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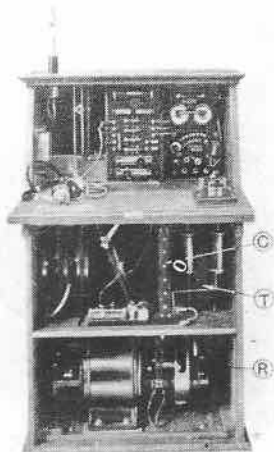
February 1985

The Canadian Amateur
Radio Magazine

La Revue des Radio
Amateurs Canadiens



*Helen Hagen VE6BNZ at the
control station in Edmonton during
the Pope's visit.*



The Pope in VE6

Story Page 26

A Neophyte 'Sparks'

Story Page 34

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1. To act as a coordinating body of Amateur radio organizations in Canada;
2. To act as a liaison agency between its members and other Amateur organizations in Canada and other countries;
3. To act as a liaison and advisory agency between its members and the Department of Communications;
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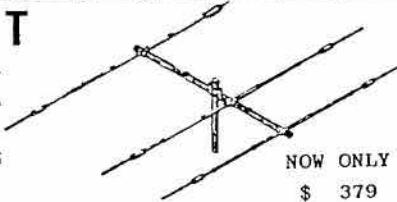
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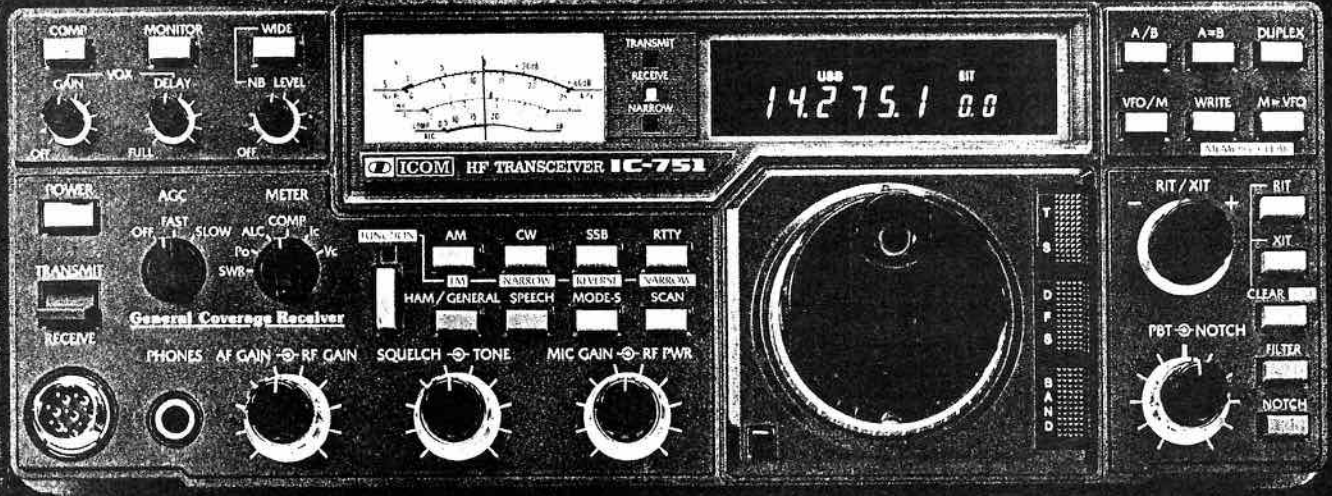
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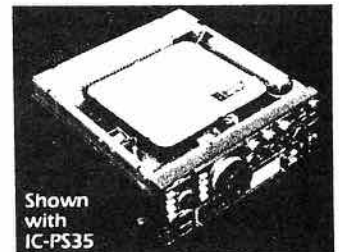
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FM Filter	9M15A	9011.5	15 (-3dB)
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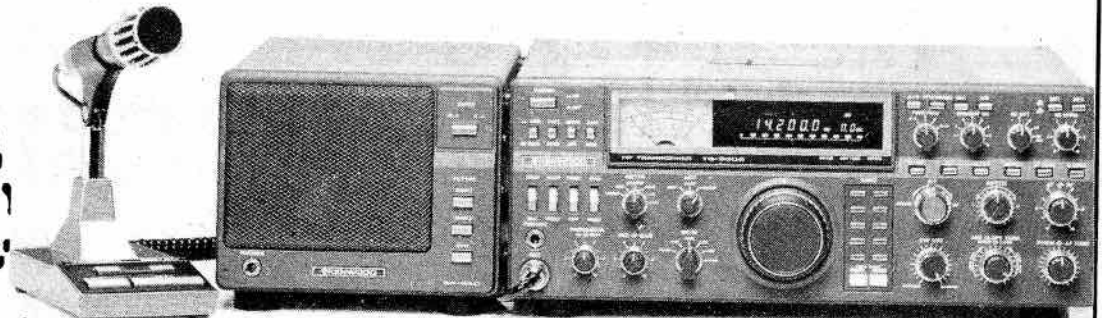
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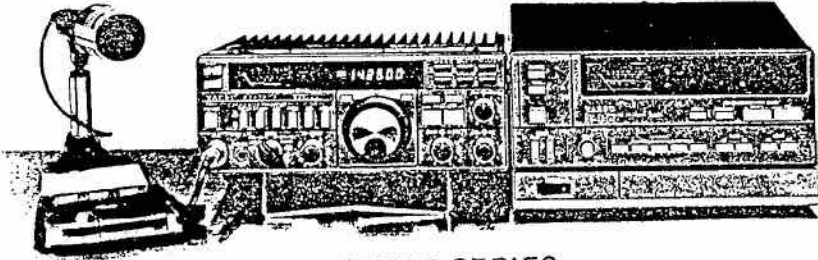
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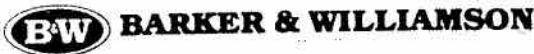
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- FNB-4 12V, 500 mAh Ni-Cd pack
- CSC-11 Soft Case for FT-209R/RH w/FNB-4



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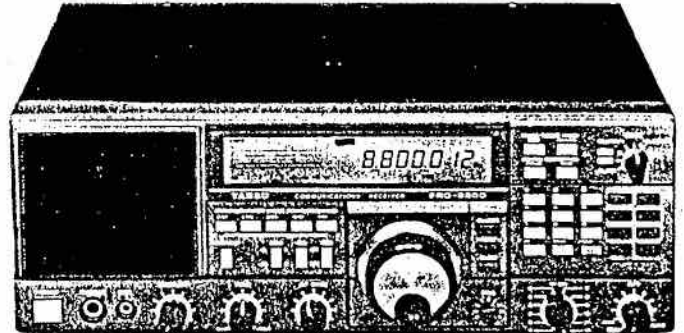
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AMIDON
Associates



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TELEX: 06 982348

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Since it's incorporation in 1973, LESMTIH has been known for it's extensive knowledge of crystal requirements for amateur, commercial, and military equipment. We maintain data on old and new models, and are willing to work with you on any requirements, commercial or experimental.

Most of our work is with repeat customers, for whom our regular delivery is 2 weeks on average for custom crystals. There is no premium for rush orders, and crystals in stock are sent out immediately.

HOW TO ORDER

Give us at least the information suggested in the sample order below. If we need more information, we will request it. In most cases, this is enough to proceed.

QTY	XTAL FREQ.	T/R	CARRIER	Make & Model Additional data
1		T	146.340	INQUE IC202
1		R	146.940	"
3		T	157.845	GE ROYAL EXEC
3		R	152.585	"

PRICING

If the pricing is obvious, total the amount, add \$1.00 for First Class mail, and send in your money order, or cheque, with the order. If there is any doubt about the formula and or price, send in the order without the money. We will price the order and inform you by return mail. In the meantime, your order will be processed and shipped on receipt of your payment.

In the example, the amateur band crystals are \$8.00 each and the custom or commercial crystals are \$9.50 each. The total is \$73.00 plus \$1.00 = \$74.00. Ontario residents add 7% sales tax.

1984 PRICES

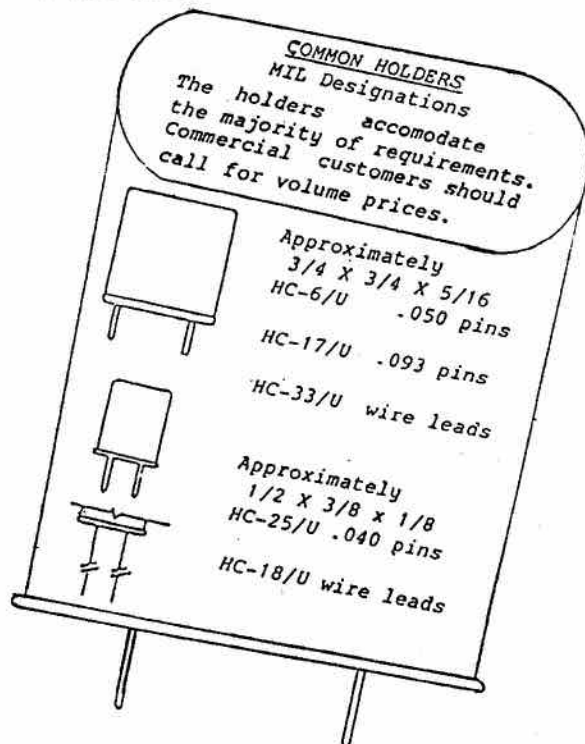
	HC6/U	HC25/U
<u>AMATEUR</u>		
Amateur bands	8.00	8.00
<u>CUSTOM</u>		
6 - 55 Mhz	9.50	9.50
5 - 5.9	10.55	12.75
4 - 4.9	11.60	16.95
3 - 3.9	12.75	16.95
Below 3 mhz	16.95	-
55-100 (fifth)	12.75	12.75

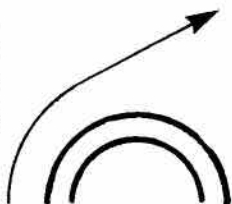
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Mocom 70	24.95
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REWORK MODULES to new frequency

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Model **HK-1**

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- Dual lever squeeze paddle
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Model **HK-5A**
Electronic
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- Iambic circuit for squeeze keying
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YES! PLEASE RUSH ME THESE QUALITY PRODUCTS

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(B.C. Orders add 7% sales tax)

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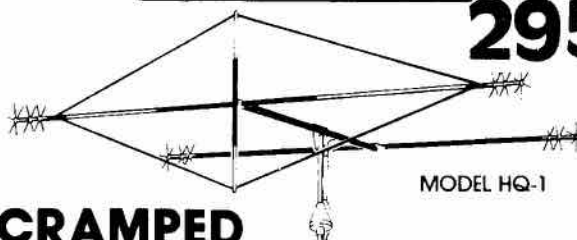
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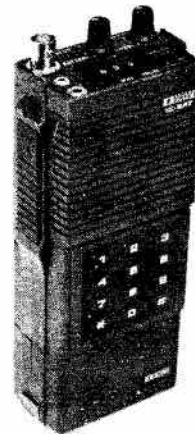


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- Scanning
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Regular \$409.00

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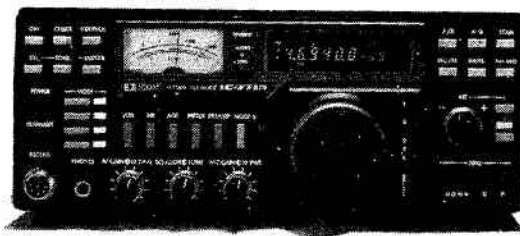
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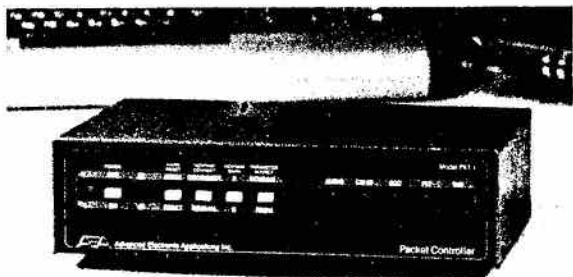
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KT-3 Keyer-Trainer

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BT-1 Basic Trainer

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We feature the ICOM line of Ham Radio equipment. Dollard's is the largest and most experienced ICOM dealer in the country. As a result, we can deliver the best prices on ICOM and our other lines of quality equipment such as:

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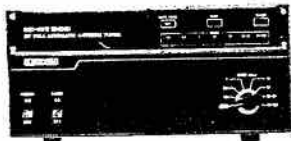
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AT-100 100w 8-band automatic ant tuner \$455.
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KENWOOD

ANTENNA TUNER

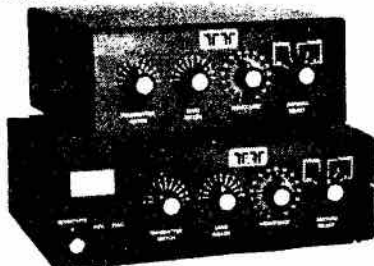


The AT-230 antenna tuner includes the three new WARC bands and functional features such as a through-line wattmeter, SWR meter and antenna selector switch.

\$295.



MODEL 227 ANTENNA TUNER



\$144.

\$178.

MODEL 228 ANTENNA TUNER/SWR BRIDGE

- 200 Watts, RF, Continuous Duty
- Covers 1.8 — 30 MHz Continuous
- Built-in Antenna Switch
- Built-in Balun For Balanced Loads
- Attractive Styling Complements Most Equipment



The AT-130 is a compact and lightweight antenna tuner designed for base or mobile use (includes the three new WARC bands).

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The AT-250 is an automatic antenna tuner that covers 160 — 10 meters, including the new WARC bands, and features ABC (Automatic Band Changing) system for the TS-430S, an AC power supply with DC terminals, a built-in SWR/POWER meter, and 4 separate antenna connectors.

\$499.



4229 1.8-30 MHz 2kw PEP tuner kit

\$325.

R & S ELECTRONICS LTD.

157 Main Street
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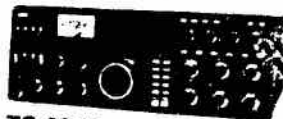
PRICES INCLUDE SHIPPING (offer expires Mar.30)

February 1985





TS-830S



TS-930S

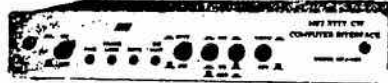


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TS-930S	\$2169.00
TS-930SAT transceiver.....	\$2399.00
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TS-430 AC pwr supply.....	\$199.00
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Lets you send and receive computerized RTTY/ASCII/CW. Copies all shifts and all speeds. Copies on both mark and space. Sharp 8 Pole active filter for 170 Hz shift and CW. Plugs between your rig and VIC-20, Apple, TRS-80C, Atari, TI-99, Commodore 64 or most other personal computers. Uses Kantronics software and most other RTTY/CW software. \$155.00



FREE SOFTWARE!

Vic 20

Commodore 64

MFJ-901 Versa tuner	\$89.00
MFJ-482 electronic keyer w/memory	\$159.00
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MFJ-422 Econo c/w Bencher.....	\$59.00
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Bencher	
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Kenwood TR-7800 2M synthesized	\$329.00
Kenwood TR-7200G 2M	\$125.00
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Kenwood R-600 short wave receiver (new set warranty)	\$439.00
IC-22 2M (lots of crystals).....	\$149.00
TEN-TEC 'Triton I' 100 CW & SSB C/W power supply	\$325.00

Used Units are Satisfaction guaranteed. If not delighted return in 10 days for refund less shipping. Prices and specifications subject to change.

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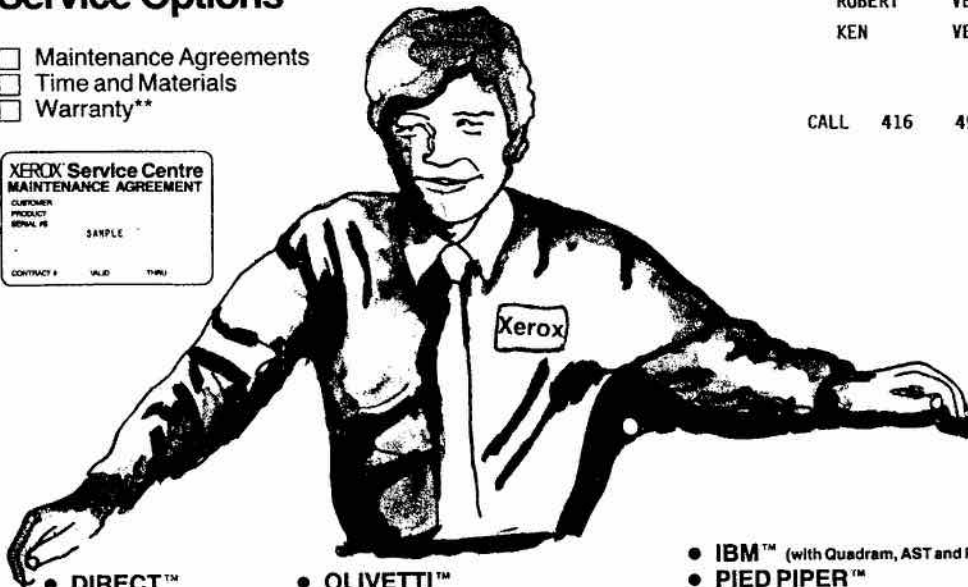
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DEALER INQUIRIES FROM OTHER PROVINCES INVITED.

