONTEST SCENE
- TECHNICAL SECTION
- SWAP SHOP





FTV-901



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YAESU

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TCA

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October 1980

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EDITOR

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

ASSISTANT EDITOR

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

DESIGN & PRODUCTION

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

ADVERTISING**REPRESENTATIVE**

Don Slater VE3BID
3 Kirkstall Ave.
Ottawa, Ont. K2G 3M2
(613)-226-8686

TECHNICAL EDITOR

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

CRAG COLUMN

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

CONTEST SCENE

Dave Goodwin VE2DZE
4 Victoria Place
Aylmer, Que. J9H 2J3

COMPUTER COLUMN

Charles MacDonald
P.O. Box 6132, Station J
Ottawa, Ont. K2A 1T2

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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 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.

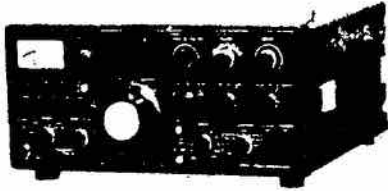
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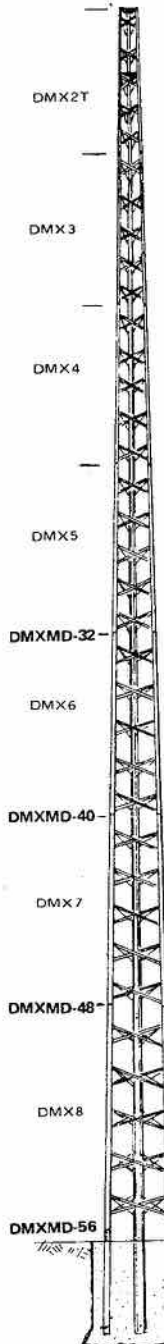
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DMXMD Medium Duty Towers are designed to support an antenna load up to 6 square feet wind area. This is equivalent to two large TV/FM antennas or one large CB beam or one small amateur beam or one large VHF collinear.

DMXHD Heavy Duty Towers are designed to support an antenna load up to 9 square feet wind area. This is equivalent to a very large CB beam or CB stacked array or a large amateur beam.

Guy wires must be used if larger loads are required or cross mounted antennas, or if greater height using straight sections is needed.



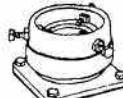
Top section of a Ham Tower with a rotator, mast and a Model BBMB installed.



Unique beaded channel leg resists bending



244A Cast Alum. Mast Clamp



BBMB Ball Bearing Mast Bearing

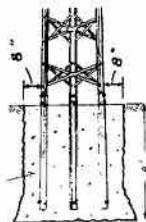
NOTE: DMXMD and DMXHD towers are shipped complete with the following: 8 ft. tower sections, top plate with cast aluminum mast clamp, rotor plate, three 4 ft. concrete base stubs, special nuts, bolts and washers. (No mast is included in package).

Compact Tower Package



Hinge-Up Base

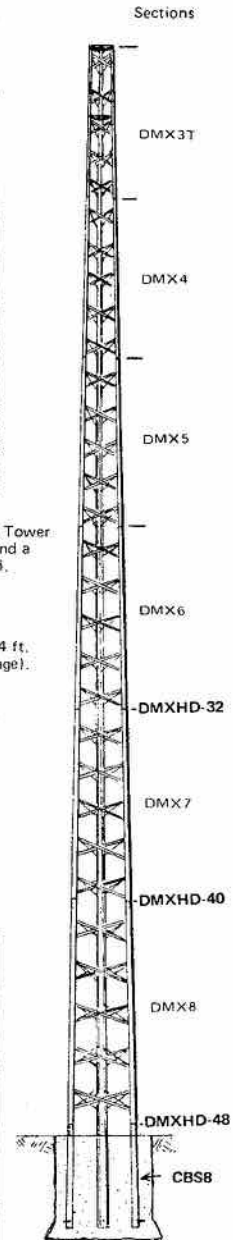
HUB3-6
HUB7-8



Specifications:

Model No.	Height without mast	Tower Sections Supplied	Weight in lbs.
DMXMD Medium Duty Towers			
DMXMD-32	32 ft.	DMX2T, DMX3, DMX4, DMX5	152
DMXMD-40	40 ft.	DMX2T, DMX3, DMX4, DMX5, DMX6	200
DMXMD-48	48 ft.	DMX2T, DMX3, DMX4, DMX5, DMX6, DMX7	272
DMXMD-56	56 ft.	DMX2T, DMX3, DMX4, DMX5, DMX6, DMX7, DMX8	351
DMXHD Heavy Duty Towers			
DMXHD-32	32 ft.	DMX3T, DMX4, DMX5, DMX6	170
DMXHD-40	40 ft.	DMX3T, DMX4, DMX5, DMX6, DMX7	241
DMXHD-48	48 ft.	DMX3T, DMX4, DMX5, DMX6, DMX7, DMX8	314

DMXMD-32	\$185.00
DMXMD-40	\$239.00
DMXMD-48	\$309.00
DMXMD-56	\$379.00
DMXHD-32	\$209.00
DMXHD-40	\$285.00
DMXHD-48	\$345.00



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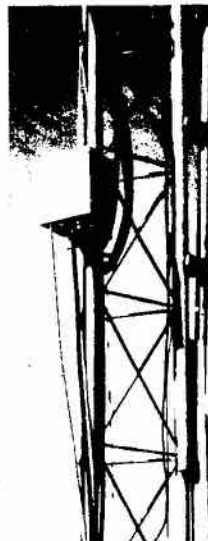
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Model No. 1518

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- Available in 120 V-ac or 240 V-ac 50/60Hz Versions

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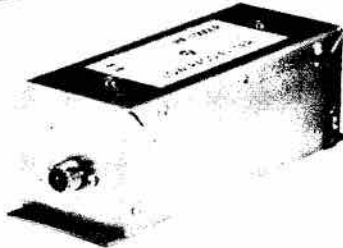
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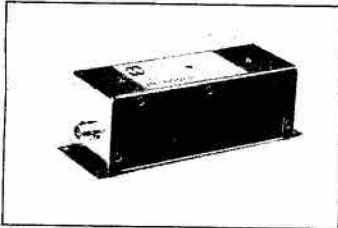
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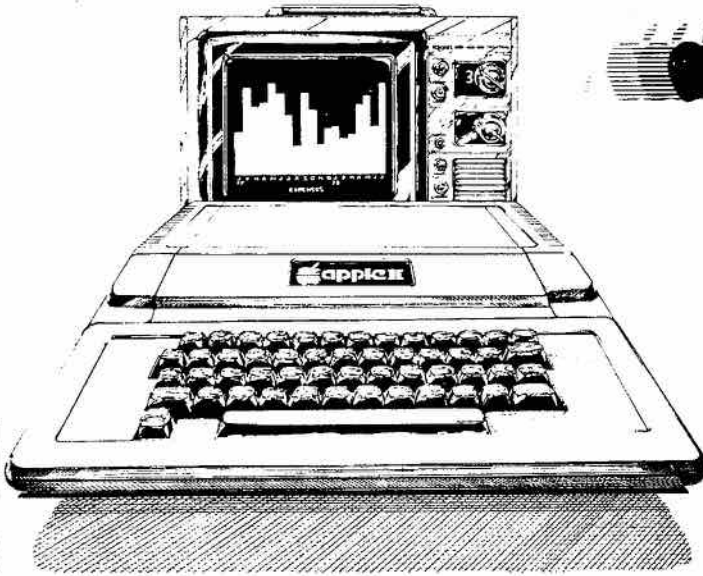


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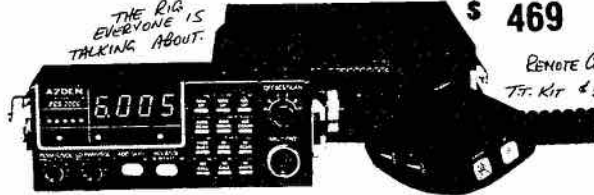
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Yaesu's newest multi-mode transceiver, with a full 100 W output on 80 - 10 meters. Shown here with optional FT-707DM VFO and scanning microphone.



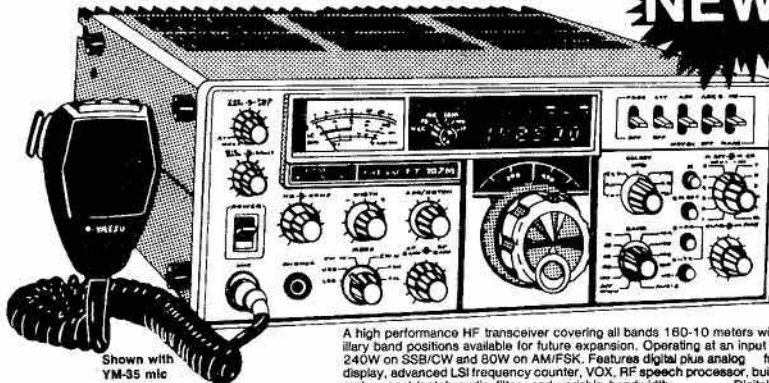
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FT-107M all solid state HF SSB transceiver



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A high performance HF transceiver covering all bands 160-10 meters with 2 auxiliary band positions available for future expansion. Operating at an input power of 240W on SSB/CW and 80W on AM/FSK. Features digital plus analog frequency display, advanced LSI frequency counter, VOX, RF speech processor, built-in SWR meter, peak/notch audio filter, and variable bandwidth. Digital Memory Shift (DMS) has 12 discrete memories. Stores individual frequencies or use as 12 full coverage VFOs. (500 kHz each) Remote scanning possible with YM35 mic if radio is equipped with DMS. Sensitivity: 0.25 uV for 10dB S/N, CW/SSB, FSK, 1.0uV for 10dB S/N AM. Power required: 13.5 V DC at 20 amps.

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WITH DIRECT-ACCESS/PRESET TUNING AND
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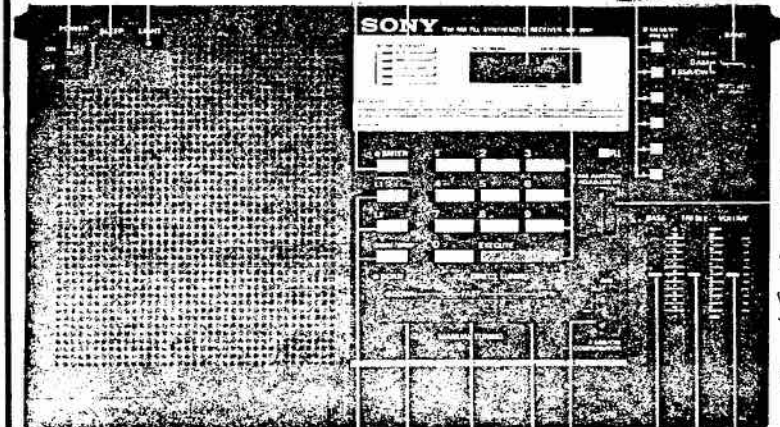
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- Sleep timer—with LCD readout—can be set in 10-minute increments for up to 90 minutes of play before automatic radio shut-off
- Shoulder strap included
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Specifications

Semiconductors: 11 FETs, 9 ICs, 48 transistors, 25 diodes, 1 LSI, 5 LEDs
SSB, CW
Frequency Range: AM — 150 kHz - 30 MHz • FM — 76 - 108 MHz
Antenna system: AM/FM — Telescopic antenna • For 360 - 2143 kHz — Built-in ferrite bar antenna
Speaker: 4" dynamic Weight: 4 lbs. Color: Grey
Power requirements: Battery — "D" x 3 (4.5 V) (batteries not included). AC 120 V, 60 Hz with AC Adaptor AC-120W (included) • DC 12 V with Car Battery Cord DCC-127A (optional) • Display back-up battery — "AA" x 2 (3 V) (batteries not included)
Dimensions: 6-13/16" H x 12-13/16" W x 2-3/16" D
Supplied accessories: AC Adaptor AC-120W, AM long wire and carrying strap. Optional accessories: DCC-127A Car Battery Cord

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CLIPPERTON L Linear, 160 - 15m w/some MARS coverage, 2000w PEP input SSB, 1000w DC CW, RTTY, or SSTV, (4) 572B triodes in grounded grid. Built-in 117/234v continuous duty power supply. H/I/O power, 6" h x 14 1/2" w x 14 1/2" d - 42 lbs.

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The FT-707 "Wayfarer" is the beginning of a new generation of compact solid state transceivers. Though hardly larger than a book, the FT-707 is a full-feature transceiver with performance you might expect only in a "top of the line" transceiver. Ideally suited for your home station or as a traveling companion, the FT-707 is the radio of the 1980's.....and it's brought to you by the active hams at YAESU.



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When the new amateur bands become available, you won't want to go through the time and expense of overhauling your present equipment. With the FT-707, you get complete coverage of 80 through 10 meters, including the new 10, 18, and 24 MHz bands, all factory installed!

