

Second Class Mail Registration
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TCA



\$1⁰⁰

The Canadian Amateur Radio Magazine

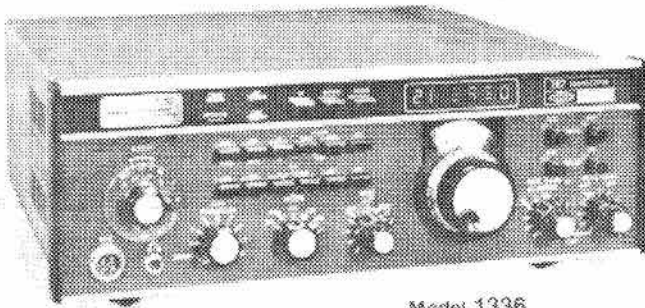
JULY/AUGUST 1981

- Repeater Directory
- Contests
- DX

• The YL Heritage

• Technical Section

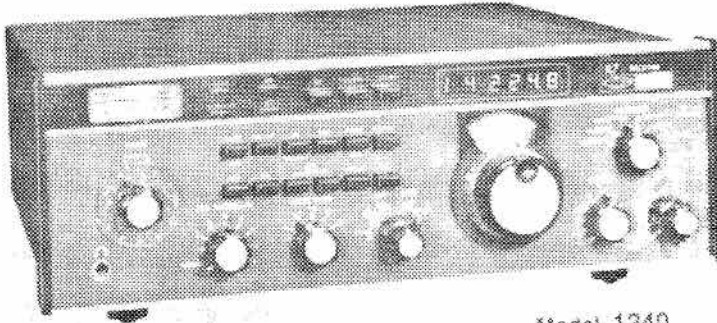




Model 1336

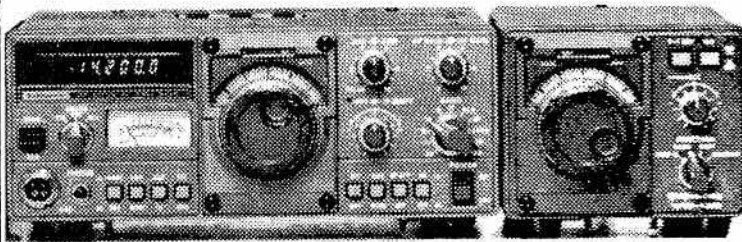


TR7 Solid State
Continuous Coverage
Synthesized HF System



Model 1240

R7 Synthesized General
Coverage Receiver



TS-130S

VFO-120

Kenwood

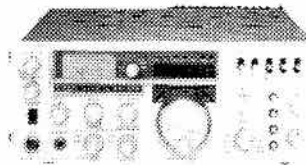
TS-130S/V

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

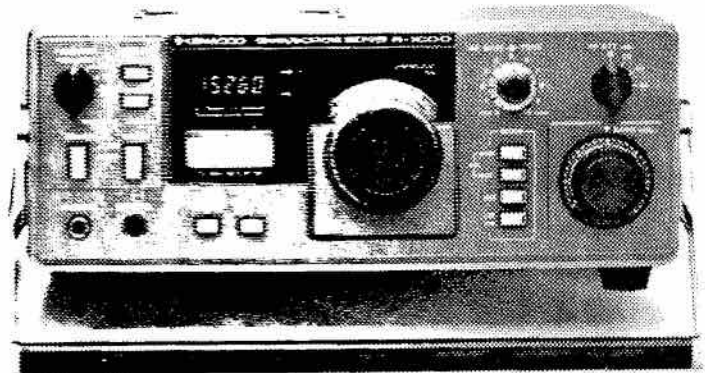


YAESU

107 SERIES



FT-107M



R-1000

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

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

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

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TEN-TEC

The All-American DX Machines

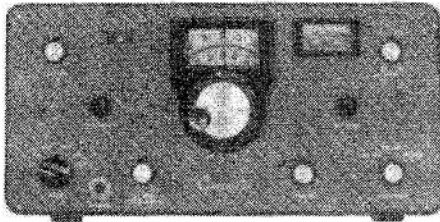


THE NEW OMNI-SERIES C

The best of TEN-TEC. OMNI-C—with all 9 hf bands, new 3-mode offset tuning, new optimized bandwidth with 7 response curves, new built-in noise blanker, new "hang" AGC and all the features that have made this impressive series famous throughout the amateur world. And with all 9 hf bands, OMNI-C is ready to roam the entire amateur hf world from 160 through 10 meters including the three new bands, 10, 18, and 24.5 MHz (all crystals included excepting 18 and 24.5 MHz).

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: ± 500 Hz or ± 4 kHz—for complete tuning flexibility in any situation.

And OMNI-C offers 7 response curves, four for SSB, three for CW, with new easy switching of all i-f and audio filters. See the new OMNI-Series C at HAM TRADERS. **Only \$1739.**



CENTURY-21 "THE CW MACHINE"

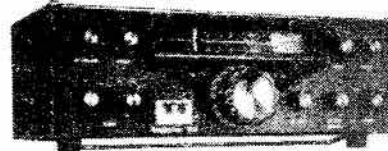
Ideal for the novice as a beginning rig, for the CW op on a budget, for everyone as a second rig, CENTURY-21 goes on making friends the world over! 70 watts input, 80 through 10 meters, all solid-state, full break-in, off-set tuning, broad-banded, overload-protected built-in power supply. See this CW bargain at HAM TRADERS. **Only \$499.**



THE NEW DELTA

The notable change in hf transceiver design, DELTA offers all 9 hf band coverage, super selectivity, 200 watts, and all the features you want in a new smaller size at a new lower price!

All solid-state, all broadbanded (not even a resonate control), all 9 hf bands including the new 10, 18 and 24.5 MHz bands (even the crystals for all except 18 and 24.5 MHz), new low-noise double-conversion receiver with $0.3 \mu\text{V}$ sensitivity, high 85 dB dynamic range, 8-pole 2.4 kHz SSB filter plus optional 500 and 250 Hz 6-pole filters that cascade for up to 14 poles of selectivity, plus 4 stages of active audio filtering, built-in notch filter, offset tuning, "hang" AGC for smoother operation, digital readout with six 0.3" red LEDs, 200 watts input on all bands including 10 meters, 100% duty cycle, QSK full break-in, built-in VOX and PTT, adjustable ALC and drive, adjustable sidetone, super stability, vernier tuning, low distortion audio, super new-look styling that's panelized for easy use and small enough to go anywhere ($4\frac{3}{4}$ "h x $11\frac{3}{8}$ "w x 15"d), new modular/mass-termination construction for easy board removal, plus a full accessory line. Check the super DELTA price at HAM TRADERS! **Only \$1179. Amateur Net**



NEW ARGONAUT 515 — THE BEST IN QRP.

The latest in this famous series, the new 515 features improved receiver sensitivity ($0.35 \mu\text{V}$), new heterodyne VFO, new bandspread on 10 meters (four 500 kHz segments), new broadbanded final amplifier design, new dial pointer zero-set, new LED RF output indicator (flashes on 2-watt peaks), new tilt-up bail, and new styling in black and bronze. And it has all the features that made its predecessors famous: 80-10 meter coverage, offset receiver tuning, PTT, full CW break-in, SWR bndge, integral TVI filter, go-anywhere size. Work it at HAM TRADERS. **Only \$629.**

(ARGONAUT 500 CLEARANCE \$449.)

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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 μ V/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.



Put a ham shack in your hand. The TR-2400 is the ideal hand-held for 2 meters FM. It features a large LCD readout that can be read in direct sunlight or in the dark, 5-kHz-step PLL synthesized operation, 10-channel memory, scanning, and 16-button autopatch DTMF encoder.

TR-2400

NEW LOW PRICE

Large LCD digital readout

Readable in direct sunlight (better than LEDs). Readable in the dark (with lamp switch). Virtually no current drain (much less than LEDs) and display stays on. Rugged and dependable in hot or cold temperature ranges. Shows receive and transmit frequencies and memory channel.