SWR & POWER METERS

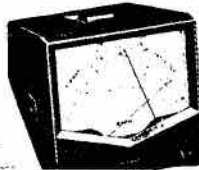
DAIWA cross needle meters make SWR and Power measurement quick and easy. Why bother with the inconvenience of the "older type" meters? With DAIWA there is only one meter to read and no tedious sensitivity adjustments to make - ever! DAIWA cross needle meters indicate forward and reflected power simultaneously. The SWR is read directly at the point where the two needles intersect. DAIWA quality insures reliability and accuracy. Once you've used this meter, you'll wonder how you ever managed without it in the past. The DAIWA SWR/Power meters cover a wide range of frequencies from 1.8 MHz to 2.3 GHz in either the compact model CN520 or the standard model (see below).



CN-620



CN-720B



CN-520

	\$99.95 CN-520	\$159.95 CN-620B	\$219.95 CN-630	\$299.95 CN-650	\$259.95 CN-720 (B)
FREQUENCY	1.8-60 MHz	1.8-150 MHz	140-450MHz	1.2-2.5GHz	1.8-160MHz
INPUT/OUTPUT IMPEDANCE	50 ohm				
POWER FWD	200/2kW	20/200, 2kW	20/200W	2/20W	20/200, 2kW
REF	4/400W	4/40/ 400W	4/40W	0.4/4W	4/40/ 400W
SWR DETECTION SENSITIVITY	4W min				
TOLERANCE (full scale)	± 10%				
CONNECTORS	SO-239		SO-239		
DIMENSIONS (W x H x D mm)	72x72x95	165W x 75H x 97D	180 x 85 x 120	180 x 120 x 130	



PRE-AMPLIFIERS

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

RF activated/Manual T/R switching.

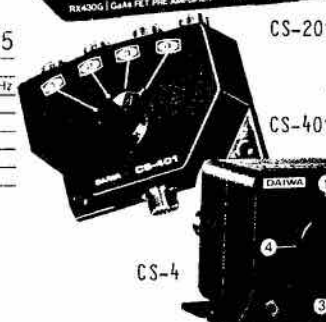
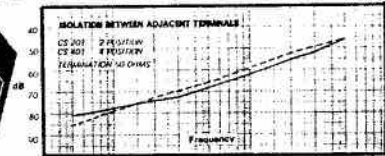
\$119.95 \$159.95

	RX-110G	RX-430G
FREQUENCY	144 - 148 MHz	430 - 440 MHz
GAIN	15 dB min.	13 dB min.
INPUT/OUTPUT IMPEDANCE	50 ohm	
RF POWER BYPASS RATING	30 W CW (FM)	
POWER SOURCE	13.8 V DC 100 mA	
DIMENSIONS (W x H x D mm)	90 x 25 x 92	



RX-430G

COAXIAL SWITCHES



CS-201

CS-401

CS-4

	\$39 CS-201/CS-201G	\$59 CS-401	\$109 CS-401	\$49 CS-4
FREQUENCY	600MHz	800MHz	1500MHz	
VSWR	below 1 : 1.2			
POWER RATING	2 kW PEP 1kW CW	500W PEP 250W CW		
IMPEDANCE	50 ohm			
INSERTION LOSS	Less than 0.2dB			
ISOLATION	better than 50dB at 300MHz better than 45dB at 450MHz adjacent terminal.		better than 60dB	
CONNECTORS	SO-239 (N type)	SO-239	BNC	
OUTPUT PORT	2	4	4	

Electronic Keyers

CW is one of the most enjoyable modes of amateur radio communication. DAIWA makes CW easy with the DK200/DK210 electronic keyers. These keyers do most of the work for you by eliminating fatigue and improving your "fist". Features include semi-automatic, automatic, and tune modes as well as dash/dot memories, 8-50 WPM capability, an L.E.D. speedmeter (DK210 only), and two types of keying outputs to suit almost any transmitter. A variable frequency sidetone monitor is also included. If you like CW, you'll love DAIWA'S DK200/DK210 electronic keyers.



DK-210

\$129.95 \$109.95

	DK-210	DK-200
SPEED	8 WPM - 50 WPM	
SIDE-TONE OSCILLATOR FREQUENCY	500 - 3000 Hz	
KEYING OUTPUT CIRCUITRY	GRID BLOCK: -100 V 10 mA max. DIRECT: +300 V 100mA max.	
POWER CONSUMPTION	13.8 V DC (9-15 V) approx. 100 mA (DK-200) 200 mA (DK-210) (or 9 volt battery can be installed inside cabinet!)	
DIMENSIONS (W x H x D mm)	150 x 62 x 150	
LED SPEED INDICATOR	DK-210 only.	



LA-2155

LINEAR AMPLIFIERS

DAIWA amplifiers are designed for use with hand-held or other transceivers in either mobile or fixed station configurations. Because of it's light weight and compact size, DAIWA linear amplifiers can be mounted under the dash, under the seat, or in any other convenient location.

The DAIWA linear amplifiers are equipped with RF activated stand-by circuitry.

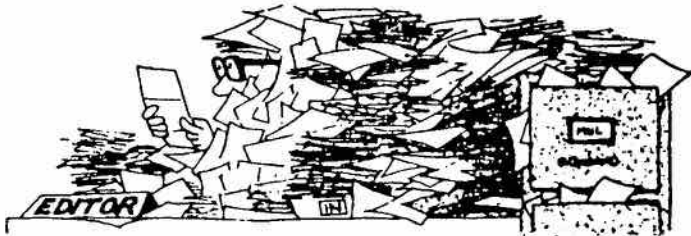
Easy operation. Simply connect your antenna and your hand-held/transceiver to the linear amplifier.

Connect a DAIWA linear amplifier to a suitable power supply and go!

	\$379.95 LA-2155	N.A. LA-2065	\$179.95 LA-2060	\$109.95 LA-2035	N.A. LA-2030	N.A. LA-4040	\$229.95 LA-4030	N.A. LA-4015
BAND	144-148MHz							
MODE	FM/SSB/CW							
INPUT POWER	25W	10W	0.5-3W			10W	0.5-3W	0.15-0.25W (Model A) 0.3-0.6W (Model B)
MAXIMUM OUTPUT POWER	150W plus	60W plus		30W plus		35W plus		15W plus
POWER CONSUMPTION	13.8V DC 24A max	13.8V DC 10A max	13.8V DC 12A max	13.8V DC 4.5A max.		13.8V DC 6A max	13.8V DC 10A max	13.8V DC 4.5A max.
INPUT PLUG/CONNECTOR	SO-239	PL-259	BNC-BNC (Cable)	BNC	BNC-BNC (Cable)	Pt-259	BNC-BNC (Cable)	
OUTPUT CONNECTOR	SO-239							
DIMENSIONS (W x H x D mm)	170 x 79 x 250	100 x 41 x 170		100 x 35 x 125	90 x 45 x 125		100 x 41 x 170	100 x 35 x 125



LETTERS



VHF ALERT

A major DXpedition is currently being planned by a group of licenced Amateurs who are members of the West Kent Amateur Radio Society. The expedition is planned to take place over a two week period commencing on Aug. 17, 1985.

The major objective of the expedition is to establish a station at a favourable but somewhat inaccessible location on the west coast of the Republic of Ireland to attempt a first ever direct transatlantic contact with North America on the two metre band.

We would very much like to make contact with Amateurs in your country who would be in a position to operate high power stations on the east coast during the relevant period and who would like to take part in the attempts at a transatlantic contact.

We would be grateful for any assistance which your organization is able to give in setting up these skeds. My telephone number is (0892) 28275 and we could also set up skeds on the HF bands, subject to suitable conditions, in order to make preliminary arrangements. My postal address is: 13 Culverden Down, Tunbridge Wells, Kent TN4 9SB, United Kingdom.

I look forward to hearing from you with interest.

Dave Green G4OTV

20 METRE BEACON PROJECT

Thank you very much for your interest in our NCDXF 20-metre beacon project. But right at this moment, I must agree with you that those damned AMTOR crickets appear dedicated to taking over the frequency!

Joan Powell VE3FVO Resigns IN PERSPECTIVE



Amateur radio has been good to me. Aside from a hobby, it has been there when I needed something to get lost in— something to take my thoughts— my time. I hope, in turn, I've been able to contribute something to the fraternity.

Cystic Fibrosis, a disease that still claims many people, took my son— an electrical engineer— a year and a half ago. Fred Green VE3IO, whose picture is in the November TCA, lost a son also to CF recently, as well as another acquaintance here in Ottawa. These recent happenings have caused me to stop "running" and put my own life in a better perspective. My daughter, too, has CF. She is 23, fun-loving, outgoing, but finds breathing often a problem. I'm going to enjoy life with her while I have her.

So "thank you Amateur Radio", but now you'll be in the background of my life. To CARF, I wish the very best. Remember CARF is YOU— the Canadian Amateur. Volunteer some time— make YOUR organization what YOU want it to be.

Thank you.

Joan Powell VE3FVO

Right now we are waiting for answers from both the radio clubs of Argentina and Colombia concerning establishing a beacon in one, or possibly both, of those countries. You see, there's an almost insurmountable bit of politics involved in getting these things properly licensed. Even our two U.S.-licensed beacons, W6WX/B and KH6O/B, are operating on temporary experimental licenses. Our renewal application is now pending.

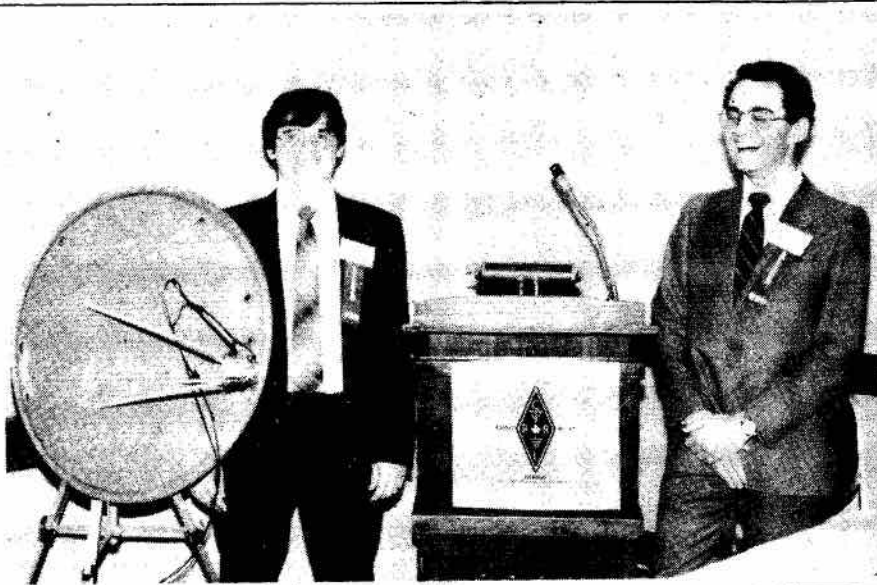
We have asked these two clubs to send us a copy of their issued license with all the detail, call-sign, etc., before we will ship the beacon apparatus. The call-sign is "burned in" in the control unit here at Curtis. The whole project has actually been slowed down due to the grave illness of Cam Pierce K6RU, who has really done all the assembly, testing, packing, shipping, etc. Cam is again in the hospital for more surgery, radiation and all that, and the apparatus, paper work and detail are at his home.

Actually an additional beacon in the VK6 territory would be my choice. But it's just not simple to find an individual or radio club which wishes to hassle with all the licensing, import problems and whatever. Those beacons which are operating are often due to luck, such as having the 4X4 beacon on the desk of Dr. Steve Friedland at Tel Aviv University. Steve has both a 4X4 and a W6 call, works here in the summer and in Israel in the school season!

Thanks again for your interest. Incidentally, your letter was "Incoming Beacon Correspondence No. 417!" Al Lotze W6RQ

Continued on next page ▶





MICROWAVES ON DISPLAY

Here is a picture I took at the RSO Convention in Ottawa of Michael Ross VE2DUB (left) and Eric Boll VE2AF giving their Microwave Seminar.

Of particular interest is the tobogan being used for a dish. This was one end of the duplex path operation demonstrated and used by a number of interested Amateurs attending the seminar. The same dish appears in the photograph of VE2DUB/2 on page 36 Dec TCA.

Keith Baker VE2XL

WELL-EARNED THANKS

Now that the Alberta Papal Visit is over and has been acknowledged as having been such a tremendous success, I want to take this opportunity to express both to you personally and through you to all of the members of the Northern Alberta Amateur Radio Club who worked so hard in conjunction with the Namao Mass, my sincerest and deepest appreciation. It goes without saying, that without your personal contribution and the dedication and effort of your members, the Communication Centre at the Namao Mass would not have been effective.

On behalf of the Secretariat, I wish to express to you and all of your volunteer members our sincerest thanks and extend to you our heartfelt congratulations on a tremendous job. You can be justifiably proud of your efforts and certainly the results.

I very much look forward to having the opportunity of working with you and your members in the future knowing, as I do now, what a tremendous group you are.

Jack Kane, Chairman
Telecommunications
Committee, Alberta
Papal Visit.

Please send mail directly to: Frank Hughes VE3DQB, P.O. Box 855, Hawkesbury, Ont. K6A 3C9.

77 YEARS AN AMATEUR!

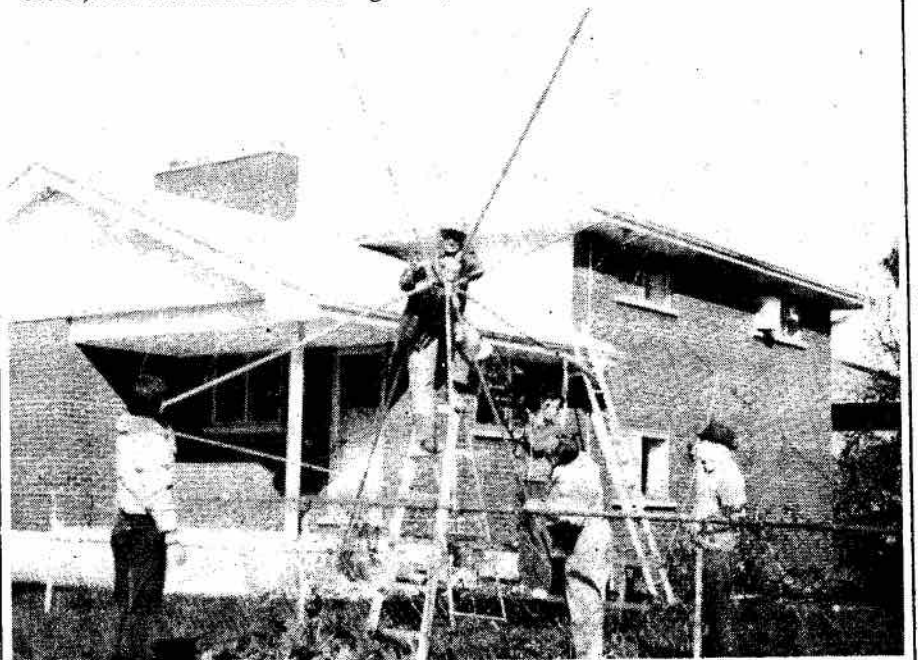
The enclosed photo was taken at a 'Quad Raising' in October and shows myself at the extreme right (supervising!), Rene Levasseur VE3FQ (retired Officer-in-Charge of the London DOC Office), and members of the London Radio Club.

The previous quad had been in place for about seven years when one spreader broke during a high wind storm late last Winter. When it was lowered during the Spring it was found that all the spreaders had rotted so a total rebuild was in order, and this was done during the

Summer.

Although I have been an Amateur for 77 years, having built my first transmitter and receiver from an article published in 1907 in the *Boys Own Paper* in England, I have never purchased a commercial antenna, preferring to build my own. However, since I am now 87 years old this latest effort would appear to be my 'Swan Song' as regards antenna designing and building. Though the spirit is willing, the flesh is just a little weak!

Harry H. Gloster VE3IT
London, Ont.
△



Photograph by Fred H. MacDonald



Amateurs denied useful wavelengths

by Marshall Killen VE3KK

Part 1.

In 1920 Cecil Goyder and I were students in London— he at Mill Hill private school and I at the Western Union Training College and British School of Wireless Telegraphy. As students we were able to attend the meetings of the Wireless Society of London (now the Radio Society of Great Britain) although we were not members. The meetings were held in the lecture hall of the Institute of Electrical Engineers (IEE) on the Thames Embankment because many of the society's members were also members of the IEE.

We were privileged to be able to listen to such great men as Sir Ambrose Fleming, Capt. P.P. Eckersley (later Chief Engineer British Broadcasting Company), and other scientists and wireless engineers of note.

