

# TCA



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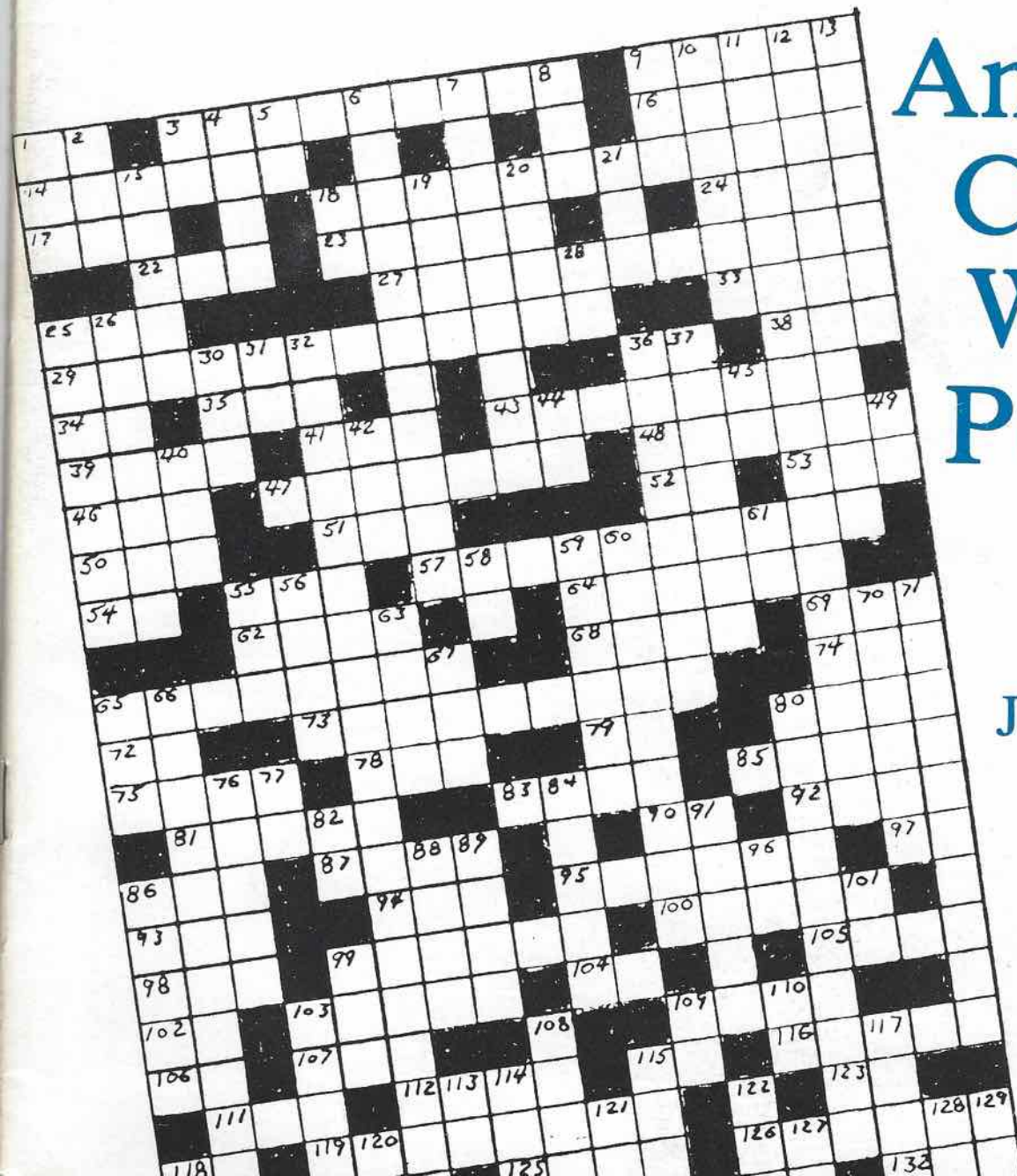
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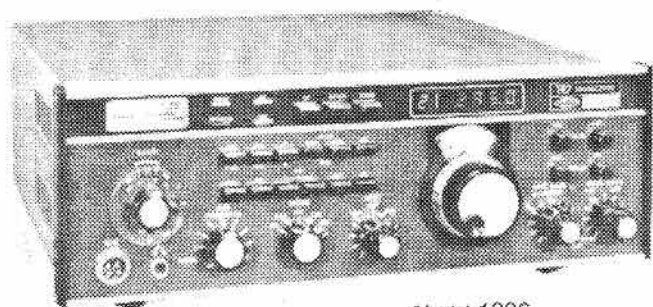
The Canadian Amateur Radio Magazine

## Amateur Cross- Word Puzzle

Just for  
the fun  
of it!

See Page 26

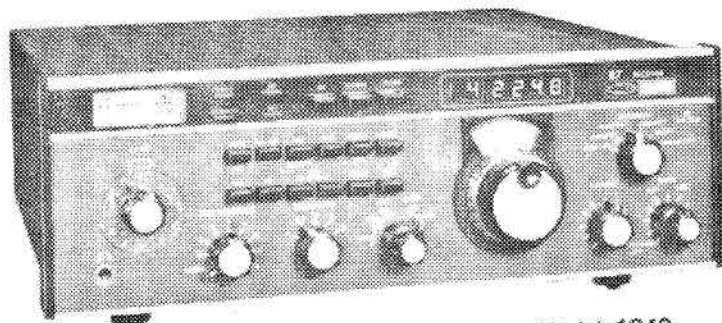




Model 1336

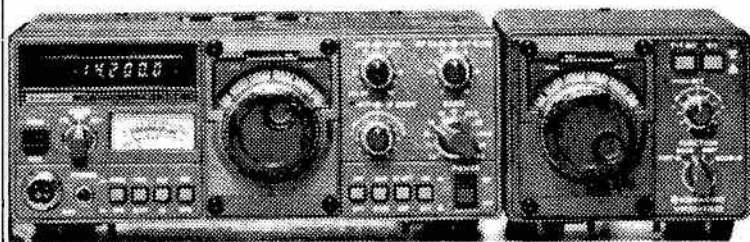


**TR7** Solid State  
Continuous Coverage  
Synthesized HF System



Model 1240

**R7** Synthesized General  
Coverage Receiver



TS-130S

VFO-120

**Kenwood**

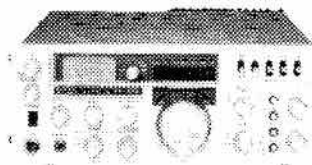
**TS-130S/V**

'Small wonder'... processor,  
N/W switch, IF shift, DFC option



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**107 SERIES**



FT-107M



R-1000

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PRINTED IN CANADA

**THE CANADIAN AMATEUR**

November 1981

Vol. 9 No. 10

**Contents**

What is a Microcomputer? .....	15
CRAG Column .....	16
DX Column .....	17
Eavesdropping on Eternity .....	19
Canadian Contest Scene .....	20
Oscar Statistics .....	22
Amateur Crossword .....	26
Forming the Rose City Club .....	29
P29 Adventure .....	30
Courteous Canadians .....	30
Ontario Director's Report .....	31
Canada Day in the Field .....	32
Infosection .....	45
Swap Shop .....	45

**TECHNICAL SECTION**

Converting the Systcoms VRC5 for 220 MHz Service	36
Technical Writing, A Beginner's Guide .....	36

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

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

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**TCA - The Canadian Amateur** is published by C.A.R.F. Publications Limited, 370 King St., P.O. Box 356, Kingston, Ontario, Canada K7L 4W2. It is available for \$10 per year or \$1 per copy. It is recommended by the Canadian Amateur Radio Federation, Inc. and members receive it automatically.

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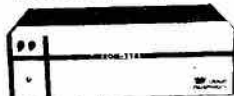
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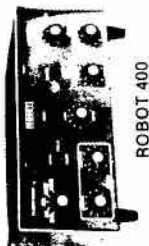
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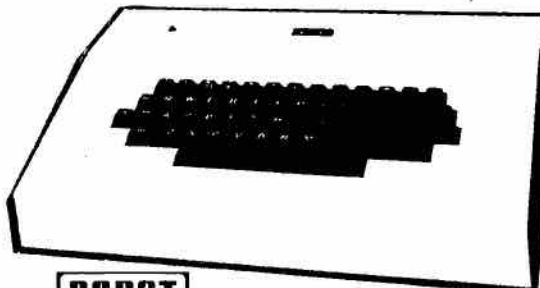
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## WARC BANDS FACTORY INSTALLED!

FT-707 is shown with  
optional FV-707DM VFO  
& Scanning Microphone



## THE FT-707 "WAYFARER"

The introduction of the "WAYFARER" by Yaesu is the beginning of a new era in compact solid state transceivers. The FT-707 "WAYFARER" offers you a full 100 watts output on 80-10 meters and operates SSB, CW, and AM modes. Don't let the small size fool you! Though it is not much larger than a book, this is a full-featured transceiver which is ideally suited for your home station or as a traveling companion for mobile or portable operation.

The receiver offers sensitivity of .25 uV/10 dB SN as well as a degree of selectivity previously unavailable in a package this small. The "WAYFARER" comes equipped with 16 poles of IF filtering, variable bandwidth and optional crystal filters for 600 Hz or 350 Hz. Just look at these additional features:

### FT-707 with Standard Features

- Fast/slow AGC selection
- Advanced noise blanker
- Built-in calibrator
- WWV/JJY Band
- Bright Digital Readout
- Fixed crystal position
- Factory-installed WARC bands
- Unique multi-color bar metering—monitors signal strength, power output, and ALC voltage.

### FT-707 with Optional FV-707DM & Scanning Microphone

- Choice of 2 rates of scan
- Remote scanning from microphone
- Scans in 10 cycle steps
- Synthesized VFO
- Selection of receiver/transmitter functions from either front panel or external VFO
- "DMS" (Digital Memory Shift)

Impressive as the "WAYFARER" is its versatility can be greatly increased by the addition of the FV-707DM (optional). The FV-707DM, though only one inch high, allows the storage of 13 discrete frequencies and with the use of "DMS" (Digital Memory Shift) each memory can be band-spread 500 KHz. These 500 KHz bands may be remotely scanned from the microphone at the very smooth rate of 10 Hz per step.

# TR-7730

Miniaturized, 5 memories, memory/band scan



\$449

## TR-7730 FEATURES:

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

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

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

## Optional accessories:

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

## SPECIFICATIONS

### [GENERAL]

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

### [TRANSMITTER]

RF Output power:	HI = 25 W LOW = 5 W approx.
Frequency Tolerance:	Less than $\pm 20$ PPM ( $-10^{\circ}\text{C}$ to $+50^{\circ}\text{C}$ )
Spurious Radiation:	Less than $-60$ dB (HI)
Modulation:	Variable Reactance Direct Shift
Maximum Frequency Deviation:	Less than $\pm 5$ kHz

### [RECEIVER]

Circuitry:	Double Conversion Superheterodyne
Intermediate Frequency:	1st IF = 1.0 MHz 2nd IF = 455 kHz
Sensitivity:	Less than 0.25 $\mu\text{V}$ for 12 dB SINAD Better than 0.5 $\mu\text{V}$ for 30 dB S/N
Selectivity:	Better than 12 kHz $\pm 6$ dB Less than 15 kHz $\pm 60$ dB Better than 60 dB
Spurious Response:	Less than 0.1 $\mu\text{V}$ threshold
Squelch Sensitivity:	More than 0.1 $\mu\text{V}$ B.G.
Audio output:	

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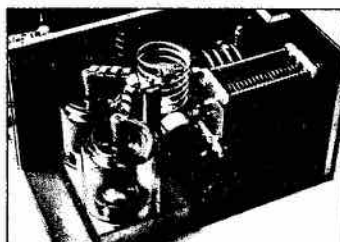
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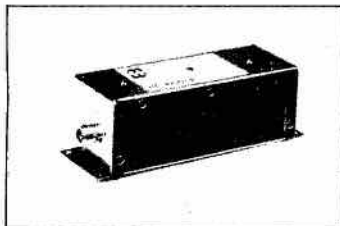
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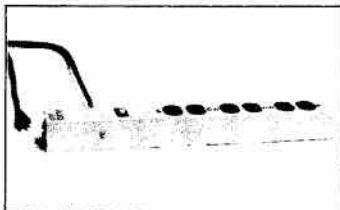


#### HF-1000LP LOW PASS FILTER

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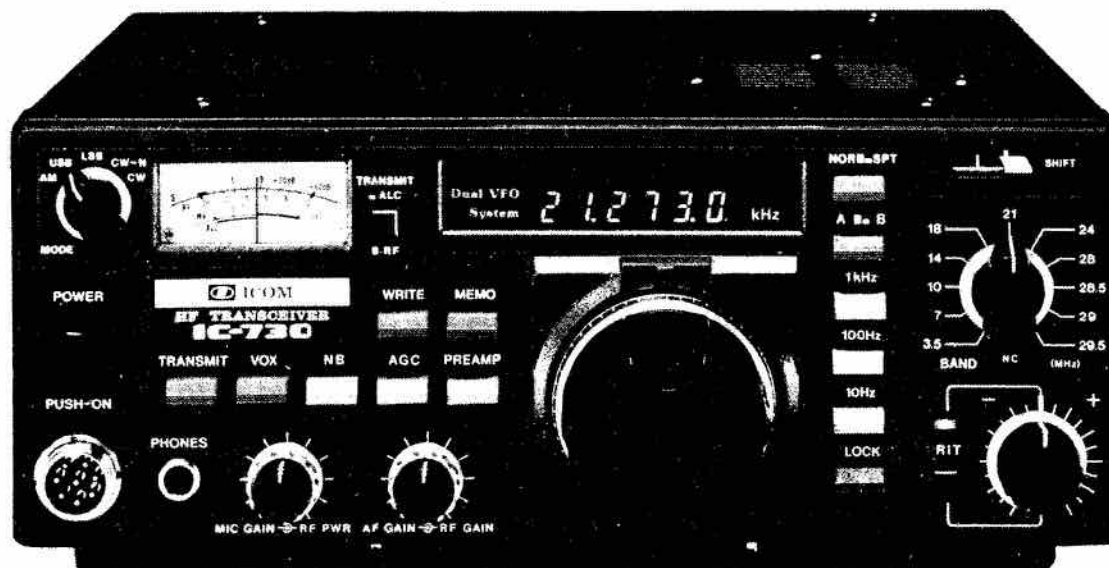
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- Unique tuning speed selection for quick and precise QSY choice of 1 KHz, 100 Hz or 10 Hz tuning.
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- Up/down tuning from optional microphone



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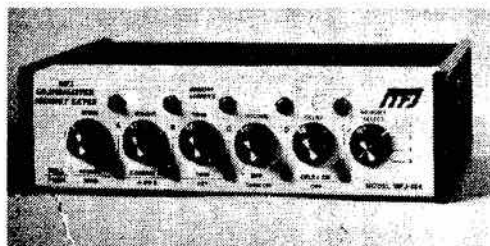
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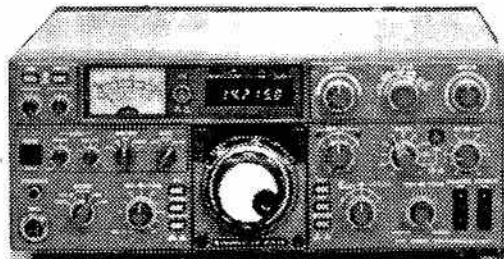
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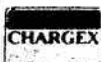
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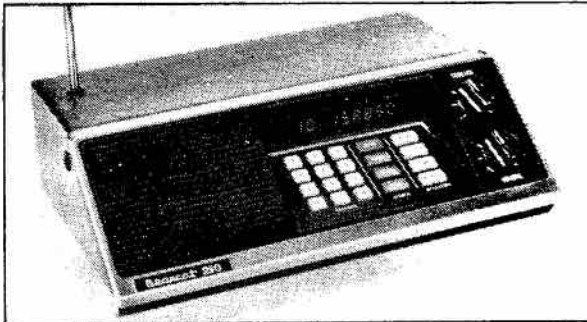
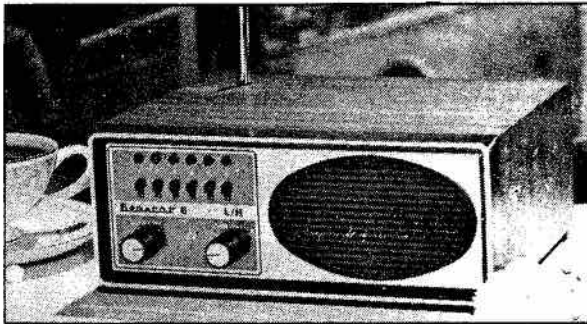
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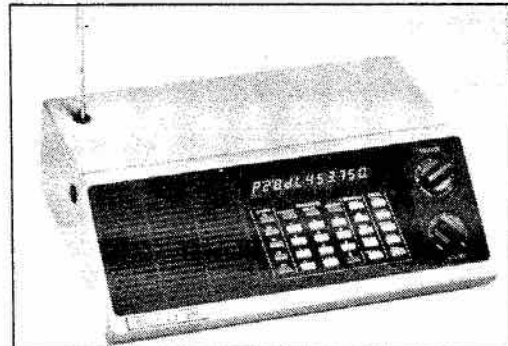


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# TEN-TEC

## The All-American DX Machines

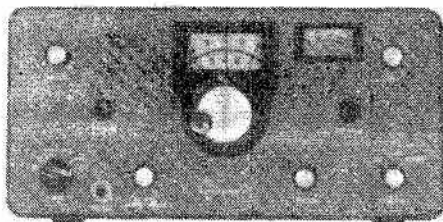


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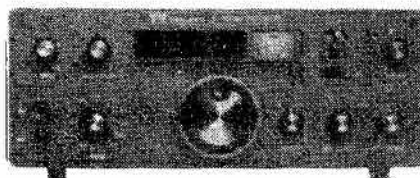
Another TEN-TEC "first" is in OMNI-C—3-mode offset tuning: offset Receiver tuning, offset Transmitter tuning, and offset Transceiver tuning—and in 2 ranges:  $\pm 500$  Hz or  $\pm 4$  kHz—for complete tuning flexibility in any situation.