5-kHz-step frequency selection

PLL synthesized keyboard channel selection system. No "5 up" switch needed. Selects from 144.000 to 147.995 MHz.

UP/DOWN manual scan

Single or fast continuous 5-kHz steps from 143.900 to 148.495 MHz for Amateur and MARS or CAP simplex or repeater operation.

10 memories

Retained with battery backup (only 2.0 mA). "MO" memory may be used to shift the transmit frequency any desired amount to operate on repeaters with nonstandard split frequencies.

Built-in autopatch DTMF (Touch-Tone®) encoder

Uses all 16 buttons of keyboard while transmitting.

OPTIONAL ACCESSORIES:

- ST-1 base stand (shown) which provides 1.5-hour quick charge, 4-pin connector for dynamic microphone, and SO-239 antenna connector **\$99**
- BC-5 DC quick charger (1.5 to 2.0 hours) **\$45**
- SMC 24 speaker/microphone **\$36**
- LH-1 deluxe leather case (top grain cowhide) **\$55**
- PB-24 extra battery pack with charger adapter **\$34**
- SC-3 soft vinyl case with belt clip. **\$29**



Repeater or simplex operation

Convenient mode switch shifts transmit frequency +600 kHz or -600 kHz or to the frequency stored in "MO" memory.

Reverse operation

Push-button switch shifts receiver to transmit frequency and transmitter to receive frequency.

Extended operating time

With LCD and overall low-current circuit design. Only draws about 28 mA squelched receive and 500 mA transmit (at 1.5 W RF output), for longer operating time between charges.

Two lock switches

Prevent accidental frequency change and accidental transmission.

BNC antenna connector

Easy to connect external antenna.

LCD "arrow" indicators

Show "ON AIR," "MR" (memory recall), "BATT" (battery status), and "LAMP" switch on.

High-impact case and zinc die-cast frame

Extremely rugged with antenna counterpoise.

External PTT microphone and earphone connectors

Easily accessible on right side of transceiver.

Compact and lightweight

Only 2-13/16 inches wide, 7-9/16 inches high, and 1-7/8 inches deep. Weighs only 1.62 pounds (including antenna, battery, and hand strap).

Automatic memory scan

Checks all 10 memory channels. Programmable to lock automatically on either BUSY (signal present) or OPEN (no signal) channels.

Subtone switch

Activates subaudible tone encoder (not Kenwood-supplied)

STANDARD ACCESSORIES INCLUDED:

- Flexible rubberized antenna with BNC connector
- Heavy-duty (450-mAh) NiCd battery pack
- External-standby (PTT) plug
- AC charger
- Hand strap
- External-microphone plug
- Earphone

NOTE: Price, specifications subject to change without notice and obligation.

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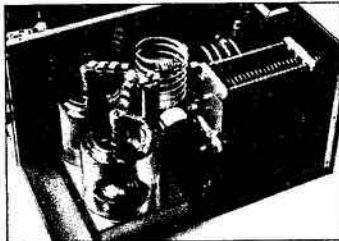
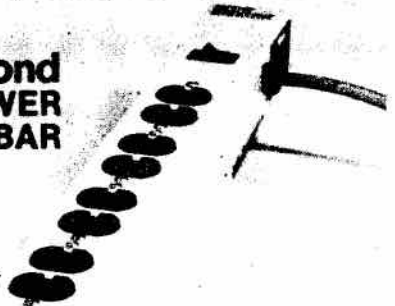
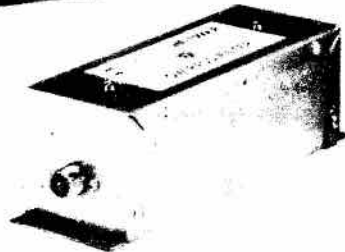




HL-2000A LINEAR AMPLIFIER

Hammond POWER BAR

HF-1000LP LOW PASS FILTER



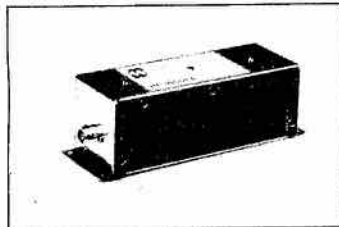
HL-2000A LINEAR AMPLIFIER

A truly rugged, uniquely Canadian, linear amplifier in the Hammond tradition. Top quality, heavy duty components designed for longest life performance.

General specifications:

- 2000 watt PEP input SSB, 1000 watt CW and RTTY covering the 10M, 15M, 20M, 40M, and 80M amateur bands.

- Special Hammond power transformer designed for continuous duty operation. Rated 1100VA - 60Hz.
- Two 3-500Z Zero based triodes, air chimney cooled.
- Computer grade capacitors for maximum reliability.
- Full Pi-L output circuit network for maximum harmonic suppression.

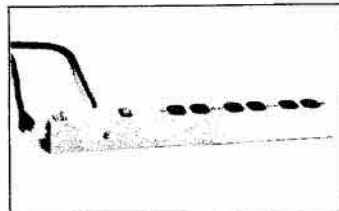


HF-1000LP LOW PASS FILTER

Designed to eliminate spurious conduction from transmitters operating below 30 MHz and eliminate 2nd and 3rd harmonics appearing in the TV bands when operating in 10, 15, and 20 meters.

General specifications

- 0 to 30 MHz band pass.
- Cutoff frequency 32MHz \pm 5MHz.
- Power capacity 2000W PEP SSB.
- Impedance 52 ohms input and output.



Hammond POWER BAR

Power Bar is a multi receptacle device for connecting several pieces of equipment to a single outlet:

- 4, 6 or 8 receptacle models
- lighted on-off switch
- 15amp circuit breaker
- choice of 6 or 15 foot cord
- CSA approved.

For further information and prices please clip the coupon and mail to:
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Please send further information:

HF-1000LP LOW PASS FILTER

HL-2000A LINEAR AMPLIFIER

Hammond POWER BAR

Name _____

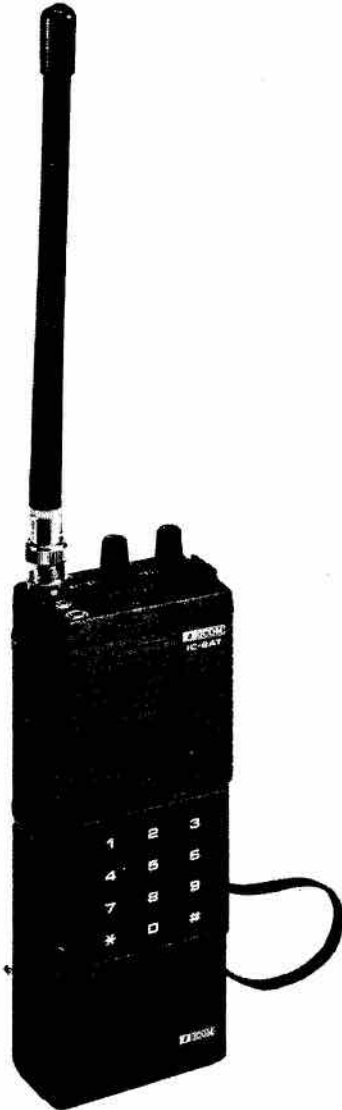
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2A Fever~ Catch it!



ICOM waited while the others scrambled to put out a synthesized Handie Talkie. ICOM looked at their bells & whistles, their digital displays, high power consumptions and lumbering sizes. Then ICOM quietly built a handheld that people, not gimmickers, would like and use.

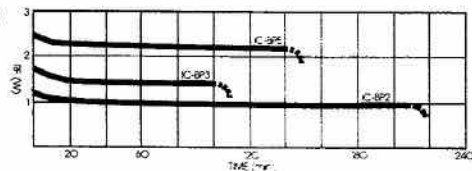
The result is an ultra compact unit (the rubber duck is longer than the set) with all of the channels, all of the power, and all of the convenience and performance that has made ICOM famous.