With us, at these meetings, it was a question of being seen but not heard. Our simple home-made spark and single-tube transmitters worked on 900 to 1000 metres while our receivers used crystal detectors with perhaps one tube as an audio amplifier. Much of our equipment came from World War I army surplus stores.

Towards the end of 1920, British government services, Shipping Interests and the new airline services were all demanding more air space plus the fact that broadcasting was about to start requiring a large part of the spectrum below 600 metres. All this resulted in the Amateurs being relegated to 200 metres and below; such wavelengths being considered useless except for very short range communication.

It was also considered no small advantage to have the Amateurs

This is a story of early Amateur radio in England and of DR Cecil Goyder, B.Sc. (Eng.), Senior Member I.E.E., A.G.C.I., C.B.E., and the part he played when at 18 years of age he was the first person to "girdle the globe" using short waves. On Oct. 19, 1924, as G2SZ, he made a firm QSO between London, England and Z4AA near Dunedin, New Zealand.

out of the way where they could not cause any further QRM as they had been doing to other services, chiefly the Imperial Airways station at Croydon working on 900 metres.

Cecil Goyder had been living with his family in the U.S.A. and had only returned to England early in 1920. He brought with him a crystal detector receiver which he hooked up to the bedsprings of his bed so that he could listen to the ships in the Thames estuary; GNF and GNI (the coast stations at the North Foreland the Isle of Wight), all on 600 metres and best of all, FL the Eiffel Tower in Paris on 2600 metres sending weather and time signals.

A 250 Watt Transmitter

When the headmaster, Mr. Brown, and the Science Master at his school found out that Cecil was interested in wireless, they encouraged him to pursue his hobby and helped him with it in many ways. In 1921 he built a 250 watt transmitter (Hartley oscillator and power amplifier). This was at the school which was granted the callsign G2SZ. Cecil's own station at home was G2HM. The school receiver used two tubes; detector and audio amplifier.

Such high power as ¼ kW was practically unknown in the United Kingdom at that time when, except for a few much favoured or brilliant Amateurs, the maximum authorized power by the British GPO was TEN watts DC Input. However thanks to the importance of the school, permission was granted Cecil to conduct DX experiments in the school laboratory using the higher power. Soon G2SZ was in contact with Amateurs all over Great Britain and Europe and looking forward to taking part in the forthcoming trans-Atlantic tests.

The first trans-Atlantic tests organized by the ARRL in February 1921 had just failed when not a single U.S. station, either spark or CW, had been heard by any of the British listening stations. These tests were on 200 metres and the U.S. Amateurs blamed the failure on the poor equipment and inexperience of the British Amateurs. They suggested that, if a U.S. Amateur was allowed to come to England with his own equipment, future tests would have different results.

Accordingly, the ARRL sent Paul Godley 2ZE to England supplied with a Paragon regenerative receiver and an Armstrong superhet. Godley found reception very poor in the London area so went up to Ardrossan near Glasgow in Scotland.

With the assistance of the chief engineer of the British Marconi Co., the very first Beverage antenna to appear in the U.K. was erected on the windswept Scottish coast. It was 1300 feet long, mounted on ten

Continued on next page ▶



poles 12 feet above ground. The earth plates were several short lengths of iron piping buried four feet in the ground. The length was later reduced to 850 feet.

The second series of tests were started in December 1921. Imagine being in a tent on the west coast of Scotland at that time of year? At 0050Z Dec. 9, 1921, Godley received signals from 1BCG located at Greenwich, Conn. It was from 1BCG that, two days later, Godley received this message which happens to be the first complete one from the U.S. to Europe on short waves.

*No 1 de 1BCG words 12 New York
December 11 1921*

*To Paul Godley, Ardrossan, Scotland -
Hearty Congratulations - signed
Burghard Inman Grimman Armstrong
Amy Cronkhite*

The Radio Club of America erected a stone marker commemorating 1BCG near the original site of the station. It was dedicated in 1950. Later it was learned that British G2KW W.R. Burne had received the U.S. signals at least 24 hours before Paul Godley. This went some way to prove the British Amateurs were not as inexperienced as claimed by their U.S. friends across the Atlantic.

The Third Test Series

With the success of the second series of tests proving that short wave signals could be heard across the Atlantic, a third series were planned with U.S. and Canadian stations transmitting 0001Z-0600Z daily December 12 through 21 and British and French stations doing likewise for a similar period December 22-31.

A special British station was licensed as G5WS with an input power of One W. A loosely coupled Hartley circuit with two tubes in parallel was used. The antenna was a birdcage affair attached to the chimney stack of the County of London Electric Supply Company's generating plant.

A few high power licences were

reluctantly granted to prominent members of the RSGB, much to the dissatisfaction of the younger generation of Amateurs who had to be content with 100 watts.

G5WS was the only British station heard across the Atlantic during the tests, although F8AB Delyoy was heard by U.S. 8FQ of Pittsburgh, Pa. At least 19 British stations logged signals from the U.S.A. and Canada during the tests, and Cecil G2SZ was one of them.

The first ever wireless exhibition was held by the RSGB in the Horticultural Hall in Westminster, London, September 1922. One of the events was a morse sending and receiving contest. One of the instructors from the Western Union school was there so when he spied one of his students there he challenged him to enter. The student did enter and much to his surprise won both sections. No great achievement, as most British Amateurs were keener on experimenting than on increasing their speed as morse operators.

During 1922, there does not seem to have been any great effort made to produce a first two-way contact across the Atlantic. I think it was Sir Oliver Lodge, FRS, who giving a lecture at one of the RSGB meetings sometime in 1922, forecast it would not be long before real short wave DX contacts would be commonplace. His prophecy was more than fulfilled during the years 1923 and 1924.

It was during 1922 that broadcasting got started in England. Under the guidance of P.P. Eckersley, weekly broadcasts were started from 2MT Writtle near Chelmsford on 440 metres or thereabouts. These tests were started in February and inside a year led to the founding of the BBC, its first station being 2L0, Strand, London. Δ

Continued next issue

Send your comments on TCA directly to the Editor, Box 855, Hawkesbury, Ont. K6A 3C9.

Editorial

Today, for the first time, I have typed on a sheet of paper the running head 'TCA February.' That makes it six months in this chair, trying to keep up the standard set by Cary, timidly keeping my mouth shut and my eyes and ears open as I try to cope with the job.

Six months of learning, of telephoning across the country to round up stories for TCA, of meeting people and making friends, of watching your CARF Board of Directors cope with running our organization.

And it has become very clear to me that we are in the throes of a change from a little group of friends to an organization with a \$150,000 a year budget, and it ain't easy.

Things that were simple to do when we were only a thousand strong are getting to be time consuming. We are nearly 6000 in CARF now, and that means about 100 renewals a week to take care of. A hundred cheques to be recorded and deposited. A hundred changes on the membership disk and other administrative details. Dozens of other time-consuming tasks: remember, your officials and officers are all volunteers.

I remember how I used to look at CARF before I took an active part in its workings. "They" should do more: "they" should get TCA to me on time: "they" should get on the ball— yes, I was a pretty vocal critic then. Now I know how much CARF officials do, the amount of their spare time they dedicate to CARF, not only at home but in travel and in hotel conference rooms on *our* business, I am ashamed of myself.

Canadians deserve a first-class Federation. The officers they elect deserve their wholehearted backing.

VE3DQB



Cable TVI Procedure

The following DRAFT procedure has been developed by CARF and is presented to the CARF 8th annual National Amateur Radio Symposium for its consideration, with the aim of evolving a recommended procedure to resolve cases of cable TV interference. It is intended to offer such a draft procedure to the Advisory Committee on Cable Television Ingress/Egress (ACTIE). The committee, which resulted from a CARF request to the Radio Advisory Board of Canada to study the problem, is chaired by the DOC and has representatives from CARF, CRRL and the CCTA.

CABLE TVI PROCEDURE RECOMMENDATION BY CARF SYMPOSIUM /84 Objective

1. To provide guidelines leading toward the elimination of interference between cable TV systems and radio services.

Introduction

2. With the CATV cable plant presently installed, some cable leakage occurs no matter how well the plant is maintained. The purpose of this procedure is to identify interference and to inform all parties, including the DOC, of action being taken with a view to the elimination of interference to and from the Amateur Service. It is expected that the recommended procedure could be used in cases of interference from or to CATV systems in other portions of the radio spectrum.

3. Broadcast Procedure 23 of the DOC, paragraph 4.12, limits the radiation from a CATV system to the following (see box):

Frequency Range (MHz)	Radiation Limit (microvolts per metre)	Test Distance (metres)
up to 54	20	10
54-108	20	3
108-174	10	3
174-216	20	3
216-444	20	10

4. Although radio frequencies are used in a cable TV system, it is not licensed under the Radio Act. BP-23 limits the unwanted radiation to the values noted in paragraph 3 above; however, interference to radio services licensed by the DOC must not occur, as stated in paragraph 3.12 of BP-23:

"If the cable television system causes interference to other radio services within the meaning of the Radio Act and Radio Regulations, Part II thereunder, the system operator shall immediately take the necessary remedial measures, bearing all losses or expenses for which he is legally responsible."

5. It is recognized that present CATV plant may have ingress of some radio transmissions into the system. In this situation owners of licensed radio stations could assist DOC and the CATV company during an investigation.

Recommended Procedure in case of interference

6. It is recommended that the following procedure be used in cases of interference to radio services.

a) Licensed radio users of the spectrum should send a letter to the cable operator with a copy to the appropriate DOC district office, to DOC head office and if applicable, to the complainant's national asso-

ciation, containing the following information:

- radio licensee's name, address, telephone number
- name of cable company
- location(s) of interference
- weather conditions during interference
- nature of the interference and whether it is continuous or intermittent, with date, time, approximate strength of signals, preferably in microvolts per metre per BP-23 procedure, or in the following terms if field strength measurements are not possible:
 - weak (S1 to S2)
 - moderate (S3 to S9)
 - strong (over S9)

b) The CATV company should respond to the complainant with a written progress report, within one month. The cable TV company should, within six months, inform the DOC of its remedial measures and its schedule to remove the interference.

c) The parties may seek the cooperation of the local DOC inspector or District Office in making measurements and resolving problems.

d) In the event of ingress of radio signals into a cable system, the radio station licensee could assist the cable company in locating the

Continued on next page ▷



problem; for example, by providing test transmissions.

e) The DOC should record the details of complaints received of CATV interference and report to the parties on their findings from time to time.

f) If the remedial measures taken by the CATV company do not meet the requirements of BP-23 or do not eliminate the interference as in paragraph 4, then the complainant may bring this to the notice of DOC.

g) That the parties recommend that a formal program of radiation monitoring be instituted by the cable company, with a legal requirement for formal recordkeeping and reporting to DOC quarterly, specifying time spent, results and nature of problems. It shall be public information.

h) It is recommended that standard procedures for the ongoing evaluation and resolution of interference problems be established in formal fashion by DOC in accordance with good engineering practice.

i) It is recommended that DOC re-examine the methods of issuing a TC&OC for a cable company for which there are outstanding complaints of radiation leakage or interference.

j) It is recommended that CARF support the endeavours of the ACTIE committee to achieve a workable solution to CATVI interference.

It is also recommended that CARF approach the Minister in an attempt to encourage DOC to take stronger action under existing legislation.

"A CHANGE OF WINGS"

Those readers who enjoyed Don McVicar's "Ferry Command" and "North Atlantic Cat" will be pleased to know that another book in the series is now available: "A Change of Wings" can be ordered from Ad Astra Books, Box 2087, Dorval, Quebec H9S 3K7 at \$24.95.

Social Events

VE7NOR CERTIFICATE

On Feb. 1-10, 1985 the North Okanagan Radio Amateur Club will be operating a special station to commemorate the 25th Anniversary of the largest winter carnival in Western Canada— 'The Vernon Winter Carnival.' A special certificate will be available to all stations contacting VE7NOR, our club station. Operating times will be from 2100Z-2400Z daily. Operating frequencies will be 28.525, 21.375 & 14.225. The cost for the award is \$1.00 or 2 IRC's to cover postage costs. Send QSL info to Box 1706 Vernon, B.C. Canada V1T 7T9. See you in Feb. and listen for 'CQ Winter Carnival.'

CQ CLARA CQ YL CQ GUIDERS CQ CLARA CQ YL CQ GUIDES CQ GUIDE LEADERS

Girl Guides of Canada celebrate their 75th Anniversary in 1985. Thinking week is Feb. 17-23 1985. Thinking Day is Feb. 22 1985.

After being in touch with the National and Provincial Council of Canadian Girl Guides, it has been suggested that we have a Girl Guide On The Air Jamboree week, Feb. 17-23, similar to the annual Boy Scout Jamboree.

This is an excellent public relations opportunity for CLARA and the Girl Guides of Canada to join efforts to spread the hands of friendship across Canada and more.

BYLARA, the English YL's, are planning a similar venture as it is also their 75th anniversary.

The Girl Guide Council is quite excited about the possibilities of this venture, and we have some interesting ideas in the works. It will also be mentioned in the Guider magazines.

It has been suggested that each of you try to provide an interest in your area. Also you can get publicity for CLARA and the Guides.

Please let Cathy VE3GJH or Susan VO1OI know if you are able to participate in this venture, providing there are Girl Guides in your area... We could use the suggested frequencies from the AC-DC contest as well as our Tuesday net frequency. Call your local Girl Guide group and find out what they are interested in doing. For more information, please get in touch with Cathy VE3GJH.

CALENDAR

Feb. 1-10: Vernon Winter Carnival. Details above.

Feb. 2: Niagara Peninsula ARC Big Event and Flea Market.

Feb. 17-23: Girl Guide on the air jamboree week. Details above.

May 11: Ontario Trilliums 20th anniversary Dinner, Howard Johnson's Hotel, Progress Court, Scarborough.

May 19: Southern Ontario Repeater Team Fleamarket, Medway High School, Arva.

Does your club sponsor hamfests, fleamarkets, get-togethers of all kinds? Let TCA know about them three months ahead to list them in our Calendar.

TWO IMPORTANT NUMBERS

For TCA Subscription problems, call the Kingston office 613-544-6161 anytime.

For enquiries and membership information, please quote top line of TCA label.

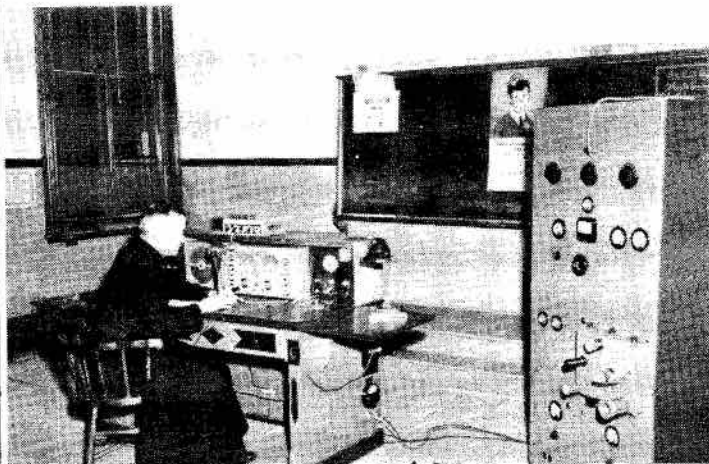
If you have news of interest to Canadian Amateurs, call the TCA newslines at 613-632-9847.

MASTERCARD/VISA

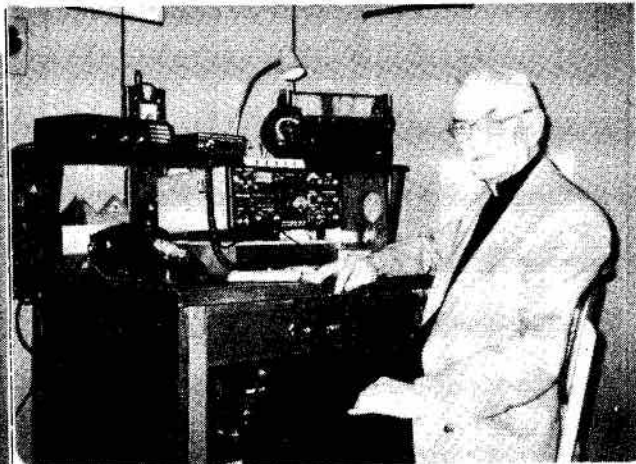
It is now more convenient than ever to join CARF and to order CARF Publications. When ordering, simply send your Name, address, Card Number and Expiry Date, with your signature.



L'abbé Robert VE2EC



1948



1984

Agé de 82 ans, l'abbé Charles Robert VE2EC continue, chaque jour, à communiquer par radio à ondes-courtes.

Il est né à Sainte-Thècle. Après ses études primaires, il sera ordonné prêtre en 1927. L'exercice de son ministère l'amènera successivement au poste de vicaire dans quelques paroisses. Il est actuellement aumônier de l'école Saint-Joseph, poste qu'il occupe depuis 17 ans.