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FC-707 ANTENNA COUPLER	\$189.00
RACK MOUNT YOUR STATION	\$35.00
FT-707 TRANSCEIVER	\$1199.00



FT 707 \$1199.00

GENERAL

Frequency coverage: 80 m 3.5-4.0 MHz, 40 m 7.0-7.5 MHz, 30 m 10.0-10.5 MHz, 20 m 14.0-14.5 MHz, 17 m 18.0-18.5 MHz, 15 m 21.0-21.5 MHz, 12 m 24.5-25.0 MHz 10 m 28.0-29.9 MHz **Modes of operation:** LSB, USB, CW, and AM **Power requirements:** 13.5 volts DC, negative ground **Current consumption:** DC 1.5 amps receive, DC 20 amps transmit **Case size:** 93(H) x 240(W) x 295(D) mm incl. heat sink **Weight:** Approx. 6.5 kg

TRANSMITTER

Power input: SSB/CW 240 watts DC, AM 80 watts DC **Carrier suppression:** Better than 40 dB **Unwanted sideband suppression:** Better than 50 dB at 14 MHz, 1 kHz mod. **Spurious emissions:** At least 50 dB down **Frequency response:** 350-2700 Hz (-6 dB) **Third order distortion products:** At least 31 dB down **Frequency stability:** Less than 300 Hz drift over 30 minutes after 10 minute warmup;

less than 100 Hz drift after 30 minute warmup **Modulation type:** (SSB) Balanced modulator, (AM) Amplitude modulation of a low power stage **Antenna output impedance:** 50 ohms **Microphone impedance:** 500-600 ohms (low impedance)

RECEIVER

Sensitivity: SSB/CW 0.25 μ V for 10 dB S/N, AM 1.0 μ V for 10 dB S/N **Selectivity:** SSB 2.4 kHz (-6 dB), 4.0 kHz (-60 dB); CW* 0.6 kHz (-6 dB), 1.2 kHz (-60 dB); CW** 350 Hz (-6 dB), 1.2 kHz (-60 dB); AM 3.6 kHz (-6 dB), 6.8 kHz (-60 dB) **Image rejection:** 60 dB (80-12 m), 50 dB (10 m) **Audio output impedance:** 4-16 ohms **Audio output:** 3 watts @ 4 ohms @ 10% THD **Variable bandwidth control:** Continuous from 300 Hz to 2.4 kHz (SSB/CW modes only)

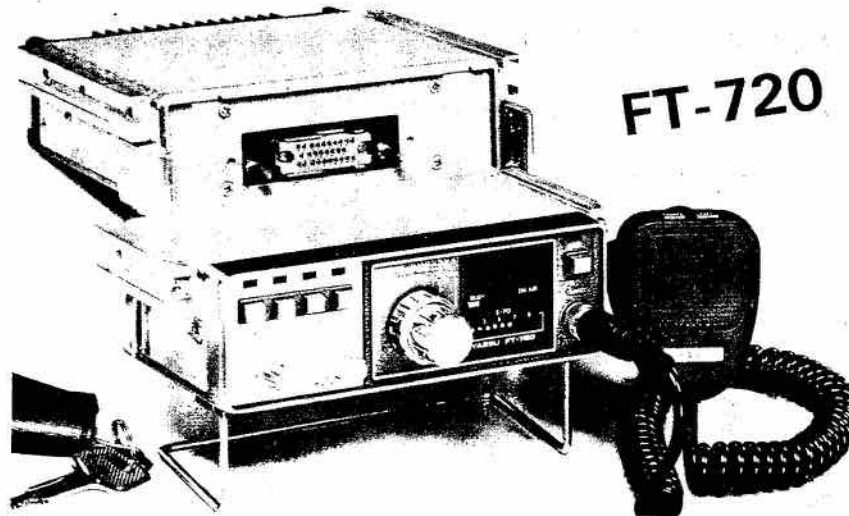
* with optional 600 Hz CW filter
** with optional 350 Hz CW filter



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FROM  YAESU



ULTRA COMPACT VHF/UHF COMPUTERIZED FM TRANSCEIVER

Choose Your Favorite Band

The FT-720R Control Head may be used with either the FT-720V 2 Meter RF Deck or the FT-720U 70 cm RF Deck. If you have never operated on 440 MHz, you'll be surprised at the superb coverage and clear, interference-free channels.

Advanced PLL Technology

Recent advances in Large-Scale-Integrated (LSI) circuitry have made single-chip PLL control systems a reality. In the FT-720R you get the stability of PLL, plus the flexibility of microprocessor control, in a package more compact than was ever possible before.

Scanning

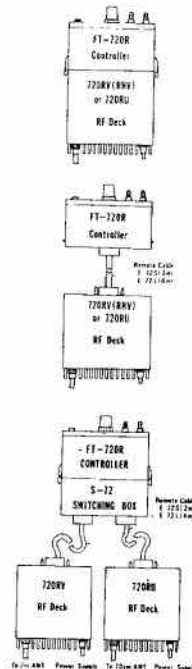
Fingertip controls on the microphone provide instant up/down scanner control. The scanner may be programmed to stop on a busy or clear channel, if you wish.

Optional Control Box

The S-72 control box option will allow you to connect the control head, the 2 meter RF Deck and the 70 cm RF Deck together, thus enabling you to choose the desired band is simply by throwing one switch!

Five Memory Channels with Priority Feature

As many as five memory channels may be programmed, for instant return to a favorite repeater or simplex channel. One of the memory channels may be used as a priority channel, as well, and the microprocessor will then search between the priority channel and your main dial frequency!



	FT-720RV	FT-720RU
Frequency coverage:	144.00-147.99 MHz 144.00-145.99 MHz	430-439.975 MHz 440-449.975 MHz
Synthesizer steps:	10 or 12.5 kHz	25 kHz
Power output:	10 watts (RV model) 25 watts (RVH model)	10 watts
Modulation type:	Variable reactance phase modulation	Variable reactance phase modulation
Deviation (max):	+5 kHz	±12 kHz
Maximum bandwidth:	16 kHz	30 kHz
Spurious emissions:	-60 dB or better	-60 dB or better
Antenna connector:	SO-239	Type N
Output impedance:	50 ohms	50 ohms
Microphone impedance:	500-600 ohms	500-600 ohms
Receiver type:	Double conversion superheterodyne	Double conversion superheterodyne
First IF:	10.7 MHz	16.9 MHz
Second IF:	455 kHz	455 kHz
Sensitivity:	0.32 µV for 20 dB quieting	0.5 µV for 20 dB quieting
Selectivity:	+6 kHz (-6 dB) ±12 kHz (-60 dB)	+12 kHz (-6 dB) ±24 kHz (-60 dB)
Audio output:	1.5 watts @ 8 ohms @ 10% THD	1.5 watts @ 8 ohms @ 10% THD
Audio output impedance:	8 ohms	8 ohms
Power requirements:	13.8 VDC, negative ground 13.6 VDC (RVH model)	13.8 VDC, negative ground
Current consumption:	Approx. TX 3.5A (RV model) TX 6.5A (RVH model) RX 0.5A	Approx. TX 4.5A RX 0.5A
Case size:	150(W) x 50(H) x 247(D) mm	150(W) x 50(H) x 247(D) mm
Weight:	Approx. 2.5kg	Approx. 2.5kg

Specifications subject to change without notice.

PRICES

FT 720R CONTROL HEAD WITH BRACKET
720 RVH 2 MTR. RF DECK - 25 WATTS
720 RU 440 MTR. RF DECK - 10 WATTS
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E72L REMOTE CABLE

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UNIT	MODEL	PRICE	UNIT	MODEL	PRICE
Transverters	MMT432/28-S	\$335.00	Frequency Counter	MMD050/500	\$155.00
	MMT432/144-S	\$389.00		MMDP1	\$39.00
	MMT28/144	\$239.00		MMD600P	\$60.00
	MMT144/28	\$239.00	Receive Amplifiers	MMA28	\$39.00
	MMT50/144	\$239.00		MMA144	\$39.00
	MMT1296/144	\$ T.B.A.		MMA1296	\$69.00
Linear Amplifiers	MML144/25	\$119.00	Filters	MMF144	\$24.00
	MML144/100	\$385.00		MMF432	\$24.00
	MML432/50	\$315.00	Various	MMV1296	\$105.00
	MML432/100	\$599.00		MMS384	\$70.00
Receive Converters	MMC28/144	\$69.00		Attenuator	MMR15/10
	MMC50/28	\$69.00			
	MMC144/28	\$69.00			
	MMC144/28 LO	\$75.00			
	MMC432/28-S	\$81.00			
	MMC432/144-S	\$81.00			
	MMK1296/IF	\$159.00			

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CONTEST CALENDAR

October

4-5 VK/ZL/Oceania SSB
11-12 VK/ZL/Oceania CW
18-19 CLARA AC/DC
18-20 CARTG RTTY
25-26 CQ WW SSB

November

1-3 ARRL SS CW
8-9 Eur. DX Con. RTTY
15-17 ARRL SS SSB
29-30 CQ WW CW

December

6-7 ARRL 160 Metre Contest
13-14 ARRL 10 Metre Contest

Recognizing the difficulties some members have had receiving their TCA's, I'm going to try to keep ahead of myself as much as possible. It looks as if each column will have to include details of contests at least one month in advance of their happening, just to keep the problems of our postal system in check. By the time you read this, TCA may have charmed its way into second-class mailing service which should mean we pay less for storage.

The major contest of this month is, of course, the CQ WW SSB, and in November comes the CQ WW CW. Both were covered in last month's column.

Elsewhere in this issue, you should find the results of the Canada Day Contest, which was an outstanding success. Congratulations go to Rick VO2CW, who turned in a score three times the top score of last year's contest.

With the winter closing in, we should have some better propagation than we saw this rather dismal summer, and in keeping with that, there will be a few contests on 160 metres. 73 Magazine sponsored a fine SSB contest last January, but as yet

no results have been released, nor has any notice of a repeat performance. As many of you already know, the ARRL Contest Advisory committee has decided to return to the old 'USA vs. the world' format for their DX contest, but I have not yet heard whether Canada is to be considered part of the World or part of the USA. This is where the influence of the Canadian member of that committee will tell.

Unfortunately, I do not have rules for the upcoming EDXC RTTY in November. Of interest to some of you who are members of the ARRL, their sweepstakes are coming up, and the rules are presented here.

Please keep in mind the 28th of December, as there will be a running of the CANADA Contest a winter version of the Canada Day Contest, with the same rules and format. Next month the official announcement will appear in TCA.

ARRL SWEEPSTAKES

Period: CW 2100z Nov. 1 to 0300z Nov. 3. SSB 2100z Nov. 15 to 0300z Nov. 17. Stations may operate a maximum of 24 hours in each 30 hour period. Off periods must be clearly logged, and be at least 15 minutes long.

Frequencies: For CW, they are recommended as: 3550-3650, 7050-7100, 14050-14100, 21050-21100, 28050-28100 kHz. Look for novices around 3740, 7110, 21110, 28110 kHz. For SSB, 3850-3950, 7200 - 7250, 14250 - 14300, 21350-21400, 28550-28650 kHz.

Exchange: Is in the form of a formal message preamble. It consists of serial number of the QSO, the 'precedence' which is actually your power classification ('A' means less than 200w, 'B' means more than 200w.), your

callsign, the 'check' which is the last two digits of the year you were first licensed, and your ARRL section. For example: "NR 1 A VE2DZE 75 QUE".

Scoring: Each QSO is worth 2 points. The multiplier is the number of ARRL sections worked. Each station and section may be counted only once, regardless of band used. Final score is QSO points multiplied by sections worked (max. 74).

Logs must be received by Dec. 8, 1980. Official forms are available from the ARRL headquarters, 225 Main St., Newington, Ct. 06111, USA.

OSCAR FROM CUBA

Serge Szpilfogel VE1KG of Halifax will be working the Oscar satellite from Cuba sometime this month. This is his second trip to the island republic and Serge says he found a warm welcome from a friendly group of Amateurs.

MINI-TELETYPE FOR DEAF

Bell telephone has come out with its mini-teletype for the deaf. The small unit, which is acoustically coupled to the phone consists of a keyboard and a visual readout of limited, one-line capacity. It sells for \$350 to deaf persons and \$375 to others. These units could replace the teletype machines currently used in this service for the deaf, which in turn could mean more of the standard models available for Amateur use. On the other hand, let's see who will be the first to plug one of the new gadgets into an Amateur station.

AMATEUR EXAMS

The next set of Amateur examinations will be held on October 15. The first set for 1981 will be held on February 4.

LETTERS:

CARDS FROM GEORGE

In the July/August issue of **TCA**, VE2QO Bruce Balla questions the QSL operations of George Collins. I have contacted George on several occasions on his overseas trips -- as 7P8BE, H5FXT, and more recently as HS4AMI.

Of four QSL cards which I sent away for at different times, three were received in reply. It's anyone's guess what happened to that fourth QSL, Bruce, but here's one guy at least who received cards from him.

Brian Summers VE3J KZ,
Ottawa, Ont.

In defense of George Collins, I would like to advise Mr. Balla and your readers that YES I did receive a QSL from G. Collins, and what's more, it was totally unsolicited! It was an excellent high-quality QSL. The surprise is that I received it exactly eight days after making the contact, which makes it the fastest overseas QSL I have ever received. George sent it airmail and the moment it left him the postal services at each end must have run like a Swiss watch (for once!).