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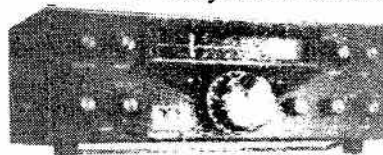
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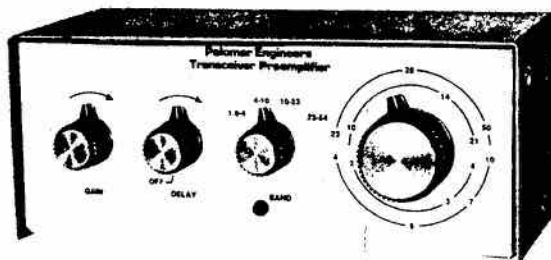
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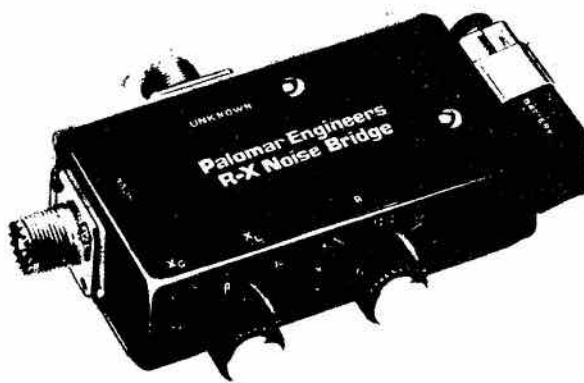
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**RADIO STATIONS COMMON? NOT THIS KIND** is a history of communications commencing with the first visual systems, terminating in a brief description of the electronics fitted in the modern merchant ship, and centered around the largest marine radio station in Canada, Halifax Radio VCS.

As a member of the Royal Canadian Navy, Metro Goldwyn Mayer Inc., Air Services Branch Department of Transport, Gypsum Transportation Ltd., Royal Canadian Mounted Police and Canadian Coast Guard, Mr. Roscoe has enjoyed 25 years as a radio operator. He operates Amateur Radio Station VE1BC and is an active member of Society of Wireless Pioneers, Veteran Wireless Operators Association, Canadian Amateur Radio Federation, Nova Scotia Amateur Radio Association, Kings County Amateur Radio Club, American Radio Relay League and World Ship Society.

Anyone with an interest in Amateur Radio, Ship Radio Stations, Commercial Radio Operating, Telegraphy, Aircraft, Ships or Nova Scotia should find this book interesting and informative.

A limited number of copies are available from the author only. Because the book has nearly 500 pages and 400 photographs, it is necessary to charge \$20<sup>00</sup> Canadian per copy. Please allow several weeks for delivery. Sorry, no C.O.D. orders. Forward cheque, money order or VISA account number with expiry date and name as printed on your card, to S.G. Roscoe, Box 1, Site 5, R.R. 5 Armdale, Nova Scotia, Canada B3L 4J5.

# What is a Microcomputer?

By Paul Kite  
Computerland, Ottawa

## PART ONE

Rams, Roms, Bits, Binary, Digital, Nano seconds, CPU, Mainframe, Bytes, Tracks, Sectors... in this new sea of words that we hear on TV, at work, at school and from our children, one term is becoming very familiar with us: *Microcomputers*.

Microcomputers are here and here to stay. They are infiltrating our schools, work and home. They are quite different from the past generations of computers we have known and loved (and hated!).

This new breed of microcomputers are small and inoffensive; they can sit on your desk or your coffee table and do everything from 'Space Invaders'® to complex accounting, home finance, university level teaching, financial modelling, phone lists, telecommunications and much more.

## MINIS AND MAXIS

The microcomputer can best be described by first examining its prefix and then comparing it to its big brothers (or sisters).

The word 'micro' means small, therefore meaning small computer. In the world of computers there are Maxi, Mini and Micro computers.

Maxi computers are the largest and by far the most powerful and expensive. An IBM370 is a good example. By the time you have one of these up and running with all the support needed for it, you would have spent hundreds of thousands of dollars and, in future years of support and maintenance an IBM370 will cost you hundreds of thousands of dollars more.

The next step down is the Mini computer. They are the middle of the road systems doing most of what a Maxi can do but at a lesser level of performance. An example

of a Mini is a DEC 11. This machine is still quite expensive but does not carry the same price tag of Maxi computers. There is less to do in terms of operation and maintenance and their costs range from \$60,000 to several hundred thousand dollars.

Finally, we come to the Micro. This new and exciting computer does many functions mentioned as above, but again not at the same level. An important comparison here is the cost. A microcomputer will cost anywhere from \$900 to \$15,000 and more depending on the system. This low price has opened the doors of computers to almost everyone.

Micros are not only inexpensive, but are very easy to use. Due to the high quality and availability of software (programs to make the computer do special and general work), a person who has never been exposed to computers can sit down and within a few minutes be

interfacing and controlling a computer.

Recently, I had the pleasure of presenting and demonstrating an Apple computer with an 'accounts receivable' package at a local high school. After only a few minutes of instruction, the kids between 14 and 18 were running a complex accounting system.

The software now available for micros is usually what we call 'user friendly'. This means that you as the user do not have to know the internal workings of the computer, the only information you need to know is what diskette to put in and how to turn the machine on. After this is done, the computer will ask you questions and your answers will direct the direction and progress of the computer.

*Next issue: Part 2 further examines the many facets of microcomputers.*

## Amateur Broadcasting Stations in the 1920's

At the beginning of commercial broadcasting in Canada, there was still a number of low power (about 20 watts) Amateur broadcasting stations. They used '10' as their call sign prefix. The following table gives the Amateur call sign, location, year they came into service, commercial call sign and year.

10AB Moose Jaw .....	1922- CHAB 1933
10AD Fredericton .....	1923 - CFNB 1926
10AK Stratford .....	1927- CJCS 1935
10AS Charlottetown .....	1924- CFCY 1925
10AT Unity (Sask) .....	1923- CHSC 1925
10AT Trail (B.C.) .....	1932- CJAT 1933
10BI Prince Albert .....	1925- CKBI 1933
10BP Wingham .....	1926- CKNX 1935
10BQ Brantford .....	1923- CKPC 1927
10BT Chatham .....	1926- CFCO 1928

VE3JKR in the Ottawa Valley  
Mobile ARC 'Rambler'



Canadian  
Repeater  
Advisory Group

Lots of news this month, some of it quite old and still left over from the mail strike. First of all, via the in N.S., N.B. and P.E.I. has been received, and here are the more important changes:

—Charlottetown PEI add VE1CRA 146.070 146.670

—Caraquet NB, add VE1BRF 146.160 146.760

—Perth NB, change VE1BTK to VE1BGK

—Truro NS, add VE1ZG 146.310 146.910

—Fredericton NB, add VE1GT 146.340 146.940

—Truro NS, VE1LHD add note D (data)

From Andre VE2FNF comes an updated listing of the repeaters in the Saguenay, Lac St Jean area. Delete VE2RCM Alma:

Alma	VE2RCA	146.070	146.670	A
Alma	VE2RCR	146.340	146.940	E
Bagotville	VE2RYB	146.040	146.640	
Chicoutimi	VE2RCC	147.720	147.120	Q
Chicoutimi	VE2RIU	146.160	146.760	A
Dolbeau	VE2RCD	146.100	146.700	A
Jonquiere	VE2VP	146.220	146.820	
Mont Dufer	VE2ES	146.280	146.880	
Mont Valin	VE2RMV	147.840	147.240	P
Ste Monique	VE2TG	146.430	147.030	
Mont Siriac	VE2RJZ	147.810	147.210	
St Felicien	VE2RSF	146.010	146.610	A

Andre also passes on information about the local net on VE2RCR in Alma at 1830 local daily. Anyone passing through is invited to check in and say bonjour.

Don VE2DWG advises that the listing for Deux Montagnes VE2RAU should read as follows:

Dorval VE2RAU 146.310 146.910

The intended coverage area is the western end of Montreal Island, and is open to all users. They hope to provide a second input on 10 GHz sometime this year.

Ken VE3IHX who passes by often on 401 and always checks in on 52, has advised that The Pickering Ont machine VE3IL is now VE3PIC, still on the same frequencies.

Craig VE3HWN passes on the information that VE3RRR in Waterloo has changed calls to V E 3 W W W .

Jim VE3FZG passes on the information that a new repeater is in operation in Mississauga, soon to be moved to Oakville. Add the following to your listings:

Mississauga VE3ACN 448.250 443.250 Q

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

Lawrence VE5II has sent in a complete new set of listings for Sask:

Anglin Lake	VE5BBI	146.160	146.760	
Grenfell	VE5GRP	146.070	146.670	
Estevan	VE5EST	147.780	147.180	
Ituna	VE5ABO	146.310	146.910	
Last Mountain	VE5AT	146.250	146.850	B
Lloydminster	VE5RI	146.340	146.940	
Meacham	VE5HV	146.220	146.820	
Melfort	VE5RPT	146.280	146.880	
Moose Jaw	VE5CI	146.340	146.940	
Moose Mountain	VE5MMR	146.220	146.820	
Moosomin	VE5MRC	146.160	146.760	
North Battleford	VE5BRC	147.280	146.880	
Pilot Butte	VE5UHF	449.000	444.000	Q
Prince Albert	VE5EEE	146.460	147.060	
Regina	VE5KE	146.460	147.060	
Regina	VE5RRG	147.720	147.120	
Regina	VE5SS	146.280	146.880	A
Rock Point	VE5XW	146.130	146.730	
Saskatoon	VE5SCA	146.190	146.790	A T
Saskatoon	VE5SK	146.040	146.640	
Saskatoon	VE5SW	146.340	146.940	
Swift Current	VE5SCR	146.280	146.880	
Weyburn	VE5NEY	146.100	146.700	
Yellowhead	VE5ESK	146.160	146.760	
Yorktown	VE5RF	146.280	146.880	Q C L

Lawrence's list was forwarded through the cooperation of Warren VE3RU who was travelling out west this summer.

From the west coast, Jack VE7DZO sends word about a repeater that he has tried to tell me about before but it obviously never got here. Please add to your BC listings:

Alert Bay VE7RNI 146.340 146.940 Q

Although now Alert Bay, it will be moved to Port McNeil soon.

Finally, Frank VE7AFJ in Nanaimo sends word that the repeater shown as VE7? in Nanaimo is really VE7RNA, so change your listings as such.

Just before leaving for this month, a reminder to all that CRAG is just that, an *Advisory Group*. We have no authority at all to issue repeater frequency pairs or even comment on pairs that have/have not been issued for repeaters. If you are anticipating putting a machine on the air, get in touch with your local frequency coordination committee.

In CRAG's role as an advisor, if all committees involved in repeater channel assignments/coordination etc. would let me know who to contact, where to contact them, and what general area of the country that they coordinate for, I would be happy to assemble and eventually publish the information, as well as having it available for query.

# DX

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

Summer is over, and now is an excellent time to check out antennas and feed-lines, before the snow begins to fly. It is also a good time to put up those low band antennas that you have been putting off. 160 M, 80m and 40M enjoy much lower levels of QRN during the Fall and Winter months, and with the interest high in 5-band DXCC and 5-band WAZ, the DX activity should remain at the high level.

Solar radiation ionizes the various layers of the earth's atmosphere, and it is this ionization which allows propagation of radio waves in the HF spectrum.

During the Fall and Winter

months, the days get shorter and the nights longer. In the hours of darkness, the solar radiation cannot ionize the atmosphere, and the MUF falls to a point where DX is more likely on the 40/80/160M bands. The longer the atmosphere has to lose its ionization, the lower the MUF, and the better the DX openings are likely to be on these bands.

Operating practices also differ on 80M, especially on phone. Whereas CW is pretty straightforward, with most of the DX found in the bottom 25-30 kHz of the band, phone, because of the differences in world-wide frequency allocations, is much more com-

plex. Split frequency operation is the order of the day ( or should I say night?). A list of the 3.5 MHz phone allocations throughout the world appears here.

Finally, like DXing on all of the other bands, patience is its own reward.

In a column later this year, I will examine the grey-line method of DXing on 80 M, and also I will review a new device called the DXer's Edge, which should prove quite useful in piloting one's way to DX on the low bands.

In the interim, there is a section on propagation in the Radio Amateur's Handbook, and if a copy is available, I highly recommend "80 Meter DXing" by John Devoldere ON4UN, who certainly knows the subject well ( having worked close to 300 countries on 80 M ).

## Bits & Pieces

For those of you who are confused by the T3 Kirabati prefixes, the following outlines the three main geographic regions in that sprawling Pacific republic:

T30- Western Kirabati- used to be T3A, or VR1-Gilbert and Ocean Is.

T31-Central Kirabati- used to be T3P, VR1 Br. -Phoenix Is.

T32- Eastern Kiribati- used to be T3L, or VR3- Christmas, and Line Is.

Each of the above three counts as a separate country for DXCC.

AREA	Frequency (Mhz )
Africa	3.600 - 3.800
Asia	3.600 - 3.900
Austrilia	3.535 - 3.700
Pacific	3.600 - 3.900
Canada	3.725 - 4.000
Japan	3.500 - 3.575 3.793 - 3.802 "DX Window"
Europe (excluding USSF	3.600 - 3.800
USSR	3.600 - 3.650
South America	3.600 - 4.000
U.S.A., and territorie	3.775 - 4.000

T32UF has been reported on 21.025 at 0200 GMT, QSL via JA1NVG. Also T32AB, 21.298, at 0330 GMT, QSL to N7YL.

An extremely useful source of DX information has recently come to my attention. This is the DARC DX Information Service. It is very comprehensive, and very competently run. DF6QZ, signing DK0DX/P originates the service twice weekly, on Mondays at 1900 GMT on 14.195 MHz., and again on Wednesday at 1700 GMT, on 21.285 MHz. If you can't make it, get a retired friend to tape the whole net, as it is well worth while.

FP0- St. Pierre, and Miquelon- From Oct. 9-19, a DXpedition by 3 W8's should provide lots of activity. FP0GBG is W8AH; FP0GAP, is W8NR; and FP0GAQ, is K8CJQ. QSL to their home calls via CBA.

K4YT- Africa - Karl is leaving October 1 for another swing thru Africa. He hopes to be active from 3B8, 5R8, 5H3, 7Q7, 5Z4, 9X, 9U, and T5 for approx. one week each, licensing permitting. QSL's for the entire opn. go to W2TK.

FR7/J- Juan de Nova- The recent DXpedition by FR0FLO, and FR7BP, made some 8,000 DXers very happy. For both, QSL to Herick Vandersteen, P.O. BOX 200, Tampon, 97430, France. Also, form Nov. 5, for abt. 10 days. QSL to their Reunion Is. C.B.A.

FB8WG- Crozet-Georges remains quite active, and has been found working on his own, outside the normal list operations. One hopes that as his expertise increases, that he will spend more time working freestyle.

In the meantime, the best times

to work him are on Saturdays, at 1500 GMT, on 21.320, and weekdays, especially Wednesdays, at 1500 GMT, on 21.165, with ON7EJ.