Sa passion pour la communication, il l'a attrappée lorsqu'il était vicaire de Saint-Lazare, au début des années '30. Depuis cette période, il ne s'est pas écoulé une journée, à l'exception de la guerre, où il ne s'est pas assis quelques minutes devant son poste de radio. Il s'est fait entendre dans plus de 186 pays au monde.

Au cours de ces 53 années de communication l'abbé Robert a rendu de nombreux services. Il a secouru des navires en détresse, procuré des communications à un train bloqué dans une tempête de neige ainsi qu'à des automobilistes en panne.

Il entretenait régulièrement des communications avec les missionnaires québécois à l'étranger, en particulier avec le père Jean-

Baptiste de Lima au Pérou ainsi que le cardinal Léger en Afrique.

Non seulement opérateur de radio, pendant plusieurs décades il fut le secrétaire de l'Association Radioamateur de la Mauricie, correspondant pour le *Sky Wire*, journal du MARC (Montreal Radio Club) et le CARO (Club Amateur Radio Ontario). Membre de CARF depuis sa fondation il a aussi été actif pour RAQI et le QST.

L'abbé Robert est toujours membre actif en ondes et dans le club de la Mauricie. A travers la technique, l'homme reste le plus important, c'est le message que nous livre VE2EC lorsqu'il souhaite un rapprochement de l'humanité, sans distinction de races, religions et couleurs.

(adaptation d'un article de Claude Bergeron, dans le *Nouveliste* de Trois-Rivières, 17 mai 1984.)

Robert Sondack VE2ASL

53 YEARS LICENSED

Abbé Charles Robert VE2EC has been licenced since 1931. Since then, with the exception of the war years, he has spent a part of each day on the air. He has 186 countries confirmed.

During his 53 years as an Amateur, Charles has helped ships in distress, undertaken communications for a train held up in a snow-storm, and helped many motorists in difficulty.

He keeps Québec missionaries abroad in touch with Canada, in particular, Father Jean-Baptiste de Lima in Peru, and Cardinal Léger in Africa.

He has been secretary of the Mauricie Amateur Radio Association, correspondent for the *Sky Wire*, the Montreal Radio Club newsletter, and is a member of CARF.

Not bad, for an 82 year young'un, eh?

MASTERCARD/VISA

CARF membership and renewal fees can now be paid by Mastercard or Visa. Simply give the card number and expiry date on your order, and state which card you are using.

OLDEST ACTIVE?

We publish a letter this month from an 84-year-old Amateur. While he is probably our longest licensed Amateur, he isn't the oldest active one. Elsie VE6YW of Barhead is active and 89 years young!



CLEARANCE & OVERSTOCK SALE

If item is sold your cheque will be returned.

	Req.	Sale
25 only	YAESU FT-757GX Service Manual	\$20-\$15
1 only	YAESU FT-77 Marker Unit	\$20-\$15
20 only	YAESU YM-26 600 ohm goose neck desk mike	\$49-\$39
1 only	YAESU FRG-7700 Receiver	\$699-\$599
1 only	YAESU FRV-7700E VHF Converter 110-130 140-160	\$159-\$129
2 only	YAESU F5P-1 Speaker 8 ohm 12x10x6cm & bracket	\$20-\$12
1 only	ARMACO P159 Speaker 8 ohm 16x10x6cm & bracket	\$19-\$12
10 only	YAESU NC-7 Std Desk Charger for FT-200/700	\$69-\$49
2 only	YAESU PA-2 DC-DC Adapter for FT-207	\$29-\$25
15 only	MKB-21 Car Hanger for FT-209, IC-02, IC-2, XT-200	\$20-\$15
5 only	YAESU CSC-10 Soft Case for FT-209 with FNB-3	\$18-\$12
10 only	YAESU CSC-11 Soft Case for FT-209 with FNB-4	\$18-\$12
5 only	YAESU FT-230R 2M FM 25W 10 Memories LCD Disp. \$439-\$369	
3 only	YAESU FT-730R 440MHz 10W 10 Memories LCD Disp. \$499-\$429	
2 only	YAESU MKB-15 Extra Mobile Bracket for FT-230	\$25-\$15
3 only	YAESU YM-48 Touch-Tone Mike for 400 726 etc.	\$89-\$65
2 only	Westinghouse 6J56C Tubes	\$18-\$12
16 only	Sylvania 6XD6 Tubes	\$30-\$13
2 only	YAESU FTC-1525 Commercial VHF Transceiver	\$699-\$499
4 only	ICOM IC-730 100W HF Transceiver dual VFO's	\$999-\$749
2 only	ICOM BP-2 Nicad Battery 7.2VDC 425ma	\$50-\$45
8 only	ICOM SP-4 Magnetic Speaker for mobiles	\$29-\$25
4 only	ICOM M-5 Marine Handy like IC-02A7	\$629-\$479
1 only	ICOM M-700 Marine HF Transceiver	\$329-\$249
2 only	Hy-Gain AR-22XL Rotor & Control Box	\$149-\$99
3 only	Hy-Gain GK-710 30/40W Acaster for Explorer-14	\$145-\$119
2 only	Hy-Gain Explorer-14 Triband HF Antenna	\$549-\$499
1 only	Hy-Gain TH7DX The Ultimate Triband	\$799-\$699
3 only	Hy-Gain RMK Roof Mount Tripod Kit	\$69-\$59
1 only	Hy-Gain 1Q5BAS 5 element 10M Beam	\$239-\$189
1 only	Hy-Gain 153BAS 3 element 15M Beam	\$239-\$179
1 only	Hy-Gain 155BAS 5 element 15M Beam	\$235-\$209
1 only	Hy-Gain 203BAS 3 element 20M Beam	\$299-\$249
1 only	Hy-Gain 402BAS 2 element 40M Beam	\$399-\$329
1 only	Hy-Gain 648S 4 element 6M Beam	\$125-\$99
1 only	Hy-Gain 668S 6 element 6M Beam	\$235-\$199
1 only	CC (Cushcraft) A3 3 element Triband Beam	\$465-\$389
1 only	CC A4 4 element Triband Beam	\$519-\$475
1 only	CC A743 30/40W Kit for A3	\$149-\$125
1 only	CC A744 30/40W Kit for A4	\$149-\$125
1 only	CC 15-ACD 4 element 15M Beam	\$249-\$199
1 only	CC A50-5 5 element 6M Beam	\$172-\$125
1 only	CC 617-6R 6M Nicespace Boomer	\$419-\$399
2 only	CC 214B 14 element Jr. Boomer SSR&CW	\$169-\$129
2 only	CC 220B 220MHz Jr. Boomer	\$199-\$149
3 only	CC R144-10T 10 element Twist	\$99-\$85
1 only	CC PS-4 Polarity Switcher	\$129-\$115
2 only	CC AA49-6 6 element 440MHz Beam	\$75-\$55
1 only	MFJ-980 3kW Plain Tuner No switch on meter	\$329-\$249
1 only	MFJ-962 1.5kW Deluxe Tuner with switch/meter	\$359-\$315
3 only	NVE 46-1 Universal Phone Patch	\$93-\$69
3 only	ASTRON RS-4A 4 amp 12VDC Power Supply	\$69-\$55
4 only	ASTRON 12-115 12VDC to 115VAC Converter	\$115-\$69
1 only	AZDEN PCS-300 Leather Case for Handy	\$39-\$29
1 only	AZDEN PCS-300 PL Tone Board Rx-Tx	\$60-\$29
37 only	KENPRO KT-BP Nicads will also fit IC-02/E	\$35-\$25
24 only	KENPRO KT-BC Wall Charger also for IC-BP-3	\$11-\$6
7 only	KENPRO KT-BR Empty Battery Case (like EP-4)	\$13-\$7
1 only	ACA Moscow Muffler WB-1C Woodpecker Blanker	\$129-\$129
1 only	B&W 3 Position Coax Switch with BNC	\$61-\$39
1 only	B&W 6 Position Coax Switch with BNC	\$78-\$45
1 only	B&W FL2/200 2M Bandpass Filter	\$33-\$25
1 only	B&W FL6/1500 6M Low Pass Filter 1.5kW	\$59-\$45
1 only	B&W CC-50 Centre Insulator for Dipoles	\$16-\$12
1 only	B&W 333 Meter Dumd DC-300MHz 10, 50, 125, 250W	\$189-\$159
3 only	SWAN M-34 10, 15, 20M Mobile Antenna & BOY	\$199-\$129
1 only	SWAN M-34E 18" Extension rod	\$25-\$15
1 only	SWAN M-34/40 40M Coil for M-34	\$35-\$25
1 only	SWAN M-34/160 160M Coil for M-34	\$35-\$25
11 only	Hy-Gain Extra Heavy Duty Spring for Mobile Ant	\$20-\$15
9 only	Hy-Gain Stainless Steel Bumper Mount	\$20-\$15
2 only	Hy-Gain 409 Foldover adapter	\$10-\$7
3 only	Hy-Gain HMCC-1 Mast for Bumper Mounts 54"	\$49-\$15
1 only	Hy-Gain HMCC-2 Mast for Cow Mounts 54"	\$49-\$15
1 only	Hy-Gain 12/15M Coil and Whip for mobiles	\$39-\$15
1 only	Hy-Gain 80M Coil and Whip for mobiles	\$45-\$15
1 only	DAIWA CNW-518 2.5kW PEP Tuner with X-meter	\$499-\$399
2 only	DRAKE TV-75HP High Pass Filter 75-750Hz	\$29-\$19
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8 only	DRAKE 3001 Pill for 1549 Lightning Arrestor	\$10-\$6
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1 only	LUNAR PA-50 6M Dream	\$49-\$25
5 only	CSC 50" Reel Extension Cord 6 Outlet 10 amp	\$49-\$35
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1 only	BIRD Model 43 Wattmeter	\$289-\$229
1 only	BIRD 250C (VHF) Element USED	\$49-\$25
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INTRODUCING



YAESU

DUAL BAND FM TRANSCEIVER

FT-2700R

144-148 & 440-450 MHz List \$799

DESCRIPTION

Practically two transceivers in one, the FT-2700R is designed to be the ultimate in convenience for FM mobile and base operation on the 2m and 70cm bands. Utilizing Yaesu's new one piece die-cast aluminum chassis concept for optimum circuit shielding and efficient heat dissipation, this is the first transceiver of its size designed to easily handle 25 watts continuous power output in full-duplex crossband operation (of course 3-watt low power operation is also switch selectable).

Two 4-bit CPUs provide simple and convenient control of 10 memory channels, dual VFOs and two calling frequencies, with lithium cell backup. Dual independent receiver front ends, local synthesizers, IFs and transmitter RF stages make this the first mobile transceiver of its kind, capable of true full-duplex (bi-directional) communication when using both bands, which previously required two separate transceivers.

Convenient tuning and scanning features include Yaesu's "PMS" (programmable memory scan) system, which permits scanning for (skip-scanning) between two memory channels in the same band, a MHz stepping switch linking both bands, and priority channel checking while operating on another band or frequency.

Independently programmable transmit and receive frequencies (as well as automatically programmable standard shift) plus one-touch reverse allow the operator total freedom in all kinds of repeater operation. A built tone generator is built-in, and when the optional FTS-8 Tone Squelch Unit is installed, any of 37 standard CTCSS (subaudible) tone frequencies can be displayed, selected and programmed into the memory channels for either silent monitoring or encode-only operation.

The large green LCD display is especially easy on the eyes and shows the complete operating status of the transceiver, including memory and call channel selection and the CTCSS mode and tone frequency (if FTS-8 is installed), plus a two-color graphic type PO/S meter. Six piano type control keys beneath the display incorporate translucent backlit labelling for easy location, and a dimmer switch for the keys and LCD is provided for comfortable viewing at night.

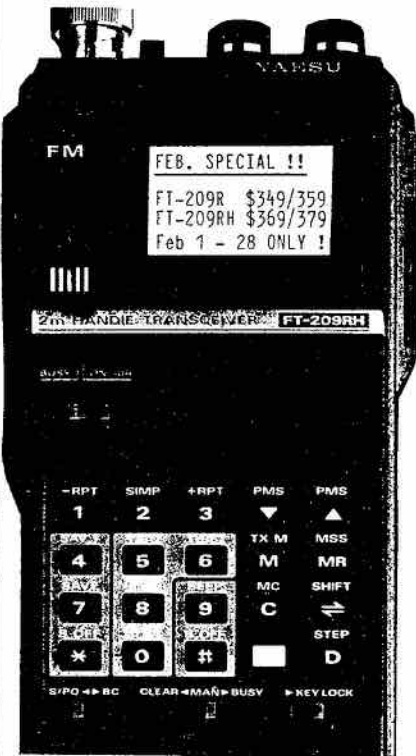
A deluxe scanning microphone is supplied with the FT-2700R.

US version includes DTMF pad. A "weak" button is provided on the microphone to activate Yaesu's dual (optional) Voice Synthesizer Unit, which gives you the operating frequency, selected VFO and CTCSS frequency (if FTS-8 is installed), so you can keep your eyes on the road.

NOTE: GROUP DISCOUNTS FOR PURCHASE OF 3 OR MORE HF TRANSCEIVERS OR 5 OR MORE VHF TRANSCEIVERS!

HIGH
Frequ
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The FT-2700
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low heat str
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The Yaesu FT-209RH. 5 watts that your batteries can live with.



Have the power you need when you need it with Yaesu's new 5-watt, 2-meter handheld. Power to get out in situations where ordinary HT's just won't make it.

We designed our HT with a unique user-programmable Power Saver that puts the rig to "sleep" while you're monitoring and "wakes it up" when the squelch breaks. So you can listen for hours and still have plenty of power to hit those hard-to-reach repeaters when you need to.

With the FT-209RH there's no need to fiddle with knobs when you change from one memory channel to another. That's because you can independently store everything you need in each of the ten memories: receive frequency standard or non-standard offset, even tone encode/decode with an optional module. And then recall any channel at the touch of a button.

It's easy to hear what's happening on your favorite repeaters or simplex frequencies. Just touch a button and scan all memory channels, or selected ones. Or all frequencies between any two adjacent memories. Use the priority feature to return automatically to your special frequency when it becomes active.

Bring up controlled-access machines with the optional plug-in subaudible tone encoder/decoder independently programmed from the keyboard for each channel. Listen for tone-encoded signals on selected channels — without having to hear a bunch of chatter — by enabling the decode function.

The FT-209RH, which covers 10 MHz for CAP and MARS use, comes complete with a 500-mAh battery.

DO YOU WANT 10MHz COVERAGE FOR YOUR FT-209?

POWER, FULL FEATURE, COMPACT

Frequency-Synthesized 2m FM Transceiver
 45 Watt List \$ 45 Watt List \$599
FT-270R/FT-270RH



extremely rugged construc-
 unique diecast aluminum duct
 which serves as the main chassis
 This innovative design tech-
 45-watt transceiver smaller than
 of much lower power capabili-

delivers 25W RF output, while the
 delivers 45W in the high power
 "V" switch on the front panel
 output power, 3W or 5W, re-

have so much clutter in the
 it's hard to see what frequen-
 The FT-270R/RH utilizes an easy-
 CD that indicates frequency or
 operation in large 5mm digits for
 The latest wide-angle LCD and
 illumination for the display assure
 day or night from most all

Design
 two 4-bit microprocessors
 and promote highway safety
 simplicity. Dual VFO capabili-
 programmable band scan limits,
 and CTCSS tone frequency

(option) are all selectable from the front panel
 with a minimum of effort and confusion.

Superly Scanning Flexibility

With the FT-270R/RH, you can memorize a
 number of scanning parameters to maximize
 performance. For example, you may set upper
 and lower limits for band scanning, or scan the
 memories looking for a busy channel. You may
 also watch a priority channel for keeping track of
 a favorite repeater.

Two scanning modes are also provided, allowing
 either fixed (6 sec.) or carrier-controlled scan
 resume after the scanner has halted on an active
 channel.

Voice Synthesizer Option

For even more safety in operation, the optional
 FVS-1 Voice Synthesizer provides an easy-to-
 understand aural indication of frequency, VFO or
 memory selection and CTCSS tone (FTS-8 option
 required). Ideal also for the visually impaired, the
 FVS-1 may be turned on and off via a bottom
 panel switch as required.

CTCSS Tone Control Option

The optional FTS-8 CTCSS module allows inde-
 pendent tone frequency and mode programming
 for each channel. The CTCSS tone plus encode-
 only or encode/decode selection are easily
 programmed from the front panel of the FT-
 270R/RH



YAESU
FRG-8800

All Mode/Selectable IF-BW
 Multi-Scanner
 8-bit Microprocessor
 S/SINPO Graphic Indicator
 Dual 24-hour Clock
 CAT System Computer Control
 Wide-band VHF Option

GENERAL COVERAGE COMMUNICATIONS RECEIVER

FRG-8800 List \$899

DESCRIPTION

This spectacular new all-band, all-mode general
 coverage shortwave receiver combines the finest
 features of Yaesu's previous world famous FRG-
 series receivers with the most recent developments
 in microcomputer technology, offering functionality
 and convenience never before available - even in
 much more costly equipment, for serious shortwave
 listening and professional monitoring.