You can vary your power output or longevity by snapping on various Nicad Bottom Packs. You can take it anywhere since the IC-2A is at home in a shirt pocket or unobtrusively on a belt, and its clean handsome styling always makes it the centre of attention.

Standard Features

- 800 T/R Channels
- Variable NiCd Power Pack: 3 sizes to suit your needs.
- Super Sensitive ICOM receiver (.2uv/20dB typical).
- Touch Tone pad on the IC-2AT model.
- Separate built in speaker and microphone for excellent audio.
- BNC 'Rubber Duck' antenna

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3:1 Duty Cycle



BATTERY PACK MODEL	HEIGHT	CHARGER REQUIRED	BATTERIES	VOLTAGE	TYPICAL OUTPUT (IN WATTS)	REPLACEABLE BATTERIES	NOTES
IC-BP2	39mm	BC-30	N-425 AR (x6)	7.2	1.0	No	Low Power/Quick Charge (15h) Long Life/Overcharge protected
IC-BP3	39mm	BC-25 or BC-30	N-250 AA (x7)	8.4	1.5	No	Standard Power/ Standard Charge (15h)
IC-BP4	49mm	**	UM-3 (x6)	9.0	1.8	Yes	Standard Power/No Recharge capability
		BC-30	NiCd AA (x6)	7.2	1.0	Yes	Low Power/Long Life/ Standard Charge (15h)
IC-BP5	60mm	BC-30	N-425 AR (x9)	10.8	2.3	No	High Power/Long Life/ Quick Charge (15h)/Overcharge protected

*With 400 mAh NiCd batteries **Do not attempt to recharge regular or alkaline batteries

IC-2A: \$299 2AT:\$339

order direct!

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PACK A PUNCH.



ICOM IC-730

COMPACT.

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

AFFORDABLE.

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

COMFORTABLE.

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

FULLY ENDOWED.

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



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ICOM

\$ 1095

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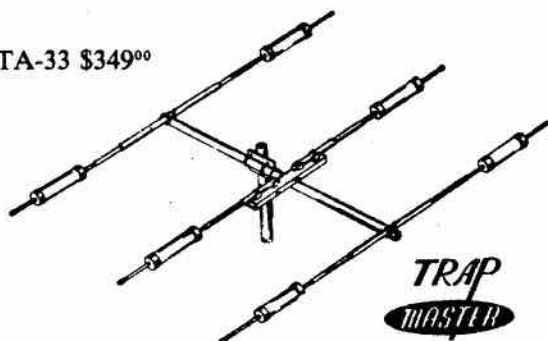
Mosley CL-36

Another addition to the Trap-Master family of fine beams. The Classic 36, featuring the Mosley patented Classic Feed System for "Capacitive Matching". A sure formula for DX success! Six wide-spaced elements, four operating elements on 10 meters, three operating elements on 15 meters and three operating elements on 20 meters. Bandswitching is automatic by means of high-impedance, resonant "Trap-Circuits". This exclusive Mosley trap design provides resonant stability under all weather conditions. Easily handles full KW, amplitude modulated or continuous waves and 2 KW, peak envelope power (PEP), on single sideband. The rugged lightweight aluminum construction with stainless steel hardware enables the Classic 36 to withstand hurricane winds (wind load: EIA standard 80 MPH), Antarctic cold and equatorial heat. Fully rust proof and corrosion proof, this beam will weather the rigors of climate variation and long use. A 2 inch outside-diameter support mast and heavy duty rotor is recommended. Like all Mosley antennas, the CL-36 comes complete with illustrated instructions and is color-coded with pre-drilled holes for ease of assembly. All hardware necessary for assembly is included. The CL-36 is not designed for 40 meter or other conversion.

TA-33

The Famous Mosley TA-33, 3-element beam, provides outstanding 10, 15 and 20 metre performance. Exceptionally broad band gives excellent results over full Ham bandwidth. Exclusive Mosley Trap design offers resonant frequency stability under all weather conditions. Element center sections are double thickness aluminum to reduce sag. Boom requires no bracing. Heavy duty universal mounting plate fits masts up to 1 1/2" OD.

TA-33 \$349⁰⁰



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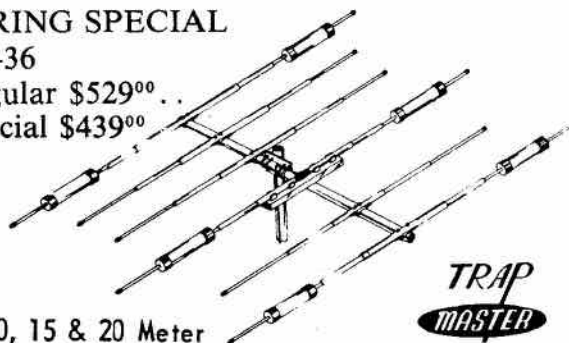


SPRING SPECIAL

CL-36

Regular \$529⁰⁰ ..

Special \$439⁰⁰



10, 15 & 20 Meter

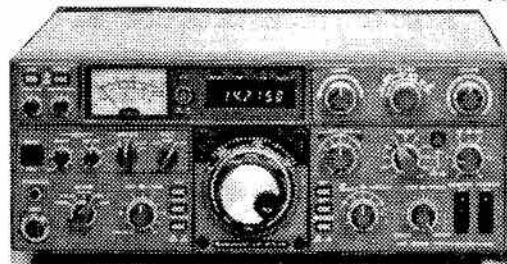
6 Element Beam

10.1 db. Forward Gain (over isotropic source)

20 db. Front-to-back Ratio

KENWOOD SPECIALS

TS-120S	\$885.
TS130S	\$1019
TS-830S	\$1289.
R1000RX	\$639.
TR-2400	\$499.
R-300RX	DEMO
TR7800	\$549.
TR7850	\$629.



TS-830S.....\$1289.

YAESU RADIOS

FT-107ZD	\$1275.
FT-107M	\$1699.
FT-707	\$1169
FT207R	DEMOS
FT227RB	\$589.

SUPER SPECIALS

3KW McCoy 'Ultimate' Transmatch w/roller inductor, turns counter, etc.	Special \$279.
Mosley S402 40M Beam, to clear Reg. \$519.	\$349.
PL259 Connectors	Doz. \$9.95
Delhi DMX HD48 Ft. Tower	\$369.

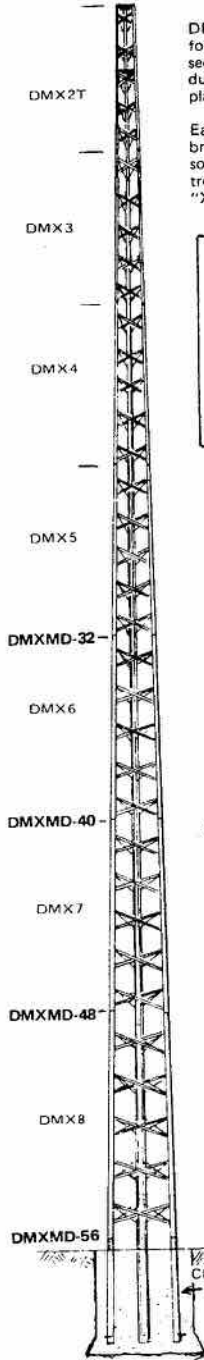
CDE Big Talk Rotor \$129.

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



Medium Duty and Heavy Duty Ham Towers

Sections



DELHI DMXMD and DMXHD towers use the larger and stronger sections of the 68 foot, eight section, Model DMX-68 TV Tower. DMXMD towers have a DMX2T top section. DMXHD towers have a DMX3T top section. Both top sections have heavy duty rotor plates and a No. 244A cast aluminum mast clamp installed on the top plate.