KX6- Marshall Is.- At the present time, only the following 3 stations are active: KX6RA, KX60R, and KX6BU. KX6RA has NO interest in DX, so if you hear him, don't get your hopes up.

3V8- Tunisia- DXpedition from Oct. 26- Nov. 2 1981. No other info available at this time.

BY1PK- China- Things are beginning to look hopeful for activity from super rare China. Apparently there are rigs, linear amplifiers, antennas, and all the affiliated hardware already in position and ready to go. It may take as long as two years before permission is granted for Amateur operations from there, but it could

CALL	FREQ.	TIME(GMT)	QSL info.
HL9RH	14.214	1120	
6W8IA	21.318	0045	
LU3ZY	14.239	0000	LU2CN
FB8WG	14.170	1640	F2CL
HS1AMS	14.212	1118	W7PHO
9N1MM	14.213	0053	N7EB
5N2LED	14.202	0017	P.O. BOX 900, Minna, Niger
YU7PEF/HBØ	14.021	0122	YU7GMN
7X2BK	28.554	1057	
OY9J	14.005	2354	
AH3AA	14.220	1120	Op. TOM, Box 4, APO, SF, 96305 CA.
FB8YH	14.037	1101	
UA1PAM	14.017	1254	UK3SAB
TA1MB	14.018	0121	
KA2MI	14.220	1030	Minami Tor.
TJ1BB	14.025	0300	AF4B
TL8WH	14.210	2300	W5RU QRT Nov. 15
VK2AGT	14.203	1200	Lord Howe Is.
ZD8RH	28.024	1020	
ZD8TC	14.022	2100	
YJ8NPS	21.150	1000	KB2KA
YK1AO	21.310	1130	
3V8BD	14.015	0100	G3FSD
3B8LH	28.604	1730	DL1LF
3B8AE/9	28.595	1033	3B8CF Direct Only
3B8CD/3B7	21.234	1714	3B8CD "
9X5FL	28.320	1100	DL3DF
9U5WR	28.020	0832	
5A7BG	28.545	1600	Box 733, Benghazi, Libya.

happen anytime. Needless to say, you'll hear it when it finally happens- BY1PK will be the station buried under the 30 over 975 KHz wide QRM.

/VE8- NWT- For anyone looking for a 20/40 M QSO with the N.W.T., for a 5-band Canada award, VE4YA will be operating /VE8 from about Nov. 18 to just before Christmas. He will have a KWM-2, and 30L-1 linear, so he should be putting out a reasonable signal. (Now if we can only get him on 80 M/160 M ). QSL to VE4YA, Box 1159, Gimli, Manitoba.

In spite of poor 80/160 M conditions during the recent CQ WW Phone contest, plenty of choice DX was available. Most of the rarer Carib. Is. were well represented, and there was a surprising amount of activity from the Pacific, and Africa. TYA11, 5A7, 9X5, 7P8, 9Q5, TA1, KH2, KG6R, ZE, 9J2, 5H3, 5Z4, XZ9, HL9, YJ8, CE9.. and CE0A were among the countries worked during the contest. 15M seems to be a perennial favourite with African nations. With the popularity of WW contests I strongly recommend the CW section at the end of the month. As the old saying goes: "Try it- you may like it".

#### QSL Information

<u>CALL</u>	<u>Via</u>
J5HTL	SM3CXS
JT1KAI	Box 639,
	Ulan Bator
EP2TY	JR3WRG
NH6D/KH4	NH6D
VK9NND	Box 279,
	Norfolk Is.
3C1AB	EA1QF
3C1CE	"
3C1JP	"
3C1MM	"
A22VL	W9VL
VP8AJN	KØJW
(S. Orkney)	
4K1A	Box 88, Moscow

# Eavesdropping on Eternity

How useful are eight ears? Canadian astronomers and geophysicists hope to find out soon. NRC, the Natural Sciences and Engineering Research Council (NSERC), and cooperating university researchers are beginning an engineering evaluation of a proposed network of eight radiotelescopes to span the country.

The string of antennas, which would effectively function as one radiotelescope, would be a new national facility for scientists studying events far away in space or deep within the earth. Should it be built, Canadian industry will be able to construct virtually the entire system, all the way from the antennas to the sophisticated microwave and computer instrumentation.

The preliminary proposal came from Dr. T.H. Legg of NRC's Herzberg Institute of Astrophysics, based largely on work done over several years by the Astronomy Section. The study, chaired by University of Toronto professor E.R. Seaquist, involves more than 20 scientists from the universities and NRC.

The use of radiotelescopes in concert to examine cosmic objects has been likened to filling in the pieces of a jigsaw puzzle, with each antenna being a puzzle piece.

The careful choice of antenna sites from Vancouver to Newfoundland would provide astronomers with a distribution of pieces that vastly improves their ability to construct accurate pictures of distant objects.

Canada's geography offers a unique opportunity to develop this system. Its 5,000 km span combined with the modern electronics to control and record data will pro-

vide scientists with a resolving power more than 100 times greater than any existing earth-based optical telescope or the proposed Space Telescope. When used with existing European facilities, the baseline could be stretched to 7,500 km. The consequent high resolution would enable scientists to examine in detail the cores of quasars, unexplained jets from those mystery objects, and such enigmas as SS433.

Closer to home, the eight-antenna system and its support equipment could be put to use examining the fluctuations of earth's rotation, tectonic movement and other seismic activity. The scientific benefits of the array would be matched by its contributions to Canadian industry.

With more than one firm here already producing antennas for the world market and with the control and recording systems readily available, imaginative industries would be able to participate actively in the development of this scientific enterprise.

from Feedline  
Niagara Pen ARC

## Earth Station Receiver

An earth station TV receiver, the ESR 24, was introduced at a satellite TV conference in Omaha by Drake. The 24-channel 3.7-4.2 GHz receiver will be sold through Drake's distributors for \$995, supplementing Drake's Amateur, commercial, and marine-communications lines.

# Contest Scene

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

## CONTEST CALENDAR

### November

7-9 ARRL SS CW  
14-15 European DX RTTY  
21-23 ARRL SS SSB  
28-29 CQ WW DX CW

### December

4-6 ARRL 160M CW  
12-13 ARRL 10M  
27 CARF Canada Contest

### January

9-10 73 Mag. 40/80 Phone  
16-17 73 Mag. 160 Phone  
22-24 CQ WW 160M CW

The results of the CQ WW DX CW were published in October CQ, and the Canadian results are presented here. Three Canadian records were smashed in the single op, all band; single op 28 MHz and multi op single transmitter categories.

Canadian plaque winners included VE3EDC (now VE3IY) who won CARF's plaque for his single op single band 21 MHz performance. VE2AYU won CANAD-X's single op all band hardware.

While Canadian participation was good, it has been better. Dissapointingly, and not for the lack of effort, not one Canadian entrant placed in the 'box' or the top six in any entry class. There were also one or two slip-ups in preparation of the results, perhaps in a rush to meet publishing deadlines. CZ6ZT's fine record-breaking multi-single score got lost somewhere between the high claimed scores published some months ago and the results.

Sauli VE1AIH appeared to

## Canadian Results CQ WW CW 1980

Call	Class	Score	QSOs	Zones	Countries
VE7WJ*	A*	1,927,492	2364	113	209
(VE7ZZ op.)					
VE2AYU	A	829,500	1134	92	208
VE1AIH	A	721,258	930	93	221
VE3MFT	A	530,915	926	85	160
VE3HD	A	529,464	619	97	215
XL3LON	A	464,810	700	79	186
(VE3OT op.)					
VE3DUS	A	440,775	803	67	188
VE2WA	A	433,350	599	79	191
VE3DAP	A	370,015	812	73	142
VE3GCE	A	279,702	408	71	175
VE3JCV	A	222,300	364	76	171
VE1ANU	A	117,670	337	73	145
VE7IQ	A	105,380	393	50	60
VE3EZX	A	13,664	108	26	35
VE3BMV*	28	504,063	1505	30	97
VO2CW	28	124,416	2550	27	69
VE3EDC	21	362,115	1233	30	87
VE1AJJ	21	87,024	468	20	54
VE7IN	21	16,675	251	12	13
VE6MP	14	58,016	294	24	50
VE8CFS	14	23,868	251	14	25
VE7EGD	14	9,207	139	14	17
VE3KRN	7	65,620	454	20	48
VE5RA	7	35,424	217	21	51
VE3JTQ	7	7,684	111	11	23
VE2FOU	3.5	24,150	273	14	28
VY1DD	3.5	360	20	4	5
VE3INQ	1.8	2,880	122	5	7
CZ6ZT*	MS	2,827,572	**	**	**
VE1AI/L***	MS	2,016,315	2465	94	239
VE3KKB	MS	1,580,082	1785	101	256
VE1DXA	MS	1,538,500	1854	99	241
VE3UOT	MS	855,627	1023	98	225
VE7ZZZ	MS	761,315	1476	84	131
VE3MFA	MS	524,734	829	85	174

\*New Canadian Records

\*\*breakdown not available

\*\*\* Sable Is. counts as being  
separate from Canada.

have worked almost 200 countries on each band according to his countries score of 721. Upon reflection, this appears to have been a typo, and should read 221.

The Sable Island operation by VE1AI, VE1MX, VE1UG and VE1AWS is also included in the listings below although by the rules of the contest, they were in another country. The group I was with, VE3KKB, appears to have placed as top VE multi-single in CQ's results, which really makes us feel good, but was quite unearned in the circumstances.

As I said last month, this year's class to be in for both the CW and SSB CQ Worldwide appears to be multi-single. VE1DXA will be on as usual, as will VE7ZZZ. The VE6ZT group may also show up. VE3BVD, who was part of the CZ6ZT multi-op CW group is finishing up his first phase of his multi-single station, and will be on with such impressive talent as VE3FRA and VE3KZ. VE3PCA, with VE3s CRG, CXL, KKB, MHI (ex-VE4OY), FQX and myself will be giving our new antennas a good run, and we hope to make good account of ourselves.

For the Phone, John VE3CXL will be in Europe on DOC business, and so may show up as 4U1ITU. In Canada, Multi-single honours will be awarded to the winner of what looks like a three or four way horse race.

In other contest news, 73 Magazine appears to be expanding their contest involvement. Three years ago, 73 came up with the only SSB-only contest on 160 metres, which was an immediate success. CQ later followed 73's initiative and set up a phone version of their own 160 metre contest.

Now 73, more particularly KE7C, has come up with what appears to be a very interesting contest on 40 and 80 metre SSB, the weekend before the 160 contest. The two contests have almost identical rules, and hopefully this new contest will be as successful as the

160 event. How long will it be before someone organizes a similar CW event on 40 and 80?

The CARF Symposium is fast approaching and it offers us our best chance to get some sort of new special prefix policy out of DOC. Bob Nash and I have both expressed ideas for a system that should help testers.

What we need now is letters. Letters showing some sort of support for the proposal to create a policy for allocating special prefixes to testers.

The present prefix policy does an adequate job of providing special events with a unique prefix for those who are interested. The reasons that I feel justify special prefixes for testers have been expressed several times in this column. Now we need some sign of support from you, the testers.

Your letter need not be particularly eloquent, nor need it even suggest or support a particular line any new policy should follow. If you can find the time, it is in your own interest to merely express support for the idea. Please write Vic DeCloux, Director of Operations, Telecommunications Regulatory Branch, DOC, 300 Slater St., Ottawa, Ont. K1A 0C8. Please send copies to Bob Nash VE3KZ and myself. This year the symposium will be in the Toronto area, and with luck a few of the Toronto-area contest community will be there. If a strong enough presentation is made, this long-sought-after change will become reality.

Good luck to all in the CQ WVs.

#### **ARRL 160 METRE CW**

Period: 2200z 4 Dec. to 1600 6 Dec.

Classes: Single or multi-op.

Exchange: RST and Province. DX will send RST and DXCC country.

Points: 2 pt/QSO with VE/W, 5 pt. for others.

Multiplier: total of ARRL sections (max. 74) and DXCC countries.

Entries: Official forms are available. Dupe sheets are needed if more than 200 QSOs are made. Entries should be sent within one month of the contest to ARRL, 225 Main St., Newington, Ct., 06111 USA.

#### **ARRL 10 METRES**

Period: 0000z 12 Dec. to 2400z 13 Dec. Max. of 36 hours may be worked.

Classes: single op, single or both modes, or multi op, all mode.

Exchange: RST and Province. Stations outside VE/W will send a serial number.

Multiplier: Canadian call areas, USA States and DXCC countries.

Points: 2 pt/QSO, 4 pt/QSO with USA Novice or Technician class stations. They will identify themselves as such by sending /T or /N after their callsigns.

Entries: should be submitted within 30 days of the contest. Official forms are available. Dupe sheets should be included with any entry with more than 500 QSOs. Entries should be sent to ARRL, 225 Main St., Newington, Ct. 06111, USA.

## **Alberta Traffic Net**

You are invited to join in the fun - the Alberta Traffic Net - a slow-speed CW net for Alberta and neighbouring areas. The net meets daily at 7:15 local time on or about 3685 MHz. Procedure used is standard CW net procedure as outline in any of the current operating manuals. Listen for an evening's net and you will soon see how easy it is.

The ATN now has as its members a jovial bunch of fellows (we need some YL's), who will do all they can to help the newcomer. Choose your CW speed, and the net control station will answer you at your speed. A good chance to practice your fist.

# Oscar Stats

For those of you who are interested in the Oscar program, here are some statistics on all the Oscar satellites plus the Oscar 7 and 8 parameters as provided by the Pioneer ARC of Ottawa. An Amsat membership form is included as well. Please support this and other Amateur experimental groups in Canada.

## OSCAR 7 AND OSCAR 8 PARAMETERS COMPARED

AMSAT - UK

	OSCAR-7	OSCAR-8
2m/10m transponder	uplink: 145.85-145.95MHz downlink: 29.4 - 29.5MHz (mode A)	uplink: 145.85-145.95MHz downlink: 29.4 - 29.5MHz (mode A)
70cm/2m transponder	uplink: 432.125-432.175MHz downlink: 145.975-145.925MHz (mode B)	
2m/70cm transponder		uplink: 145.900-146.000MHz downlink: 435.1-435.2MHz (mode J)
Beacons	435.10MHz (mode A) 145.972MHz (mode B) 29.502MHz (mode A)	435.095 (mode J) 29.402 (mode A)
Period:	114.944834 minutes	103.23162 minutes
Longitude increment	28.736208°W per orbit	25.80868°W per orbit
Inclination:	101.7010°	98.992°
Perigee	1450km	898.259km
Apogee	1461km	910.37km
Eccentricity	.0010218	.00083
NASA object no	74 89 B	78 026 B
Schedule:	not to be used on Wednesdays. Otherwise according to battery state.	not to be used on Wednesdays; usually - mode A - Monday to Friday, mode J - Saturday and Sunday.