I would also like to point out that this was not an easy QSO for George as it was cross mode, my lousy CW to his phone. This being before I obtained my Advanced ticket and hence my need to use CW in his phone band frequency. For the record, he read my CW perfectly in spite of heavy QRM.

Steve Roberts VE3LEH,
Mississauga, Ont.

I read Bruce Balla's letter in the July/Aug. **TCA** and I am one that does not agree with him. I talked to VE3FXT in two African countries and have the QSLs to

prove it ... one when he was H5FXT and one as 7P8BE. This does prove that George had special cards made for the calls, and I'm sure he didn't make them just for me. I hope that some other Amateurs hold up their hands as well.

I know what it is like getting QSL cards ready to mail. I spent two years as 9G1MK and I spent many hours doing cards. Like many others in that position, I sent them only to the ones that sent theirs to me. The way the mail is today, I imagine there are some still wondering where their card from me got to.

If there is anyone who is still looking for one of my 9G QSLs, send one to me via the bureau or direct, and if I talked to you there will be one sent to you.

Keith McGillivray VE5VJ
Saskatoon, Sask.

Globe-trotter George Collins VE3FXT is currently operating HS4AMI and is trying to obtain an OK for XZ.

WHERE ARE THE SWL'S?

It is always a real pleasure to be able to read **TCA** cover to cover, and each time to learn something new; but I have noticed an omission in the pages which may or may not be intentional ... whatever happened to the short wave listener (SWL)?

In the UK, the SWL's were divided into those who were training for their licence, those who, for reasons of their own, did not want a licence, and those who just could not get the old brain going well enough to pass the exam. Whatever the group, they were acknowledged, had their own contests, were generally accepted and tolerated by licensed operators, were members of Amateur Radio Clubs,

and were mentioned in greeting each week on club nets.

Since coming to Canada, I do not seem to have come across any SWL's, which may well be my omission or poor communication; but I'm sure they exist.

So let's hear it for the SWL's just once in a while.

Cyril T. Youll,
Toronto, Ont.

Canadian SWL's are organized, Cyril, and even have a system of 'call signs'. We don't have the name or address of the organization, but maybe after reading your letter an SWL or two may come out of the woodwork and let us both know the score.

QUALITY OR QUANTITY?

In reference to VE3AHU's editorial in July/Aug. **TCA**, I would like to state that I am in support of CARF's position of implementing more and better training for would-be Amateurs, as opposed to instituting a Novice Class of Amateur licence.

Canadians that have successfully completed the Amateur radio exam in the past, and present, will feel a sense of achievement in passing the exam after many months of diligent effort in learning the material to answer the questions correctly. Are we looking for 'Quantity or Quality'?. I am sure that, in our somewhat lax society, setting 'old fashioned' goals and pass marks of 100% would be asking a bit much, but to lower the requirement to less than 70% pass mark would be lowering the **standard** below a reasonable level...

Make the learning of Electronics fundamentals have an application, not only just to get the Amateur exam, but to better understand the world around us

**TCA welcomes Letters to the Editor. Please send all correspondence to
Letters to the Editor, 151 Fanshaw Ave., Ottawa, Ont. K1H 6C8.**

which is full of electronic devices. Understand these fundamentals and a whole new World is opened to you, one part of which is Amateur radio. With this attitude, a goal of 70% Pass Mark should be within easy reach....

I feel that the exam requirement should remain the same with a 70% pass mark, and Morse receiving test remain at the present 10 and 15 wpm rate, modified to include a one or two error in Test Copy.

Norm Freidin VE3CZI
Amateur Radio Instructor
Hamilton ARC

The July/August issue of your very fine magazine, **TCA**, invites comment regarding the creation of a novice class in Canadian Amateur Radio. I support your position on this subject and am opposed to the creation of this group, based on my very limited experience to date in Amateur radio.

I don't think that the Canadian Amateur radio community, past, present and future, would be well served by tinkering with the established qualification standards (code, theory and regulations). Those standards are sufficiently high now to ensure that anyone seriously thinking about getting into Amateur radio knows that he or she will have to work for their qualifying licence to operate. Indeed, most of us without electronic backgrounds have to work very hard.

I obtained my operators licence in May 1980 after attending a seven-month course (beginners) at Algonquin College in Ottawa. I had no electronics background or experience and only a nodding acquaintance with Ohm's Law. This meant that, in order to keep up with the

pace of the instructions, I had to frantically study the theory, and tap the goodwill, help and experience of established Amateurs. In other words, it was very tough going for me, but I wanted it badly enough.

Our class started off with about 40 members. By the time we finished, it dwindled to a core group of about 16, mostly beginners like me, plus a handful of established Amateurs trying for their Advanced tickets.

Our instructor, who was very good, was brutally frank with us in describing the CW, theory and regs standards we would have to meet. Eventually, those of our group who felt that they either could not or did not want to meet those standards, dropped out.

The point is that if I could make it, there is no doubt that 75% or more of those who dropped out could have made it also if they had been willing to put a little more sweat into their efforts. But it was their choice.

In brief, creating a Canadian Novice class would be a retrograde step in effect, unnecessarily weakening the established quality standards of the Canadian Amateur Radio community. They are fair and reasonable now.

Brian D. Seed VE3MJD
Ottawa, Ont.

LICENCES OF CONVENIENCE

Your story, 'Illegals: The Fifth Column', is very timely. Law and order is vanishing everywhere, including on the Amateur bands. Some of it is of our own making.

There are many phony calls communicating regularly with legal Amateur stations and many others using 'calls of convenience'. These are yachts who send a few dollars to Panama,

Liberia or some banana republic and get an EL8, ELO, VP, TI or HP call, and go on the air with full phone, with no examination, no knowledge and no operating technique.

The VE0 situation is getting out of hand ... If the EL8, ELO, etc. calls continue, Amateur radio may yet go the way of the Criminal Band!

Roy Parrett VE7TG
Victoria, B.C.

NEVER TOO OLD

I just obtained my Amateur Certificate last Wednesday in Kitchener (Ont.). They gave me call letters VE3MAA, but later phoned me to say they would like to change them, with my permission, to VE3ROB. The reason given for the change was my age (I was 84 on 19th May last). They thought that I was perhaps one of the oldest persons to sit an Amateur exam and pass.

I belong to the Peel Amateur Radio Club where some of my friends are attaching words to my ROB call like 'Rugged Old Boy', etc. They seem to get a big kick out of these sallys.

My XYL is an Advanced Amateur (she is very much younger than I). Nevertheless, she urged me to study and try, which I did and was successful.

Apparently it is never too old to learn. My wife and fellow club members were tireless in their urgings and help.

Robert Drummond VE3ROB
Brampton, Ont.

12,000 VK's

An Australian correspondent writes to tell us that at present there are more than 12,000 full, limited and novice VK licensees, of whom 60% are members of their national society, the Wire-less Institute of Australia.



Canadian
Repeater
Advisory Group

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

Well, your editor is now back after a couple of months absence. Somehow I managed to escape from Ottawa, and we are now located in the Belleville area. The new address is listed in the front of the magazine, and some new telephone numbers are - Home - 613-966-8223 and Business - 613-392-2811, Local 2989. For anyone driving along 401, we are just south of it at exit 90, and I always monitor 146.52 while in the shack.

A lot of changes came through in the mail while we were moving. There is a chance that some may have been missed in the shuffle, so if you don't read about a change that you've sent in, please try again at the new address, or send it to Kingston.

Peter VO1PB called and advises that he has a complete factory assembled VHF Engi-

neering RPT-144 system for sale. It is complete with RAP-400 autopatch, Sinclair duplexors, ID, Dial pulse converter and cabinet. For more information, contact him at 709-753-2253.

From Quebec, Daniel VE2 FDY reports that there is a repeater in St. Georges, VE2 RTM, on 146.040-146.640.

In Ontario, VE3EFY reports on a new machine installed by the Lake of the Woods ARC. VE3LWR is on the air from Kenora on 146.430-147.030. It is an open repeater that is carrier operated. Running about 30 watts to an antenna about 100 ft. above ground, it has a range of about 30 miles around Kenora.

Gord VE3EYW passes on the following information. The Montreal River repeater (VE3LSP) has been off the air for about 2 years now and there are no plans to revive it, so you can delete it

from your listings. The Wawa machine (VE3WAW) has also been off the air for a while. They are still looking for another site, but there is nothing definite yet. Gord himself is putting up a repeater at White River. The call VE3WRR has been obtained and it should be on the air on 146.160-146.760 by the end of the year. VE3SAP in Sault Ste. Marie is not on the air and no indication of its future status is available. VE3KAC in Timmins is also off the air with no plans to revive it, so you can drop it from your listings as well.

From Saskatchewan, VE5TT advises that the Rock Point repeater VE5RPR has changed calls and is now VE5XW. Also, he passes along the info that both the Rock Point and Last Mountain machines are wind-charged and battery operated with no connections to commercial power.

VE6AGT reports from the Lakeland Radio Club that the Elk Point machine VE6SB went on the air June 7, 1980. It is located near Elk Point and fills the void between VE5RI in Lloydminster and VE6PP in Willingdon. It is in a temporary configuration at present, but by fall a collinear array will be installed and the power raised to 30 watts. The project was funded jointly by the Lakeland Radio Club and the Alberta Jubilee Funding Program. The equipment was prepared and purchased through the Amateur Radio League of Alberta, spearheaded by Jim Sketcheley VE6APO and Norm Simons VE6HR.

The Lakeland Radio club would like to publically thank all those involved in establishing the repeater.

Other items from the north end of the province are that the

From the rock, John VO1FX reports the following changes to the Summer Directory:

Corner Brook	VO1MO	146.340	146.940
Gander	VO1AV	146.340	146.940 Q
St. John's	VO1GT	146.340	146.940
St. John's	VO1EN	146.460	147.060 A

Also, delete VO1CNR Grand Falls and VO2AD at Labrador City as both are closed down.

In Alberta, Henri VE6ADI passes along the following updates to the current listing:

Andrew	VE6JET	146.040	146.640
Edmonton	VE6MC	146.250	146.850 A
(This was incorrectly entered as RE6MC before)			
Edmonton	VE6EAR	144.960	147.960
Elk Point	VE6SB	146.070	146.670
Fort McMurray	VE6TRC	147.600	147.000
Pigeon Lake	VE6SS	146.280	146.880
Willingdon	VE6PP	146.190	146.790

Also delete VE6VHF Rocky Mtn. House from your listings as it is no longer operational.

Cold Lake repeater is having a solid state receiver installed by Don VE6ZD; the Red Deer machine VE6QE is presently on 146.400-147.000 and is located about 20 miles west of Elonra.

VE7NHF advises that the New Horizons Senior Citizens Radio Club has set up a new machine in the Chilliwack area on 147.370-147.970. Using the call VE7RCK, it is located on Vedder Mt., southeast of Chilliwack.

Bill VE7ENB sent in a nice report on the Ft. St. John machine VE7RSJ (146.220-146.

820) along with a picture. I have forwarded the picture to the publisher, but I don't know how well it will reproduce, as it is in colour. It is best if any pictures sent in for publication be black and white if possible. The boys in Ft. St. John are now working on an autopatch and linkups with Pr. George and Grand Prairie.

I have been promised a complete update of the BC repeater situation for next month and hopefully we will publish an up-to-date repeater list in the January or February issue of **TCA**. □

DOC okays packet stations on 10 MHz

Packet radio experimentation is still going strong in some Canadian centres. Three members of the Ottawa group recently visited the ARRL headquarters to acquaint League officials with current digital experimentation and to propose future directions of the new mode in the Amateur bands.

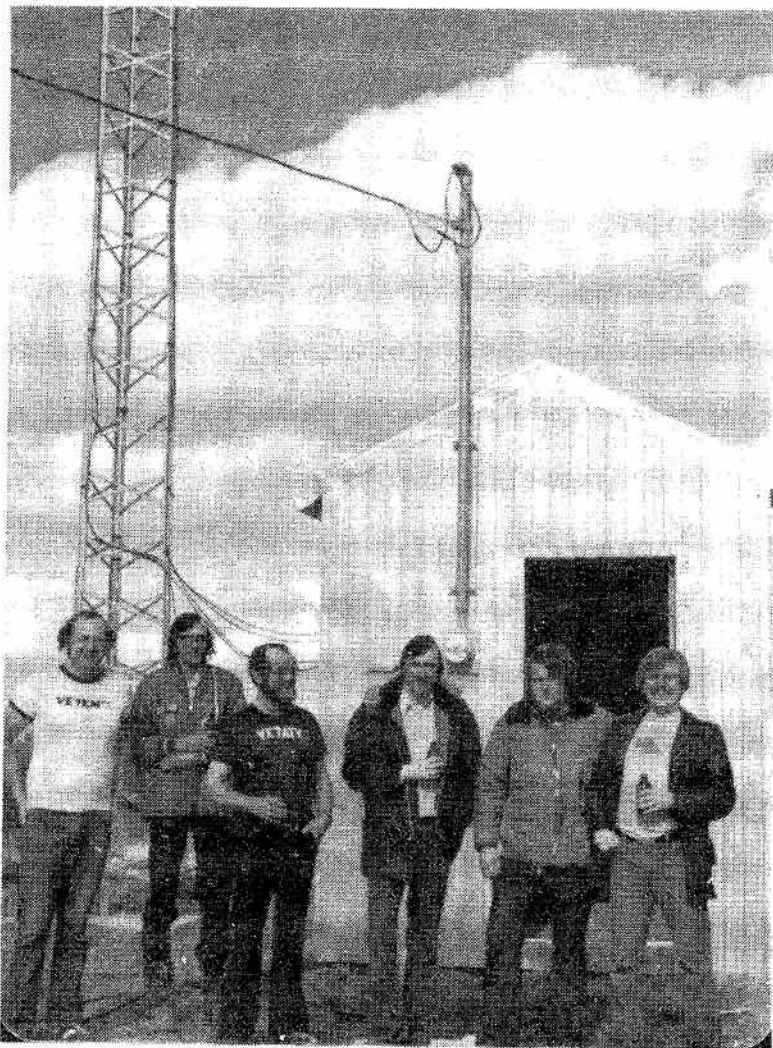
Larry Kayser VE3QB of the Ottawa group says that permission has been obtained from DOC to operate two stations in the Experimental Service in Ontario using the 10 megahertz band. The stations will have VE9 call signs and, although the operators are Amateurs, the stations are **not** Amateur stations but are operating under special experimental licences. The objective is to test out low power, low bit rate digital transmissions in what will eventually be an Amateur band as a result of WARC '79. Frequencies and calls will be announced shortly. The Ottawa group is also discussing with AMSAT how current digital techniques could be applied to satellite projects.