Each section is 8 ft. long and has beaded channel legs riveted together with "X" braces. Legs and braces are all steel, heavily galvanized before fabrication. Rivets are solid heat treated aluminum. Sections fit accurately together and are joined by heat treated nuts and bolts. The uniform tapered leg design together with evenly spaced "X" braces give the tower greater strength and reliability.

ANTENNA LOAD LIMITS

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

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

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



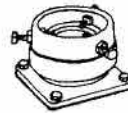
Top section of a Ham Tower with a rotor, mast and a Model BBMB installed.



Unique beaded channel leg resists bending



244A
Cast Alum. Mast Clamp



BBMB
Ball Bearing Mast Bearing

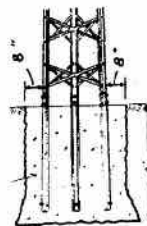
NOTE: DMXMD and DMXHD towers are shipped complete with the following: 8 ft. tower sections, top plate with cast aluminum mast clamp, rotor plate, three 4 ft. concrete base stubs, special nuts, bolts and washers. (No mast is included in package).



Compact Tower Package



Hinge-Up Base
HUB3-6
HUB7-8

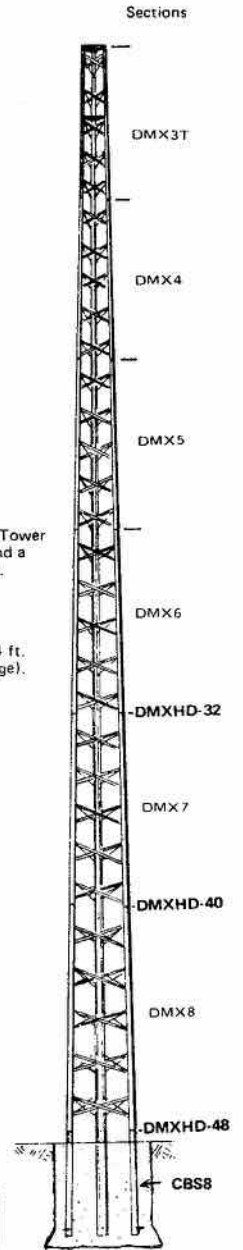


CBS8

Specifications:

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

Hy-Gain, Mosley, Cushcraft Antennas in Stock!
Kenwood and Yaesu Radios
DROP A NOTE FOR A QUOTE



H.C. MacFarlane Electronics Ltd.

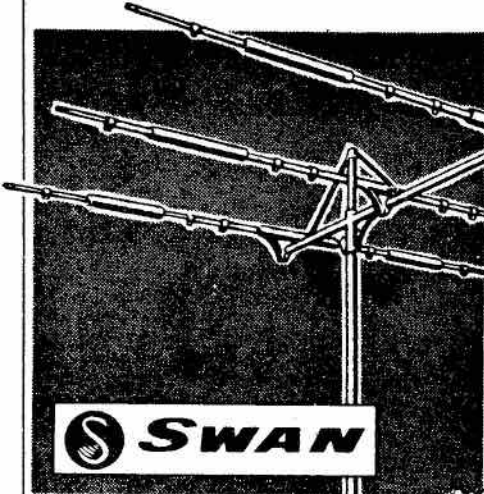
R.R. # 2 Battersea, Ontario. Phone: 613-353-2800 VE3BPM

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



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HEAVY DUTY 3-ELEMENT TRIBAND BEAM

SWAN TB2A (B&W 370-18) 2 ELEMENT TRI-BAND BEAM
shipping weight 33 LBS. \$249.00 + shipping collect

SWAN TB3HA(B&W 370-17) 3 ELEMENT TRI-BAND BEAM
shipping weight 60 LBS. \$339.00 + shipping collect

EXTREMELY RUGGED..NOW MADE BY BARKER & WILLIAMSON

SWAN TB4HA(B&W 370-16) 4 ELEMENT TRI-BAND BEAM

ALL WSI SHOWROOM SETS EMPLOY THIS RADIATOR!!

shipping weight 80 LBS. \$419.00 +shipping collect

WRITE FOR COMPLETE SPECIFICATIONS.....

FREE Catalogue



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KITCHENER, ONTARIO N2H 3M2

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Model 1336

TR7

IN STOCK AT WSI PRICES

**solid state
continuous coverage
synthesized hf system**

You are invited to contact ERIC ENNS VE3BB
regarding his recent purchase of a TR7



Model 1240

R7

**Synthesized
General Coverage
Receiver**



Canadian Repeater Advisory Group

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

This column will be short, since in this issue you will find the latest copy of the CRAG Repeater Listing, current as of May 15, 1981. In addition to all those mentioned in previous columns, thanks to the following for additions and corrections which were received since the last column was

published and are reflected in this listing: VE3HWN, VE3NB, VE1CDT, VE3ACY, VE3GOJ, VE3JLG, VE3PQ, VE2GM, VE3LKI, VE1BWP, VE1ZN and VE3GGR.

Steve VE1GGR and the Muskoka Repeater Association VE3NMR are looking for some-

one who has 'cheap' 6 metre or higher gear that they could use (any donations?). Contact Steve at Box 2771, Huntsville, Ont. P0A 1K0.

Well, that's it for the summer listing. Be sure to let me know of any changes you find during your summer travels.

Repeater Directory

CRAG REPEATER DIRECTORY 15 MAY, 1981

Canadian Amateur Radio Federation
Canadian Repeater Advisory Group

Compiled by H. Lines, VE3DWL

NFLD/LABRADOR <<<<<<#>>>>>

Corner Brook	VO1M0	146.340	146.940	
Gander	VO1AV	146.340	147.940	0
St Johns	VO1GT	146.340	146.940	
St Johns	VO1EN	146.460	147.060	A

NOVA SCOTIA <<<<<<#>>>>>

Rear River	VE1ASQ	146.190	146.790	0
Big Harbour	VE1BVH	147.720	147.120	
Blockhouse	VE1LCA	147.840	147.240	
Bridgetown	VE1B0	146.460	147.060	
Dartmouth	VE1DAR	146.250	146.850	
Gore	VE1OM	146.040	146.640	
Halifax	VE1CBC	146.340	146.940	
Kemptville	VE1YAR	146.340	146.940	P
Liverpool	VE1VO	147.900	147.300	
Mt Blomidon	VE1AEB	147.780	147.180	
Mulgrave	VE1RTI	146.220	146.820	
New Glasgow	VE1HR	146.160	146.760	
North Sydney	VE1AUY	147.840	147.240	A
Rear Boisdale	VE1HAM	146.280	146.880	
Shelburne	VE1SCR	146.010	146.610	
Springhill	VE1SPR	146.400	147.000	1
Springhill	VE1SPR	443.300	448.300	A 2
Sydney	VE1CBI	146.010	146.610	R
Sydney	VE1SYD	146.340	146.940	A
Truro	VE1LHD	147.810	147.210	
Truro	VE1XK	146.190	146.790	
Yarmouth	VE1YAR	146.130	146.730	

NOTES

- 1 - Linked with VE1AHC (PEI)
- 2 - VE1AHC link frequency

P.E.I. <<<<<<#>>>>>

Charlotte town	VE1AHC	146.070	146.670	1 A
Charlotte town	VE1HI	146.340	146.940	
Charlotte town	VE1AHC	448.300	443.300	1 2
Charlottetown	VE1UHF	449.400	444.400	1 A
O'Leary	VE1ATN	147.720	147.120	
Summerside	VE1CFR	146.250	146.850	