## SUMMARY OF OSCAR STATISTICS & SPECIFICATIONS

ITEM	1	2	3	4	5 (Australia-Oscar)	6	7	8
Launch Date	Dec. 12/61	Jun. 2/62	Mar. 9/65	Dec. 21/65	Jan. 23/70	Oct. 15/72	Nov. 15/74	MAR 5/78
Useful Life	18 days	18 days	16 days	1 Year (1)	46 days	4 years 8 mos	3+ Years	
Apogee (miles)	258 m	240 m	535 m	20,847 m	920 m	908	900	564
Perigee "	146 m	129 m	565 m	101 m	842 m	930	910	
Orbital Period (mins)	91.1	90.5	103.5	587.5	115	115	115	103
Inclination	81.2°	74.3°	70.1°	26.8°	101.9°	101.7°	101.7°	99.4°
Size (inches)	12 x 10 x 3		18 x 12 x 7		17 x 12 x 6	17 x 12 x 6	14 H x 17 D	
Weight (lbs)	10	10	33	29	34	40	64	
Power Source	Battery	Battery	Solar + Bat.	Solar + Bat.	Battery	Solar + Batt.	Solar + Batt.	Solar + Bat.
Antennas	1/4 Mono	1/2 Dipole	1/2		1/4 Mono-2m. 1/2 Dipole-10m.	1/4 Micro-2m. 1/2 Dipole-10m.	4 x 1/4 CP Turn 1/2 Dipole-10m.	1/4 Dipole 435 1/4 Dipole 10m
Beacon Tx Freq.	144.58	144.99	145.85	431.9	144.05 (1) 29.45 (2) 100 mW (1) 250 mW (2)	435.10 (1) 29.45 (2) 300 mW (1) 200 mW (2)	435.10 (1) 145.91 (2) 29.50 (3) 300 mW (1) 100 mW (2)	435.075 (1) 29.402 (2)
" " Power	100 mW.		30 mW					
Translator Uplink Fr.	—	—	144.1	144.1	—	145.95	145.90 (1) 132.15 (2)	145.909-99.7 (1)
" Bandwidth	—	—	BW = 50 kHz	BW = 7	—	BW = 100 kHz	BW = 100 kHz / 400 Hz	BW = 100 kHz
" Downlink	—	—	145.9	431.9	—	29.50	29.45 (1) 145.95 (4) 2 W (1) 8 W (2)	145.750-95.1 (1) BW = 100 kHz
" " Power	—	—	1W	3 W.	—	1.3 W.		9w pwr 1' 16.2w 12'
Command Control					✓	✓	✓	✓
Telemetry	✓	✓	✓	✓	✓	✓	✓ (CW) ✓ (FSK)	✓



# AMSAT CANADA

BOX 7306, VANIER, ONT. K1L-8E4

NAME \_\_\_\_\_  
FOR OFFICE USE ONLY

CALL \_\_\_\_\_

LIC. \_\_\_\_\_

A. \_\_\_\_\_

B. \_\_\_\_\_

ARRL  
CARF

C. \_\_\_\_\_

D. \_\_\_\_\_

M. \_\_\_\_\_

Act. \_\_\_\_\_

E. \_\_\_\_\_

F. \_\_\_\_\_

Eng. \_\_\_\_\_

G. \_\_\_\_\_

H. \_\_\_\_\_

T. \_\_\_\_\_

Exp. \_\_\_\_\_

(PLEASE TYPE OR PRINT)

MEMBERSHIP APPLICATION (INDIVIDUALS)

Name \_\_\_\_\_ Call \_\_\_\_\_ License Class \_\_\_\_\_  
Street \_\_\_\_\_ City \_\_\_\_\_ State/Province \_\_\_\_\_  
Country \_\_\_\_\_ Postal Code \_\_\_\_\_ Home Phone \_\_\_\_\_  
Employer \_\_\_\_\_ Position \_\_\_\_\_  
Business Address \_\_\_\_\_ Business Phone \_\_\_\_\_  
CARF Member? Yes \_\_\_\_\_ No \_\_\_\_\_ Club Affiliations \_\_\_\_\_  
ARRL Member? Yes \_\_\_\_\_ No \_\_\_\_\_  
What Band and Modes are you active on? \_\_\_\_\_  
Education \_\_\_\_\_  
Are you willing to accept an assignment within your field of interest? Yes \_\_\_\_\_ No \_\_\_\_\_  
Please indicate how you can help AMSAT. \_\_\_\_\_

## MEMBERSHIP QUESTIONNAIRE (OPTIONAL)

PLEASE INDICATE BELOW AREAS OF POSSIBLE CONTRIBUTION (Check those which apply.)

### Engineering

### Administration

Prel. Design	Circuit Design	Ext. Relations	Tech. Writing
Antennas	Data Proc.	Library	Clerical/Sec.
Tracking	Stabilization	Fund Raising	Printing/Repro.
Power Systems	Testing	Data Processing	Photography
Telemetry	Packaging	Legal	Accounting
Structural Design	Data Acquisition	Editorial	Publications
Fabrication	Data Dissemination	Liaison with _____	Tech. Translation (indicate languages)
Drafting		Other _____	
Other _____			

Are you equipped for OSCAR operation? \_\_\_\_\_

Education \_\_\_\_\_

Satellite Bln. Xmsns. \_\_\_\_\_

Please describe experiments you believe AMSAT should undertake. \_\_\_\_\_

I understand that the statements made hereon are for the exclusive use of the Radio Amateur Satellite Corporation and will not be released to other agencies. I further understand that it is my responsibility to insure that only information which my employer does not consider proprietary will be released to AMSAT.

I hereby apply for Membership in AMSAT. Attached is \$ \_\_\_\_\_ for \_\_\_\_\_ years dues and \$ \_\_\_\_\_ donation. (Dues are \$ 18.50 per year). (Dues include a subscription to Orbit Magazine). You are invited to prepay dues for any number of years, and Life Membership is available for a donation over \$230.00.

Please make cheque or money order payable to "AMSAT CANADA" and allow 4 to 6 weeks for processing.

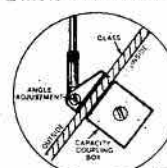
Signed \_\_\_\_\_ Date \_\_\_\_\_

FOR OFFICE USE ONLY

Date Received \_\_\_\_\_ Payment \_\_\_\_\_ Ack \_\_\_\_\_ N/L \_\_\_\_\_

## Here's a nifty Christmas guide to gifts you'll give with lots of pride

### 2 Meter Avanti Mobile Antenna



Mounts on glass — no holes! Receives and transmits through glass. Superior performance. Superior radiation true Omni-Directional pattern. Mounting on glass is easy and effective using new Duo-Bond method which combines quick drive away with rugged durability. No holes to drill, no magnet to scratch paint, no clamps. Takes only minutes to install, without tools. No ground plane required. Electrical connections are inside and out of sight to prevent crimping or corroding coaxial cable.

**\$49 + 3S&H**

### DAIWA J.W. Miller



CN720b \$259  
CN620b \$185  
CN630 \$219  
RF440 \$205  
RF660 \$159  
CS201 \$35  
CS401 \$105  
CN520 \$109  
CNA100 \$549

### DAIWA CN-720B SWR & POWER METER

The cross-needle meter indicates both forward power and reflected power on one meter and SWR is read directly at the point where the needles intersect. Both power and SWR can be checked instantly without time-consuming sensitivity adjustments—even when using SSB.



#### CN-720 and CN-620

Frequency Range: 1.9—150 MHz  
SWR Detection Sensitivity: 5 Watts min.  
Power: 3 Ranges (Forward, 20/200/1000 Watts)  
(Reflected, 4/40/200 Watts)

#### CN-630

Frequency Range: 140—450 MHz  
Power: 2 Ranges (Forward 20/200 Watts)  
(Reflected 4/40 Watts)

### RF Speech Processor Models RF-440 & RF-660

Increases talk power with splatter free operation. RF clipping assures low distortion. Simply install between microphone and transmitter.

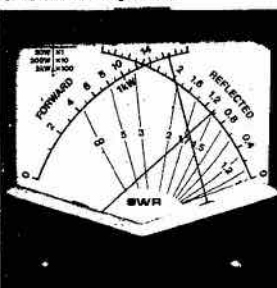


Talk Power: Better than 6 dB  
Frequency Response: 300-3000 Hz at 12 dB down  
Distortion: Less than 3% at 1 kHz, 20 dB clipping  
Power Requirement: RF-440 self contained, AC power supply; RF-660 13.5V DC external supply

### Coaxial Switches

2 Position/Model CS-201  
4 Position/Model CS-401

Professionally engineered cavity construction  
Power Rating: 2.5 kW PEP, 1 kW CW  
Impedance: 50 Ohms  
Connectors: SO-239  
Insertion Loss: Less than .2 dB  
VSWR: 1:1.2  
Maximum Frequency: 500 MHz  
Isolation: Better than 50 dB at 300 MHz;  
better than 45 dB at 450 MHz;  
adjacent terminal  
Unused Terminals grounded



DAIWA cross-needle precision is now available in a compact case. Get forward power, reflected power and SWR readings at a single glance—from a meter that fits anywhere!

CN520 - Frequency: 1.8-60MHz • Power range: Forward 200/2kw, Reflected 40/400 watts • Detection Sensitivity: 40 watts minimum • Accuracy: +10% at full scale • Dimensions: 72W x 72H x 95D mm



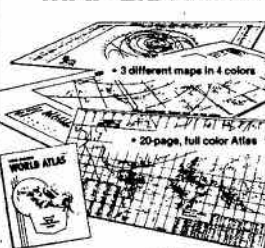
## NYE VIKING Automatic Phone Patch FCC approved!

Model 046-001 \$79 Type acceptance registration under Part 68 of the FCC  
046-003 \$99 Regulations allows direct connection to telephone lines!

The new Nye Viking Models 046-001 and 003 furnish hams with the very finest of interface connections with telephone lines\* available! Each comes complete with 7' connector cord and quick connector plug and has new, telephone company approved circuitry to protect company equipment and telephone lines. This eliminates the need (and cost) of a telephone company-supplied coupling device.

The Nye Viking Model -001, without speaker, provides connection to your own external speaker. Model -003 has built-in speaker, and is designed for use with most transceiver installations.

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2. Map of North America, folded. Includes Central America and Caribbean to the Equator. Shows call areas, zone boundaries, prefixes, etc. Size 30" x 25"
3. Great Circle Chart of World, folded. Centered on 40°N, 100°W. Shows cities, latitude, longitude, great circle bearings and more! Size 30" x 25"

Plus special FREE bonus! The Callbook's own Radio Amateur World Atlas, FREE with the purchase of the 3 maps. Contains eleven full color maps of the world, looking at things from the radio amateurs point of view.

## 1982 callbooks

U.S. Callbook \$25  
DX Callbook incl Canacs \$20  
Map Library 3 Maps & Atlas \$-7

### PACKAGE SPECIALS

U.S. Callbook & Map Library, \$25  
DX Callbook & Map Library, \$20  
U.S. & DX Callbooks \$-2  
US or DX Listings US & DX Callbooks & Map Library, \$-8

## NEW MFJ-312 VHF Converter lets you HEAR POLICE/FIRE CALLS and Weather Band on 2 meter rigs. Covers nearly all FCC allocated police/fire VHF-hi freq. (154-158 MHz). Direct freq. readout on synthesized, VFO 144-148 MHz FM rigs.

Now with weather band coverage!



Hear exciting police/fire calls, weather band, maritime postal and more on your 2 meter rig! Scanning rig become police/fire scanner. This ingenious MFJ VHF Converter turns your synthesized or VFO 144-148 MHz FM rig into a hot police/fire receiver (154-158 MHz) with direct frequency readout on your rig.

Receive weather plus more on 160-164 MHz. Feedthru allows simultaneous scanning of both 2 meters and police/fire band. No missed calls. Enjoy all benefits of your rig such as squelch, excellent sensitivity, selectivity, stability, limiting, AM rejection. For handhelds, too. Two MOSFETS (tuned RF amp, mixer), bipolar crystal oscillator gives excellent performance. Bypass/off switch allows transmitting. Won't burn out if you transmit (up to 25 watts).

Scanning rigs become police/fire scanner. Direct freq. readout on synthesized and VFO rigs.

**\$95**

"On" LED, 9-18 VDC, SO-239, Mtg. Bkt. 5/4" MFJ-311, \$79 Like MFJ-312 less VFO band

MFJ311 covers 154-158MHz with all 4MHz coverage 2M rigs. PCS3000 gives you 152-160MHz..

MFJ312 covers 154-158MHz with most 2M rigs. The AZDEN PCS3000 gives you 152-166MHz coverage..

## NEW MFJ-102 SOLID STATE 24 HOUR DIGITAL CLOCK

Switchable to 24 hour GMT or 12 hour format. Seconds readout. Bright BLUE .6" digits. Alarm lock functions. Power out, alarm on indicators.



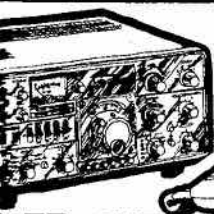
Switch to 24 or 12 hour ID timer. Seconds. Bright BLUE digits.

**\$55**

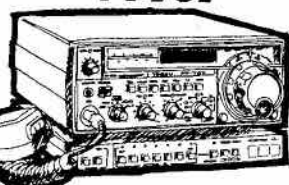
You can switch to either 24 hour GMT or 12 hour format! Double usefulness. Switchable "Seconds" readout for accuracy. Chime rings every 9 minutes after you tap the button to use as snooze alarm. "Delayed" timer. Just start clock from zero and time of event up to 24 hours. Alarm for snooze reminder or wake-up use. Synchronizable with WWV. Fast Set buttons for easy setting. Bright, blue digits (vacuum fluorescent) are easy on the eyes, across the room viewing.

Sloping front for easy view. Lock function prevents misoperation. Operates on 110 VAC, 60 Hz (simple modification). UL approved. Handsome styling with brushed aluminum case.

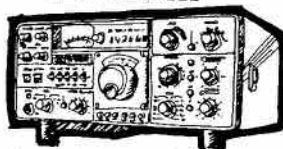
a very m Gift



**FT-707**



**FT-107M**



**FT-902DM**

OUR TOP OF THE LINE!

- Diode Ring RX Front End
- True Frequency Counter
- WARC Bands Factory Installed
- Built-in Curtis 8044 Keyer
- Built-in Memory System
- Variable IF Bandwidth
- SSB, CW, AM, FM, FSK

**YAESU**

**MZD MARK III**

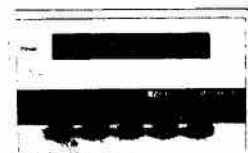
RADIO ATLANTIC ABOUT  
YAESU FT-1. IT'S SUPER!! !!  
COVERAGE AND MUCH MORE !! !

Copy RTTY, ASCII  
and Morse  
from the palm  
of your hand.

\$475

**Kantronics**  
Code reading  
makes ham radio  
more fun!

\$675



**HI-Q BALUN**

- For dipoles, yagis, inverted vees & doublets
- Replaces center insulator
- Puts power in antenna
- Broadbanded 3-40 MHz
- Small, lightweight and weatherproof
- 1:1 Impedance ratio
- For full legal power and more
- Helps eliminate TVI
- With SO 239 connector

**\$10 + \$2/balun S&H**



**Field Day 2**

**Knock out  
those  
unwanted  
signals!**



**Varifilter™ \$179**

The Kantronics audio filters give you the precision and versatility to knock out those unwanted signals for good, solid copy.

The **Varifilter**, single audio filter, and the **Signal Enforcer**, dual audio filter, give you greater capabilities by allowing you to choose not only the frequency you want to filter (from less than 100 Hz to over 3000 Hz) but the bandwidth as well (from less than 30 Hz to over 1000 Hz).

Both the **Varifilter** and **Signal Enforcer** offer peak and notch capabilities to allow you to either reduce signals on all but a selected frequency (peaking) or to eliminate signals on a selected frequency where interference is present (notching).

The high-quality workmanship of these filters makes it possible for the bandwidth to remain constant, once set, regardless of changes in frequency.

"Tuning eye" indicators make tuning fast and easy and a built in 115 Vac/230 Vac power supply gets you started right away. A full-year limited warranty backs up every unit.