CORRECTION

Correction to the July/Aug. Chips and Bits column: The Ottawa Digi-peater is sponsored by the Pioneer Amateur Radio Club and is located atop the Place Bell Canada building ... there are no Amateur repeater antennas on top of the Ryan Tower.

NOTE:

The new address for the CRAG column editor is Box 192, RR #3 Belleville, Ont. K8N 4Z3.



Ft. St. John repeater VE7RSJ: left to right, VE7EMD, Roger SWL, VE7ATV, VE7ENB, VE7AGJ and VE7CCP.

CARF proposes

Due to the nature and importance of the following letter, it is being reproduced here in full. Comments are welcome; please address your letters to: Editor TCA, c/o CARF, P.O. Box 356, Kingston, Ont. K7L 4W2.

Aug. 11, 1980

Officers & Directors
Canadian Radio Relay League
Inc.

Gentlemen:

The past decade has shown that the efficient management of Amateur affairs has become an increasingly complex problem. Canadian Amateurs with no totally Canadian organization recognized as their national society, find themselves in a poor position to meet many situations which now occur in the domestic and international areas. The following is a major attempt to rectify this in the form of a proposal by the Canadian Amateur Radio Federation Inc.

The American Radio Relay League (ARRL), in the period 1923 to 1967, in the absence of a Canadian organization capable of carrying out the responsibilities and functions of the national society, managed Amateur affairs in Canada with their Canadian Director having added to his responsibility for those functions normally performed by an ARRL division Director, the task of assessing the needs and requirements of the Amateurs of Can-

ada and conveying them to the federal regulatory authorities.

Since the creation and development of CARF this latter function has decreased but, in 1979, at the request of the incumbent Canadian Director ARRL, the Canadian Radio Relay League Inc. (CRRL) was created. The objectives of CRRL, judging from published statements made is to serve as a channel between the Canadian Director ARRL and the federal authorities, to seek the Canadian membership in the International Amateur Radio Union and to gain support from the Amateurs of Canada so that it could eventually function as the national society.

Since 1967 CARF has developed from a small organization financed and controlled by the member provincial Amateur Radio associations to a major organization financed and controlled by the Amateurs of Canada. Membership now stands in excess of 5000 with an annual income of \$100,000.00 and adequate reserve finances to undertake all the responsibilities and functions of the Canadian national society.

The existence of two rival national organizations, both with the objective of recognition as the Canadian national society, can only serve to divide the Amateurs of Canada into two groups, thus effectively splitting the 'Amateur market' so that neither organization can gain the

support necessary for optimum operation and development.

A considerable number of CARF members have realized that this rivalry will have an adverse effect on the Amateur Service and have recommended that CARF investigate the possibility of a merger between CARF and CRRL so that a united effort can be made to solve present and future problems. The CARF Board of Directors have approved the presentation of a formal proposal to the Officers and Directors of CRRL before the end of 1980 for consideration.

The objectives of CARF in making this proposal are to unify the Amateurs of Canada, to strengthen their voice both nationally and internationally and to gain the support necessary for full development of CARF as the national society.

Acceptance of the proposal will also bring effective liaison between the Federation and Canadian officials and members of the ARRL (now prohibited by rules of IARU) and the addition of extra officials of demonstrated ability to the National Executive and Committees of CARF.

This proposal would include the following items:

1. The merged organization would continue to be known as the Canadian Amateur Radio Federation Inc. (CARF) and use the present constitution of CARF as the basis for organization and administration;

merger with CRRL

2. That CARF would continue as an autonomous Canadian national organization;

3. That CARF will seek the Canadian membership in IARU presently held by ARRL and, when obtained, take on all responsibilities of such membership;

4. That the Canadian Division ARRL (CDARRL) continue in its present role as a division of ARRL with the present responsibilities of CRRL viz-a-viz CDARRL performed by CARF;

5. That CARF relations with ARRL be that of an independent national society with liaison between the President and General Manager of both organizations on matters of mutual concern;

6. That the (3) incumbent

members of the CRRL Board of Directors be offered the positions of Directors-at-Large in CARF, to take office on the date of merger and hold same for the period of 1 term of office (2 years) and then stand for further office according to the By-Law of CARF;

7. That the Canadian Director ARRL be offered a position as ex-officio member of the National Executive of CARF with the responsibilities of liaison between CARF and the members of CDARRL;

8. That other officials of

CRRL to be offered positions in CARF of similar stature to those held in CRRL.

The Officers and Directors of the Federation ask that you consider the terms of the proposal with the recommendation that a meeting be held between officials of both CRRL and CARF at a time and location agreeable to both groups with the objective of discussing the foregoing terms in detail.

Yours sincerely es 73
W.J. Wilson VE3NR
President

York North Flea Market

The York North Amateur Radio Club will hold its annual flea market on Saturday, Nov. 8, 1980 at the Newmarket Community Centre, Newmarket, Ont. General admission is \$1.50 and this includes a door prize ticket. Admission for exhibitors is \$4 and this includes a door prize ticket and **one** table. Additional tables will cost \$2. The flea market will run from 0800 to 1400 EST, but doors will be open earlier for exhibitors. The talk-in frequency is 146.52 MHz simplex and the club call is VE3YNA.

News Briefs

U.S. 40 & 20 M EXPANSION

Canadians and other Amateurs outside the U.S. will not be very happy to know that the American Radio Relay League directors have voted to ask the FCC to extend U.S. 40 and 20 metre phone privileges. They will request expansion for Extra class to have 14150 kHz and up; Advanced 14175 and up and General, all above 14225. On 40, they will request 7075-7100 kHz for Extra class phone as well, according to a recent HR Report.

BRITISH CB

The British government has succumbed to pressure and is now prepared to permit a Citizen's Band on 900 megahertz.

It optimistically plans safeguards to prevent QRM to paging systems, radio-controlled models and other users from the expected 15,000 users. It's a sure bet that the British authorities have a lot to learn.

AMERICAN CB

The FCC in Washington has voted to ask for public comment on the petitions it has received to expand the CB band and to legalize the sliders and others operating illegally in the slot outside the present CB band.

HONG KONG BEACON

Hong Kong Amateurs have a continuous beacon on 28,290 kHz, identified every three minutes by HS6HK.

AMATEUR EQUIPMENT DELIVERED TO YOUR DOOR

(WE PAY SHIPPING!)

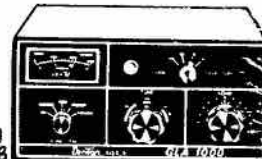


MFJ-941B Versa tuner II

This accurate unit has SWR and dual range wattmeter, antenna switch, built-in balun, 300W RF output. Matches everything from 1.8 thru 30 MHz. You can use just one antenna and increase the useable bandwidth. Has SO-239 connectors. Mobile mounting bracket.

\$124. postpaid.

\$589.



DENTRON GLA-1000B linear amplifier

Freq. coverage 80 to 18 meters, covers most MARS freq., RF drive: Max. 125, power consumption: 117 VAC 50/60 Hz 12.5 Amps, factory fused at 15 Amps. 234 VAC 50/60 Hz 7 Amps, DC input: 1 KW CW and 1200W PEP SSB. Final tubes 4D-50A tubes (6LQ6).

KENWOOD TS-700SP

all mode 2m transceiver

Covers the entire 2 meter band. SSB, CW, FM, AM and semi-break in CW, side tone monitor, digital frequency readout, receiver preamp and 600 KHz repeater offset operation within all 2m repeater subbands including the new 144.5-145.5 MHz, 10 watts RF output complete with AC/DC power supply.

\$ 1199 Free mic!!

YAESU

YAESU FT-207R synthesized Handi-Talkie

144-148 Mhz, 5 KHz steps, output: 2.5W hi/200 mW low, 4 memories plus programmable offset, prior ch., memory band & auto scan, keyboard encoder freq. entry, 2 tone input from keyboard, keyboard lock, programs odd splits, auto. battery saver for LED, rubber flex antenna & 15 hr. wall charger.

\$469. Call for deal



DRAKE TR/DR7 general coverage digital R/O transceiver

Covers 160 thru 10 meters, reception from 1.5-30 MHz continuous, 0-30 MHz with optional Aux-7 modes: USB, LSB, CW, RTTY, AM equiv., true passband tuning, RIT, built-in RF wattmeter/VSWR bridge, SSB 250W PEP, CW 250W AM equiv. 80W. Power supply required for AC operation.

\$2098. In stock



TEN-TEC Century 21 CW transceiver

Full break-in 70 watts input, all solid state, built-in speaker, receives CW or SSB but transmits CW only, overload protection, offset receiver tuning, adjustable level sidetone built-in regulated power supply. Crystals are provided to cover the 80 thru 10 meter bands.

\$ 539. In stock



CDE Ham IV antenna rotor

Pinpoint accuracy with snap action switched wedge brake and rotational controls. Tower mounted only. Turns 12 sq. ft. of antenna. 8 conductor cable required.

\$239. Special!

IN STOCK!



KENWOOD TS-120S HF transceiver

No tune up! With digital display, cooling fan, IF shift, protection for the final transistor, VOX, noise blanker, 25 KHz marker, 80-10 meters, WWV, modes: SSB and CW, 200W PEP SSB, power requirements: R.O. 7A 13.8 VDC, T. 18A 13.8 VDC. Size: 3 1/4" H x 9 1/4" W x 13 1/2" L.

NOW \$939.00



KENWOOD TS-180S solid state HF transceiver

Covers 160-10 meters, digital frequency control with 4 memories and manual scanning, 200W PEP 160W DC 160-15 meters and tunable noise blanker, dual RIT (VFO and memory), SSB, CW, and FSK, 13.8 VDC operation and built-in digital display to show VFO freq. and difference between VFO and M-1 memory freq.

\$1559!

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VISA when you order.



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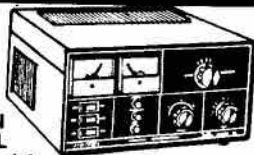
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 KENWOOD TR-9000 \$799.
 YAESU FT-107M \$1799
 ROBOT 400 \$1195.
 HY-GAIN TH6DXX \$399
 & MUCH MUCH &
 MORE



**DENTRON
DTR-2000L**
2000W precision
linear amplifier

Features a Broadcast proven 8877 tube, freq. coverage 160 thru 10 meters, covers most MARS freq., modes: USB, LSB, CW, RTTY, SSTV, power requirements: 234/117 VAC 50/60 Hz. RF drive power 125W max and 65W RMS min for 1 KW DC input. 1.8-21 MHz 2000W PEP.

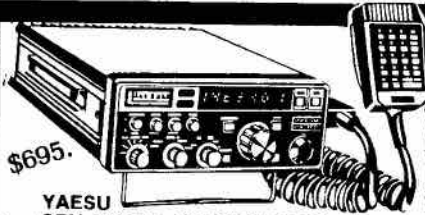
\$2089 In stock



YAESU FT-101ZD HF transceiver

Covers: 160 thru 10 meters plus WWV, modes: LSB, USB, and CW, built-in power supply, digital and analog frequency readout, 6146B final tubes, RF speech processor, variable IF bandwidth, noise blanker, heater switch, VOX, attenuator 10 dB or 20 dB selectable.

\$ 1299 List Call for deal!



\$695.

**YAESU
CPU-2500RK 2m FM transceiver**

With 800 PLL ch., automatic scan over entire 2m band, 4 memories, tone burst, 25W hi/3W lo, 13.6 VDC at 8 amps, freq. coverage 144-148 MHz. Keyboard mic allows remote input of memory or dial freq., up/down scanning control, aux. repeater split selection to 4 MHz, and 2 tone input for autopatch or control link.

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**TEN-TEC
Omni D Series B HF transceiver**

Totally solid state, 200W all bands with 50 ohm load. Covers 160 thru 10 meters. Features digital readout, VOX and PTT, 4-position CW/SSB switch 8 pole crystal filter, crystal calibrator, notch filter, zero beat switch, SWR bridge, adjustable sidetone, operates on 12 VDC for mobile. Full break-in CW.