NOTES

- 1 - Linked with VE1SPR (NS)
- 2 - VE1SPR link frequency

NEW BRUNSWICK <<<<<<#>>>>>

Bathurst	VE1PL	146.340	146.940	
Dalhousie	VE1BKX	146.040	146.640	
Fredricton	VE1RM	147.720	147.120	A
Fredricton	VE1PD	146.160	146.760	
Moncton	VE1MTN	147.690	147.190	
Moncton	VE1RPT	146.280	146.880	A
Mt Champlain	VE1TMO	146.100	146.700	
Newcastle/Chatham	VE1NCR	147.750	147.150	
Perth	VE1BTK	146.220	146.820	
Perth (60)	VE1KWT	146.460	147.060	
Saint Davids Ridge	VE1IE	146.250	146.850	
Saint John	VE1KI	146.220	146.820	
Saint John	VE1 ?	Not	Known	P
Sussex	VE1SMT	146.010	146.610	
Woodstock	VE1EMT	146.370	146.970	

QUEBEC <<<<<<#>>>>>

Alma	VE2RCA	146.070	146.670	
Alma	VE2RCM	146.250	146.850	
Alma	VE2HCR	146.340	146.940	E L
Amos	VE2RYE	146.160	146.760	
Amqui	VE2KH	146.280	146.880	
L'Assomption	VE2RBB	147.810	147.210	
Baie Comeau	VE2RPR	146.100	146.700	A
Brownburg	VE2RMC	146.205	146.805	
Carleton	VE2IN	146.220	146.820	
Chicoutimi	VE2IU	146.160	146.760	
Chicoutimi	VE2RCC	147.720	147.120	
Deux Montagnes	VE2RAU	146.310	146.910	B
Donacona	VE2RAP	146.430	147.030	
Dolbeau	VE2RCD	146.100	146.700	
Drummondville	VE2RDV	147.690	147.090	
Franklin Ctr	VE2RBV	147.810	147.210	*
Gagnon	VE2RGA	146.340	146.940	
Gaspe	VE2ELE	146.280	146.880	
Grand Fond	VE2CJT	146.400	147.000	A
Granby	VE2RTA	147.780	147.180	E
Grand Mere	VE2RGM	146.310	146.910	A B
Haute Rive	VE2RJB	147.900	147.300	
Hereford	VE2RDM	147.960	147.360	E
Hull	See NATIONAL CAPITAL REGION			
Joliette	VE2RMA	146.430	147.030	
Jonguiere	VE2VP	146.220	146.820	
La Tuque	VE2EH	146.190	146.790	
Laval	VE2RVS	146.250	146.850	
Matane	VE2RAS	147.720	147.120	A E
Mont Dufor	VE2ES	146.280	146.880	
Mont Laurier	VE2RMC	146.370	146.970	E
Mont Logan	VE2OE	146.160	146.760	
Montmagny	VE2RAB	146.370	146.970	
Montreal	VE2BG	146.460	147.060	
Montreal	VE2HH	222.900	224.500	
Montreal	VE2MRC	147.720	147.120	A E
Montreal	VE2RBD	444.600	449.600	
Montreal	VE2RED	147.870	147.270	E
Montreal	VE2REP	146.280	146.880	
Montreal	VE2RKO	146.040	146.640	

Montreal	VE2RM	146.400	147.000	A
Montreal	VE2RM	146.400	224.060	
Montreal	VE2RM	444.000	449.000	
Montreal	VE2RMB	146.100	146.700	E
Montreal	VE2RM	146.160	146.760	
Montreal	VE2RY	147.900	147.300	
Montreal	VE2 ?	223.500	223.500	D 6
Mont Joli	VE2RAC	146.130	146.730	E L
Mt Tremblant	VE2RMT	146.130	146.730	E
Parc Des Laurentides	VE2RMG	147.690	147.090	E L
Perce	VE2ELC	146.190	146.790	
Plessisville	VE2CRP	146.130	146.730	
Port Alfred	VE2TG	146.430	147.030	
Quebec City	VE2ASU	146.100	146.700	
Quebec City	VE2DR	146.280	146.880	A
Quebec City	VE2DM	146.340	146.940	
Quebec City	VE2RAA	147.960	147.360	L
Quebec City	VE2RAD	146.010	146.610	
Quebec City	VE2RAQ	146.250	146.850	R
Quebec City	VE2RCQ	147.780	147.180	E A
Quebec City	VE2RCQ	449.000	444.000	
Quebec City	VE2SRC	147.720	147.120	A
Quebec City	VE2UX	146.220	146.820	E L
Quebec City	VE2VD	146.160	146.760	E
Rigaud	VE2PAK	223.050	223.050	D L
Rimouski	VE2CSL	146.340	146.940	E
Rimouski	VE2WM	146.010	146.610	
Ripon	VE2RRA	147.945	147.345	
Riviere Du Loup	VE2(X)	146.190	146.790	
Riviere Du Loup	VE2NY	147.660	147.060	E L
Riviere Du Loup	VE2RAY	147.750	147.150	A
Rouyn-Noranda	VE2RON	146.220	146.820	A
Sept Isles	VE2RRU	146.190	146.790	
Sept Isles	VE2RSI	146.340	146.940	
Sherbrooke	VE2FX	147.930	147.330	L
Sherbrooke	VE2RSH	146.370	146.970	
Sherbrooke	VE2SS	146.250	146.850	
Sherbrooke	VE2TA	146.190	146.790	E
Sorel Tracy	VE2RBS	146.010	146.610	
St Georges	VE2RMF	146.040	146.640	
St Hyacinthe	VE2RRE	147.225	147.825	E
St Jean	VE2RVR	147.840	147.240	
Trois Rivieres	VE2RTR	146.070	146.670	
Trois Rivieres	VE2CTR	146.460	147.060	A
Trois Rivieres	VE2QW	147.900	147.300	A
Val D'Or	VE2RYE	146.160	146.760	A
Victoriaville	VE2RBF	147.750	147.150	

NOTES

 6 - Soon to be changed to 222.300 222.300

NATIONAL CAPITOL REGION

<<<<<<#>>>>>>				
Hull/Ottawa	VE3ACY	147.780	3.620	O T
Hull/Ottawa	VE3ACY	3.620	147.180	O T
Hull/Ottawa	VE3CPC	147.750	147.150	
Hull/Ottawa	VE2CRA	146.340	146.940	
Hull/Ottawa	VE2CRA	443.300	448.300	O
Hull/Ottawa	VE2CSO	146.100	146.700	
Hull/Ottawa	VE2KPG	147.960	147.360	A
Hull/Ottawa	VE3OCR	52.525	52.525	T L
Hull/Ottawa (60)	VE3OCR	52.525	53.150	A P L
Hull/Ottawa	VE3OCR	53.150	53.150	L
Hull/Ottawa (40)	VE3OCR	146.250	146.850	A E L
Hull/Ottawa (45)	VE3OCR	223.340	224.940	A E L
Hull/Ottawa	VE3OEA	146.070	146.670	A
Hull/Ottawa	VE3ORA	146.280	146.880	
Hull/Ottawa (30)	VE3PAK	223.050	223.050	D L
Hull/Ottawa	VE2RBG	146.010	146.610	A
Hull/Ottawa	VE3TEL	222.340	222.340	D
Hull/Ottawa	VE3TEL	146.430	147.030	
Hull/Ottawa	VE3TWO	147.900	147.300	
Hull/Ottawa	VE3TWO	449.200	444.200	P

ONTARIO

<<<<<<#>>>>>>				
Aurora	VE3YHC	147.225	147.825	
Bancroft	VE3TBF	147.840	147.240	L
Barrie	VE3RAG	146.070	146.670	
Belleville	VE3QAR	146.430	147.030	T
Bracebridge	VE3MRT	146.280	146.880	A
Brampton	VE3MHZ	146.280	146.880	E
Brampton	VE3SSS	147.880	147.280	
Brantford	VE3TCR	147.750	147.150	
Brantford	VE3XPR	147.990	147.390	
Brockville (80)	VE3BAT	146.220	146.820	A
Brownsburg	VE3BOW	146.025	146.625	
Burlington	VE3RSB	147.810	147.210	
Cambellford	VE3KFR	146.370	146.970	
Carleton Place	VE3FXE	147.870	147.270	P
Chatham	VE3KCR	144.810	145.410	E L