**Signal Enforcer™ \$255**

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### SPECIAL FEATURES

- SOLID STATE ELECTRONICALLY REGULATED
- FOLD-BACK CURRENT LIMITING Protects Power Supply from excessive current & continuous shorted output
- CROWBAR OVER VOLTAGE PROTECTION on Models RS-7A, RS-12A, RS-20A, RS-35A, RS-20M & RS-35M
- MAINTAIN REGULATION & LOW RIPPLE at low line input Voltage
- HEAVY DUTY HEAT SINK • CHASSIS MOUNT FUSE
- THREE CONDUCTOR POWER CORD
- ONE YEAR WARRANTY • MADE IN U.S.A.
- VOLT & AMP METER ON MODELS RS-20M & RS-35M

### PERFORMANCE SPECIFICATIONS

- INPUT VOLTAGE: 105 - 125 VAC
- OUTPUT VOLTAGE: 13.8 VDC ±0.05 volts (Internally Adjustable: 11-15 VDC)
- RIPPLE: Less than 5mV peak to peak (full load & low line)
- REGULATION: ±0.05 volts no load to full load & low line to high line

Other popular POWER SUPPLIES also available. (Same features and specifications as above)

Model	Continuous Duty (amps)	ICS* (amps)	Size (in.) H X W X D	Shipping Wt. (lbs.)	Price
RS-35M	25	35	5 X 11 X 11	29	\$269
RS-35A	25	35	5 X 11 X 11	29	\$239
RS-20A	16	20	5 X 9 X 10 1/2	20	\$159
RS-12A	9	12	4 1/2 X 8 X 9	13	\$119
RS-7A	5	7	3 1/4 X 6 1/2 X 9	8	\$69

\*ICS — Intermittent Communication Service (50% Duty Cycle)



ASTRON 20 AMP REGULATED POWER SUPPLY Model RS-20M  
16 Amps continuous  
20 Amps ICS\*  
5" (H) x 9" (W) x 10 1/2" (D)  
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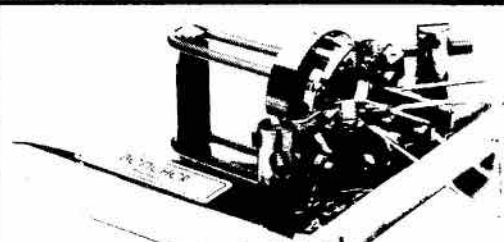
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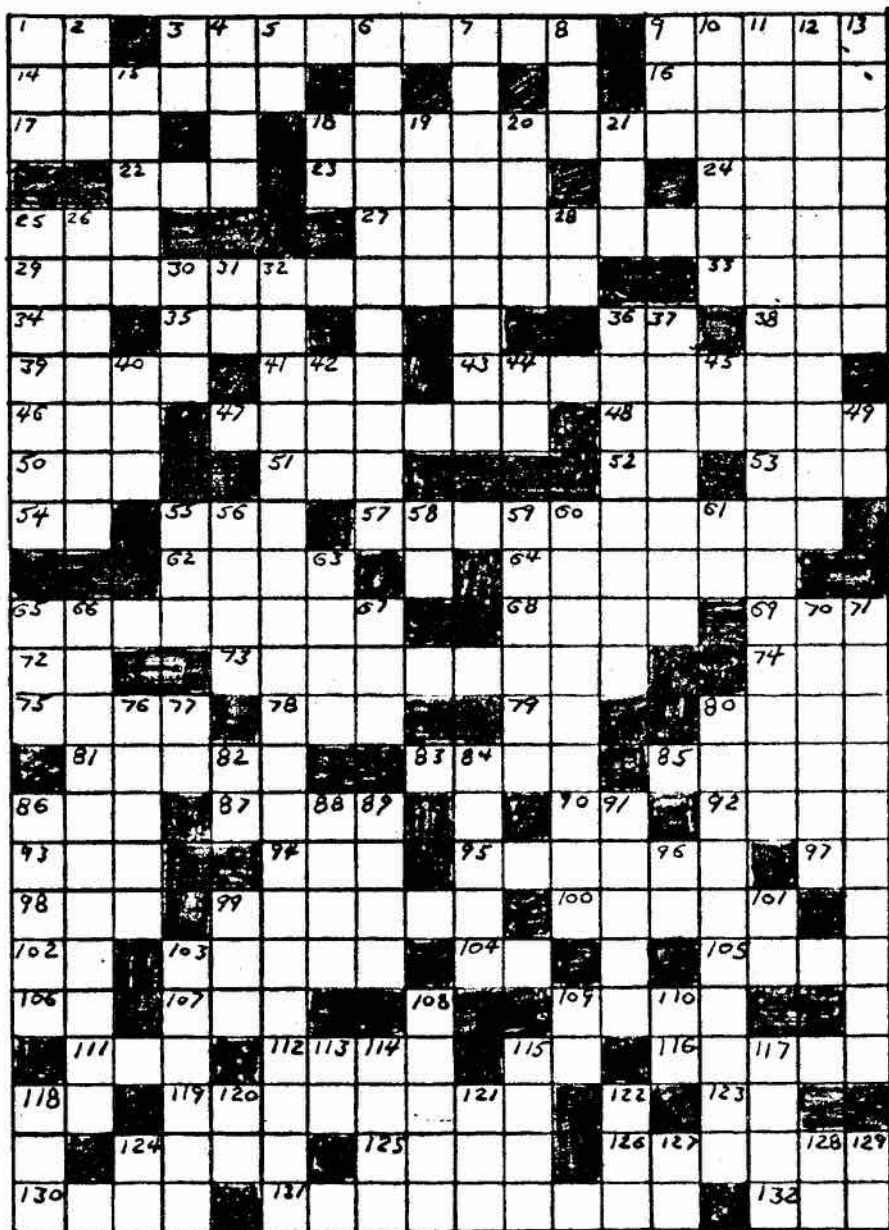


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x2x3",  
(50 Hz with  
black plastic  
up and front.  
erry  
idea



# Amateur Cross- Word

No argumentation intended. It is just for fun and can be stimulating... VE1BCI.

This puzzle is the product of those idle moments and incorporates both sense and a little non-sense. VE1OIC.

## ACROSS

1. Side bands (abbr.)
3. Locus of points equidistant from a fixed point and a straight line (pl.), or a name for a funny dish type antenna.
9. Greek designate for coupling coefficient or snap-a \_\_\_\_\_ cola.
14. A visible, audible or other conveyor of information. e.g. How's your \_\_\_\_\_ strength?
16. Abbr. for integrated circuit followed by ohm's unit. Or a jewish 2 metre operator's rig.
17. Abbr. for dual triode amplifier or double-tuned amplifier.

18. If your signal amplitude decreased during its transmission from one point to another and you knew its ratio or D.B. value then you could say with confidence "it \_\_\_\_\_ so and so." (2 words).
22. One thousandth of an inch. Used as a wire dia. measure or "Down by the ole \_\_\_\_\_ stream".
23. If you don't use a \_\_\_\_\_ your QSL card won't be delivered. Or some Hams use a rubber one.
24. A \_\_\_\_\_ is a handy bench tool or a dangerous habit. Hamming

- is definitely not a \_\_\_\_\_.
25. Best-known acronym for Amateur Radio operator.
27. Metal \_\_\_\_\_ in wet weather. A wearing away action occurring rather frequently. (2 words.)
29. The world's best hobby (2 words.)
33. Ocean - India - Alpha - Nancy
34. Millimeter (abbr.)
35. Overload level (abbr.)
36. Abbr. for an F.M. cct. using a pair of diodes in such a manner that the audio output is proportionate to the ratio of the F.M. voltages applied to them.

38. Voltage 'N Amps or Very Neatly Arranged (abbr.).
39. Greek designate for angles & phase constant or current gain of a common-emitter transistor.
41. A fixed electrical connection to a coil (or you can get water out of one).
43. If I have a 10,000,000 OHM resistor and you have a 9,000,000 OHM resistor, then you have the \_\_\_\_\_ resistor. (2 words, 2nd word abbr.)
46. Abbr. for first word in 18 Across.
47. 3 element tubes (or if you like poetry you should \_\_\_\_\_ to).
48. Easy. Sometimes a \_\_\_\_\_ question requires a not so \_\_\_\_\_ answer.
50. An organization of stations on a definite schedule (also a handy item for clumsy fishermen).
51. Acronym for television (or the Tennessee Valley?)
53. Abbr. for the unit of magnetizing force equal to 1000/4 Pi ampere-turns per meter. (poetic word meaning over).
54. Acronym for direct ratio or abbr. for drive (Doctor?)
55. Opposite of Dit in morse code.
57. Product of a machine used by Western Union for its telegraph terminal equipment. Or if a phone had fingers and a drink it might leave its \_\_\_\_\_ on the glass.
62. A control used to make minor adjustments or he's in fine \_\_\_\_\_, what?
64. The area just beyond the reliable service area of a transmitter is called the \_\_\_\_\_ area (or what's left of your hair when you're over the hill).
65. The amt. of gamma radiation that will produce one unit of charge in one c.c. of air at standard temp. & press. A mouse powered power supply if you put a 'D' between 'O' & 'E'.
68. An oscillation as a result of a change in the input signal. Also worn on fingers and sometimes collars.
69. Non-commissioned officer (acronym). New country?
72. Millivolt (abbr.)
73. Co-axial cable provides good \_\_\_\_\_. The practice of confining the dielectric field in a cable 'via' a grounded conducting medium.
74. Abbr. for Ambient Temperature (pl.) or True Air Speed.
75. Prefix for conductor. Or a Big Truck.
78. Fluorescent Screen Material (acronym).
79. Light (abbr.) Low Tone (acronym). Just short of a Ford L.T.D.
80. A metal used in dry cells. Some people wash their hands in one.
81. Code word meaning "message received and understood".
83. Prefix for metrist or electronics pertaining to light beams or the science of luminescence (or out put ten over?).
85. Partial T.V. transmission line or an eye made of a very heavy metal. (You think this is bad? Wait till we get to the Down section!)
86. Acronym for silicon controlled rectifier.
87. Prefix for oscillation - excited or esteem.
90. Last two letters of K.K.'s call or acronym for Ultra Rays.
92. Acronym for a No Loss Lossy Line may well be what is needed here.
93. Trig. function equaling adjacent over hypotenuse (abbr.).
94. Amateur Radio Contact.
95. Landed properly or possessions as "His entire \_\_\_\_\_ consisted of of Ham shack and contents thereof".
97. Prefix for ectric - evate - ephant or low.hi.hi.
98. Often used in place of 'colour'. Dominant wave length. In front of Bert creates another name.
99. A mineral having piezoelectric properties. Used to manufacture crystals - lamps, etc. or two \_\_\_\_\_ of rye is enough for everyone.
100. A place to purchase 99 above. To retain information in a device for later withdrawal.
102. Plate Voltage symbol.
103. An open circuit or request to interrupt a radio transmission.
104. Prefix for coming - frequency - time or suffix for stati - create - ze - fre. Right \_\_\_\_\_?
105. Abbr. for undesired signal change resulting in unfaithful reproduction of audio or video signals.
106. Distribution load and delay line. Opposite of 118 Across.
107. An electrically charged atom or you may have your \_\_\_\_\_ something or someone.
109. Prefix for gmatic - R or acronym for American Society of Technical Ingrates.
111. Time period.
112. X1 is the property of one. A series of close loops in a wire.
115. Current meter (symbol) or \_\_\_\_\_ going QRT.
116. Voltage times current equals this. The rate at which work is done.
118. Opposite of 106 Across.
119. If your solder contains no rosin centre, chances are it's the \_\_\_\_\_ type and should be used for plumbing (2 words).
123. Prefix meaning two as in pole and ode.
124. Prefix to designate accurateness of things such as position or frequency. Opposite of false.
125. Mexico - Nancy - Ocean - Italy.
126. The capacity for performing work.
130. Rearranged spells Tidy.
131. Sleeving to protect electrical wires. Also makes a good dinner with the right sauce.
132. Unit of 126 Across.

#### DOWN

1. Acronym for a device operative on only one sideband.
2. Abbr. for binary digit or "He's a \_\_\_\_\_ odd".

3. The region of transition between P-type and N-type material in a single semiconductor crystal is called the \_\_\_\_\_ junction.
4. Acronym for the Awahoo Amateur Radio League.
5. Load resistance (abbr.).
6. All batteries usually have two of these. Check one if your car won't start.
7. If you are building a device to check someone's integrity (true or false) this may simplify the circuitry.
8. Front end of \_\_\_\_\_ are, \_\_\_\_\_ deal and \_\_\_\_\_ elch.
9. Many learn by building it with a \_\_\_\_\_, e.g. Heath\_\_\_\_\_.
10. If your variable frequency oscillator was manufactured by the Ace Mfg. Co. chances are they would call it a \_\_\_\_\_.
11. If your car still doesn't start in 6 Down your battery may be dead and have no \_\_\_\_\_. The difference in voltage between two points of a cct. (in a definite direction?)
12. Without these you could never successfully calculate power factor. The difference in degrees by which current leads voltage in a cap. cct. or lags voltage in an Ind. cct.'s called \_\_\_\_\_. (2 words & pl.).
13. What a foreign Ham loads his rig into. Reshuffled forms ant name.
15. A numerical indication, if emitted from certain radioactive substances would be called \_\_\_\_\_ rays. The third letter of the greek alphabet designating propagation constants.
18. Adverb meaning all so or quite so. Abbr. for American Standard.
19. Acronym for Tennessee Amateur Radio Association or "Did you ever \_\_\_\_\_ roof?"
20. Negative positive diode abbr.
21. Amateur Radio Service (acronym)
25. Any range of frequencies which lie between limits and is assigned to Amateurs.
26. Current measuring device.
28. Electron oscillator (abbr.).
30. Trig. function.
31. Beginning of electronics.
32. 300 to 3000 MHTZ.
36. If your tuning condenser dial no longer moves the pointer on your receiver, you may have to \_\_\_\_\_ it.
37. The power supplied to the grid cct. of a tube is called the \_\_\_\_\_ power or a poor game of golf may be due to poor \_\_\_\_\_.
40. Total transition time (acronym). (Too tired to tango?)
42. Good insulator.
44. Over speed (abbr.).
45. Abbr. for Millimeter.
49. Current equals \_\_\_\_\_ over \_\_\_\_\_.
55. Distribution terminal numbers (abbr.)
56. Usually taken with a science course in school. "He was versed in the \_\_\_\_\_".
58. Plate voltage designation.
59. Scrambled filter literally.
60. Associated with 57 Across. The finished product of.
61. Abbr. meaning no good or no go.
63. Mexico - Echo - India - Sugar or backwards. "Woe \_\_\_\_\_".
65. Abbr. meaning effective value.
66. A degree of electromagnetic coil placements that are too close may be called \_\_\_\_\_. (2 words).
67. National Electrical Manufacturers (abbr.).
70. Unit of luminous intensity. Handy to have when the lights go out..
71. An amplifier with positive feedback and cct. values to hold the device at a particular single frequency.
76. Prefix for code.
77. Grid current designate.
80. A good voltage regulator - overvoltage protector and voltage reference component. (2 words.)
82. Screen voltage designate.
84. Pertaining to a change in dielectric constant under mechanical stress (prefix).
86. Prefix for ULE meaning time table as in a prearranged QSO.
88. Lowlevel signal audio amplifier (acronym).
89. Suffix for tuning - prefix for lift. A tool of many uses.
91. Adding a lot of new gear to one's shack may result in an increase in one's electric \_\_\_\_\_. Pl. fixed charges.
96. Tuned oscillator (abbr.) or "\_\_\_\_\_ be or not \_\_\_\_\_ be".
99. Increase power 'Q' signal.
101. Resistance equals \_\_\_\_\_ over \_\_\_\_\_.
103. A numbering system using only two digits.
108. \_\_\_\_\_ wire antenna works o.k. (2 words).
109. Amplitude modulation (abbr.).
110. Test point (abbr.)
113. Outer Dielectric (abbr.)
114. Scrambled mica (or integrated cct. plus main amp.)
115. Power equals this (twice).
117. Conductor of solid or stranded construction.
118. Acronym for light emitting diode.
120. Symbol for copper.
121. Greek letter designating volume charged density. 17th in Greek alphabet.
122. Acronym for Field Effect Transistor.
124. Transistor theory or tele type.
127. Symbol for Nickel.
128. Grid resistor (abbr.).
129. Symbols for admittance and conductance.

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FOR PUZZLE ANSWERS  
SEE PAGE 31

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# Forming the Rose City Club

From VE6, ARLA

By Ken Carr VE6UU

It would be difficult to tell when and where the first thought of an Amateur Radio club for the Camrose area occurred. It is on record that a group of hams together with a few YL's gathered at the QTH of George VE6AMM and Marg VE6AMN to discuss such an idea.

After a considerable amount of ham chit-chat and after coffee and other goodies were enjoyed, a good discussion took place, of radio clubs in general and Camrose in particular.

It was generally agreed that, while most Amateurs have much the same aims in furthering the cause of Amateur Radio, their priorities differ. We decided that, if the enthusiasm and effort of individual local hams was directed toward a single project or program via a club, much could be accomplished. And probably more efficiently and in less time. A radio club seemed the logical way to go.

Later, another meeting was held at the home of Blain VE6BFW and YL Leita. This time there was less ham talk, although not less coffee and goodies, but a good discussion regarding the mechanics of setting up a club within the rules and regulations of the Alberta Societies Act - all very time consuming. Other meetings followed.

On May 26, 1980, the Rose City Amateur Radio Club was formed with Terry Wagner VE6BDW as President, Dr. George McIver VE6AMM as Vice President, and

with Jim Woodbridge VE6BAW as Sec-Treas. Blain Askew VE6BFW and Lyndy Olson VE6LO are Directors. The club membership also includes Marg VE6AMN, Wilf VE6AIW, Mike VE6BIM, Wes VE6LM, Fred VE6IU, Vic VE6ALH, Blaine VE6BJQ and Ken VE6UU.

Our club was officially registered under the Societies Act on Aug. 21, 1980. Although it has not taken long to write this account of the forming of the club, many hours of time over many months was given by the executive and others to achieve this goal.

One of the first challenges the new club faced was a request by the ARLA Executive that the Rose City ARC publish and distribute the VE6 magazine for one year.

We have on the executive of our club members who are energetic, have courage and a great amount of confidence, so they agreed to publish the VE6. If you feel that this is perhaps over-reacting, consider that the number of members in our club can be counted on the fingers of two normal hands - almost.

Publication time for the first issue was something of an occasion. Some gave many hours of their time in the preparations and deserve much credit, but we feel that in regard to the actual printing of the thousands of sheets that finally become a magazine, Wilf VE6AIW and Blain VE6BFW should be mentioned as well as Carol, wife of Vic VE6ALH who

has done an admirable job with the typing.

As it might interest some of you to know what happens after the thousands of sheets were printed, we continue.