SPECIAL \$1559!



**NEW KENWOOD
TS-520SE High Quality HF transceiver**

200 watts PEP SSB, 160 watts DC CW, 160 thru 10 meters, noise blanker, 3 position amplified-type AGC, RIT, 8 pole crystal filter, built-in 25 KHz calibrator, VOX, PTT, MANUAL operation, speech processor, semi-break-in CW with sidetone, low power tune up 20 dB RF attenuator and built-in speaker.

\$ 929. In stock

**BENCHER BY-1
Iambic paddle**

The Ultimate iambic paddle. Features solid silver contact points, full range adjustment, non-skid feet and heavy steel black textured base.



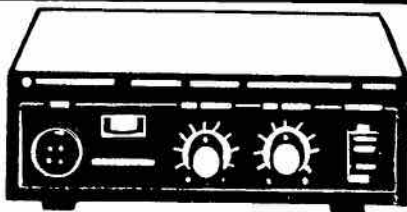
\$ 59.95

**BENCHER BY-2
Iambic paddle**

The BY-2 has all the features of the By-1 but comes with chrome base.



\$ 74.95



**KENWOOD PC-1
phone patch**

A matching phone patch for Kenwood equipment with NULL control, RX and TX gain control. Must be connected between a transceiver and a phone line.

\$ 82.95 In stock

**KENWOOD TR-2400
synthesized
2m hand-held
transceiver**

Featuring: 143.900-148.495 MHz, operates on MARS, 10 memories, auto. memory scanning for busy or open channel, mode switch for standard repeater \pm 600 KHz, offset, simplex and non-standard repeater splits, LCD digital readout, built-in touch tone generator with 16 button keyboard, and 1.5 watts RF output. Includes flex antenna with BNC connector, NiCad battery pack and charger.

\$ 499. In stock



**KENWOOD
TR-7625 25W transceiver**

Memory channel with simplex or repeater operation \pm 600 KHz transmitter offset, mode switch, full 4 MHz coverage on 2m (144.00-147.995), 800 channels, 5 KHz offset switch, MHz selector switch, digital freq. display, unlock indicator for transceiver protection.

\$599!

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Packet Radio

The Vancouver Amateur Digital Communications Group (VADG) came into being in January, 1979 and its activities have been increasing since then. One of the major aims of the group is to establish a digital communications network using high-speed packet radio techniques in order to encourage the development of Amateur digital communications.

Although the word, 'Amateur' has been used, the members of the working group are well-qualified professionals in the fields of digital and vhf communications, digital design, communications software and other disciplines necessary for the success of the project. The group plans to use 'state of the art' techniques wherever possible and to continually improve the technical level and function of the network once it is established. The latter would include the interfacing of the network to a time-sharing computer, a satellite communications channel, and other Amateur digital communications systems when these facilities become available.

The decision to strive for 'state of the art' has affected the design of our group's system using bit-oriented protocols. Although we could have got a system going faster and cheaper with the start-stop protocols it would have delayed the implementation of the bit-oriented protocols which we were aiming for. It was also felt that it would create difficult conversion problems for the network users when the new protocols were

incorporated. Bit-oriented protocols are much more line efficient than start-stop protocols and are being used in most of the later commercial communications systems (such as Datapac). For more information on bit-oriented protocols, you can read INTEL's application note on the 8273 Protocol Controller chip (ask for AP-36 which should be available free of charge from your INTEL supplier).

At this point, many will be wondering how they can use bit-oriented protocols since they only have equipment which uses either a start-stop serial interface or an 8-bit parallel interface. Our system will use a programmable communications controller (or 'Black Box') to interface all types of digital equipment to the network. The black box will act like an I/O device to a microcomputer and act like a microcomputer for less intelligent I/O equipment such as terminals, keyboards, printers, modems, teletypes, etc. It will be a dedicated function microcomputer in this application and not a general purpose microcomputer.

We felt that the use of a communications controller would solve some major network development problems that would be encountered in the future as well as solving more immediate problems. Some of the advantages of this approach are:

1. Getting equipment to provide bit oriented protocols - there isn't any available equipment on the surplus market and

none is marketed at a reasonable price.

2. Having to write software for a multitude of equipment and microprocessors as well as the difficulty of maintaining it. The time and effort required for someone to write good software should not be underestimated. It is unreasonable to go through the same effort over and over again for every system in operation now and new ones yet to be announced.

3. Providing an interface for terminals, teletypes, keyboards, printers, etc. to the network. With the 'black box' approach a user does not have to be the owner of a microcomputer which can considerably reduce the cost of entry to the system. Also, the microcomputer owner can keep his system available for other purposes instead of having it tied up running a communication program.

4. Getting standard interfacing and protocols established among the network users. Since everyone would have the same equipment there would be a lot more cooperation.

5. Rapid incorporation of changes in the network. In the beginning, the network will undergo a lot of development as we learn more and more about digital communication. A change in network portocol could be simply done by installing a re-burned EPROM in each black box. Think of the problems of incorporating a change when there are dozens of different programs running in different equipment on the network.

RF and Modulation System

The VADCG wants to develop

in Vancouver

equipment which will fully utilize the 100 kHz bandwidth allowed by the current regulations for packet radio. Unfortunately, none of the equipment manufactured for or used by Amateurs is particularly suitable for this purpose. There are usually two problems with most equipment – narrow bandwidth and long switching times between transmit and receive. Most VHF equipment is designed with a bandwidth designed for audio and this usually limits the top speed to about 2400 Baud. The switching time for such equipment is in the order of 100 msec. The group in Ottawa is working with VHF Engineering modules and using a single pin diode switching circuit which gives a Baud rate of 9600 Baud and a switching time of 1 ms.

We believe that a 220 MHz transmitter and receiver could be made up in kit form which would incorporate the special requirements of Amateur digital communications. We feel that it could be made cheaply and yet reliably operate at rates greater than 50,000 Baud with switching times of less than 1 ms. We have been conducting preliminary experiments with this in mind and have had very promising results so far. However, we expect it will be several months before we have something developed because we are concentrating on development of the digital interface hardware and software. We have transmitted data with a good 'eye' pattern at rates up to 140,000 Baud through a standard consumer FM tuner's 10.7 MHz.

IF strip under laboratory conditions.

In the meantime, what are we doing to provide local network communication? Well, we are using surplus 202 – type modems and operating at the very modest Baud rate of 1200 Baud. This is an interim solution until the aforementioned 220 MHz equipment becomes available. We are also using the 2 metre band for testing at this low speed. This means that the initial entry for the pioneers can be inexpensive because he can use his existing 2 metre transceiver without modification. He can still use it for it's original purpose. The 202-type modem shifts between frequencies of 1200 and 2200 Hz. When and if we run out of surplus modems we will use a modem similar to that of the Montreal group. I understand it does a very good job and the component cost is only about \$30.00. We have not encountered any communication problems at all while using these 202-type modems. In fact, we have been able to record packets directly from a hand-held transceiver onto a portable tape recorder and replay the packets back through the microphone.

The network as planned at the present time would use bit-oriented protocols with VHF or UHF transceivers providing communications channels between the various nodes in the network. All nodes would use the same channel in a time-division multiple access arrangement. No node would transmit until the channel was clear. Other protocol conven-

tions would assure that the station node has priority over other types of nodes on the channel and prevent any one group or group of users 'hogging' the channel at the expense of others.

As you might imagine, this ambitious project requires a lot of work and some money. At present our funding is coming from individual donations but is not sufficient to meet our needs for the immediate future. For a \$10 donation we will mail an extensive information package with circuit diagrams and component information for all the boards. You will also get progress reports and newsletters periodically. Our mailing address is: V.A.D.C.G., 1263 Balfour Avenue, Vancouver, B.C., V6H 1X6.

We hope that someday you will be able to sit down in your hamshack with your terminal connected through the interface to your low power vhf transceiver and ask the network to connect you with (for example) VK3XXX in Sydney, Australia and almost immediately get the message back on your screen: "Connection with VK3XXX established – begin communication".

Douglas Lockhart, VE7APU

(Technical details of the protocol have been omitted due to space restrictions but this and the other two complete original papers on packet radio along with subsequent papers may be obtained by sending \$5.00 to "Packet Radio Papers", CARF Inc., Box 356, Kingston, Ont. K7L 4W2.) □

Canada Day Contest 1980

The second annual running of the Canada Day Contest was a great success compared to last year's. Over 60 logs were received from 13 countries, including DL, DU2, G, HB9, JA, LX, OK, PA0, SP, VE, VP9, W and YU. At least four official CARF stations using the suffix TCA or VCA were active.

New record scores were set in all categories. Congratulations to Rich Burke VO2CW who, with the highest single op score, wins the Canada Day Contest trophy. Multi-op honours go to the Prince George Contest Club VE7ZZZ. An excellent single band score was posted by VE7CRU (14 MHz). The highest score for a non-Advanced Amateur was made by VE1BNN. The DX single-op winner is YU1FJK. DX multi-op winner is DA2BS.

The overwhelming majority of logs were for all band or single band 14 MHz. Twenty metres was the most active, especially at the beginning of the contest, when some stations were running VEs at two a minute. Activity was relatively low on the other bands even though conditions were good, and coast-to-coast QSOs were made on 7, 21 and 28 MHz. How about it guys? Use your bandswitch!

Many Amateurs said that this was the first contest they had ever participated in. This contest is an excellent training ground for newcomers to contesting, as well as a good opportunity to pick up some provinces for the 5 band Canadaward.

CARF intends to run this contest twice a year, once on Canada Day and once between Christmas and New Year's Day. Under winter conditions, the low bands as well as 10 metres should be excellent for working

class	call	score	QSOs	points	mult	rank
A	VO2CW	173,728	289	2848	61	1
A	VE7UBC	143,580	291	2393	60	2
A	VE1ABU	105,378	301	2509	42	3
A	XL3LON	73,780	557	2170	34	4
A	VE5QY	52,483	176	1693	31	5
A	VE3DAP	46,640	172	1166	40	6
A	VE4OZ/4	45,870	227	2085	22	7
A	VE2HY	33,312	150	1041	32	8
A	VO1AW	25,110	137	930	27	9
A	VE1BNN	21,990	192	733	30	10
A	VE3JTP	18,870	79	629	30	11
A	VE3FDP	18,765	70	695	27	12
A	VE3IR	14,761	58	509	29	13
A	VE6AYX	13,965	139	735	19	14
A	VE7EGD	13,650	105	975	14	15
A	VO1KO	12,636	80	702	18	16
A	HB9APF	9,786	77	699	14	17
A	VE6PW	9,231	55	543	17	18
A	VE3LRD	4,965	34	331	15	19
A	VE3CXL	2,520	18	180	14	20
A	GI3GTR	2,200	22	220	10	21
A	VE7ENF	1,792	58	256	7	22
A	W7LLC	1,710	19	190	9	23
A	W7LPF/DU2	1,002	50	167	6	24
A	VE3MEW	760	17	152	5	25
A	W6MUL	630	9	90	7	26
A	PAØRBA	405	9	81	5	27
28	G3EUE	0	15	15	0	1
21	DP6VE	3015	73	335	9	1
21	SR9EEE	42	3	21	2	2
14	VE7CRU	39,402	258	1791	22	1
14	VE2JV	24,396	226	2033	12	2
14	VE4DE	19,908	171	1659	12	3
14	VE5BBD	19,752	207	1646	12	
14	VE1BLQ	13,140	161	1314	10	4
14	VE4AHT	10,452	104	871	12	5
14	YU1FJK	9,940	89	710	14	6
14	CZ6AMY	7,095	68	645	11	7
14	VP9IW	6,369	67	579	11	8
14	LX1BY	3416	72	488	7	
14	VE3DIJ	4,880	54	488	10	9
14	XJ5XZ	3,800	35	380	10	10
14	W6OUL	2970	31	330	9	
14	VE4YF	1,617	23	231	7	11
14	OK2QX	1,440	18	144	10	12
14	VE1XA	1,344	25	224	6	13
14	XJ5AAD	1,344	53	224	6	13

14	VE3KPD	1240	19	155	8	
14	JA2QBA	153	6	51	3	
7	VE1BSH	1,065	24	213	5	1
7	VE7DZR	348	17	116	3	2
3.5	VE3CES	190	13	95	2	1
MS	VE7ZZZ	121,120	729	3785	32	1
MS	VE7CUZ	91,050	236	1821	50	2
MS	VE3VCA	51,414	180	1558	33	3
MS	DA2BS	29,376	173	1632	18	4
MS	DA2CF	12,000	81	750	16	5
MS	VE3TCA	8,840	61	520	17	6
MS	JALYTD	20	2	20	1	7

Operators:

VE7ZZZ - VE7SK, VE7VX, VE7AV, VE7ENI, VE7ENF

JA1YTD - JF1VDG

VE3TCA - VE3JLG, VE3FXI, VE3JRY, VE3JCI

XL3LON - VE3OT

VE7CUZ - VE7CUZ, VE7CUS

DA2CF - DA1MV, DA1TD, DA1UO

DA2BS - VE7DGM, VE4ABO

VE3VCA - VE3EW.

check logs G3AWR,
VE7BNX, VE2DQ,
VE7TCA

multiplier leaders

call	1.8	3.5	7	14	21	28	50	144	total
VO2CW	0	9	12	24	14	2	0	0	61
VE7UBC	0	5	13	22	16	4	0	1	60
VE1ABU	0	7	10	19	6	0	0	0	42
VE3DAP	0	3	12	19	4	1	0	1	40

SOAPBOX

Good contest -- wonder where the other 18,000 plus Canadian Amateurs hid -- VE5OY

Had lots of fun, lots of contacts, but not enough multipliers -- VE7ZZZ

No Canadian stations were heard on ten metres -- G3EUE

Our Wx was so nice we closed down early -- VE7CUZ

Much better and more enjoyable this year with so many VE's getting on -- VE3FDP

Very enjoyable in good conditions but with not too many VE stations around -- G13GTR

Lightning blew up the rig several days before the contest --VE3TCA

In Canadian Forces Europe, we celebrated Canada Day on July 7 -- DA2CF

Had hard time getting stations to acknowledge for the contest -- W7LPF/DU2

Very nice idea, this contest -- PAORBA

This is a good and enjoyable contest -- W6MUL

Like to see more guys on CW -- VE1BNN

Did manage to pick up a couple for the 5 Band Canadaward -- VE3CXL

Good friendly contest and good publicity for Canada internationally -- XL3LON

coast-to-coast, and multiplier totals over 100 should be possible. However, please send in your log regardless of score. Each and every participant will be receiving a certificate.