Featuring a large liquid crystal display with 100Hz
 frequency resolution and including a unique S/
 SINPO "bar graph" type indicator, the FRG-8800
 also incorporates a 21-button keypad for digital fre-
 quency entry and programming of the 12 internal
 memories and multi-function scanner. AM, SSB, CW
 and FM modes are pushbutton selectable with both
 wide and narrow bandwidths (exc. SSB), and all
 mode data is stored in the memories along with
 frequency.

Selectable AGC rates, noise blanking widths and
 tuning rates are provided to ensure comfortable
 listening and easy operation even under adverse
 band conditions. Two 24-hour clocks with an
 automatic timer are provided for selectable display
 of local and universal time, and automatic power
 switching of the receiver and auxiliary recording

equipment at preprogrammed time and frequen-
 cy. All-mode squelch, tone and attenuator controls
 are also provided.

At the heart of the FRG-8800 is an 8-bit cpu con-
 trolling all of the tuning, mode selection, scanning,
 memory and clock functions. Three scanning modes
 are available through the keypad, by which either all
 or only selected memories can be scanned, or all
 frequencies between two memories (at selectable
 rates and steps).

The Yaesu CAT System allows operators with per-
 sonal computers to add other functions as desired,
 such as unlimited additional memories, automatic
 tuning, customized scanning systems and even
 voting reception, using most any personal computer
 and a Yaesu FIF CAT Interface Unit.

The FRG-8800 VHF converter, which mounts inside
 the FRG-8800, is available as an option to add the
 range of 118 to 173.999 MHz to the receiver. The
 FRA-7700 Active Antenna and FRT-7700 Antenna
 Tuner originally designed for the FRG-7700 are of
 course fully compatible with the FRG-8800. 12V
 DC operation is optional.

NOTE: WE WILL BE CLOSED FOR MARCH BREAK - MARCH 1 - 10 !!

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- er for R (FNB-3)----\$15
- er for RH (FNB-4)----\$15
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- aker Mike-----\$39
- anger-----\$20
- Adapter/Charger-----\$32
- ack 10.8V 425mAh----\$59
- ack 12V 500mAh----\$69
- Case for 6 AA----\$15
- for VOX operation--\$30
- Tone Squelch-----\$
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- same day it's received
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- strap, belt clip,
- FNB-4 (RH).

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MATCHES VIRTUALLY EVERYTHING FROM 1.8 TO 30 MHZ.

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MFJ-1224
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Send and receive com-
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 sonal computer (VIC-20, Apple, TRS-80C, Atari,
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 switch eliminates retuning. Automatic noise limiter.
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 purpose socket. 8x1 1/2x6 in. 12-15 VDC or 110 VAC
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MFJ-407 Deluxe Electronic Keyer sends
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A telescoping whip (extends to 54 in.) is
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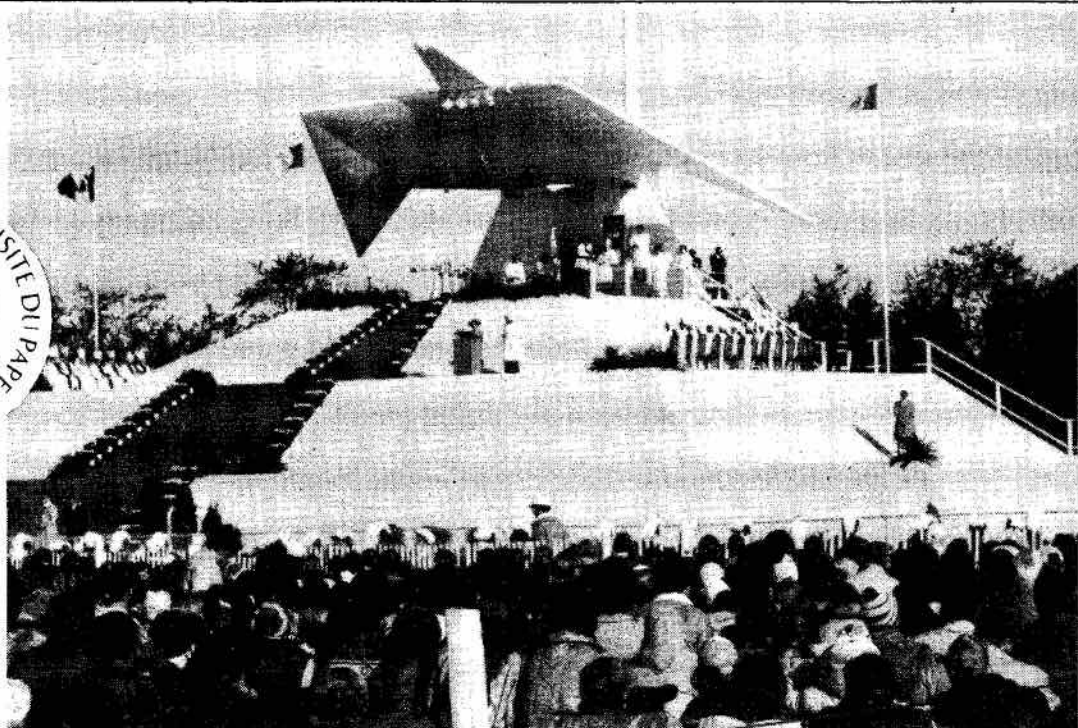
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Amateurs give vital assistance

The Pope in VE6

by Glenn Frity VE6AFF

On Sept. 16 and 17, 1984 the radio Amateurs in Alberta were involved in their largest one-day public service event ever.

The Northern Alberta Radio Club became involved around January, 1984 when Norm Hagen VE6NZ, the club's public service director, read an article about Pope Paul II's intended visit to Edmonton. The club has been active in public service, so it was natural for Norm to mention it at the next executive meeting. Armed with the club's approval, the Papal communications chairman was contacted.

Several meetings of the various Papal committees were held and we were asked what area we thought we could best serve. We suggested the medical committee because of the large number of channels that would be required. Commercial sources wouldn't be able to provide

that quantity within the time constraints.

The next task was to obtain the volunteers. A computer file was created to keep track. The data included name, address, phone number, type of radio equipment, assigned duty, etc.

The data was kept current on this file and allowed information to be sorted in a manner useable by the club's organizing committee.

We were surprised to find that 60% of the volunteers owned hand-helds. We used this data to determine our battery and voltage regulator requirements.

Radios might be required to operate over a period of up to 12 hours. Handhelds would require additional batteries and a number of radios would require 12 volt batteries. Twelve-volt gel-cells were provided and a team of technicians

assembled voltage regulators for units requiring less than 12 volts.

This equipment was sold to the Amateurs after their one-day use, at considerably discounted prices. Roger Cuffe coordinated this activity as well as providing a repair depot at the site.

Recruiting began by placing an ad in the club newsletter. A phoning committee called our members who had indicated an interest in public service on their membership form.

In about one week we had between 30 to 40 volunteers. At this time we thought our requirements would be about 55 Amateurs and the period of operation would be from about 4 a.m. to noon the same day. We placed our faith in the Amateurs and committed ourselves to providing communications for the medical team.



The line-up of communication requirements were:
 Security (Royal Canadian Mounted Police)
 Medical (3 active nets)
 Edmonton Ambulance Authority R.C.M.P. (other than security)
 Ushers (crowd control)
 Transportation
 St. John's Ambulance (a fully trained first aid organization)
 Canadian Government Task Force
 Stage Production
 Maintenance
 Direct Line Telephone

Medical communication was considered the most important requirement after security.

As meetings progressed with the doctors, it soon became apparent that we would need at least 80 operators with a good number of relief operators.

We began to canvass in other areas of the province and the results were reassuring. Amateurs from over 200 miles away signed up for the event. One in four came from outside the Edmonton area.

Requirements arose that placed demands on the supply of operators. Someone would mention the dispatch of ambulances and the question would arise— can we have an operator there? Then we would hear that they were sending golf carts out for some people and again the question— can we have a radio operator there?

Each request for one operator meant we had to supply two because one operator couldn't handle a complete shift.

The communications committee had now decided that Amateur radio participation was a good thing and asked us to coordinate a radio system for the ushers.

Ushers handled crowd control, lost and found, information at the various access points to the site and dispatching golf carts for patients who did not require an ambulance. They were to have 150 radios operating on a single frequency! The thought of doing this was horrend-

ous, but we decided to do it.

Because of lack of equipment, the ushers were down to 55 units in the field. Rick Lyon VE6BLQ coordinated that activity for them as well as training the ushers on how to operate the commercial radio. By this time the committee realized that handing a group of people a bunch of radios did not necessarily mean they would be good radio operators.

The organizing committee was formed with the following responsibilities:

Chairman, Norm Hagan VE6NZ;
 Co-chairman, George Spencer VE6AW; Recruiting, Helen Hagan VE6BNZ and Rick Lyon VE6BLQ;
 Operations, Bill Gillespie VE6ABC; Technical, Les Abbot VE6OG and George Devin VE6BGJ; Logistics, Don Wray

Continued on next page ▷



Medical net control. From front to back: Don Tayler VE6FB, George Spencer VE6AW, Harry Shuttleworth VE6OS, Dave Berwick VE6DD.



Net Control. Left to right, Don Greenwood VE6BBU, Bill Gillespie VE6ABC, Don Taylor VE6FB. Bill VE6ABC is Canadian Radio Amateur of the Year.



VE6BBS; Coordinators— Calgary: Don Coles VE6CNZ, Red Deer: Jim Sketchly VE6APO.

The organizational committee contacted Alberta Disaster Services (ADS) and between them they decided to make the event a training exercise for the newly formed Alberta Disaster Services Amateur Radio Communications Network. All volunteers were registered with ADS and were covered by Worker's Compensation in case of injury during the operation.

At this point we were told there would be 80 doctors, 200 nurses, 160 St. John's Ambulance workers, 100 stretcher bearers, and 60 radio Amateurs in the spectator area.

Statistically it was felt that there would be 1000 instances that could require medical attention.

To explain the method of operation:

The viewing area was roped off into sections the size of a football field. These areas were called pods. Each pod was divided into four quadrants.

Quadrant A would be the first quadrant in pod A. There were 24 pods in the site, each one being served by two Amateur radio operators along with medical staff. There were doctors assigned to groups of pods assisting the medical staff. Each pod doctor had a radio operator assigned to him.

The pod operators were broken up into three nets, each having their own frequency and net control. An alternate frequency was provided as a QSY frequency for medical consultations.

A utility channel was provided for general traffic and administration of the radio operators.

A medical need was identified by a flag being raised by the medical team. A radio operator would then provide communications with the pod doctor. The pod doctor would offer advice or order an ambulance to be dispatched to the scene. Because control operators for all services were in one location, it allowed messages to be passed from

Next Time...

- We anticipated that people would arrive early, but it would have been wise to provide a skeleton staff very early.
- There were some 3000 RV's at the campsite, but communications and medical staff were not provided in case of an emergency.
- Even though we had to change some plans as we progressed, things were always under control, and this meant all the preparation was worthwhile.
- The use of a utility channel to handle administrative traffic is essential to keep control of operations and allow flexibility.
- Bulletins were given on the local repeater to keep volunteers up to date during the day of the event. For example, about 30 handheld

units were made available by Jim Sketchly on the day of the event. This announcement saved some Amateurs the task of carrying their mobiles and heavy battery packs to the site.

- Although there were no problems, it would have been wise to have had medical staff on duty during disassembly of operations.
- In this type of operation, message forms are too slow and a log for important messages would have sufficed.
- A computer proved to be an effective way to keep records of lost and found articles, and which hospitals patients were sent to, and it could be useful in many ways at a similar type of event.

one to another.

The control center was in a 60-foot trailer and had all radio dispatchers and net control operators in one working area. With 15 net control operators sitting side by side, the use of headphones would be mandatory.

The Department of Communications provided a list of frequencies least likely to cause intermod problems. One month before the event, a test was conducted using a large number of operators operating on the commercial and Amateur net frequencies. One frequency change was required, and with cavities inserted in the net control station, few problems were encountered.

During tests at the site, it was found that handhelds on low power with rubber-duckie antennas would provide good communications, even when held in close to the body.

Some Amateurs travelled a distance of over 200 miles just to assist in the test conducted on a Saturday afternoon.

Two weeks later a second test was organized to allow the doctors to become familiar with the operating procedures. This test allowed us to do further testing with the P.A. and closed circuit TV systems operating.

No problems with RF interference were identified, however. The PA system proved to be almost deafening. There were a lot of new headphones purchased the following week!

Logistics were a major item because of the number of radio operators and their remote location.

By this time we realized that we needed food and a place for the operators to get some sleep. The organizing committee obtained an area for the Amateurs to park their recreational vehicles: the Amateurs shared their units with fellow operators. Additional sleeping quarters were provided in a trailer with four bedrooms donated by Alberta Transportation. Two buses transported the Amateurs.

The Amateurs had decided to



use an orange baseball cap with their call sign on the front in blue letters as a means of identifying each other. This cap brought curious stares from members of the crowd. On two separate occasions I was asked if it was my postal code.

Another useful tool was a chart devised by VE6PM to keep track of on-and-off duty. One part of the chart represented the actual layout of the mass site. Another part of the chart was divided into teams and operators on standby. An area was also set aside to show operators going to and from assigned positions.

Each operator's call sign was written on a piece of reusable adhesive paper and moved around on the chart. This proved to be a valuable tool. When an operator was going on or off duty he would call in on the utility channel and request a change of status. The chart provided a record of the status in the field at all times.

The trailers and buses were set up in the operations area. Alberta Disaster Services set up their trailer, power generators and outside lighting. The bus from the Red Deer County Disaster Services, operated by Amateurs from the Red Deer area was set up as a registration and utility net control center.

The night before the mass, people began coming to the site early, and the two pods closest to the altar began to fill up by 7 p.m. Ambulance staff were on duty but they

had a minimum of supplies because they were depending on the doctors. The operations center was unmanned and the doctors, nurses, ushers and Amateurs were not on duty yet.

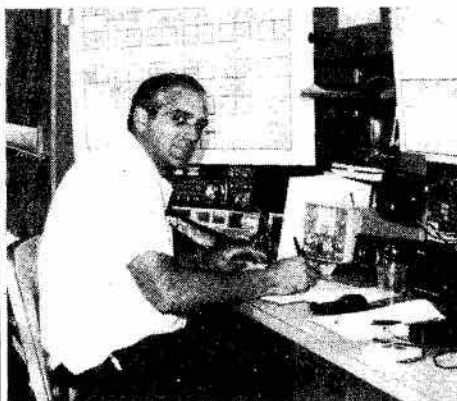
Problems began arising that required medical attention, and an emergency ambulance was improvised using a station wagon with an Amateur. As soon as the driver delivered a patient he had a call for another one. This continued until after the fourth incident when things began to taper off.

But, when everything was over, a lot of the older people had problems. The morning was cold and windy, and some people became very stiff and cold but they didn't realize their problem until they tried to move.

The statistics at the end show that 102 people were treated by the medical people. Some of the types of injuries were heart attack, broken bones, allergic reactions to alfalfa and hypothermia. Twenty-five calls were made that were other than medical.

The lost and found was administered by the Amateurs, and there were 25 lost objects brought back to their owners. There were 20 lost people found.

In one respect, it was like preparing for a local hamfest. We didn't know how many people would attend. There was provision for 240,000, but it was estimated that about 150,000 actually came. Δ



Peter Morrison VE6PM at the control station. He devised the status boards on the wall, and took these excellent pictures.

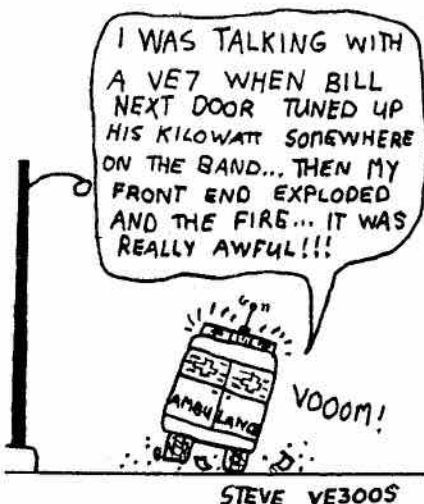
DOC Action

We Amateurs are a law-abiding bunch. Our activities are sometimes disrupted by those who are not, and it is good to hear of DOC action to clamp down on the scofflaws.

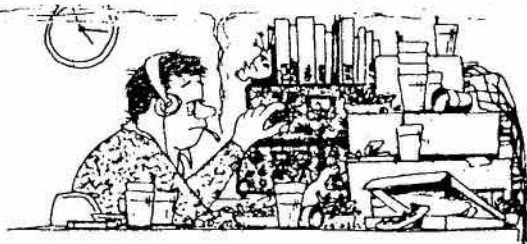
Last October, Vancouver truckers and motorists met an inspection roadblock. The *Vancouver Sun* reports:

All commercial vehicles get a thorough going over. In the east-bound lanes Monday there were six RCMP officers, two mechanical inspectors, one Motor Carrier Branch inspector checking licences, one federal fisheries officer looking for bootleg salmon and one federal communications officer looking for radio transmitter licences. (Emphasis added.)