Chatham	VE3KCR	147.120	147.720	A E
Chatham	VE3KCR	444.900	449.900	E L
Chelmsford	VE3JIO	146.160	146.760	
Cobalt	VE3TAR	146.370	146.970	
Collingwood	VE3MTR	146.190	146.790	L
Copper Cliff	VE3ZZZ	449.400	444.400	
Cornwall	VE3SVC	147.780	147.180	
Dwight	VE3MUS	146.220	146.820	P
Elliot Lake	VE3 ?	Not	Known	P
Finch	VE3SDG	147.840	147.240	P
Finch	VE3SDG	223.260	224.860	P
Finch	VE3SDG	449.200	444.200	P
Fonthill	VE3WCR	147.900	147.300	
Goderich	VE3GOD	147.630	147.030	
Georgian Bay	VE3MGR	147.780	147.180	
Georgetown	VE3OD	147.135	147.735	
Georgetown	VE3IZU	52.130	53.130	P
Guelph	VE3ZMG	147.960	147.360	
Haliburton	VE3GTS	147.720	147.120	
Hamilton	VE3DRW	146.160	146.760	L
Hamilton	VE3MBR	147.705	147.105	
Hamilton	VE3TVI	146.805	146.205	L
Hensall	VE3OBC	146.310	146.910	
Huntsville	VE3MMR	146.520	146.520	
Kenora	VE3LWR	146.430	147.030	
Kingston	VE3KER	146.340	146.940	E
Kingston	VE3KNR	146.190	146.790	A
Kirkland Lake	VE3KLR	146.280	146.880	O
Kitchener	VE3KSR	146.370	146.970	
Kitchener	VE3RRX	146.190	146.790	
Lavant	VE3DVQ	146.610	52.525	
Leamington	VE3TOM	147.900	147.300	
London	VE3LAC	147.660	147.060	
London	VE3NDT	146.340	146.940	
London	VE3RGM	146.160	146.760	
London	VE3TTT	147.780	147.180	A E
London	VE3TTT	449.400	444.400	
Lucan	VE3MCR	147.600	147.000	
Morrisburg	VE3SVR	146.160	146.760	
Napanee	VE3KBR	146.985	146.385	
New Liskeard/Cobalt	VE3TAR	146.340	146.940	
New Liskeard/Cobalt	VE3TAR	146.460	146.940	
North Bay	VE3NRR	147.750	147.150	A
North Bay	VE3NFM	146.340	146.940	A
Oakville	VE3OAK	147.015	147.615	
Orangeville	VE3RSO	146.625	146.025	
Orillia	VE3LSR	146.250	146.850	
Orillia	VE3ORR	147.810	147.210	
Oshawa	VE3OSH	147.720	147.120	
Ottawa	See NATIONAL CAPITOL REGION			
Owen Sound	VE3OSR	146.340	146.940	
Pembroke	VE3MRR	146.160	146.760	
Panetang/Midland	VE3PEN	147.750	147.150	E
Peterborough	VE3PRD	146.340	146.940	A
Pickering	VE3IL	146.070	146.670	
Port Colborne	VE3WCR	147.900	147.300	
Ramore	VE3TIR	146.460	147.060	
Renfrew	VE3STP	146.460	147.060	
St Catherines	VE3NRS	147.840	147.240	
Sarnia	VE3SAR	146.340	146.940	
Sault Ste Marie	VE3SAP	146.460	147.060	O
Sault Ste Marie	VE3SSM	146.340	146.940	
Sault Ste Marie	VE3YAK	147.750	147.150	A
Shelburne	VE3ZAP	146.220	146.820	L
Smiths Falls	VE3RLR	147.810	147.210	O
St Ignace Island	VE3 ?	146.340	146.940	P E
St Joseph Island	VE3SJI	146.280	146.880	B
Sudbury	VE3SSI	146.100	146.700	Q
Sudbury	VE3NRB	146.460	147.060	
Temagami	VE3TEM	146.310	146.910	P
Thunder Bay	VE3YQT	146.460	147.060	
Timmins	VE3TIR	146.460	147.060	
Timmins	VE3TIS	146.340	146.940	
Tiver ton	VE3TIV	146.010	146.610	
Toronto	VE3MHZ	146.280	146.880	D
Toronto	VE3MOI	147.780	147.180	
Toronto	VE3PRT	448.300	443.300	
Toronto	VE3RPT	147.660	147.060	A L
Toronto	VE3SIX	52.030	53.030	O
Toronto	VE3SKY	146.985	146.385	
Toronto	VE3TDO	146.430	147.030	
Toronto	VE3TOX	147.930	147.330	
Toronto	VE3MPU	147.870	147.270	
Toronto	VE3TOR	146.340	146.940	
Toronto	VE3TIY	146.100	146.700	A
Toronto	VE3TWR	449.400	444.400	
Toronto	VE3UHR	449.250	444.250	
Toronto	VE3WHO	144.750	145.350	L
Waterloo	VE3WFM	147.690	147.090	
Waterloo	VE3RRR	146.835	146.235	
Waterloo	VE3WAR	223.340	224.940	
Wawa	VE3WAN	146.340	146.940	O
White River	VE3WRR	146.160	146.760	P

Whitney VE3WPR 146.400 147.000 L
Windsor VE3III 147.660 147.060 A E L T
Windsor VE3III 449.000 444.000 A E L T
Windsor VE3UJU 449.400 444.400
Windsor VE3YAA 147.825 147.885 A
Windsor VE3WER 147.795 147.195
Windsor VE3YIM 146.400 147.000
Woodstock VE3OH 147.870 147.270

MANITOBA
<<<<<#>>>>>

Brandon VE4AL 146.130 146.730 A T
Brandon VE4BDM 146.340 146.940
Flin Flon VE4FFR 146.340 146.940
Gimli VE4GIH 146.250 146.850
Killarney VE4KIL 146.250 146.850
Miami VE4HS 146.220 146.820
Pinawa VE4PIH 146.340 146.940
Winnipeg VE4AGA 52.760 147.120
Winnipeg VE4CNR 146.160 146.760
Winnipeg VE4MAN 146.010 146.610
Winnipeg VE4TRR 223.340 224.940
Winnipeg VE4RAG 147.840 147.240
Winnipeg VE4WDX 147.780 147.180
Winnipeg VE4WPG 146.460 147.060 A

SAKATCHEWAN
<<<<<#>>>>>

Anglin VE5 ? 146.160 146.760
Grenfell VE5 ? 146.310 146.910 P
Ituna VE5ABO 146.310 146.910
Last Mountain VE5AT 146.250 146.850
Lloydminster VE5RI 146.340 146.940
Meacham VE5VHV 146.220 146.820 L
Melfort VE5RPT 146.280 146.880
Melville VE5 ? Not Known P
Moose Jaw VE5CI 146.340 146.940
Moose Mountain VE5MR 146.220 146.820
Moosomin VE5 ? 146.160 146.760
North Battleford VE5BRC 146.280 146.880
Pilot Butte VE5 ? 449.000 444.000 P
Prince Albert VE5EEE 146.460 147.060
Prince Albert VE5 ? 146.160 146.760
Regina VE5KE 146.460 147.060
Regina VE5SS 146.280 146.880
Rock Point VE5XN 146.130 146.730 R
Rosetown VE5 ? Not Known P
Saskatoon VE5SCR 146.190 146.790 A T
Saskatoon VE5SK 146.040 146.640 E
Saskatoon VE5SM 146.340 146.940
Shanavon VE5 ? 146.160 146.760 P
Sintaluta VE5 ? Not Known P
Stranraer VE5 ? 146.370 146.970 P
Tompkins VE5 ? 146.070 146.670 P
Watrous VE5 ? 146.010 146.610 P
Weyburn VE5WEY 146.100 146.700
Yellowhead VE5ESK 146.160 146.760 L
Yorktown VE5 ? 146.280 146.880 P