Usually in the evening of the day of printing, George calls in a group and organizes a chain gang (work crew). An assembly line is formed and so begins the folding, stapling, stamping and label sticking. It has been said that George does have a whip, but we have not seen it. When the well over 400 copies have been sorted and packaged by postal codes, they are turned over to the postal people.

If you, the subscriber find that it is *several* weeks later that you receive and peruse this fine periodical, please place some of the blame where it rightfully belongs and not on that group that toiled so well some weeks before. And should you wish to know the names that comprise the gang who, month after month, bend their shoulders to the wheel, read the membership roster of the Rose City ARC, add several YL's, and you have them.

In the months to come, when the above undertaking is no longer the responsibility of our club, and when fall brings a renewal of thoughts of propagation and such for the coming winter, we are sure there will be other programs and ideas discussed at the meetings that will bring new challenges to the members. We hope none as monumental as this year's!

# P29 Adventure

Ever wonder what it would be like to operate from 'down under'? My XYL Ruth and I have just returned from a year in Papua New Guinea, serving as volunteer advisors, so we found out!

It didn't take long to make some Amateur contacts and be warmly welcomed by the Radio Society. Here a spare rig was found for me and help was provided to get on the air as P29HW. The antenna was poor, but I was reminded that a P29 call gives a 10DB edge! Operation was indeed very interesting -- such a different perspective from that quarter of the earth.

There are about 100 Amateurs scattered throughout the country. Most are able to obtain their initials as call letters. Among them was Jim Smith P29JS, the well known DXpeditioner. His shack was awash with QSL cards from a recent project. Jim has now moved from P29, but still is plotting new expeditions.

October saw me operating in the Scout Jamboree on the Air, as I would have been at home. The Governor General invites the Amateurs to set up on the front lawn of his residence. He participates along with Scout and Guide groups, as their Chief Scout. Many interesting contacts were made.

A memorable occasion was a visit with P29DC, who is a Missionary in the Highlands. He has a dream QTH on a mountain side, overlooking a beautiful wide valley. We had lunch with him in his native style house and heard of his very active life serving the dozen native churches in the district. There was plenty of evidence of Amateur ingenuity and he has worn out three heavy vehicles in a few years! A weekly sked with his

brother in Ireland keeps him in touch with home.

Many yacht owners are Amateurs and make good use of 20 as they cruise the South Pacific. Daily Nets help them to keep in touch and give aid in emergencies. This provides

interesting contacts and good listening.

So, you see, we enjoyed our adventure in P29 and plan to return for another term. Keep an ear out for P29HW later this year.

Fred Western VE3FYW

## Courteous Canadians?

Going home on the train the other night, I read an article in CQ Magazine about an American Amateur who had spent a period of time as a rare DX station. He paid Canadian hams quite a tribute when he said we were the most courteous hams in the world from a DX station's point of view. I'll let you guess who was at the bottom of the list.

As a member of the SPARC Executive, you get some interesting phone calls at times and one of them really made me wonder about this courtesy bit.

It appears that someone has a bad case of TVI. Apparently, he knows about it but seems to be of the opinion that an Amateur Radio Licence is a fundamental right, which is not the case. Like your Driver's Licence, it is a privilege and one that can be removed if you don't toe the line. This type of attitude doesn't quite make us the most courteous hams in the world in my book!

One interesting thing about being over-the-hill (in the teenyboppers or space cadets opinion) is that one has the opportunity to know how things were, what they're like now, and have a good appreciation of what they'll be like a few years down the line. Quite frankly, one thing that leaves me cold is the operating habits that have been appearing on the bands in recent years. It makes one think

that perhaps 10 years down the line, tuning across our bands will sound like listening to GRS around the Metro area.

Working DX, contests and some other operating activities may not be the way to become best friends with the ham next door who has similar interests and operating times, however, competing in such activities in a reasonable manner is not the same as calling the DX when the guy next door has had his call acknowledged and is trying to copy the DX station's exchange.

The DX example is typical, and this happens in almost every type of operating activity. It may be the CB mentality that's infiltrating our hobby, the generation gap, or a number of other reasons. A specific reason for me is not important. What is important is that we're supposed to be a self-policing, disciplined group, but we sometimes appear like an unruly mob. For proof of this, listen to the 5 metre swap net next time a genuine bargain appears. It sounds like a bunch of vultures that can't wait for the injured meat to breathe its last breath!

How do you want your fellow hams and neighbours to classify you? Think about this before you press the PTT or key next time. □

Ron VE3WZ  
SPARC Gap

# Ontario Director Report

By CARF Ontario Director  
Craig Howey VE3HWN

I've been fairly busy this summer from the Winnipeg Symposium through the various flea markets and conventions of summer, and I'm still going strong on other projects.\*

The Guelph Flea Market was bigger and better than ever, so much so that I hear it caused quite a traffic congestion on the roadway. Milton, the Ontario Hamfest sponsored by the Burlington Club, was hot and sunny as usual (and especially hot inside the building at the booth). The Peterborough Kawarthafest, small though it was, has the potential of matching the bigger events in time.

The RSO Convention this year was held a mere block away from the home QTH, thus permitting optimum planing and booth preparation. By the time this hits print, the London Swap & Shop and Newmarket will be history for another year.

Regretably, Alan VE3AMB, the other Ontario Director, has been indisposed since attending the Barrie event which fell on the same weekend as Guelph.

It must be remembered that the position of director of a Canadian organization like CARF is truly multi-faceted; I represent the Federation and its services to the members and the members to the direction of the Federation.

We've had a somewhat strange year for TCA, due to an unfortunate series of events. The change from third to second class mail (for faster delivery!) disrupted mailings to some members. Problems at the office resulted in a few minor problems and missed renewal notices. The mail strike hit hard, catching the July/Aug issue on its way to the publisher and, to top it all off, scheduling problems

\* VE3HWN is also a director of the Kitchener-Waterloo ARC and is currently building several 220 MHz systems.

after the strike further delayed the Sept. and Oct. issues.

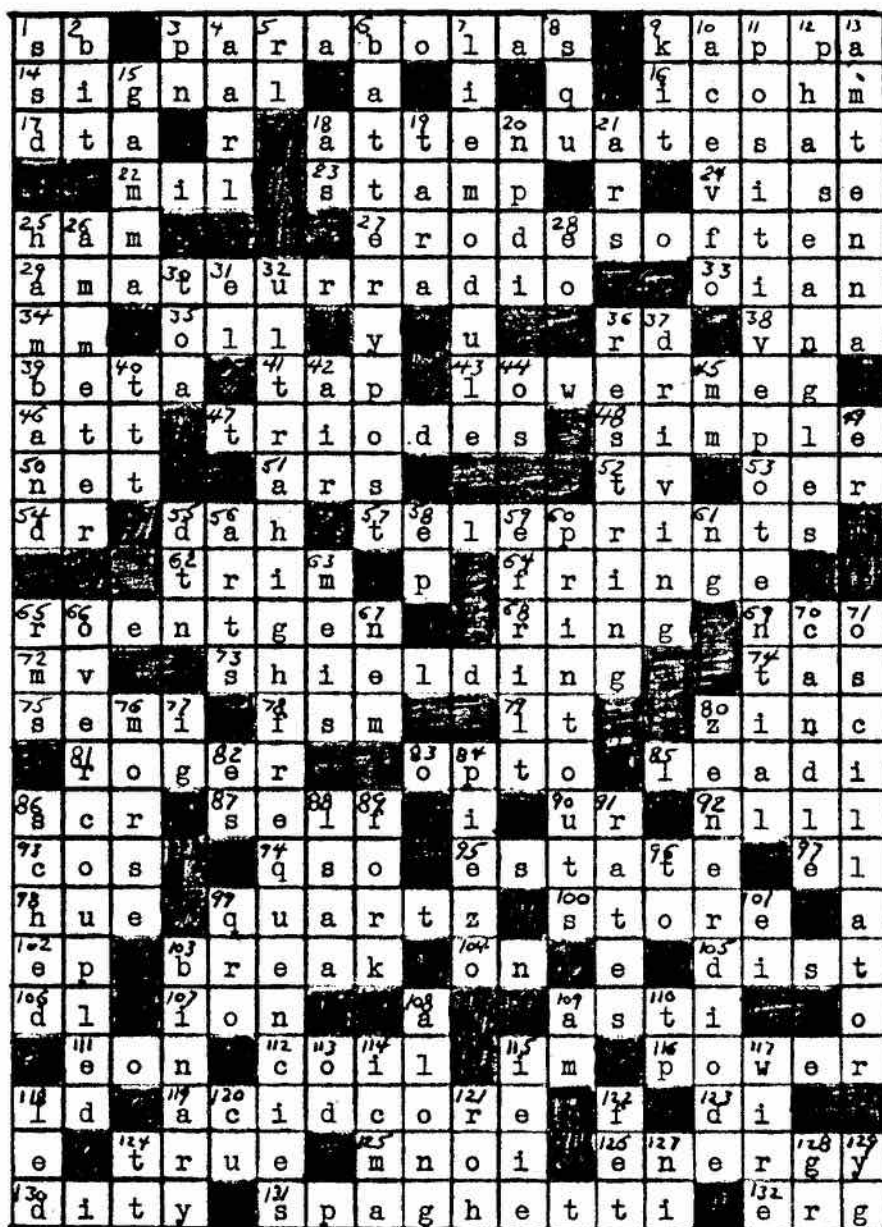
As the CARF man at the booth, I am the front line liaison and I find myself, for the most part, explaining the intricacies and, let's face it, the 'silly things' that happen when running any large national organization.

When you see a Director or Executive member at a function and you have a concern about

something affecting Canadian Amateur radio, by all means stop by and mention it, and if possible a solution, but also be prepared to discuss it. As Amateur Radio is quite varied, don't be surprised if the representative is not completely up to date on a specific subject. A reply to a query will be supplied from a knowledgeable source in very short order.

## ANSWERS

Puzzle Answers from Page 26



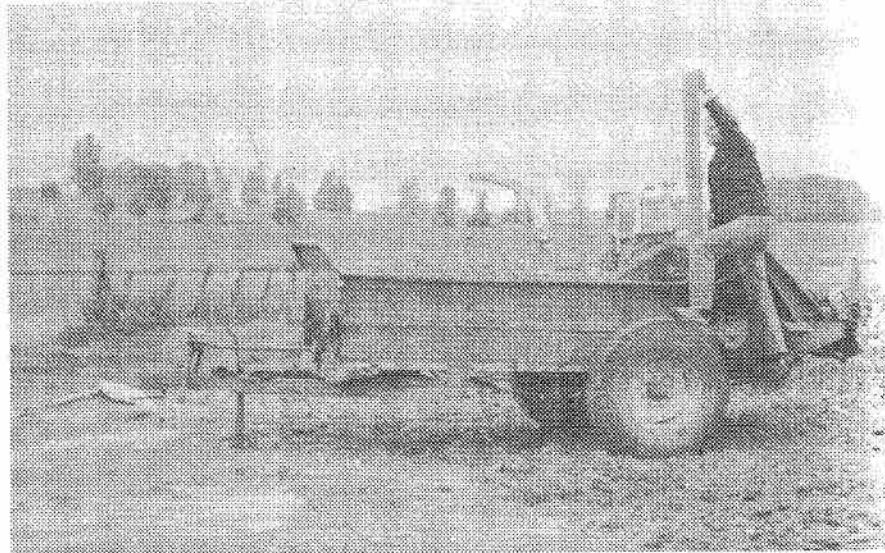
# Canada



By Verne H. Bohlender VE3BSF  
& Jeff Marklevitz VE3KPT

Jeff and I decided to enter the Canada Day Contest after a long discussion lasting at least five minutes. It was agreed to go Field Day style without a generator and to operate at Jeff's Aunt Lid's farm from her driving shed.

We met again Tuesday night at about 2340 downtown Chesley, Ont. where it was found Jeff thought we'd be too late getting started as the antenna he'd planned to use had accidentally been cut down by some farm equipment.



*Above: Jeff VE3KPT on Canada Day. Centre: Jeff and Verne VE3BSF work to unscramble a length of wiring. Below: Putting up a post to hold a dipole. "Boy, did we spread!" says VE3KPT.*

# Day in the Field

Minor persuasion got us under way though. We arrived at Aunt Lid's at about 0015, checked out the layout and got to work. First set up card table and rig (Jeff's) and looked for a place to plug in our extension.

Dusty few minutes later, one was located in the vacant chicken pen. Now power, next antenna. We decided to work 75 and 20 on one dipole as Jeff had already part of a 20 dipole constructed. He also had a pile of old braided telephone wire in the trunk twisted about and through the same dipole so we had our work cut out.

While Jeff began to solder unfinished connections on the 20 dipole, yours truly began to untangle the braid and measure up enough to make the 75 section. (Ugh, what a job!) Worked out rough antenna dimensions and proceeded to complete our dual antenna. The enclosed picture shows us at work.

Now to raise the antenna. The 20 metre job was easy; just hook one end to the chicken pen and the other cross the drive to the barn... but the 75 metre was another kettle of fish. Settled on a hydro pole for one end as I was holding the other end and not wanting to hold it all night, a thought that the manure spreader could be used. A few minutes later, Jeff had mounted an upright on same and there we hung her and were ready to spread.

Jeff loaded up the rig, tested it, found we had a very low SWR and our operation was under way. Time approx. 0055 UTC.

Started on 20 and stayed there

most of the time because of lack of action on other bands. For several hours we and the mosquitoes had a ball using the call VE3BSF which a friendly VE4 soon changed to Big Stupid Farmer. Worked all provinces with the exception of the Yukon and took CARF eastern rep Walter VO1VCA's advice and Spreader!

Unhappily we were forced to quit at the farm at 0330 due to vicious mosquitoes horning in on the fun. Bands were dying a bit in Canada Day activity, too. We even picked up a VE6 from Venezuela. That type should count more. Jeff finished for us in town and I hit the sack.

## Constructive Criticism

This type of contest draws Canadians much closer together. It should be encouraged as the contest of the year. We found activity very good on 20 but almost nil on other bands. On 75 some of the boys didn't even know it was going on.

Our suggestions: 24 hours is too long just after ARRL F.D.

---

*"Jeff loaded up the rig, tested it, found we had a very low SWR, and our operation was under way."*

We'd like to suggest an 8-hour contest celebrating Canada Day. Start it at 2200 hours UTC and end at 0600 hours. This would allow all Canadians to participate and still get a rest before work the next day. Even I at 39 (and counting) can take 8 hours of operation. This would encourage more single operators from their home station to take part.

Power should be limited to 150 watts. Emergency set-ups such as we used should be encouraged. Only homemade antennas should be used. That would mean *no beams*, just homemade dipoles, verticals, etc. No computers please, as these have already spoiled ARRL field day for a lot of real operators.

Field day set up should be encouraged for clubs, but generators not a necessity. Why, if all clubs had the generators pictured in FD activities, they might just as well plug into the mains!!

Keep it simple. We found rules hard to understand in this past one. Code was not encouraged by higher multipliers as it should have been.

Let's all advertise the next contest NOW! Let's get 75 into action by letting people know it's coming. Only we in Canada really appreciate 'Canada's Birthday'.

What was our score? Do you mean in mosquito bites or contacts? Too many of first and not enough to count of second.

Did we have fun? You bet your bottom dollar we did!

P.S. Jeff did turn in our score, or at least he says he's going to...

# TCA: Technical Section

## Converting the Systcoms VRC5 for 220 MHz Service

The day of the crystal controlled 2 metre set has long gone and top-notch commercial surplus is still becoming available. Perhaps now is the time to put some of these radios on the 220 MHz band.

I recently latched onto a SYSTCOMS VRC5 receiver which was used in the VTR7, VTR10, VTR11 and VTR12 series radios around the early 1970's. There were quite a few of these units in the MTS (mobile telephone service), and I expect with fewer people applying them to two metres usage, there will be many good deals in the future.

The VRC5 consists of two boards, one being the receiver proper and one being the frequency control unit. Other boards in a typical system included an audio power amplifier, transmitter exciter and power amplifier and voltage regulator. These radios used either a 5.26 MHz or 5.3 MHz IF. For MTS service with their 5.26 MHz split between TX and RX, only one crystal per channel was required.

I acquired an ex-MTS receiver with an FCU5 frequency selector. You can determine if you have an MTS version by the frequency of the second oscillator, specifically 5.715 MHz for MTS and 5.755 MHz otherwise. The receiver normally used high side first oscillator

injection thus the MTS version transmitter would output into a mobile phone system.

### RECEIVER MODS

1. Remove all the 13pf padding capacitors located inside the three 'stage cans' of the RF amplifiers. These are in parallel with the piston tuning capacitors. They are labelled on the schematic as C201, C1207, C1205, C209, C217 and C1202.