VE3TCA

Bulletin schedule

Sun. 1745z 14.140 SSB

1830z 14.078 CW 15 wpm

2130z* 14.078 RTTY

2300z* 3.755 SSB

Mon. 0000z* 146.46 FM

(VE3STP Net)

Thurs 0030z* 14.078 RTTY

(* One hour earlier during periods of daylight savings time.)

Electronic

Glossary

Following are extracts of an interesting new glossary from the Northern Amateur Television Society (San Francisco) contributed via the Amateur magazine A5.

Air Core - now known as the Air Force.

Arrester - officer of the law.

Banana Plug - used on leaky bananas.

Choke - what your wife does after she sees new rig.

Dummy Load - a guy who carries his mother-in-law around.

Exciter - Raquel Welch going topless.

Hertz - when someone steps on your toes.

Sawtooth - a crude dental instrument.

Vacuum Tube - attaches to vacuum sweeper.

-Tx OVMRC 'Rambler'

VE8 QSL BUREAU

Please note that the VE8 (Victor Echo Eight) QSL Bureau is now: Rolf Ziemann, 2888 Lanky Court, Yellowknife, NWT X1A 2G4.

Radio Philately

By Garry Hammond VE3GCO

Stamp collecting is one of the interesting off-shoots of Amateur radio. How does it correlate so well? That's simple for two reasons: QSO's and QSL's. In spite of rising postage costs, QSL's are still a popular facet of our hobby and a satisfying conclusion to a QSO.

There are generally three accepted methods of QSL'ing. The first and easiest is **via the bureau**. (CARF, CANADX, and ARRL all offer excellent service provided you are a member of the particular organization.) Next is the **QSL Manager**, which implies a card and a SASE, i.e. a self-addressed envelope complete with return postage **you** put on or include. The most costly, and by far the most interesting from a philatelic point of view is **direct QSL'ing** to the QTH of the Amateur you work. The ultimate QSL delivery is in **person**, but think how cheap 17 cents and 35 cents are compared to the cost of an airline ticket for you!

Many of you either collect stamps yourself, or have a grandchild, son or daughter or friend who does. Fortunately, not all stamps are as costly as the recently resold one penny British Guiana stamp.

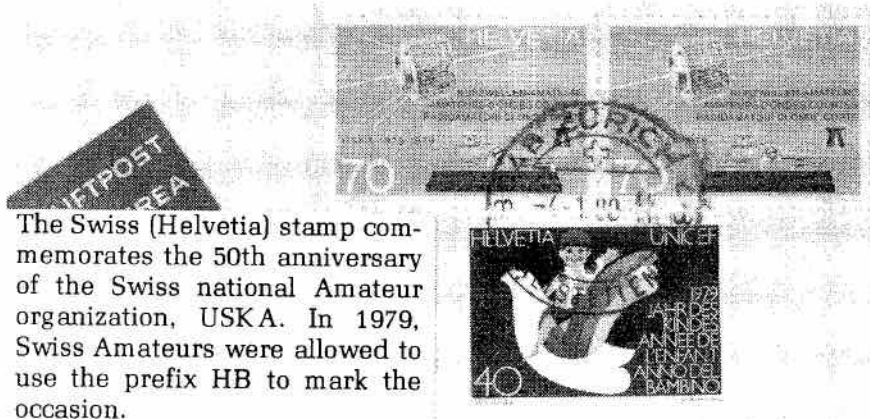
Elementary DX operating can put you in touch with inexpensive, or at least, reasonable, sources of stamps.

You may wish to collect everything that comes your way courtesy of your mailman. On the otherhand, more and more of us have developed topical or specialized philatelic interests.

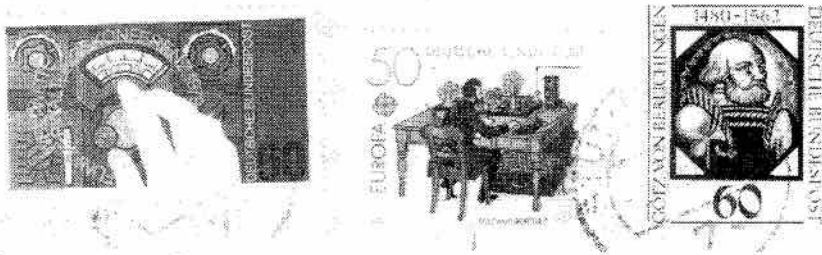
Those might include specific countries, sports, Christmas, music, animals, etc. My particular topical interests are **radio** and **Antarctica**. A pilot friend of mine collects airplane stamps and naturally, a railway em-

ployee I know saves locomotives.

Collecting stamps on the communications theme lets you look for stamps showing African drums, aboriginal petroglyphs, electronic personalities (remember Guglielmo Marconi, Al-



The Swiss (Helvetia) stamp commemorates the 50th anniversary of the Swiss national Amateur organization, USKA. In 1979, Swiss Amateurs were allowed to use the prefix HB to mark the occasion.



The '60' Deutschebundespost (West German) stamp commemorates WARC '79 and the 50 features an 1863 telegraph station.



One of the main European coast stations, 'Scheveningen Radio, PCH' is commemorated in this Netherlands stamp which symbolizes the marine radio service.

exander Bell, etc.), telegraphy, telephony, conferences (WARC '79 was honoured on a number of stamp issues), television, satellites, and many, many more. If you'll excuse the radio pun, "Whatever turns you on."

There are several ways of displaying your stamps. Albums have been traditional but do not overlook using your own unique way of presenting them. I prefer looseleaf notebooks with separate especially designed pages for each stamp. Such pages might include the stamp or stamps of interest (perhaps even left on the original cover ... my personal choice); a note, neatly printed or typewritten about when, where, and why it was issued; **and** perhaps the QSL which came in the envelope.

Another novel way of holding your exotic stamps/covers is to put them in the plastic picture holders available from your local photography store. The usual 8 x 11 inch, two pocket acetate holder is very useful for this purpose.

How can you supplement and enlarge your collection of stamps which are of particular interest to you?

Firstly, if you collect stamps of a particular country, try to establish contacts with fellow Amateurs in that country. Sometimes a reciprocal arrangement can be set up for a simple exchange of stamps from his country for stamps of ours or the U.S.A. (Even if he is not a collector, active Amateurs worldwide, like to have mint/unused Canadian or U.S.A. stamps for postage for requesting QSL's from Managers or applying for awards, rather than sending money.

Secondly, if you have a particular topical interest, ask your Amateur contact **during** a QSO, or if you request a direct QSL, if he knows of any past or present stamps his country has issued that are related to your

interests. Amateurs are helpful. They will often use such a stamp on their cover/envelope if one is available; will try to locate some for you; or will make a note in their log and send you one if and when it is issued.

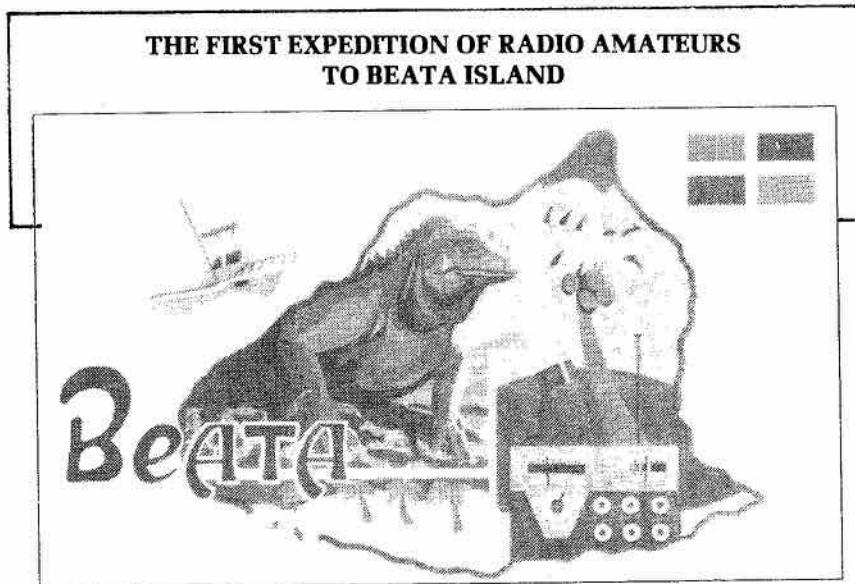
Thirdly, if the Amateur operator is not interested he can probably arrange a 'penfriend' for you who is also interested in stamp collecting.

Fourthly, contact a nearby

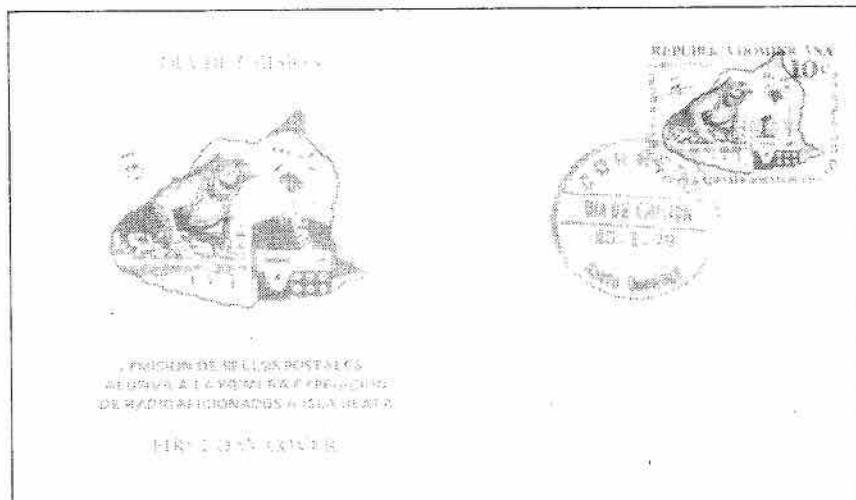
stamp dealer or a topical dealer whose addresses are readily available from stamp newspapers or monthly stamp publications such as Stanley Gibbons.

Lastly, if I can be any help, let me know. If you hear me on the air and have an interest in stamps, let's talk!

So, there you are ... **two hobbies** for the price of one - a real bargain in these times of high costs and inflation!



Confirmation cards like this are real souvenirs of your QSO with a station. The HI1RCD expedition took place Jan. 25-28, 1979. Note the radio rig.



Each time a new stamp is issued, many collectors are keen to obtain a First Day Cover postmarked as 'First Day of Issue' or, as it is above, 'Dia de Emision'. Congratulations to the Dominican Republic Amateurs for their part in the HI Post Office issuing such a special stamp for 'radioaficionados'.

It pays to advertise

By Dave Nessman VE3GEA

Ever wonder how many stolen Amateur rigs are ever seen again? Not many I imagine. Most rigs – especially of the 2-metre variety – are stolen in the belief that they are CB units which are easily disposed of for cash. Upon discovering this not to be so, the average thief will most probably throw the thing into a river or otherwise cause it to disappear for good.

Fact is, Amateur radios have little value except to Amateurs. I believe that, given the DOC licensing requirements, the training and self-policing reputation and inherent honesty of the average radio Amateur make Amateur radios somewhat harder for thieves to make a decent living with, even though they are generally more valuable than the average CB unit.

Well, that which happens only to 'the other guy' bit me a year or so ago on the West coast when our house was broken into in broad daylight (Neighbourhood Watch notwithstanding). Turns out there was a rash of break-ins in our area that week, the desired 'loot' being cash and intoxicating beverages. To be sure, we were missing the bottle of wine we had stashed in the fridge – and a Drake TR33C from the shack which I had out on loan from the local club. Being somewhat upset, I duly notified the local constabulary, which responded, and looked (at the scene), and listened (to our story), dusted for fingerprints (no luck), and went away...