ALBERTA
<<<<<#>>>>>

Andrew VE6JET 146.040 146.640 A
Calgary VE6AUY 146.460 147.060 A
Calgary VE6RPT 146.340 146.940 A L
Calgary VE6RUM Not Known
Calgary VE6RYC 146.250 146.850
Calgary VE6 ? Not Known B P
Cold Lake VE6OC 146.460 147.060
Edmonton VE6EAR 146.960 147.960
Edmonton VE6HM 146.460 147.060
Edmonton VE6MC 146.250 146.850 A
Elk Point VE6SB 146.070 146.670
Fort McMurray VE6TRC 147.600 147.000
Grand Prairie VE6OL 146.460 147.060
Grand prairie VE6XN 146.250 146.850 A
Hardisty-Camrose VE6MN 146.250 146.850
Innisfail VE6SPR 146.370 146.970
Hinton VE6YAR 146.160 146.760
Lethbridge VE6CAM 146.280 146.880
Medicine Hat VE6HAT 146.460 147.060
Medicine Hat VE6COH 146.250 146.850
Milk River VE6BRC 146.190 146.790
Nanao VE6CU 147.900 147.300
Oyen VE6CNK 146.340 146.940
Pigeon Lake VE6SS 146.280 146.880
Porcupine Hills VE6ROT 146.130 146.730
Red Deer VE6QE 146.400 147.000
Rocky Mtn House VE6VHF 146.310 146.910 L
Swan Hills VE6 ? 146.220 146.820 P
Three Hills VE6FUN 146.220 146.820
Whitcourt VE6PP 146.220 146.820
Willingdon VE6RJK 146.190 146.790

BRITISH COLUMBIA
<<<<<#>>>>>

Burnaby VE7EVR 147.790 147.190
Chilliwack VE7ELK 146.400 147.000
Chilliwack VE7RCK 146.370 146.970
Courtenay VE7CVW 146.310 146.910
Dawson Creek VE7RDC 146.340 146.940
Dawson Creek VE7RSP 146.280 146.880
Delta VE7RTY 146.100 146.700 R
East Kootenay (RO) VE7CAP 146.340 146.940
Fort Fraser VE7RFF 147.630 147.030
Fort St John VE7RSJ 146.220 146.820 A
Fort St John VE7HTR 438.100 445.100 L
Fort St John VE7RSJ 445.100 438.100 L
Fruitvale VE7 ? 146.340 146.940
Houston VE7 ? 146.460 147.060 P
Kamloops VE7RKA 146.250 146.850 L
Kamloops VE7KAR 146.340 146.940
Kelowna VE7RQK 146.220 146.820 A
Maple Ridge VE7RMR 146.190 146.790
Mackenzie VE7 146.040 146.640 P
Massett VE7DRZ 146.340 146.940
Mt Bruce VE7RSI 147.930 147.330
Nanaimo VE7ISC 146.040 146.640
Nanaimo VE7 ? 144.830 145.430 P
Nelson VE7BTU 146.460 147.060
Nelson VE7RCN 146.340 146.940 A
North Vancouver VE7RDX 147.900 147.300
Penticton VE7OKN 146.340 146.940
Port Alberni VE7RAC 147.840 147.240
Port Alberni VE7RPA 147.750 147.150
Port Edward VE7RPE 146.400 147.000
Prince George VE7AFG 146.340 146.940
Prince George VE7RPG 146.280 146.880
Prince George VE7RTI 52.525 443.800 P L
Prince George VE7HTI 146.730 147.330 P L
Prince George VE7RTI 446.000 446.000 P L
Prince Rupert VE7RPH 146.280 146.880
Quesnel VE7RQL 146.460 147.060
Salmon Arm VE7RNH 146.160 147.760
Sandspit VE7RQC 146.340 146.940
Shuswap VE7 ? 146.160 146.760 P
Smithers VE7RHD 146.460 147.060
Terrace VE7DRT 146.340 146.940
Trail VE7CAO 146.340 146.940
Trail VE7 ? 147.830 147.230 P
Vancouver VE7ESR 147.810 147.210
Vancouver VE7RAG 147.630 147.030
Vancouver VE7RPT 146.340 146.940 A
Vancouver VE7UHF 448.800 443.800
Vancouver VE7URG 449.000 444.000
Vancouver VE7VAN 147.720 147.120
Vancouver VE7 ? 224.300 222.700 P
Vancouver VE7WRS 147.870 147.270 D
Vernon VE7MOR Not Known
Vernon VE7RSS 146.280 146.880
Vernon VE7RVN 146.460 147.060 A
Victoria VE7RSR 144.810 145.410
Victoria VE7VIC 146.250 146.850 A
Williams Lake VE7DSO 146.340 146.940 L
Williams Lake VE7 ? 146.160 146.760 P
100 Mile House VE7RKM 146.220 146.820 P

YUKON/N.W.T
<<<<<#>>>>>

Whitehorse VY1RBM 146.340 146.940 A R E
Frobisher Bay VE8 ? 146.340 146.940

NOTES

- *****
- A - Autopatch
- B - Battery Power
- C - Temporary Call
- D - Packet Radio/Data
- E - Emergency Power
- L - Linked
- O - Temporarily off the air
- P - Proposed
- Q - Temporary Location
- R - RITY/FAX
- T - Tone Access

Letters

MODE A

In answer to Jim's comments in April TCA, I would be glad to make a contact with you on mode A. However I don't have the orbital information as to when and where the birds will appear.

So if anyone out there would become an expert on the topic (I nominate VE4UX), and submit the required orbital info monthly for inclusion in TCA, then making contacts via the birds would be a piece of cake. See u on Alpha.

Gerry VE1ASS
Elmsdale, N.S.

CUDOS FOR TCA

I have just received my radio Amateur licence and am very proud of it.

Your magazine, TCA, which I receive regularly, is very informative. Let me take this opportunity to thank you for a job well done. Keep up the good work, especially the Technical Section, which is very interesting to me.

R. Langham VE3MJL
Tottenham, Ont.

Postal Strike

As this issue goes to press, the country-wide postal strike is still in effect. This will alter the TCA distribution schedule, and we ask readers to be patient in the coming months as postal service returns to normal.

ONE ROUND TUIT

At long last we have them in sufficient quantity for all readers to have their own. Please cut yours out and save it! Guard it and never lose it! Don't let anyone take it away from you.

These Tuits have been hard to come by, especially round ones, but now, by special arrangement, you can have yours.

We are glad, because the demands have been great, and now that they are in hand, most of our problems about reports, and about really getting things done will be solved. We look for our efficiency to double, now that everyone has his own personal round tuit.

So many of you have said, "I will get started on this just as soon as I can get a round tuit". Other comments are, "We've been so busy, and there's so terribly much to do, that we just haven't gotten a round tuit". Now all of that is past. Everyone has their own round tuit, and I know great accomplishments are in store!

Thanks to Milt VE7KH & Penticton ARC 'The Log'

News Briefs

NEW U.S. REPEATERS

New repeaters near the National Radio Astronomy Observatory and Naval Research Laboratory facilities must coordinate with observatory and lab authorities, the FCC recently agreed.

The action, which extends existing sanctions to Amateur repeaters in the quiet zone straddling the Virginia/West Virginia border and surrounding Green Bank and Sugar Grove, Va., applies only to new repeaters or modifications of existing machines. No repeater already operating, individual Amateur station or mobile passing through the area is affected.