The Communications Branch staffer was Ron Remberg and he struck gold in Monday's lineup, cashing in on the failure of those who buy Citizens Band or VHF radio transmitters and forget about the licence requirement. Within four hours he sold 30 CB licences at \$13.50 each and 19 VHF licences at \$15.75 each. He had also issued 18 warning tickets to people who said they had the licences at home and would bring them in for verification. Δ



CONTEST SCENE



By John Connor VE1BHA

The results of the 1984 edition of the CQ 160M contest were published in the December issue of the CQ Magazine. The Canadian entries are listed with this column.

Overall, Canadians did quite well in this contest. On CW, three of the top ten W/VE scores were made by Canadians. VE3ABG placed third overall with 176k, and VE3DAP was sixth with a fine 148k effort. A bit further back in eighth place was VE1YX with 116k. What is especially notable about that score is the country multiplier, 33, far and away the highest country total among the VE's.

On SSB, VE3MFA came out on top in Canada with 115k, good for sixth place in the W/VE listing.

One interesting note regarding this contest. As indicated in the contest write-up, a computer analysis of logs indicates that there were 111 VE stations active on phone, and 153 on CW. So only about one person in ten sent in a log.

By the time most of you receive this issue of TCA, the ARRL CW Contest should be over, and the Phone contest only a week or so away. This is one contest that I don't have any good records for, partly because the format has changed a number of times over the years. But I do have the results. So, I thought maybe we would step into the Wayback Machine, set the dials for 1975, pull the lever and step back in time to see what the 1975 ARRL DX Competition was like.

Back in 1975, there were still two weekends per mode, so the contest stretched over four weekends in February and March. This was the first year for two new categories,



Here is John VE6OU receiving the CARF Award Plaque for the top scoring Canadian single band entry in the 1983 CQ Magazine Worldwide DX CW contest. John accumulated 138,330 points on 14 MHz. John is one of the foremost contesters and DXers in the country. That's Norm VE6VW handing the plaque over.

high band and low band. These categories have, of course, been replaced with single band competition now. The top W/VE score of 1975 was turned in by W7RM, with Chip, who is now K7JA, at the key. On phone, W3WJD took first place. In Canada Bob Nash VE3KZ was number one on both phone and CW. Bob chalked up 361k points on CW and 643k on phone. All these people are still around, just waiting to beat you out in a pileup.

There was some good DX around then, too. Amongst the more exotic were 5T5CJ, ZS6DW, 6W8FP, CR6GA (Angola), TJ1AD and OA8V running five watts from the jungles of Peru.

Twenty Years Ago

Back into the Wayback Machine, and off to 1965 we go. In those days, there was a quota on DX stations. Once you had worked a certain number of, for example, G's, you couldn't work any more.

The first place multi-op in those days was the powerhouse of W3MSK, known more recently as W3AU. The top single op was Vic Clark W4KFC. In Canada, VE1ZZ found 60 multipliers on 80M, which wouldn't be bad in 1985! VE2NV finished first on CW, totalling 226k with 185W. First place on phone went to VE2UX, finishing with 172k points.

The DX that was around in that contest was not too bad either.



Well-known DXer Fred Laun was in the Dominican Republic signing HI8XAL. And just imagine, if you will, the pileup that any of these would create on 20M today:

5A3TX, ET3USA, 5U7AG, 5X5IU, 6O6BW or 9Q5AA. All were in the 1965 ARRL DX Competition.

If you find this sort of thing interesting, I could do it for some other contests. If, on the other hand, it wasn't interesting, I promise never to do it again.

Next month, a look at the CQ WPX SSB Contest, coming up on March 30-31. Δ

Un Nouveau Club

Un groupe de gens intéressés dans le domaine de la radio amateur se sont réunis le 3 novembre pour faire suite à un projet de Jean-Pierre Bédard de former un club de radio amateur pour la région de Rigaud.

Cette rencontre eut lieu chez Luc Pilon VE2FYI ou le premier exécutif du Club de Radio Amateur Rigaud naquit.

L'exécutif élu est le suivant:

Guy Bourgie VE2YM, Président;
Luc Pilon VE2FYI, V/Président;
J.P. Bédard VE2FYO, Secrétaire;
W. Lamothe VE2GDV, Trésorier.

Les Directeurs élus sont:

Maurice Bonin, Raymond Lalonde
SWL 312, Emilien Proulx VE3MJL.

Le Ministère des Communications a émis l'indicatif d'appel VE2CAN au nouveau club.

Pour plus amples renseignements veuillez contacter J.P. Bédard 514-451-0790.

OPERATION RADIO NOEL

The Ottawa Valley Mobile RC runs an 'Operation Radio Noel' each Christmas. Amateurs with handhelds go round the wards of the Children's Hospital so that the sick youngsters can give their orders to S. Claus by radio. What does your club do at Christmas?

1984 CQ 160M CONTEST CANADIAN RESULTS

PHONE				
CALL	SCORE	QSOs	MULTS	CNTRYS
VE3MFA	115,754	390	62	12
VE6OU	62,116	248	53	4
VE3INQ	32,208	153	44	3
VE7ERY	24,467	122	43	4
VE5XU	18,876	104	39	2
VE3NBE	13,862	101	29	3
VE2QO	11,550	80	30	2
VE6AQI	3,066	31	21	2
VE7BS	2,771	32	17	5
VE8CM	688	19	8	2
VE8XO	553	20	7	2
MULTI-OP				
VE6VC	10,432	68	32	4

CW

CALL	SCORE	QSOs	MULTS	CNTRYS
VE3ABG	176,952	491	73	19
VE3DAP	148,596	499	61	8
VE1YX	116,660	251	76	33
VE3INQ	106,702	350	62	13
VE5RA	99,651	344	59	11
VE3MFA	90,060	307	60	11
VE5XU	70,896	264	56	7
VE7BS	63,882	232	54	11
VE1ENN	50,750	153	58	22
VE3NBE	37,109	181	43	4
VE6OU	36,984	166	46	5
VE3LSK	33,626	151	46	4
VO1MP	23,200	100	40	16
VE2GSW	6,670	61	23	2
VE8XO	66	5	3	2

Competition

Lately, several club newsletters have carried articles describing the breaking into and vandalizing of repeaters. Some of our fellow citizens get their enjoyment out of life in strange ways. The first line of defence against vandals is a large notice: DANGER 117,000 mV. But more is needed.

Can any reader design a suitable protection system? Something that will ensure intruders are effectively inhibited from breaking and entering, or will make them turn tail, or

save the repeater in some other way.

Radar trucks used to keep the handrail at the door live to ground, an excellent way of deterring inspecting officers. Something else is needed here, though.

Anyway, design something reliable, simple, cheap, to save a repeater. Send a copy to the Editor of TCA. We'll publish them, and the best ones will earn their designers a tiny prize—a year's CARF subscription.

Good Luck!



What are you going to do?

What are we going to do?

Mike Shacklock VE3LAR

The other day, the second Canada-wide mailing by the CRRL to all Amateurs arrived at my place. I said to myself, "Here we go again with another bunch of loaded questions." Actually it wasn't all that bad, even though there was an attempt to lay a guilt trip on everyone that didn't already belong to the League.

But that isn't why I'm writing this. The League could perhaps take credit for motivating me to write here but I've been thinking about it for some time, and most recently, after the post mortem the Ottawa Amateur Radio Club's Radio Society of Ontario Convention Committee conducted on RSO Convention '84.

Attendance Down

The committee noted that like other conventions we have known, attendance was down. This may be attributed to a number of things like Thanksgiving weekend, competition from a flea market in the Hamilton-Burlington area, high prices at the hotel or few exhibitors.

Once again that is not really what I'm writing about either. But what do these two things have in common? Glad you asked! I'm talking about age! If there was anything that rang out during Convention '84, it was that we are getting to be an old group. I would wager that there was no one, or very few, under the age of 20. There were perishingly few people there under 30 for that matter. The computer (Commodores, Apples, Ataris and clones of all types) has stolen the youth away from us.

I just had another blinding revelation! The Ottawa Valley Mobile Radio Club's third course is now

over half way through. Of all the people we have had registered in these three courses, about 70, there could only have been two or three under the age of 20. And I don't think anyone under the age of 30 has obtained their ticket as a result of our efforts! What the \$%&*!¢ is going on? I don't recall if I gave my age to CARF when I signed up with them. The League doesn't ask for age either, but I bet if they did we would see an average age a lot higher than that you would care to predict.

What am I driving at? Just this. If young people are not inducted into our hobby at a rate equal to or higher than that of the demand for radio spectrum, we will lose it. That is not a concern to you over 65 perhaps, but I've got a few years to go before I retire and would like to see the spectrum there so I can enjoy it in my loafing years.

Reduce the standards!

I don't believe we can get the young people of today to lay down their keyboards and pick up the key and spend great amounts of time learning morse code, theory and regulations. *There will have to be a reduction in the standard for admission to the service or we will kill the service ourselves.*

We need the communicators licence. All marketing strategists know that if they are going to make a lasting impression on the business world, they have to cater to the young. We must do the same. "\$%&*!¢ no" I hear you say. "I had to do it that way and so will everyone else." But you didn't have the computers to play with, you didn't have all these color TV shows to watch, you didn't have all the other high-tech diversions to compete for

your attention.

Simply put, if all you had to do was lay out a couple of thousand dollars for an FT this, IC that or TS umpty-ump, get an antenna and start talking to the world, we probably would have a lot more Hams (and a pretty sorry spectrum too, admittedly!). There must be a middle-of-the-road approach we can follow, though. What we need

WHAT ARE WE GOING TO DO? GOOD QUESTION.

As always, there are a lot of angles to view the problem from. Part of the phenomenon is demographic one— there are far more Canadians over 65 now, far fewer under 20. This is at least partly the reason for the aging of our membership.

Another is publicity. Tune 14,100+ nowadays, and you will hear Amateur computers talking to one another. But who bothers to write that up for the computer magazines? An article or two in the right places would spread the word to the hackers that there are fresh fields to conquer.

And you AMTOR types— what about a packet radio satellite? Again, get it operational and publicise it.

Individually, go to the computer clubs with QSL's and algorithms. Who'll be the first to write a 'talking typewriter' program that sounds a random Morse letter, and continues with another when and only when the first one has been correctly typed in? Wish I'd learnt the code that way: copying on the mill is more legible than my copying with a stick!

VE3DQB



to have is a token test which will weed out most of the lunatic fringe but not too difficult so as to maintain the current state of affairs.

After all, we weren't able to keep the lunatics that we have now out of the hobby were we? Once we have this pseudo Ham, what privileges do we give him/her? Now it will have to be something that will be attractive enough to draw the newcomers so I reluctantly suggest 2 metres and a small part of the 'HF' spectrum for CW and impose limitations. We will have to give them 2 metres because that's where everyone else is. And the HF will give them enough of a tease to get them going further. But at least we will have them and they will be statistics to help us hold on to the rest of our spectrum.

Who does the testing?

What this whole thing above ignores, however, is the fact this would be another set of tests for the DOC to administer. As a government employee myself, the last thing we need is more to do when our political masters are cutting resources left, right and centre.

What we should do is have the clubs test people to a specified level and certify to the DOC that a basic level of competence has been demonstrated. Confident that such competence exists, the DOC could issue a completely different call such as XM3ABC (or any other valid prefix). These licences could be for a fixed period of time and/or they could demand a sponsor in much the same way as the visually handicapped person.

I admit that there are lots more things to think about before we could consider approaching DOC with this, but what I think we must do is drop the "I had to do it so you have to too" mentality or soon we won't have any spectrum to do it in!

Let's come up with ideas on how we can do it. I certainly don't put up the solution above as the only one, but rather to get you thinking. I hope you will write to your club

and offer comment. Both CARF and CRRL, as well as the provincial organizations, have roles to play here, too, but they can't read your minds, you've got to let your feel-

ings and ideas known. *What are we going to do?*

From the Ottawa Valley Mobile
ARC Rambler Δ

And About Deregulation

Since the expansion of the U.S. 'phone bands, there has been some discussion of the desirability of the deregulation of the Canadian Amateur spectrum to allow us to compensate for this intrusion without waiting for the DOC to change regs for us. Here are some viewpoints: From the Maple Ridge ARC:

The members of the Maple Ridge Amateur Radio Club are in favor of deregulating all the HF Amateur bands. The bands we have in mind are 10, 15, 20, 40, 75 and 160 metres.

The reasons are: we handle a lot of traffic on all these bands, especially 20, 40 and 75 metres, and find that we are having a lot of trouble finding a clear space to operate. -- John Schiere VE7BKG, President. And from VE7FY:

Please keep my letter on file as being in favor of deregulation of the Amateur radio HF bands. I feel that the radio Amateurs should be able to work together to use the full radio spectrum to our advantage. -- P.A. Orobko VE7FY.

And what's your opinion? TCA hopes to publish more on the subject of deregulation over the next few months, and your input is vital.

TIPS FROM THE HAM SHACK

Find your bug wandering around on the desk?

Take a piece of rubber-backed carpet that has a long enough nap on it so the bug hardware will bite fairly well. Remove the dead rubber feet from your bug and do away with the old finger licking routine you used to keep it tied down to the desk.

Moe VE6BLY

Reference Files in stock

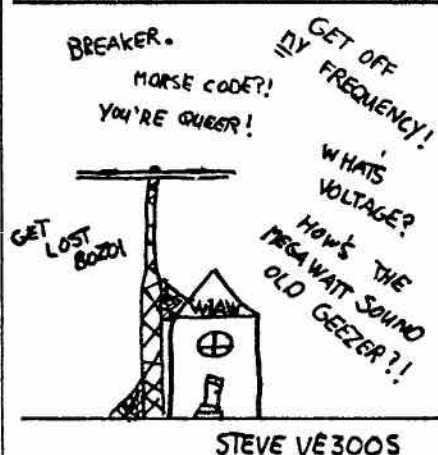
CARF has a whole series of Reference Files now in stock at the Kingston office and ready to mail.

The Canadian Amateur Radio Federation publishes the Reference Files as individual sections... each of them dealing with a different aspect of Amateur Radio operating. Buy them all or one at a time!

All sections are three-hole punched for standard binders. You can start out with the General Information Section which includes a Binder, Index Sheets and lists of useful operating information.

See Page 46 in this issue for details on how to order.

THE PRICE OF DEREGULATION



A Neophyte 'Sparks'

by Bill Deacon VE3UD

From time to time, Amateur friends ask me when I'm going to spring for another story of the "good old days;" and I've repeatedly said that I'm about dry. Anyway, I will bore you with what likely is repetition of some of my early experiences.¹

The big moment for me arrived on August 4, 1930 when, at the very mature and experienced age of 17, I strode aboard the SS Princess Victoria in the Inner harbor at Victoria, B.C. to take up my first assignment as a Wireless Operator, later referred to in the more dignified form of 'Radio Officer.'

The old Vic was part of the BCCS (British Columbia Coast Service) fleet on the West Coast, operated by the CPR. It was not a large ship, although it did sport three funnels, one of which was a dummy.

At that period in history it was running between Seattle and Victoria to provide the opportunity for Prohibition-bedevelled Americans to slake their thirsts at Victoria with products generously (?) supplied by the B.C. Liquor Control Board, or by Rainier Breweries out there.

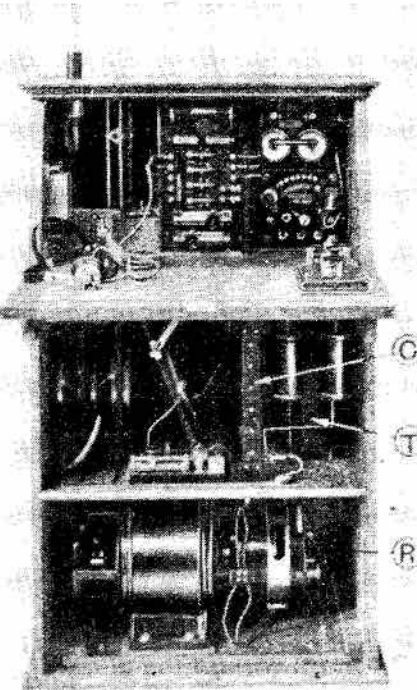
Wives and Sweethearts

The Americans would board the Princess Victoria at Seattle for a 5:30 PM departure to Victoria; and it was surprising to see how consistently young the men's wives were. They looked more to this 17 year-old youth like stenos or secretaries than wives. But that couldn't be—could it? Especially when they were

¹ These were recounted in the series 'Life on the Ocean Wave' which appeared in the winter issues of TCA in 1982-83.

both staying in the same cabin. At least, I had never heard of such things going on.