2. Remove one turn from coil L204 in the first RF amp band pass circuit and change C215 located between the piston Cap and the feed-thru cap from 15pf to 10pf. This is actually the base tuning network for the second RF amp.

### FREQUENCY CONTROL

#### UNIT MODS

The FCU mods were a bit more involved than the receivers. All FCU's are identical after the actual crystal oscillator and consist of a quadrupler followed by a tripler. A crystal multiplication of 12 was maintained but low side injection was chosen over the standard high.

1. Remove the 13pf capacitors in the local oscillator's band pass filter. We now want it to tune 5.26 MHz (5.3 MHz) below our received frequency. These are capacitors C462, C466 and C1404.

2. Remove one turn from the top of L416 the tripler output coil. (tunes cf - 5.26)

3. Remove three turns from L415 the quadrupler coil. It originally tuned 48 to 60 MHz and we now need it at 73 MHz.

4. The crystal frequency is now:

$$xf = cf - \frac{5.26}{12} \text{ MTS version}$$

$$xf = cf - \frac{5.3}{12} \text{ standard}$$

Thus to receive 224.94 MHz a crystal of 18.3066 MHz (for the MTS version) HC25/U Systcoms spec is required.

### ALIGNMENT

1. With no power on the FCU connect a signal generator at cf - 5.26 on the underside of the board at the input coupling of the band pass filter. With a VOM (3VDC) at TP401 tune the BPF for maximum output. Adjustment of the tripler will also cause a slight output change.

2. With power applied, tune the quadrupler output C449 until an output appears at TP401. Alternatively you might try a VOM on the emitter of Q403 the tripler and dip tune its output. You may have to use a signal generator initially in the crystal socket.

3. Retouch all capacitors for maximum output at TP401.

4. Connect the FCU to the receiver and inject a signal into the antenna input at carrier frequency.

5. With a VOM on TP201 on the

On my receiver, the pistons

A bench check at a local commercial two-way shop yielded a sensitivity reading of better than 0.5 microvolts but showed an unrelated problem with my lower IF which I soon remedied.

There are just about half a

Next month I will cover conversion of the VEX2 exciter for 220.

**Craig Howey VE3HWN**  
**No. 304 598 Silverbirch Rd.**  
**Waterloo, Ont.**



● INDICATES COMPONENTS TO BE REMOVED OR MODIFIED

# TCA: Technical Section

## Technical Writing

### A Beginner's Guide

By Philip Gebhardt  
14 Odin Cres., Aurora,  
Ont.

Imagine how slow and disorganized progress would be if each of us had to re-formulate Ohm's Law. Could you re-develop the principles of single-sideband transmission? Chances are that you, along with many others, have acquired much of your electronics knowledge through the printed word. Yet if you do not publish the results of your activities, each of us must re-discover or re-invent what you have already experienced.

What follow are some basic guidelines which are designed to help you effectively express your technical ideas.

Keep in mind that all technical articles do not deal with startling new discoveries. Some are simply a compilation of existing material - either to refresh the readers' memory or to bring together ideas from various sources. Some represent someone's experience with an existing technique; and some illustrate the use of a familiar concept in an unusual application.

A few words to those of you who feel insecure about your grammar skills: don't worry about

them. If you did not grasp them in school, this is not the time to undertake a serious study of the English Language. Depending on the magazine to which you submit your manuscript, there may be a staff to smooth over the rough edges. To modify a well-known sentiment: 'tis better to have written and erred than never to have written at all.

#### THE INITIAL STEPS

Before actually sitting down with your pen and paper, you need to lay the ground work.

Obviously, if your article involves a construction project, you first obligation is to complete the project and verify proper operation.

Once you have all your facts straight, you need to establish a purpose for your article. Is it to explain the construction details of a particular circuit? Is it to introduce others to a technique or circuit which you think they should try?

Next, determine who your audience will be, so you can gear

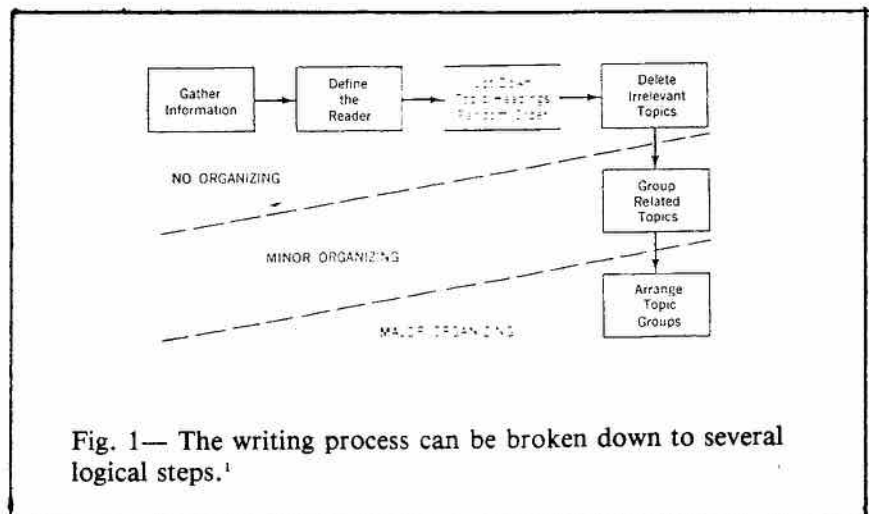


Fig. 1— The writing process can be broken down to several logical steps.<sup>1</sup>

your presentation to them. Extensive use of mathematical calculations may provide quick explanations for engineers, but will provide little insight for the average reader. On the other hand, there would be little point aiming an article explaining the basic types of oscillators toward technicians or engineers.

Finally, choose a magazine. Keep in mind that it must be a magazine with which you are familiar. Doing so will assist you to develop your article to match their needs and as a result, will increase your chances of getting into print.

For example, there is no point submitting a manuscript which deals with the reasons for using 75-Ohm transmission line to feed 75-Ohm antennas to a magazine which caters to Amateurs who are technically advanced. Likewise, highly technical papers are of no use to a magazine which caters exclusively to the beginner. In addition, every magazine has a particular format. Study it and use it. Ask yourself the following questions.

1. As a general rule, how long are their articles.
2. Do they have a style for wording the title?
3. Do they always introduce the article in a particular manner.
4. Do they use subtitles?
5. Do they use diagrams exclusively, only photo-graphs or a combination?
6. Is there always a summary at the end?
7. How do they present bibliographies and foot-notes?
8. Will they accept measurement in British units or must they be expressed using SI units, or both?
9. How are tables and charts set up?

#### A LITTLE BACKGROUND

Technical articles are generally composed of two elements: the text and the supportive materials. The support may consist of draw-

ings, photographs, tables or graphs.

Just to keep you on the straight and narrow, let me point out one or two things about the two items just mentioned. Occasionally, you might wish to make use of another writer's material. The use of a small portion of material is considered fair. However, when you borrow material, acknowledge the source. Acknowledging your source does three things. It gives credit where credit is due, it establishes in the readers' mind that you are passing along information which you may not have verified and it tells the readers where to look if they want further information. If you need to borrow extensively from someone else's work, obtain permission.

Text is relatively easy to change and, therefore, borrowing written

material is not as attractive as 'lifting' drawings or tables. Graphs laid out by a draftsman for another publication may look professional, but they were designed to fit the needs of someone else's work. If your article needs graphic material then you owe it to your readers to produce a custom-made product which is designed to meet the specific needs of your text.

#### STARTING OFF

Choose a title first. But remember, you are not writing a who-dun-it, therefore the title should be honest and direct. For example, "Matching 75-Ohm CATV Hardline to 50-Ohm Systems" or "Bearing and Distance Calculations by Sleight of Hand".

The reasons for choosing a title right off are three-fold. First, it

- |     |                                                                |                                            |    |
|-----|----------------------------------------------------------------|--------------------------------------------|----|
| (A) | Presentation -                                                 | i) introduction - purpose                  | 10 |
|     |                                                                | ii) body                                   |    |
|     |                                                                | iii) summary                               |    |
| (B) | Use of illustrations                                           |                                            | 6  |
| (B) | Use of photographs                                             |                                            | 6  |
| (C) | Copyrights to info, use of other published material            |                                            | 7  |
| (B) | Use of graphs                                                  |                                            | 6  |
| (D) | Layout -                                                       | double spacing                             |    |
|     |                                                                | - page numbering                           |    |
|     |                                                                | - large margins                            |    |
|     |                                                                | - paper size                               |    |
| (E) | Use of correct measurement symbols,                            |                                            | 11 |
|     |                                                                | e.g. MHz, kHz, dB                          |    |
| (F) | Study magazine before starting to determine:                   |                                            | 5  |
|     |                                                                | i) type of material they use               |    |
|     |                                                                | ii) format                                 |    |
|     |                                                                | iii) length                                |    |
|     |                                                                | iv) style                                  |    |
| (G) | Set your facts straight - don't simply reword                  |                                            | 2  |
|     |                                                                | someone else's work or present theoretical |    |
|     |                                                                | material unless you tell the reader        |    |
| (F) | Establish who the audience is -                                | technical                                  | 4  |
|     |                                                                | - beginner                                 |    |
| (H) | Articles need not be entirely new                              |                                            | 1  |
| (F) | Establish a purpose                                            |                                            | 3  |
| (A) | Write down your ideas                                          |                                            | 8  |
| (A) | Fig. 2— Before starting to write, list your ideas as they come |                                            | 9  |
|     | to mind. Afterwards, group the similar ideas (by letter) and   |                                            |    |
|     | then arrange them in a logical order for presentation (by      |                                            |    |
|     | number).                                                       |                                            |    |

provides you with some direction by forcing you to express what you are going to present. Second, it focuses your thoughts toward a specific aspect. And third, it keeps you on topic throughout your writing. This, by the way, does not imply that the title will not change several times before you are finished. Think of it simply as a reference point to get started.

Once you have selected a title, you are ready to begin the actual writing process. The first step consists of listing all the ideas which come to mind about your topic. Use point form (Fig. 2). Don't worry about the applicability of any given idea which pops into your head. And don't try to organize.

When the list is complete, go back through it and eliminate any points which are not applicable or which are redundant. If reading through the list triggers more ideas, add them.

### THE DRAFT

Using the list which you have made, you can start to develop some organization. Going through the list, group the ideas which belong together (letters in Fig. 2). Then place the groups into a logical order for presentation (numbers in Fig. 2).

Using the list of ideas which you have produced, you can start on your first draft. In the draft, as in the final copy, there should be an introductory section, a discussion section and a summary section.

Just to refresh your memory, the purpose of the introduction is to state the purpose and scope of your article. If necessary, it may provide background information to prepare the reader for the discussion which follows. Keep the introduction just long enough to do its job effectively. A representative introduction is given here.

*The March, 1971, issue of QST presented a description of a solid-state SSTV monitor which contained triggered sweeps, separate*

*power supply system, and a large number of discrete components. The unit has enjoyed considerable popularity, as the volume of technical correspondence will attest.*

*The Mark II version of this monitor offers improved performance and further simplification. The new unit employs more integrated circuitry and has an improved sync separator, horizontal phase-locked loop, operational amplifier drivers for the deflection outputs, and a simplified power supply system. The design aim was improved performance with simplicity.\**

Reading introductions to various other articles will assist you to determine what is good and what is bad. In addition, some ideas for your own work may emerge.

The discussion section is the longest part of the article. Simply stated, it presents the facts in an organized, logical and orderly manner.

The summary states briefly the major points covered in the discussion. Only previously stated information appears in this section -

this is not the place to introduce new material.

Of these three basic sections, the section which is likely to present the most difficulty is the introduction. If you find that you cannot begin writing because you are not able to come up with that fantastic introduction which your article deserves, then leave it. Write the discussion and may be even the summary before returning to write the introduction.

At the draft stage, it is important to stimulate a good flow of ideas. Therefore, as before, do not worry about grammar, punctuation, spelling or specific words. Stopping to look up a word in the dictionary or to carefully choose the exact word needed breaks the natural rhythm and momentum which you must maintain. If you like, you can circle words or ideas which you feel might warrant checking or substitution later on.

As you write, be clear yet concise. If you introduce a mathematical equation, then give an example to illustrate its use. And do not hesitate to use an analogy to make a concept clearer.

By the way, to assist in the revi-

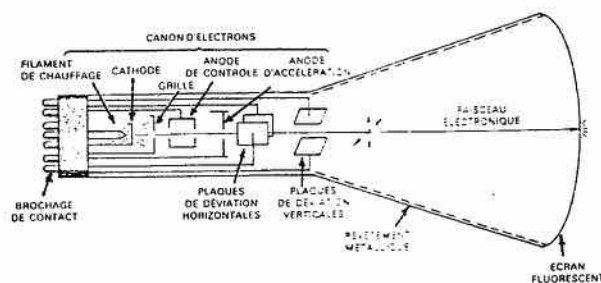
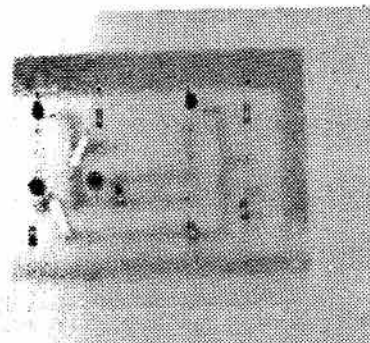


Fig. 3 - Drawings are useful when you want to emphasize certain details or eliminate others. A photograph of the inside of the actual CRT (cathode-ray tube) drawn at (A) would not be useful as a teaching aid. Photographs such as that illustrated at (B) can show the reader what his project will look like in its finished form.



sion later on, write on every second line.

## ILLUSTRATING THE ARTICLE

Often, materials such as drawings, diagrams, photographs, graphs and tables can help support your text. However, before including such material, ask yourself if the material is necessary and also how it should be presented.

Drawings increase understanding by emphasizing specific aspects of a device and by eliminating unnecessary or distracting detail (Fig. 3A), whereas photographs show the overall appearance of the actual device (Fig. 3B).

Diagrams can help your reader to visualize a concept which cannot be seen. An example is shown in Fig. 4.

Graphs show how one quantity varies as another quantity changes. Graphs therefore are fine for visual impact or in cases where the data needed are too extensive to present in tabular form. However, graphs can easily be misread in certain formats whereas tables are generally much more straight forward.

Tables are useful when you want to provide several related groups of information. Although the various pieces of information may be related through some com-

mon factor, they would result in such a cluttered graph that interpretation may be difficult if not impossible. Some data may simply not be adaptable to a graphical presentation. Refer to Fig. 6.

Some magazines employ a staff to do the artwork for you. If you find yourself without those facilities, the lists below are developed to assist you and are based on material found in Scientists Must Write.<sup>7</sup>

### Criteria for Drawings and Diagrams

1. Use thick lines
2. Use large numbers and letters
3. Draw straight lines with a ruler and curves with compasses or French curves

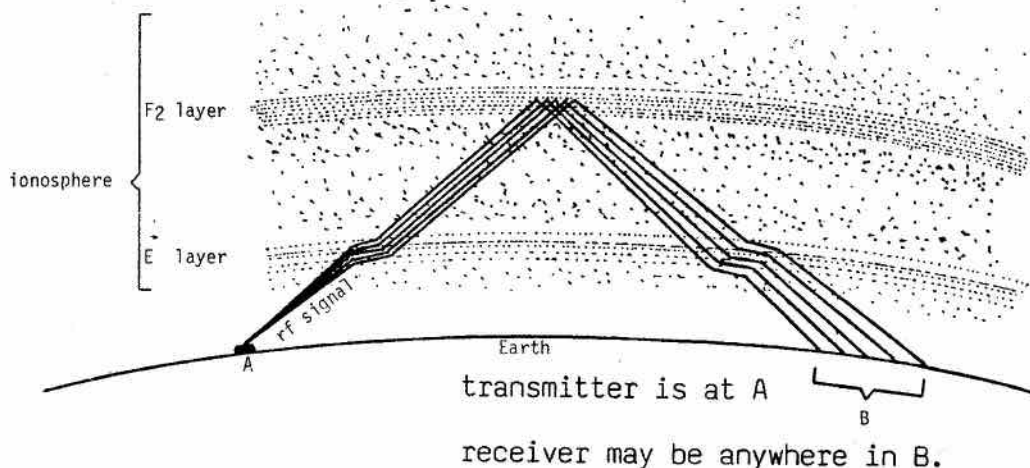
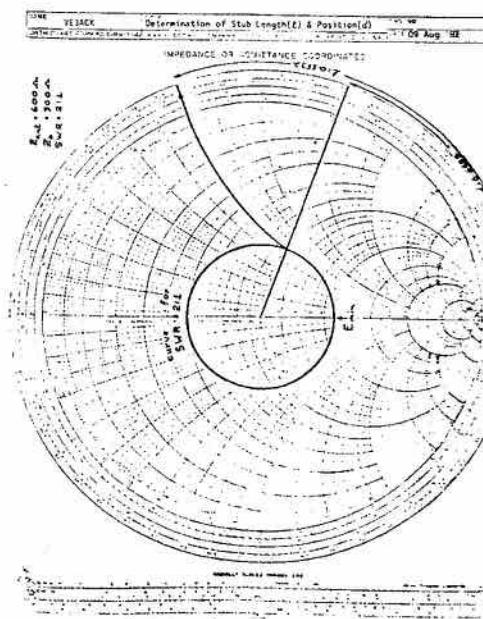


Fig. 4. A diagram can quickly illustrate a concept which would be difficult to grasp solely in text form.