Naturally, I expected that was the last I'd ever see of that rig – but on the off chance, arranged to have a 'stolen rig announcement' made on the

local 2 metre net the following week. The net night arrived, the announcement was made, and they tell me (I was at work that night, alas) this voice comes on, asking for a repeat on the description of the rig, my address and phone number. This information given, the fellow answers a net control inquiry with "Oh, I don't have a call sign," and promptly disappears. To be sure, only the ears that were asleep didn't perk up at that!

Later that evening, this same fellow calls me at work and

announces that he has the stolen TR33C, which his son had bought "from some guy downtown for \$20", and will get it back to me but won't give me his name or number since he wants time first to ascertain if his son was at all involved in the theft. (I never found out the answer to that one!).

A long week later, I (very relieved) had the rig back safe and sound, minus only the leatherette cover. Maybe it was just a lucky break, but it sure paid to advertise that night. □

Learning the Lingo is half the Battle

If you want to talk about chips, you have to master the lingo first. Here are explanations of some terms that are second-nature to computer experts, but incomprehensible to most of us.

Semiconductor: A solid material, usually made of silicon or germanium, with the properties of both a conductor and an insulator.

Transistor: The original semiconductor chip replacing bulky, expensive vacuum tubes in the late 1950s. Normally made of silicon, they can amplify or switch electrical current. Known as discrete – or single-function – semiconductors.

Integrated circuits [ICs]: Developed in 1961, these chips contain many interconnected transistors on a single piece of silicon.

Large-scale integrated circuits [LSIs]: Where increasing numbers of transistors are packed on a chip, allowing the chip to perform several functions instead of one. As density increases, VLSIs (very large-scale integrated circuits) result.

Microprocessor: Called a computer on a chip, because all the arithmetic and memory functions of a computer can be performed by a single silicon chip.

MOS: Metal-oxide-silicon, one of two basic integrated circuit designs, is the fastest growing because it's cheaper and easier to design. Bipolar is the other basic design.

Wafer: a three- to four-inch disc of silicon on which separate chips are printed and processed, then cut into separate ICs. □

Rock-bound & Happy

Two-Metre Crystal Coverage

By R.W. Mouritsen VE3JDM

The advent of the synthesized handie-talkie giving the two-metre user the freedom to range over the whole band has spawned one important benefit for those who previously found handie-talkies too expensive: crystal-controlled H.T.s are being sold at rock bottom prices that most anyone can afford.

The problem with crystal-controlled handie-talkies, however, or for that matter crystal-controlled portables such as my own Drake TR-33C is not power output; it's not battery drain, it's not the time it takes to recharge ni-cads, the problem is the choice of crystals for those frequencies for which you want to access.

Most of the H.T.s are limited to six "channels", some to eight channels. Portables usually have 12 to 15 channels available. I wanted to know if the crystals I had chosen for my rig would give me the coverage that would best suit my needs: that is, give me access to the local area (Ottawa) repeaters and also access to the repeaters in Southern Ontario where I frequently travel and across Canada for the occasional trip. What I did not want to do was sit down with pencil and paper and manually match the repeater frequencies for which I chose crystals and the frequencies of the more than 200 repeaters across Canada. Besides, I

wanted to know how well I was covered in different areas of the country as well as the country as a whole.

Although not fortunate enough to have one of the personal computers such as Commodore's PET or Radio Shack's TRS-80, I do have one of the Texas Instruments Programmable Calculators - a TI-58C. From what I've heard on the air, quite a number of Amateurs do have programmable calculators. If you are one of them, or if you can borrow one of the calculators, the following program may be as much help to you as it was to me.

The program 1) counts the number of frequencies entered, 2) counts the number of repeaters to which you have access, and 3) calculates the percentage of repeaters covered to frequencies entered. Also available is the number of times different repeaters use the same frequencies for which you have crystals.

This program was written to fit my calculator model but will work unchanged with the Texas Instruments 58 and 59 calculators. With some modifications it can run in the Hewlett-Packard programmable calculators or any other programmable device with sufficient program and data memory available. Indeed, the program can be

greatly enhanced with additional memory.

Basically, this is what happens. A repeater's frequency is entered and compared with the up to 10 crystal frequencies stored in memory. If the frequency entered matches one of the frequencies stored it is counted in the appropriate register. To figure out the number of repeaters covered or the percentage of repeaters covered to the number of repeaters entered, the counting registers of stored frequencies are summed or summed and compared to the number of repeater frequencies entered, respectively. The program will be listed at the end of this article; following are the user instructions:

STEP 1. Clear the storage memory: press "29C". The display will show "0".

STEP 2. Store the frequencies for which you have crystals or for which you are thinking of buying crystals in storage areas 20 to 29 - up to ten frequencies or frequency pairs. If your rig uses a single crystal per channel, store only the receive frequency; if receive and transmit crystals are needed enter both in the same storage area. Use shortened frequency numbers for storage: for single crystal per channel rigs 146.34 in, 146.94 out is stored as 694 (no decimal point); for two crystals

per channel rigs 146.34 in, 146.94 out is stored as 634.694 (decimal point separates input/output frequencies.) Press "694 STO 20" (or 634.694 STO 20). Display will show "694" (or 634.694). For 146.28/146.88 press "688 STO 21" (or 628.688 STO 21) Display will show "688" (or 628.688). Crystal frequencies can be entered in and up to data memory 29.

STEP 3. Enter the frequencies of the repeaters of the areas in which you are interested in operating. I use the Repeater Directory prepared by VE3DWL which is published in The Canadian Amateur or which is available from CARF. Entries must be in the same shortened form as used in step 2 and "A" must be pressed. For example, to enter 146.46 in, 147.06 out, press "706A" for single crystal per channel rigs, "646.706A" for other rigs. The display will show the frequency entered. There is no limit to the number of times a frequency may be entered or the number of frequencies entered. If you are interested in the coverage of only one specific area, e.g. Ottawa, 146.94 (VE2CRA 146.34/146.94) would be entered only once. If you are interested in your coverage across Canada 146.94 would be entered each time the directory showed a repeater using that same output frequency (e.g. VO2AD; VE1CBC; VE2RGA; VE6 RPT; etc.) Remember to press "A" to enter the frequency.

STEP 4. To find the number of repeaters entered, press "B". To find the number of repeaters for which you have coverage, press "D". To find the percentage of repeaters covered to repeaters entered, press "E".

STEP 5. Should you wish to know the number of repeaters for which you have a specific crystal, the following shows which data registers are the counters for the crystal frequencies stored:

Frequency stored in data register number:	Counter stored in data register number:
20.....	01
21.....	02
22.....	03
23.....	04
24.....	05
25.....	06
26.....	07
27.....	08
28.....	09
29.....	10

"RCL 20, RCL 01" will recall the frequency stored in data register number 20 and will display the number of times this frequency was entered.

STEP 6. To clear the counting registers, enter "15C"; to clear the crystal frequencies and the counting registers, enter "29C". It will take approximately thirty seconds to clear the registers.

It is important to test your program before it is run. Use this test:

<u>PRESS</u>	<u>DISPLAY</u>
29C	0
694 STO 20	694
688 STO 21	688
706 STO 22	706
724A	724
685A	685
706A	706
B	3
D	1
E	33.3333

B displays the number of repeaters entered; D displays the number of repeaters for which you have crystals (of

those repeaters entered); E is the percentage of repeaters covered, that is in the above test, 1 out of three or 33.33%.

The program is listed below in three banks XXX YY Z. The first (XXX) shows the program location; the second (YY) shows the key code for Texas Instruments calculators; the third (Z) shows the keys to be pressed.

I will be happy to answer any questions if you will enclose a stamped self-addressed envelope with your questions. By the way, in my TR-33C which has 11 crystals (3 simplex and 8 repeater frequencies) I am able to access 52.5% of the repeaters across Canada. □

H. Sax VE3JBU
Box 913 Station B
Ottawa, Ontario K1P 5P9

000	76	LBL
001	15	E
002	05	5
003	06	6
004	42	STO
005	16	16
006	61	GTO
007	85	+
008	76	LBL
009	85	+
010	43	RCL
011	01	01
012	44	SUM
013	14	14
014	43	RCL
015	02	02
016	44	SUM
017	14	14
018	43	RCL
019	03	03
020	44	SUM

021	14	14	062	00	00	103	22	22	144	76	LBL	185	81	RST
022	43	RCL	063	22	INV	104	67	X=T	145	94	+/-	186	76	LBL
023	04	04	064	49	PRD	105	25	CLR	146	69	OP	187	44	SUM
024	44	SUM	065	14	14	106	43	RCL	147	22	22	188	69	OP
025	14	14	066	00	0	107	23	23	148	91	R/S	189	29	29
026	43	RCL	067	00	0	108	67	X=T	149	81	RST	190	91	R/S
027	05	05	068	48	EXC	109	95	=	150	76	LBL	191	81	RST
028	44	SUM	069	14	14	110	43	RCL	151	25	CLR	192	76	LBL
029	14	14	070	91	R/S	111	24	24	152	69	OP	193	33	X ²
030	43	RCL	071	81	RST	112	67	X=T	153	23	23	194	01	1
031	06	06	072	76	LBL	113	42	STO	154	91	R/S	195	44	SUM
032	44	SUM	073	14	D	114	43	RCL	155	81	RST	196	10	10
033	14	14	074	08	8	115	25	25	156	76	LBL	197	43	RCL
034	43	RCL	075	00	0	116	67	X=T	157	95	=	198	13	13
035	07	07	076	42	STO	117	24	CE	158	69	OP	199	91	R/S
036	44	SUM	077	16	16	118	43	RCL	159	24	24	200	81	RST
037	14	14	078	61	GTO	119	26	26	160	91	R/S	201	43	RCL
038	43	RCL	079	85	+	120	67	X=T	161	81	RST	202	13	13
039	08	08	080	00	0	121	43	RCL	162	76	LBL	203	91	R/S
040	44	SUM	081	48	EXC	122	43	RCL	163	42	STO	204	81	RST
041	14	14	082	14	14	123	27	27	164	69	OP	205	76	LBL
042	43	RCL	083	43	RCL	124	67	X=T	165	25	25	206	12	B
043	09	09	084	15	15	125	35	1/x	166	91	R/S	207	43	RCL
044	44	SUM	085	91	R/S	126	43	RCL	167	81	RST	208	00	00
045	14	14	086	81	RST	127	28	28	168	76	LBL	209	91	R/S
046	43	RCL	087	76	LBL	128	67	X=T	169	24	CE	210	81	RST
047	10	10	088	11	A	129	44	SUM	170	69	OP	211	76	LBL
048	44	SUM	089	42	STO	130	43	RCL	171	26	26	212	13	C
049	14	14	090	13	13	131	29	29	172	91	R/S	213	42	STO
050	43	RCL	091	69	OP	132	67	X=T	173	81	RST	214	00	00
051	14	14	092	20	20	133	33	X ²	174	76	LBL	215	76	LBL
052	42	STO	093	32	X=T	134	43	RCL	175	43	RCL	216	45	Y ^x
053	15	15	094	43	RCL	135	13	13	176	69	OP	217	25	CLR
054	83	GTO	095	20	20	136	91	R/S	177	27	27	218	72	STO
055	16	IND	096	67	X=T	137	81	RST	178	91	R/S			IND
056	01	1	097	23	LNx	138	76	LBL	179	81	RST	219	00	00
057	00	0	098	43	RCL	139	23	LNx	180	76	LBL	220	97	DSZ
058	00	0	099	21	21	140	69	OP	181	35	1/x	221	00	00
059	49	PRD	100	67	X=T	141	21	21	182	69	OP	222	45	Y ^x
060	14	14	101	94	+/-	142	91	R/S	183	28	28	223	92	INV
061	43	RCL	102	43	RCL	143	81	RST	184	91	R/S			SBR

Making a Bird fly!

RESTORATION OF A TH6DXX SUPERTHUNDERBIRD BEAM

By Chuck Mouritsen VE3JDM

It has been suggested by many that the single most significant part of any station is the antenna. Antenna improvements of any form result in more satisfactory station operation.

Having used dipoles and verticals since my return to the HF bands, I jumped at the chance to purchase (at an excellent price!) a damaged TH6DXX Superthunderbird yagi.

The ten-year-old antenna required a complete overhaul: damaged elements were repaired, the traps disassembled and cleaned, and all mounting hardware replaced.

As with any project, patience, forethought and attention to detail can mean the difference between success and dismal failure.

First, the antenna was disassembled and all joints cleaned, both the outside and inside of all elements. One of the handiest materials to use is the green nylon 'pot scrubber' pads. They are cheap, leave no residue as does steel wool, and give a smooth, satin finish to aluminum. To clean the inside of the tubing, a small piece of 1/4-inch tubing was split with a hacksaw. A small piece of nylon pad was jammed into the slit and a power drill makes the cleaning job easy!

The outside of the tubing is easily cleaned with a long strip of pad used like a shoe buffing cloth.