Well, back to the Wireless Room. This contained a ¼ kw syn-



chronous rotary spark transmitter, and a regenerative receiver that was battery-operated. The spark rig was enclosed in a large oaken cabinet with a massive bakelite panel across the upper half of it, which was adorned with huge copper-bladed switches and very large rheostats that were moved with large brass knobs about 3" in diameter.

The switches handled a whole 220 volts which is, I guess, why they had to be so large and have such large insulated handles. Inside the cabinet on the bottom was a motor generator that was fed by 220 V DC from the ship's mains; and that pro-

duced 220 V AC into a large oil-filled transformer. Also mounted behind the panel was a large condenser consisting of metal plates interleaved with sheets of glass. All of this was mounted in a large teak cabinet.

A starter was mounted beside the operating position. This actually was a tapped rheostat; and the starting handle was pulled over the taps or studs progressively as the motor-generator speed increased. At the end of its travel, the handle was held by a solenoid, the armature of which was powered by the current flowing through the motor armature and fields.

To shut down, one simply knocked the handle backwards; and spring tension drove it back to its starting point.

The Spark Gap

At the end of the motor-generator shaft was mounted the rotating portion of the spark gap. It consisted of a number of brass electrodes mounted around the circumference of the shaft. The fixed portion of the gap consisted of two heavier electrodes mounted at 45 degree angles (like the top half of a V). These electrodes were spaced by the thickness of sheet of paper from the rotating ones.

That gap spacing was quite important. A smaller gap would result in badly damaged electrodes, since expansion takes place through the intense heat of the spark gap. On the other hand, a wider gap resulted in a need for higher power to break down the spark, resulting in a very ragged-sounding tone, together with even rougher sound from an angry Chief Engineer, who



would object to excessive loading of his dynamo.

The send-receive switch was mounted on the bulkhead in front of the operator and slightly to the right. If you were small, you had to rise from your chair each time you wanted to switch from receive to send and vice versa.

This switch was an L-shaped gadget about 6" long by about 2" on the short part of the L. I recall once when I was working VAE up at Estevan Point on the West Coast of Vancouver Island from one of the coasting ships I was aboard.

The operator at VAE was very skilled but he frequently forgot that old ships like I was on didn't have 'break-in,' so he was kind of fast on the draw when you finished sending to him. To try to keep up with him, I stood at the key for the last few words of my message so that I could have my hand on the switch ready to throw it as soon as I finished transmission.

In my eagerness to be really fast, I let my hand sneak a little too near the blade of the switch as I sent the last character of my transmission—ZAP!!— I jumped a foot or so, smelled something like burnt pork rind; and looked at my right fingers to see and feel a miserable couple of burnt fingers. Boy, RF do smart, don't it?

The Receiver

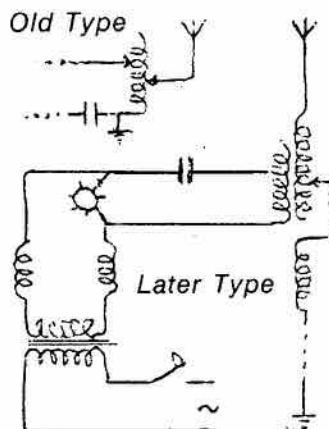
Anyway, the receiver on the Princess Victoria, like many of her sister ships, was a regenerative job with a set of three honeycomb coils, two of which were swung thru shallow arcs to vary the coupling grid-plate and antenna-plate. In that way, one controlled the degree of regeneration. An excellent setting where the coupling was just at the point of regeneration, but not quite.

This built up spark or ICW or modulated CW signals to a very readable point. I've forgotten the frequency range of those jobs; but anyway, we were just interested in the 600-800m range (500-325KHz).

The tuning was broad as a barn

door; and when close to Seattle while monitoring 500 KHz, I could hear all the latest hits from the Seattle broadcast stations on the lower end of the broadcast band.

Traffic on that ship was almost non-existent, apart from a position report exchanged with our other BCCS vessels at 02:45 nightly. It was not at all unusual to find myself being poked by the bridge messenger at that hour, as I had a bad habit of falling asleep about 2 AM at the desk.



My first transmission from that ship was a very exciting moment for me. After all, this was for real now— no more pretending. I had a bit of the 'shakes,' I guess; but confidence came very quickly and I soon acquired the 'veteran' feeling.

Having come from a very humble background, it was quite an experience to eat in the Officers' Mess and be served by the mess boy who was about my age. It also was great to choose daily from steak, roast beef, roast turkey and baked salmon, plus all the extra goodies. If only I could eat like that now without paying the penalty of obesity for it.

May They Never Meet

On our return voyage to Seattle, we left Victoria at 1 AM, arriving in Seattle at 7 AM. I used to walk around the deck a bit after the departure just to enjoy the smell and feel of salt air when we were

underway. At the same time, I discovered some of the men and their 'wives' forgot to close the shutters on the windows at times.

I received quite an education on how some other people lived as a result of these tours on deck. Of course, the passengers were in a very friendly, even amorous, mood after their visit ashore at Victoria.

This feeling was further advanced as a result of refreshments purchased at Victoria and brought aboard for consumption on the return trip. My, oh my, what sermon material could have been picked up by a travelling evangelist at that time.

All that came to an end after Labor Day, aided and abetted, no doubt, by the onset of the Great Depression. So my operating activities temporarily came to a halt when the ship was mothballed for the winter.

But my sea life had just begun; and within a few weeks I was called back to Victoria to take another BCCS ship— a small freighter— up the West Coast of Vancouver Island to pick up a load of fish meal and fish oil. I wrote the story in *The Canadian Amateur* about this ship and my initial experience with an unserviceable rotary spark transmitter, so I won't repeat it. It does fit in, however, with my early comments on the spacing of the electrodes at the gap.

Early in January of the following year (1931), I was assigned as Junior Operator on a very large freighter that was carrying just under a half-million bushels of grain to Shanghai, following which we were to take the ship to Vladivostok for sale to Russia. Again, that story appeared in *TCA*. That voyage was one of the highlights of my sea-going career.

So, on and on it goes— 26 ships in all— plus 10 months in a logging camp as Radio Operator, Accountant, Timekeeper, Storekeeper and fac totum. That was up in the

Continued on next page ▷



Queen Charlotte Islands, NW of the BC Coast. That was another intensely interesting interlude in my life.

Boy, oh boy, I hear young people today saying they're looking for an interesting job that pays well. In those old days many jobs were inter-

esting but none paid well or even reasonably; but oh man, you gained the most valuable thing you can offer to potential employers—*experience*— and that's what makes one valuable to any employer, even if you've only learned to exercise initiative, or to assume some degree of responsibility.

Well, I find myself on the soap box again, so I'll climb down forthwith and leave you to meditate upon the foregoing profundity. Perhaps it will move you to ask for my resignation from this very taxing task, for which I shall be eternally grateful. △

Profile:

Bill Deacon VE3UD

Bill was born in Edmonton, Alta. in 1913 and moved to Vancouver about one year later. He went to school, got married and was presented with a son there. Also, he started both his commercial and Amateur radio careers there.

He commenced his radio career by attending the Vancouver School Board's course in Wireless Telegraphy (also known as Room 19 to its graduates), securing his Second Class Certificate of Proficiency in Wireless Telegraphy in June, 1930. Two well-known local boys were graduates of that famous course: Art VE3ZS and George VE3DMC.

Bill's start in commercial work was an assignment to the receiving station of James Richardson & Sons (Grain and Stock Brokers) at Vancouver. The receivers were located in Point Grey, not far from the University of B.C. Very shortly thereafter, he received his first ship assignment— SS Princess Victoria, VGDS— sailing a short route Victoria-Seattle daily. This red letter day in Bill's life was Aug. 4, 1930. From then on until early March, 1939, he served on a total of 26 vessels, ranging from deep sea tugs up through coasting passenger/cargo vessels through deep sea freighters to Trans-Pacific ocean liners.

On March 19, 1939, he started a 25-year career in commercial aviation with Trans-Canada Air Lines (now Air Canada). Commencing as a radio operator, Bill moved up to the taxing job of

Flight Dispatcher for a few years. Then the old communications urge re-asserted itself, and he seized an opportunity to move into the Supervisory area of Telecommunications, starting with an overseas assignment to London to initiate communications services for the airline's first commercial Trans-Atlantic service in 1948. Two years later he was assigned to Telecommunications Headquarters; and three years later took charge of Overseas Telecommunications. This initially covered supervision of Flight Radio Operators, a communications centre at Dorval that interfaced Overseas and Domestic teleprinter and other record telecommunications systems, together with an air-ground service for Company communications with both Overseas and domestic TCA flights. In addition, he was responsible for providing communications services at TCA's Overseas offices in Europe, the West Indies and Mexico, all of which involved Bill in extensive travelling through those areas.

These activities involved him in Directorships in two telecommunications companies owned by a group of airlines including TCA—one with head offices in Paris, and the other located at Mexico City. Additionally, he served on technical committees in these companies, as well as in the International Air Transport Association.

After 25 years in the airline, Bill

joined the Federal Government, initially in Defence Production as a Defence Project Officer, then to the Government Telecommunications Agency. He retired at the end of 1971 and, like most retired public servants, moved straight into a consultant's position in an independent telephone company. Following that, he spent some time with his own consulting company until some health problems brought all those activities to an end.

He started in ham radio in 1933 as VE5KQ in Vancouver, as VE6FO in Alberta after the war, as G3FFO near London while on assignment over there in 1948-50, as VE2KZ for 14 years in Montreal where he earned DXCC; and as VE3BBR, VE3BDO and now VE3UD in Ottawa. Bill is editor of the Ottawa ARC's *Groundwave*. △



Microwaves

By Michael Ross VE2DUB
2285 St. Mathieu
Apt. 1401
Montreal, Quebec H3H 2S7

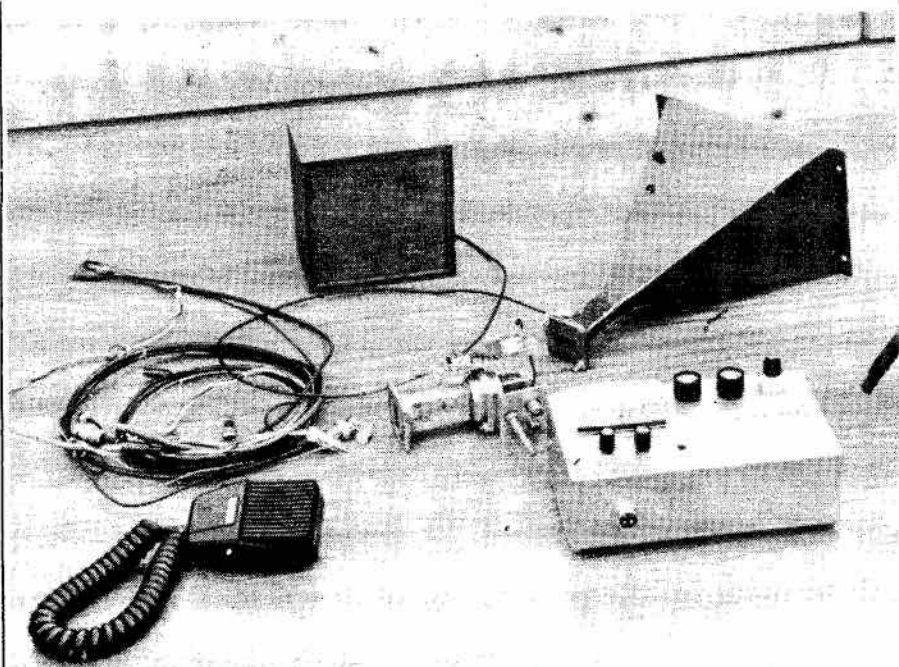
With the new year upon us, many people take this time to review their accomplishments in the year gone by and resolve to better themselves in the year to come, setting new goals, embarking on a new challenge. Depending on your stage in the Amateur radio lifecycle, now may be the time to get the juices flowing again by moving up in Amateur radio, getting the experimental back in the Amateur experimental service.

If the sunspot minima has got you down and VHF repeater operation just doesn't do it for you anymore, there is a whole new world of VHF/UHF/microwave activity waiting for you to explore. With the emphasis on weak signal 'direct' communication, there is a constant striving to put up bigger antennas, generate more power, reduce feed-line losses and get the latest GaAsfet preamp to squeeze every last fraction of a dB out of the station. Can't rely on the ionosphere to do all the work for you on these frequencies!

With the increasing popularity of multimode VHF and UHF commercial transceivers, many Amateurs are getting their first taste of CW/SSB operation on the higher frequencies with surprisingly good results. The availability of transverters that convert their frequency of operation to 1296 and 2304 make it easy to move up.

VE3LNX reports that he is active on 1296 with 60 watts and a single 45-element loop antenna. Plans are to get a 250 watt amplifier on the air this winter and put up three more 45-element antennas in the spring. Also on 1296 are VE3ADJ, VE3DKW at 20 watts, VE3CRU, VE3OCX (former VE5JQ) and VE3BFM at 45 watts,

Continued on next page ▶



VE7CVJ's homebrew rig for 10 GHz. And with this he covers 50 miles?



VE7CVJ makes final adjustments to his homebrew 10 GHz dish and feed.



in the Toronto area. VE3LNX and VE3ADJ are also on 2304 with homebrew cavities multiplying up from 10 watts at 144 MHz to 576 MHz then 2304 MHz at 400mW into a 5-watt final amplifier. Others hope to be on 2304 soon. Best DX reported on 2304 is between VE3LNX, 50 miles east of Toronto and W8YIO in Michigan—a distance of 296.5 miles! Many contacts were made over this path last year but only two or three times this summer and fall.

On the West Coast, Richard VE7CVJ sends this report:

My IF amplifier work paid off and I came up with two separate designs, one incorporating extensive shielding, the other built on a narrow strip 1x4 inches long, thus reducing feedback. The FM detector, audio amplifier, modulator and meter have been mounted in a die-cast box, and jacks have been provided for connection to the microwave head and IF amplifier by three wires; 50 ohm coax for 10.7 MHz, wire for Gunn supply, and wire for IF supply.

The box also has plugs for +12 volts, external speaker (for better quality) and external audio input other than microphone.

Controls include 500 ohm potentiometer for tuning, volume, squelch, audio tone volume, and deviation. A meter function select switch has not yet been added.

The other setup remains on a breadboard. However, it now has an improved IF amplifier. I have also made a small horn, 3" long, with a slim taper for good matching, as well as a 22-inch dish made from a plaster and paper mix surfaced with foil (see figures). I made the initial mold by turning a plywood parabola in damp concrete mix.

As I was improving my designs, tests continued with Robert VE7AI, and between my two rigs. At first my 20 dB horn gave marginal but fully readable signals over a three mile path to Robert's as well as to my other rig. This helped in

the running of the IF amplifiers and general waveguide setup, noise figure, and so on.

Before long we were having hour-long QSO's over a 10-mile path, both using our 20 dB horns. Signals were still OK with open-ended waveguide at my end only. This led us to believe that we could start to increase our distance. A final check was made one cold Friday night.

I went up Grove Mountain on the Skyride and set up my station in the light of the chalet. Robert, 10 miles away at UBC, aimed his 2-foot dish on the mountain top lights. With the head end resting on my wool toque atop a rock, the open-ended waveguide facing Robert, we had a perfect, noise-free QSO for over an hour. The signal was so strong that I could aim the waveguide end up to 75 degrees away and still copy him.

Plans were made for me to go over to Nanaimo to try a really long shot; 48 miles from Robert at 3000 feet on Mount Seymour to the hills above Nanaimo. The weather was one-tenth cloud, light wind, temperature about 10° C.

Two metre contact was established with Frank VE7AFJ. He picked me up at the ferry and took me to a good site on the roof of Malaspina college. Together with five other Amateurs we set up the equipment. Two-metre contact with Robert confirmed we were both in position. He aimed his dish

into the haze on a bearing of 252 degrees True, and I aimed mine in the reciprocal direction, 72 degrees. Within moments contact was established, the same perfect quality signals we had experienced over 10 miles with smaller antennas.

We ran from about 1100 to 1230 local, Sunday Oct. 21, all present having a QSO with Robert. One of the fellows suggested a smaller antenna, so we put the 20 dB horn on and had similar quality signals, the meter reading a little less. Before we finished, we held up the open-ended waveguide and we could still communicate, the noise and audio being about equal—rough copy but still workable.

I measured my RF output on a Hewlett-Packard spectrum analyser. My early tests had been made with 500 μ W of power, then I went to a .25 inch iris and now have about +5 dBm, or about 5 milliwatts output—a lot better.

I measured the frequency span of the coarse tuning screw between 10.0 and 10.5 GHz. The output was clean, with no spurious emissions. I think our contact was made at about 10.36 GHz.

Looks like those guys on the West Coast have been busy! I would like to hear from any other stations active on 1296 and up. B & W photos of antennas, equipment, operators and descriptions and schematics are all welcome. Include best DX and any other known operators in your area. △

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TECHNICAL SECTION

Section Editor
Frank Hughes VE3DQB



Amateur Design of Printed Circuit Boards

By John Iliffe VE3CES

Part 2

Having decided that a printed circuit board is the design method of choice, the next step is to lay out the pattern to be etched.