Fig. 5. Graphs have the advantage of displaying a large amount of data quickly. However, when the scale does not change in equal increments or when the curve is complex, it can be difficult to interpret.



Retentivity and Coercivity  
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Material	Composition, percent	Retentivity, w/m <sup>2</sup>	Coercivity, A/m
Carbon steel	98 Fe 0.86 C 0.9 Mn	0.95	$3.6 \times 10^3$
Cobalt steel	52 Fe 36 Co 7 W 3.5 Cr 0.5 Mn 0.7 C	0.95	$18 \times 10^3$
Alnico 2	55 Fe 10 Al 17 Ni 12 Co 6 Cu	0.76	$42 \times 10^3$

Fig. 6— Some tables simply cannot be converted into a graph.

4. When drawings are to be compared, they should be drawn to the same scale and placed side by side
5. The drawing should fit upright on the page
6. Include a caption

#### Criteria for Photographs

1. A photograph should possess scientific interest
2. It should exhibit sharp focus
3. Effective lighting and contrast must be evident
4. Black and white photographs reproduce best
5. If possible, submit 20.3 cm. X 25.4 cm (8" X 10") photographs
6. Do not mount photographs
7. Do not write on the photographs

#### Criteria for Graphs

1. For two-dimensional graphs, the vertical axis and the horizontal axis cross at right angles
2. On the vertical axis, values upward are positive and values downward are negative, while on the horizontal axis, values to the right are positive and values to the left are negative
3. State the units of measurement
4. All numbers on the scales should be upright, but the labelling should be parallel to the axis
5. When two graphs are to be compared, use the same scale and place them side by side
6. Graphs should fit upright on the page

7. Include a heading or caption
8. Do not repeat the same information on a graph and in a table

#### Criteria for Tables

1. A table should not repeat information provided in the text; it should be possible to understand the table without reference to the text
2. Each column should have a concise heading including units as appropriate
3. Decimal points in any given column should appear in a vertical line
4. If there is no entry in any section of the table, indicate so by using three dots
5. Whenever possible, a table should fit upright on the page

#### Revising the Copy

This is the stage where the polishing begins. Throughout this step, keep the reader in mind; continually question how you have expressed your ideas, to make sure that all concepts will be easily understood by the reader.

Read your draft and ask yourself the questions listed below.

1. Did I keep to the topic?
2. Is the purpose & scope of the manuscript stated clearly & concisely in the introduction?
3. Is there any unnecessary repetition?

4. Are there any unnecessary words, sentences, paragraphs or sections?

5. Has anything essential been left out?

6. Are the spelling, grammar and punctuation correct & consistent?

7. Is the material presented clearly & effectively?

8. Did I use the correct electronics symbols & mathematics symbols?

9. Are technical terms, symbols and abbreviations explained?

10. Does the title provide the most accurate concise description of the material in the article?

Based on your answers to these questions make the appropriate revisions and re-write the manuscript. When you are satisfied with the manuscript, have two people read it and make comments. One of these people should be technically competent and the other person should be someone whom you consider to represent an average reader. Both readers should be people whose opinion you trust. Once they have read your manuscript, you can implement any further changes you wish to make, based on their suggestions.

#### LAYING OUT THE FINAL COPY

What you have been doing until now has been basically mechanical. The task at hand is to prepare a copy of your material in a form which is usable by the staff of the magazine.

Although some magazines accept handwritten copies, many do not. In any case, a typed manuscript is easier for the magazine staff to deal with and, as a result, it increases your chance for acceptance.

Your final copy should meet the following criteria.

1. Use 8 1/2" X 11" white paper.
2. Use a black typewriter ribbon.
3. Leave wide margins on all sides. (An easy method is described later.)
4. Double space the typing.
5. No corrections should be evident. If you need to make more than 2 or 3 corrections, re-type the entire page.
6. Type only on one side of the page.

Fig. 7 shows the format for the top of the first page. It is based on information provided in Words for Sale.<sup>8</sup>

David James 14 Katharine St. Muliebrity, Ont A1B 2C3 (705) 123-4567	Seven Pages Approx 3000 Words 17 December, 1981
CALCULATING EMITTER RESISTOR VALUES	

Fig. 7— The set-up of the top of the first page of a manuscript. Your name, address and telephone number appear at the top left corner. The number of pages, word count and date appear at the top right corner. The title is centred under this information.

David James, Emitter Resistors	-2-
--------------------------------	-----

Fig. 8— The set-up of Page 2 and subsequent pages. Your name, plus an abbreviation of the story's title appear in the top left corner. The page number appears in the top right corner.

Fig. 8 shows the format for subsequent pages.

The easy method to provide wide margins that was mentioned earlier, is to set the margins on the typewriter to produce 55 characters per line, and then type 25 lines per page. This will give you roughly 250 words per page. Using this format also makes the word count easy to determine. By the way, the word count which appears on the first page need only be approximate to give the editor a feeling for the length.

Once the manuscript is typed, read it carefully to make sure that grammatical errors or spelling errors have not slipped in, that all

mathematics formulas are correct, that all symbols are correct and that the pages are in the correct order.

Once you have accomplished this much, sit back and congratulate yourself. You have finally produced a manuscript.

Before total euphoria sets in however, take a trip to the nearest photocopy machine and make a copy of all the material. This will help later on if the editor calls to ask questions about the manuscript, or it, heaven forbid, someone loses the original.

### SUBMITTING THE MANUSCRIPT

Once your copy is safely tucked away, you can mail the original to the technical editor of the magazine. Along with the manuscript enclose a letter explaining what it is you are submitting and that you would like it considered for publication.

In the letter state a date by which you expect an indication of acceptance or rejection. How long you are willing to wait will vary. If you mail the material, it would be unrealistic to expect a reply within several weeks. However, if timing is important to your article, you may not want to wait too long. An article dealing with a new super duper antennna for Field Day use is of little use if published in the July issue. In this case, you would want to leave yourself sufficient time to submit to another magazine, if necessary.

To ensure prompt return of your material in the event the magazine staff chooses not to accept, enclose a self-addressed stamped envelope.

And finally, if you want to be sure that your manuscript has arrived at its destination, enclose a post card which is addressed to you and stamped and which has a brief sentence to say they have

received your material. That way, they only need to drop the card in the mail to acknowledge receipt.

### PARTING THOUGHTS

Having read this entire article, you might think that anyone who undertakes technical writing would need to be tending slightly toward insanity. However, as with many skills, it takes longer to explain how to perform the operation than it does to actually complete the task. The reason for this is that the only way to help everyone is by including every step in the overall process.

Rather than trying to remember all of the steps, isolate the steps which you have overlooked in the past.

In addition, isolate those to which you did not assign sufficient importance. Following through with these steps will help you to polish your effort. As a result, you

will have a manuscript which will be more useful to your reader, much easier to present to an editor and will make you think it just rolled out of the typewriter of a seasoned pro.

### ACKNOWLEDGEMENTS

Any undertaking of this type requires the assistance of a group of people to produce a polished product. I would like to express my appreciation to Jim Steen, Mary Rimmer and Ruth Thuot for their contributions. The circuit board which appears in Fig.3(B) was loaned to me by Kathy Gebhardt.

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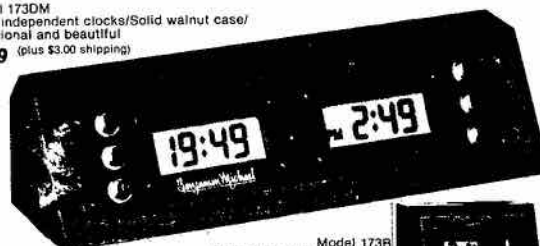


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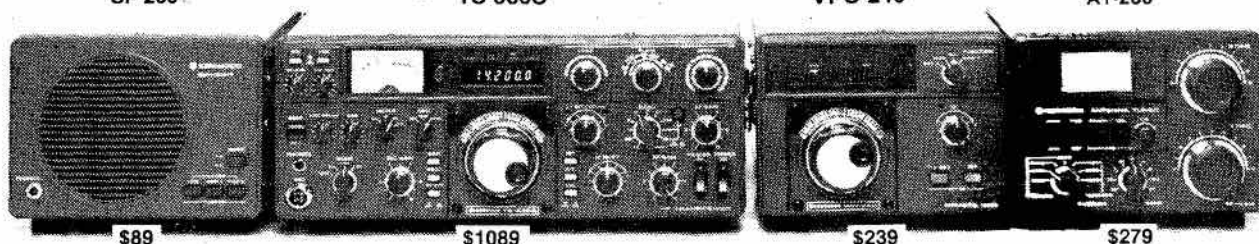
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## TS-530S FEATURES:

### Narrow/wide filter combinations

Any one or two of three optional filters ... YK-88SN (1.8 kHz) SSB, YK-88C (500 Hz) CW, YK-88CN (270 Hz) CW may be installed for selecting (with "N-W" switch) wide and narrow bandwidths on CW and/or SSB.

### Wide receiver dynamic range

Greater immunity to strong-signal overload, with MOSFET RF amplifier operating at low level for improved IMD characteristics, junction FETs in balanced mixer with low noise figure, and dual resonator for each band.

### Built-in speech processor

Combines an audio compression amplifier with change of ALC time constant for extra audio punch and increased average SSB output power, with suppressed sideband splatter.

### 160-10 meter coverage, including three new bands

Transmits and receives (LSB, USB, and CW) on all Amateur frequencies between 1.8 and 29.7 MHz, including the new 10, 18, and 24 MHz bands. Receives WWV on 10 MHz.

### Built-in digital display

Large, six-digit, fluorescent-tube display shows actual receive and transmit frequencies on all modes. Backed up by analog subdial.

### IF shift

Moves IF passband around received signal and away from interfering signals and sideband splatter.

### Advanced single-conversion PLL system

Improved overall stability and improved transmit and receive spurious characteristics.

### RIT/XIT

Front-panel RIT receiver incremental tuning shifts the receiver frequency, for tuning in stations slightly off frequency. XIT transmitter incremental tuning shifts the transmitter frequency, enabling a DX station listening off frequency.

### Adjustable noise-blanker level

Pulse-type (such as ignition) noise is eliminated by built-in noise blanker, with front-panel threshold level control.

### RF attenuator

The 20 dB RF attenuator may be switched in for protection from extremely strong signals.

### Two 6146B's in final

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# Infosection

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

Office Manager ..... Andy Cieszewski  
Accounting ..... Mary Watts  
Secretary ..... Hazel Holland  
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### SEE YOU IN PRINT?

We would like to publish photographs of Amateur Stations. Please submit 5x7 high contrast B&W or colour photos, including a description of your station and QSL card to the Editor.

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Single insertion is \$1.00 (minimum charge) for 10 words and \$1.00 for each additional 10 words. To renew, send copy and payment again. Deadline is first of month preceding publication (e.g. Jan. 1 for Feb. issue). Put your membership number and call (not counted) at the end of your ad. Print or type your ad and include your address with postal code. If using a phone number, include the area code. TCA accepts no responsibility for content or matters arising from ads. This feature is for use of members wishing to trade, buy or sell personal radio gear. It is not open to commercial advertising. Send to: TCA Swap Shop, Box 358, Kingston, Ont. K7L 4W2.

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**FOR SALE:** Multi-7, Two Metre, 23 Channels (13 Crystallized), Instruction Manual. Good working condition. \$200<sup>00</sup>. C.P. Tremblay VE2DNO, 188 Durocher, Hull, Que. J8Y 2S8.

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## Canadian Amateur Radio First!

### WHAT IS CARF?

The Canadian Amateur Radio Federation, Inc. is incorporated and operates under a federal charter, with the following objectives:

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

### OFFICERS

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### BOARD OF DIRECTORS

If you want to contact the Federation, write or call a Director in your Region or write to CARF, Box 356, Kingston, Ont. K7L 4W2.

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

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

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

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

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

## Operating Information

### RECIPROCAL OPERATING AGREEMENTS

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

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

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

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

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

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

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

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

### THIRD PARTY TRAFFIC AGREEMENTS

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

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

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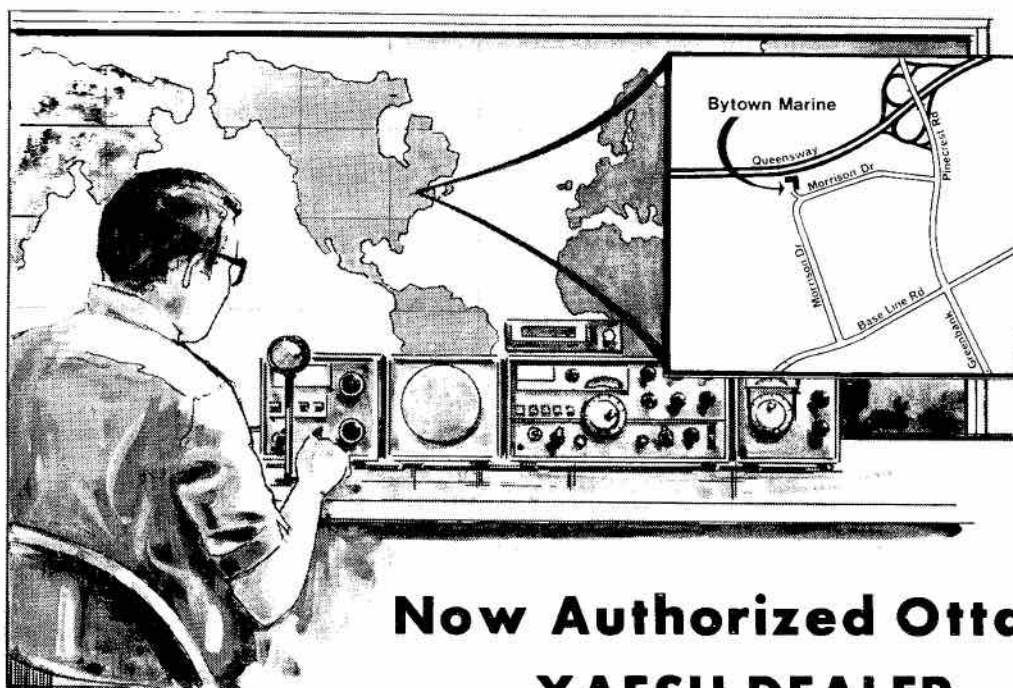
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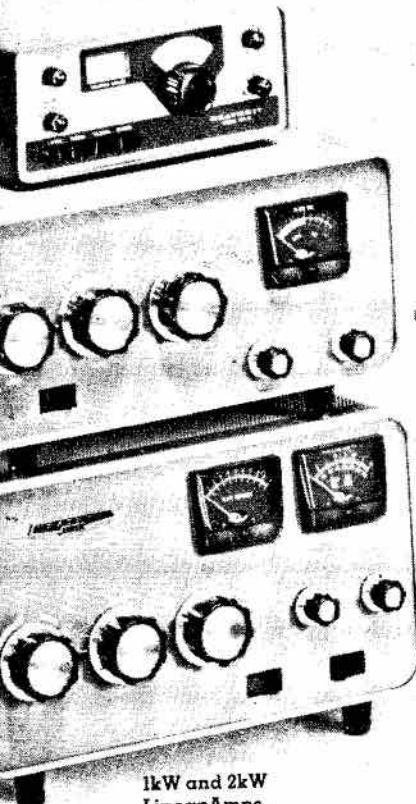
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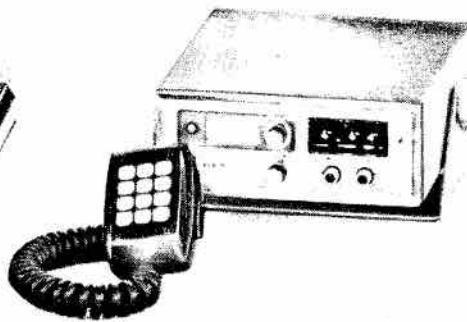


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