The next step in the cleaning process is the traps. How to take them apart was a puzzle, since the manufacturer never intended for them to be taken apart! After much head scratching, I arrived at the following method:

1. Remove the plastic end caps and all visible external screws.

2. Submerge the whole trap assembly in a tub of warm water and liquid dish-washing detergent.

3. Remove the trap and drain off the excess water. Immediately pour hot (not boiling) water only over the outside cylinder, not through the drain holes. This will expand the outside cylinder sufficiently to allow you to remove the cylinder by holding the cylinder with both hands and firmly pressing the tubing against a wooden block. To break the seal, you may have to bang (with great vigor!) the tube on the block. Make sure you use a soft wood block so as not to damage the tubing. If it doesn't work the first time, don't despair. Soak it again and repeat.

Once apart, the trap coil can be cleaned with a stiff wire brush, and all the connections

cleaned and tightened. Here is where attention to detail pays off! Remember to clean the inside of the cylinder as well.

Reassembly of the trap is made much easier if a small dab of silicone grease is spread over the outside of the plastic spacers. The spacers can then be positioned on the trap assembly tubing, and the outside cylinder slid gently into place. Make sure that none of the spacers are blocking the drain holes.

Once properly cleaned, the antenna may be reassembled, assuming that there are no damaged elements.

In my particular case, six pieces of the 7/16" diameter tubing, the element tip sections, were bent or twisted beyond repair. Where to find the tubing was the next step. An exhaustive research by Don VE3IOR and myself proved futile. No one stocks that particular size! While it is made in this country, it is only made on special order, 2000 feet minimum! You might be lucky to find some left from a production run. If so, buy it!

Since I couldn't find the exact tubing, the only other choices were to use 3/8" diameter with shims, or 5/8" diameter to slip over the original pieces. Using the larger size meant having to make hardwood dowels to pre-

vent the original tubing from collapsing under pressure of the compression clamps. So I chose to use 3/8" diameter thickwall (1/8" wall) tubing. The shims were made from 6" sections of the original 7/16" tubing. These short tubes were split lengthwise with a hacksaw on one side only. All burrs were removed from both the split tubing and the 3/8" tubing. The 3/8" tubing was then liberally coated with conducting aluminum joint compound (Pentox) and forced the full length of the 7/16" tubing section.

The whole assembly was then turned in a lathe to bring the outside tubing shim back to approx. 7/16" diameter. The 3/8" tubing can now be trimmed with a tubing cutter to the desired length, allowing for 3" of the shimmed element top to slide into its mating section. Remember to cut the tubing at the longest length given in the instructions, or you won't be able to operate in the CW band.

All other tubing diameters are common stock, and should be available somewhere. If one of the swaged sections is damaged, contact you local muffler shop. They sometimes have swaging machines, and may do the job at a reasonable price.

After cleaning and repairing or replacing all damaged parts, the beam elements may be reassembled. A stainless steel hose clamp will serve just as well as the original clamp, which is likely to be badly rusted anyway.

Be sure to use a conducting compound specially made for aluminum between all joints, boom to element clamps as well. The best material to use is the compound used for aluminum conduit joints. It is available at any electrical wholesale supply house. This is a silicone-based grease having zinc particles in suspension. Some people have measured the resistance with an

ohmmeter and proclaimed this compound to be useless, because it showed an 'open circuit'. It is the zinc particles which, when under pressure of the compression clamps, perform the electrical contact ... not the grease. The grease merely serves as a base to hold the zinc particles together so one can use it.

Be generous with the compound at all joints. When the clamps are tightened, excess material should be squeezed out of the joint. This excess is then formed into a bead around the joint, sealing it. The compound is not water soluble (silicon) and is temperature stable over a range of 60° to + 500° F, as well as being non-toxic.

Having assembled the antenna, don't be in a hurry to put it on the tower. First try it out on an 8 to 10 foot post. Plot the

VSWR curves for all three bands and see if the antenna at least resonates in the desired portion of the band.

Doing this enabled me to find two printing errors in the given measurements. Talking with another Amateur, who had recently purchased a brand-new TH6 DXX, produced corrected measurements.

In conclusion, the 10-year-old 'bird' is once again 'flying' atop a 48-foot tower. No numerical measurements have been made, but the number of DX contacts in the log has increased considerably.

Hopefully, the foregoing will be of some help. I will gladly provide assistance to anyone who requires it. □

R.W. Mouritsen VE3JDM
RR3 Russell, Ont.
KOA 3B0

Corroded Cadmium

A recent 'Tomorrow's World' television program and many other reports in the media have drawn attention to the potential risks of cadmium poisoning, for example in the vicinity of zinc smelting plants. Much less well-known is the health hazard arising from the possibility of inhaling or ingesting the 'woolly' white powder (cadmium salts of organic acids) which sometimes appears as a deposit on cadmium plated metalwork (screw heads, switches, etc.) in electronics equipment.

It is therefore advisable to take reasonable precautions to remove any such deposits which are due to corrosion and which tend to appear in equipment that is inadequately ventilated so that heat generated in the unit may cause fatty acids, as found in transformer impregnation and sometimes in the coatings of printed circuit boards, to migrate

to any cadmium-plated metalwork.

Cadmium corrosion can be removed provided that the following safety procedure is carefully followed:

Never attempt to blow away the white powder, for instance by using an air jet. Use disposable plastic gloves and open and deal with the equipment in a well-ventilated area. Then, using a swab dampened with water, wipe away all corrosion products in the affected area, changing the swab after each wipe in order to prevent any spreading of the powder. Afterwards the used swabs and gloves should be placed—in a plastic bag and burnt in an incinerator. Make sure the treated surfaces are clean and dry, and then apply varnish to the area. □

(From 'Technical Topics' of Radio Communications (RSGB)).

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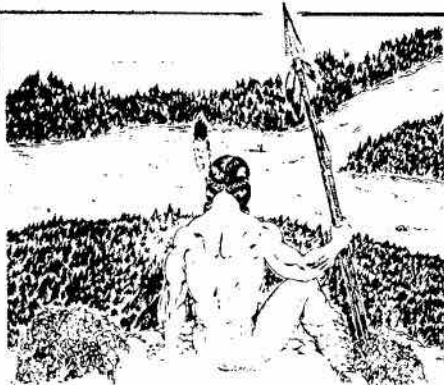
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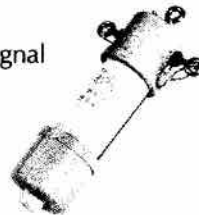
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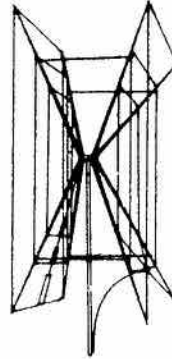
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OUR APOLOGIES

Our sincere apologies for the late distribution of this October issue of TCA ... We were faced with two consecutive equipment breakdowns in the month of September. I appeal to our Amateur readers for understanding ... computerized phototypesetters must throw a tantrum every once in a while to show humans just who is in control.

WRITE TO TCA

Material for publication in **TCA** - The Canadian Amateur Radio Magazine. Send your contributions to Editor TCA, Cary Honeywell VE3ARS, 1082 Apolydor Ave., Ottawa, Ont. K1H 8A9.

PROBLEMS?

Enquiries about non-delivery of **TCA** or **CARF** memberships should be directed to **CARF** Administration Office, Box 356, Kingston, Ont. K7L 4W2.

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

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

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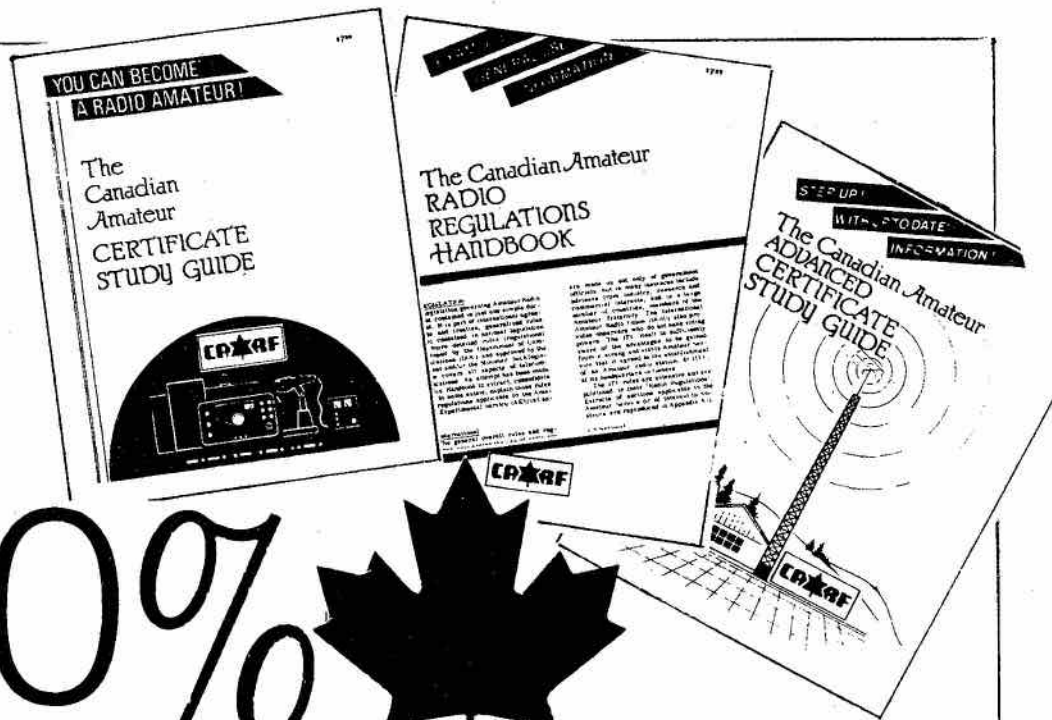
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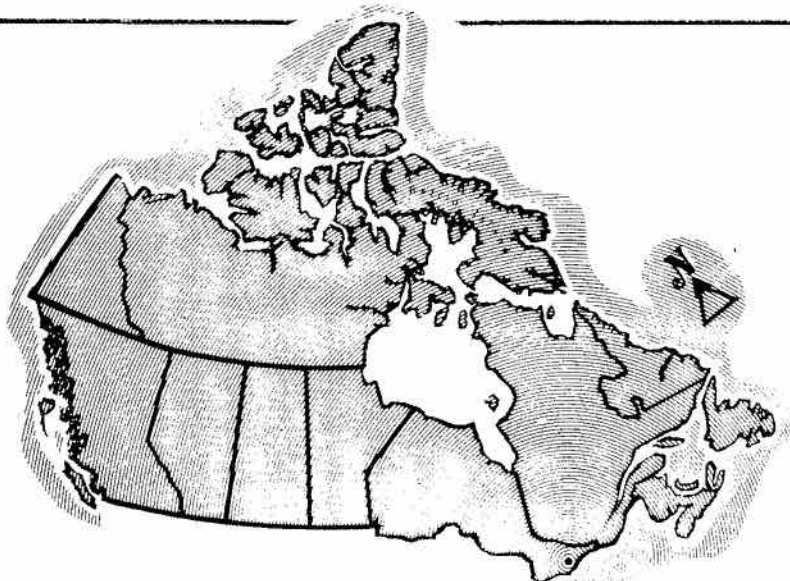
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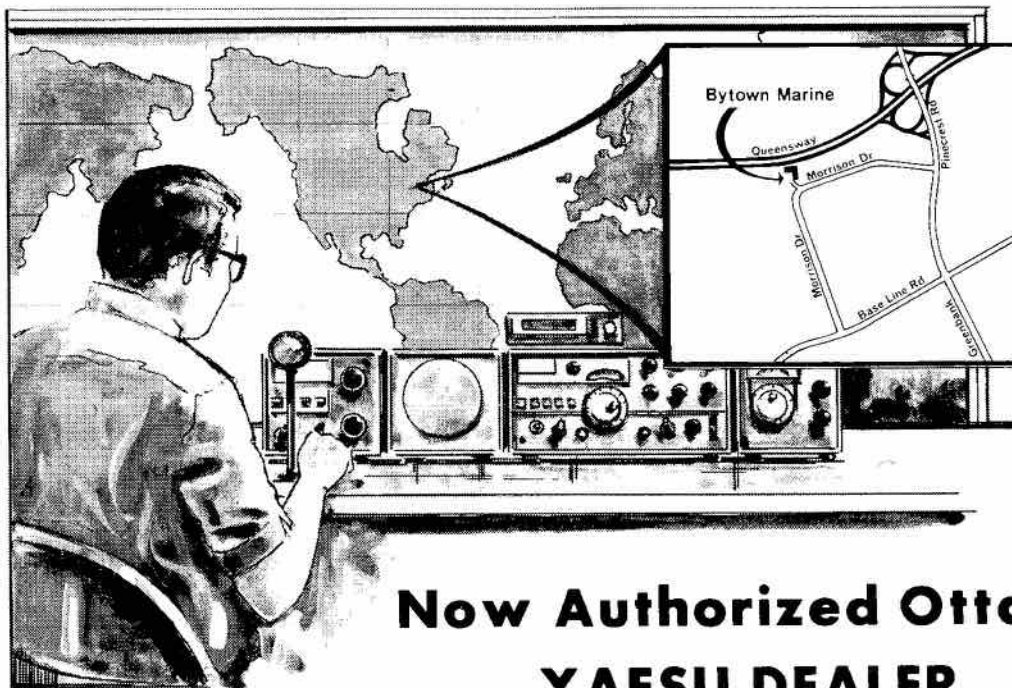
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