If the circuit is digital, the odds are that you will not be able to produce an adequate pattern on single sided board, but it is almost always possible to do so for an analogue type of circuit. The reason for this is that linear or analogue circuits use a lot of resistors and capacitors useful for crossovers, whereas digital circuits implemented in IC's are generally directly coupled. Even so, in mixed circuits it may pay to try a single-sided design due to the easier construction.

To illustrate the techniques of preparing the design for layout on the printed circuit board, we will follow a design for a modem created by the author earlier this year. This is a good choice for the example: it is a combined digital and analogue circuit of moderate complexity that can be implemented on a single-sided board.

Figure 1 shows what the original design drawings for one portion of the analogue part of the circuit looked like at the end of the engineering stage. I usually design circuits functionally, with one function on one piece of paper, then combine all the papers when I have a final design. This makes it considerably easier to redesign any parts

that 'don't come out right.' The particular function here is the FSK generator with its associated level shifter and output pad.

The rough diagram must be converted to a diagram showing the IC pinout and interconnections. In this portion of the circuit we have no choices as to which pins are used, but in the digital portion there is often a choice because multiple functions are included in the same package. If so, then an iterative feedback method can be employed to find the best choice of pins.

Figure 2 also shows the spatial distribution of the components.

The size and shape of the final board is usually fixed by external considerations, such as the size of

the box. When you have a fair idea of the volume of the components for each function of the circuit, you can divide the board up in proportion.

Mark out one area of the board for each function in a logical position, keeping in mind its interactions with the surrounding circuits. Draw a full-scale layout on a piece of paper and see if the components will roughly fit into the spaces you have allocated.

You will have to have all the components on hand before you lay out the board because you need to know the exact sizes for pad positioning.

The easiest way to lay out the actual traces is to select a grid, usu-

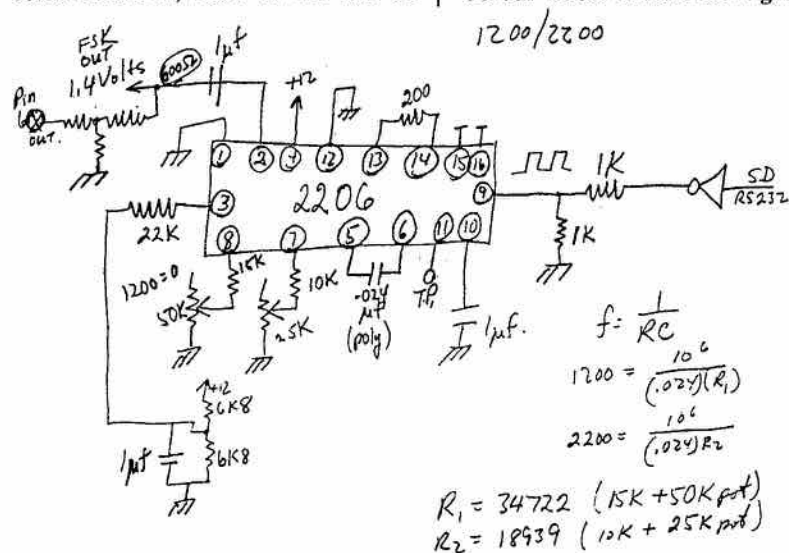


Figure 1: The rough but clear initial sketch of the circuitry required for the FSK section of the modem.



ally .1" graph paper (like Fig. 3), and place all pads at intersections on the grid. This makes it easy to measure the distance between pads and estimate the physical size to be allowed for the component above the board.

You will also find that most modern components are constructed to a .1" module, such that IC's in DIP packages have .1" lead spacing, multiturn pots have a .2" by .3" lead position, bypass capacitors are .2" or .3" wide.

A chart of the lead positions is included as Table 1, but measure your own components. Straight lines are more easily laid out if the grid lines are followed. You will find that if you are making a hand-copied board, as described later, that you can get one trace in each .1" column or row. If the job is done photographically you will be able to get in two traces if you work carefully. This is usually only important in digital circuits like memories.

Despite appearances, more traces can be run in a given area if you only make right angle turns rather than trying angles across the board and sweeping curves.

Remember that you are working on the bottom of the board. Most IC spec sheets give a top view of the circuit and you must remember to reverse it. Allow about a full .1" column for power conductors to multiple IC's or transistors and be sure to provide adequate bypass capacitors.

Remember that the finished board is sort of final and it will be difficult to add components after it is completed.

Use a sharp HB lead pencil to mark the traces on the graph paper. A good clean eraser can then remove the errors cleanly. It is critical to keep the drawing as clean as possible because any ambiguity during final processing will surely lead to errors.

Lay out the traces with a ruler, following the grid lines. Be careful that the pad centre locations fall on

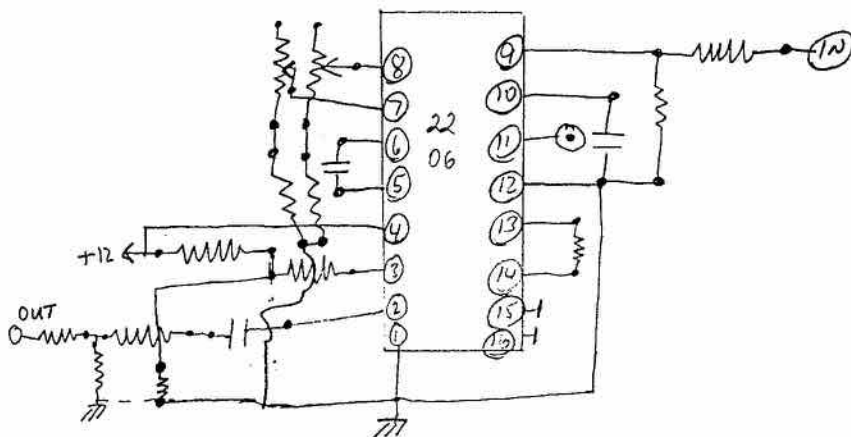


Figure 2: The sketch of Figure 1 has been refined to take into account the physical layout of the chip and associated components.

TABLE 1.

Size of minimum trace in 1 oz. copper for a given current.

1 pin of a 22-pin standard card connector for each 1 amp of current.

500 mA use 1/16-inch trace

1 amp use 3/32-inch trace

typical digital IC use 1/32-inch with a .1 μ F tantalum for each IC. Do not put more than 4-6 IC's on one supply trace.

For ground, lay out a 1/4-inch (minimum) trace around the outside of the circuit board, and leave copper wherever possible on the board.

TABLE 2.

Spacing between pads for various components.

The hole size will vary with the size of wire used for the leads. Be sure the pad is large enough to drill the appropriate hole.

1/4 W resistor .4

1/2 W resistor .5

Tantalum bypass .2

ceramic capacitor .2 or .3

electrolytic capacitor .2-.4 (vertical mount)

larger should be mounted
on the chassis.

precision capacitor .6-1.2

15 turn trimpot centre to end .2

centre to end .3

centre offset .1

(be careful, you are looking
at the bottom)

TO220 transistor outside-inside .2

centre shortened .2

small transistor collector-emitter .2

base offset .1



the crossings. When selecting a pad location, remember that it has a finite size, determined by the size of the lead that will be going in it, and the adjacent traces and pads must not short to it.

Allow room for soldering too. It is not really practical to try to route traces between the pads of a DIP IC and you should avoid this. (Fig. 4.)

Sometimes the pins of adjacent IC's will be backwards from each other. This can be remedied by coming out inside the IC, that is between the rows of pads and turning a full turn to get to the opposite IC. In some cases it may be necessary to circle the entire IC to come out where you need to be.

Large power transistors should be mounted off the board; the heat is best kept away from the other components and the area of the board lost to installing components will be quite large. You may also have trouble getting large enough traces to carry multiple ampere supply currents without interaction with the other signals. Table 2 lists the sizes of trace needed for particular current handling ratings.

The author also marks the symbol for the component to be mounted on the drawing for later reference. This, combined with the schematic, will enable you to place the components when the board is complete. Be careful not to cross components.

I do not recommend standing components on end to increase density because the other end then becomes nearly impossible to reach to make measurements. The one exception to that rule is where a test point is needed, it can be easily isolated from the RF by placing a 10K or so resistor on end and using the flying lead as the test point.

Finally, and I speak with the authority of experience on this point, remember that to join two components you need two pads, although your engineering drawings will show only one junction.

Next month we will look at some of the ways you can transfer

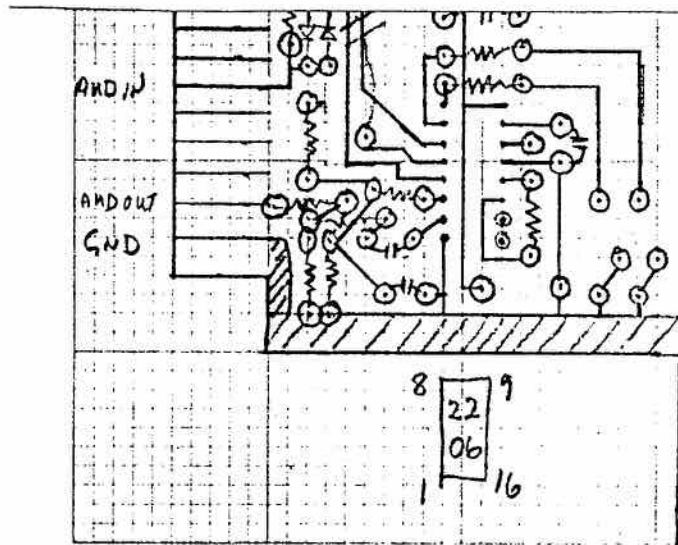
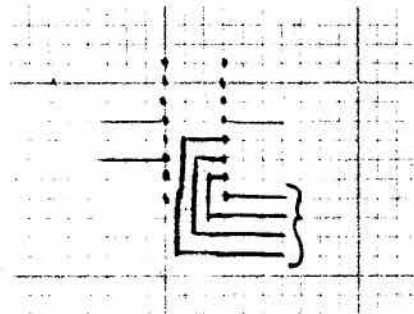


Figure 3: The sketch of Figure 2 is now reduced to actual size in pencil on tenth-inch square graph paper. Each pad is located on the 0.1-inch module, and component positions are indicated.

Figure 4: Go **outside** or **inside** a DIP package with conductors. Don't try and go **between** the pins!



your creation to copper and etch it. We will also look at some of the common reasons for failures and how to avoid them. Δ

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More Range for your Handheld

While servicing commercial handheld radios from a manufacturer who also makes popular Amateur portables, I observed inconsistent range between identical units. Power output, receiver sensitivity, frequency and deviation were all identical. The problem proved to be in the rubber duck antennas. Using my SWR meter and a BNC-to-type-N adaptor mounted on it, I found an SWR as high as 3:1 on the low range units. Portables with good range showed an SWR in the area of 1.5:1.

The cure: Remove the top cap of the antenna. With a hefty pair of side cutters remove $\frac{1}{2}$ turn from the

antenna spring and check SWR. Trim the antenna in this manner until SWR begins to show an increase. If you find you have removed too much, simply solder the appropriate length of heavy copper wire to the spring. Slip about 2 inches of black heat shrink tubing over the surgery and heat. Then replace the antenna top cap and enjoy your new range.

Note that this procedure will work for both short and long antennas. Also, keep antenna away from metallic objects when measuring the SWR.

VE7CFK

From the Bench

The Car Battery

by Bill Cousins VE3GPR

Some morning this winter you may have some trouble starting your car. That old car battery will not do the job at -15° or so.

Now off to your friendly corner store to pick out a new battery. The nice man behind the counter will probably tell you he has three levels of battery for your car: the top warranty one, good for as long as you own the car, the 42 month one, the 24 month one. Think how long you are going to keep the car, then make your choice.

The nice man will offer you \$2 or \$3 for your old battery on trade-in. This time you say "No" to the nice man.

You see, this old battery may not start your car on a cold winter's day, but it still has a lot of life left in it to do many other things, like running a two-metre rig, or even an HF rig. It will light your house if the

power goes off. If you look after it with a little care, it will last years, probably till the car needs another new battery.

Keep the battery clean and off the concrete floor. Use it often and trickle-charge it up to the top. I put my charger on a timer set for three hours a day. Discharge your battery every month with a 40 watt headlight or suchlike. I use an old light with the high beam burnt out. The low beam does a good job of discharging. I have made cables for emergency lights— see TCA June 1979 page 25. Δ

TCA sometimes gets useful small contributions like these. Whenever a pageful accumulates, they will be published under the heading "From the bench." Naturally, your contribution will be welcome too.

Update's all-band Trapless Vertical Antenna

This antenna makes use of the principle that the impedance seen at one end of a half-wave transmission line is the same as the terminating impedance at the other end, regardless of the transmission line impedance. So, put the tuning coil in the shack, followed by a half-wave of coax, and you can feed the system! The coil behaves as if it were at the base of the antenna. If the coax is a multiple of a half-wave of the frequencies desired, the coil will tune to resonance, for a standing wave ratio of nearly 1 to 1. And either 50 or 75 ohm coax can be used.

You must choose the bands that you wish to work to determine the length of coax. For 10 through 40 metres, 41 feet is required. For 10 through 80 metres, use 92 feet. For 10 to 160 metres, use 184 feet. The length is critical, within a foot. Vary the coil for a dip in SWR. If correct it will be close to 1 to 1. If the best SWR is at a higher frequency than you wish, lengthen the line a foot or so. If the frequency is lower, shorten it a little. You can use a rotary-coil inductor, or a fixed coil with an alligator clip for tuning, sized for the bands desired.

If you have any trouble tuning the highest band, add a small loading coil at the base of the antenna, to resonate at the highest frequency— 10 metres.

A convenient length of aerial is 22 to 33 feet for the higher bands, longer for the top bands. Aluminum conduit is a suitable material. The system will work when loaded against ground, but is improved with three or four radials for each band. Radials 34 feet long work out okay for the higher bands.

from UPDATE Nov. '84



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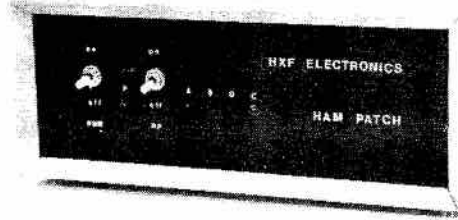


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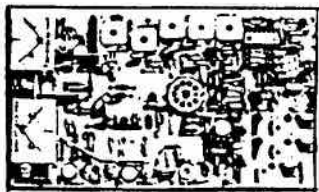
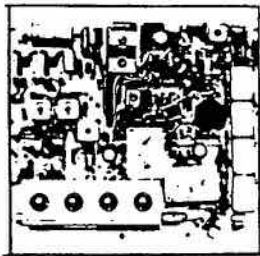
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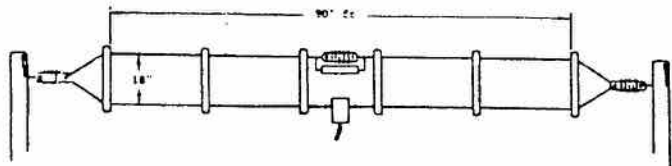
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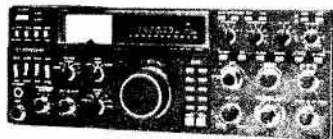
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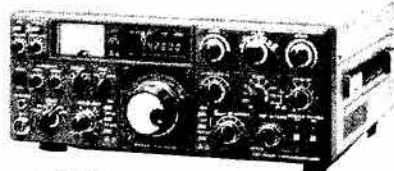
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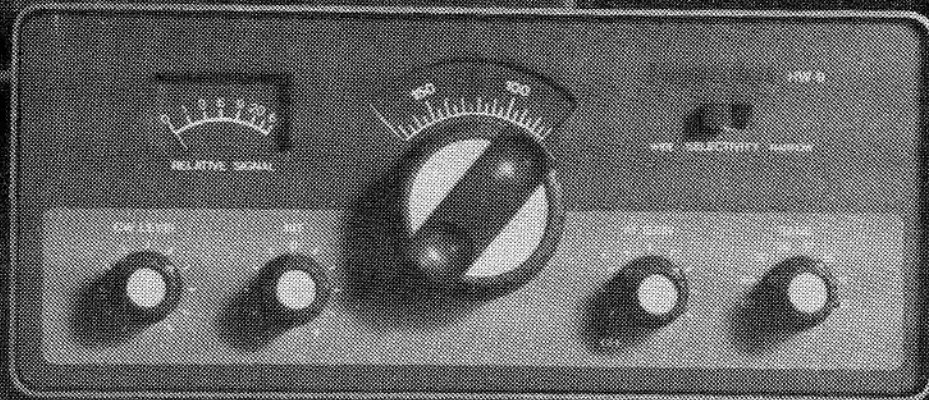
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