HR Report

SPACE CARD

During the recent flight of the space shuttle, engineers at the Florida launch site and the Houston control centre set up Amateur stations to give minute-by-minute reports on Columbia's progress. The Cape Canaveral

group, operating under the call WB4ICJ, are mailing out special QSL cards for the occasion. They must be something different as they are asking for 8½ x 11 SASE's. Both stations were very popular. A cliff dweller, VE3NQ, deserves special mention as he used his iron balcony railing as an antenna and successfully worked the Florida station despite poor conditions on 20 metres.

BELT YOUR CLUB MEMBERS

Has your club ever thought of buying a lineman's belt for the use of its members? While they are expensive, they are necessary for any Amateur doing antenna work and climbing masts or trees.

The important point is that they are a lot safer than any lashing an Amateur might try to rig using a piece of rope and a lot easier to manage. When your club buys one, it contributes to its members safety at very little cost per member.

Bill Wilson, VE3NR

Contest Scene

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

CONTEST CALENDAR

- July 1 CARF CANADA DAY Contest
- 11-12 IARU Radiosport (see June TCA)
- 18-19 10-X Summer QSO Party
- Aug. 1-2 ARRL UHF
- 8-9 European DX CW
- 16 SARTG RTTY
- 22-23 All Asia CW (see June TCA)
- Sept. 12-13 ARRL VHF
- 12-13 European DX SSB
- 19-20 Can-Am SSB
- 26-27 Can-Am CW

The WPX CW contest has been and gone, and despite the good conditions I don't think worldwide participation was up to what it could have been. There were lots of Canadians around, however, with Yuri VE3BMV plugging away on 15 with his Razor Beams (they have to be seen to be believed), VE3KZ on 40, VE7CNY and VE6OU I think single op on all bands, and VE3IY working single band 80, I think.

Multi-single was well-represented by VE1DXA, putting to shame efforts of VE3PCA (the group I was with) and VE7ZZZ. VE3PCA did reasonably well, with 1540 Q/1.98 Million, but the last time we heard VE1DXA, they were about 250 Qs ahead of us.

We all saw that 10 was lousy, except for the regular TE stuff, and 80 although in good shape for the time of year, almost abandoned. VE7WJ was absent, as were many special prefixes from any Canadian stations.

The prefix issue was raised at the Winnipeg symposium, but was shelved as those attending saw there was no apparent outstanding demand in the form of letters from contesters. I feel I am partly to blame as I have done little except write about the issue in one column.

The May issue of Long Skip includes an idea from Bob Nash VE3KZ on permanently assigned prefixes for contest or other use, involving minimal effort by DOC and a greater variety of prefixes.

It is a good idea, but I have one of my own which may be worth consideration. Other than the VE, VO and VY prefixes, there are 21 two-letter groups of prefixes available to Canada by the ITU list. If there were a policy in effect which would allow those participating in a contest to make full use of all these prefixes, we could have up to 21 different prefixes in each callsign area available to contesters.

Addendum to June Canadaward Report

50 MHz Canadawards which were mentioned but not listed last month have been earned by:

- | | |
|------------|-------|
| 5. W7WKR | SSB |
| 6. N7DB | Mixed |
| 7. KA1BRD | SSB |
| 8. W2UTH | SSB |
| 9. WA7HQG | SSB |
| 10. W7ZTT | SSB |
| 11. WB1FVS | SSB |
| 12. WD2AKA | SSB |
| 13. WA7GCS | SSB |

A CF2, CG2, XK2 and VA2 could all be from Quebec, but in the WPX contest each be a different multiplier rather than sharing the common VE2 prefix. It seems unlikely that more than 21 entrants will apply for this special privilege in any call area, so each serious entrant will have a special unique prefix, issued by the DOC Regional Office, with the same suffix as with his normal callsign. Newfoundland and Yukon Amateurs could make use of the remaining VO and VY blocks.

I see the role of DOC as being minimal, amounting to replying to requests with form letters, and keeping one list of prefixes issued, and to whom. This special dispensation need apply only to the four CQ contests, as they are the four major contests, the WPXes making a rare prefix a separate multiplier, and the World-wide making any success dependent on an entrant's ability to gather as many QSOs with casual operators as possible. A VG7 can be much more appealing to a casual operator than a VE7.

This issue will be raised here and in Long Skip fairly frequently over the coming months. In order to get this kind of policy through the bureaucracy, we have to get it through a symposium first, so perhaps in a year or so, if we can get you, the Amateurs interested in contests, to write letters in favour of this kind of policy, whatever variation is chosen will be turned into a working policy that we can all benefit from.

After the WPX, we at VE3PCA and VE7ZZZ met on 20 SSB to discuss what happened, how each of us did, and generally exchange ideas on the emotional turmoil we had just been through. It was rather fun to compare notes, and it has struck me since that perhaps this sort of thing

should happen more often.

I throw out this idea and perhaps after the IARU we can all find out what happened. The CANAD-X net frequency is as good as any, that being 14.173, and ten minutes after the contest should be enough to allow everyone to get that first, relaxing

post-contest tea made, and spend 10 or 15 minutes bragging or making excuses. It would make my life easier in some respects, being able to write this column immediately after the contest with some certainty that I am guessing the right things.

What Kinds of Contests Are There?

One comment commonly heard among non-contesters who don't like the hustle and bustle of a contest is that "those bloody contesters have a contest every weekend!". While, strictly speaking, that may be true, there are only two contests that can completely dominate all activity on the bands. Field Day is one, and the IARU Radiosport is another.

These are the only two major operating events that occupy both the CW and Phone parts of each band, and from which escape by non-contesters is almost impossible.

The CQ WW, CQ WPX and ARRL DX contests take up a total of six weekends, but only three on each mode. That about sums up the major worldwide contests capable of taking over a band. If you don't like contests, work CW on a phone contest weekend, or vice versa. Realistically speaking, the contester is in a race and will not curtsy to spectators along the way.

The variety of contests is amazing. Virtually any specifically-definable interest can be accommodated. Those keen on 160 metres have four tailor-made contests at their disposal, two from CQ, one from 73 and one from ARRL. As well, the major all-band contests each have separate single-band entry classes. Ten contests per year for the 160 metre

operator should give him a good idea of where he stands.

The 10-metre buffs have ten's two QSO Parties and the ongoing certificate hunting, as well as the single band sections of the WW, WPX and ARRL all-band contests. ARRL also sponsors a unique ten-metre contest.

Award hunters, either for the Canadward or WAS can turn to the ARRL's sweepstakes as a ready source of new provinces, states and territories. The CARF Canada Day and Canada Contests can also help in this respect.

Those keen on the national awards of Switzerland, USSR, Japan, Australia, New Zealand and many others can turn to the many national "we work the world" contests, such as the H26, CQ M, All Asia, VK/ZL/Oceania, SP DX and so on.

Teletype operators can take advantage of the prestigious CARTG (Canadian RTTY Group), British ARTG, Scandinavian ARTG and German ARC RTTY contests. Slow scan operators have at least one contest sponsored by 73 and A5 magazines, and that most learned group, moonbouncers, have at least a couple of contests they can call their own. The Packet radio types could certainly train their machines to show us mortals what real efficiency is like, but I am at a loss to explain how rules for a Packet contest could be

devised without all entrants having the same score.

By far the greatest interest lies in the DX contests, as they make the biggest noise and make all sorts of otherwise very rare countries very common. For the DXer, these contests hold the promise of all sorts of DXpeditions, such as the hoped-for Spratley expedition during the WPX CW. I don't think that one came off, but at least it was hoped for.

From the point of view of tactics, the challenge of finding that balance of QSO points and collecting multiplier points becomes a great exercise. In the WPX contest, for example, your QSOs are given a certain point value, which is then multiplied by the number of different callsign prefixes worked. As well, QSOs on 160, 80 and 40 have twice the point value of QSOs on 10, 15 and 20. That means that you can earn the same number of QSO points with half the rate on the low bands. However, on the low bands, those 6-point QSOs may be more difficult to earn than the 3-pointers on the high bands.

Careful measurement of conditions should be made before changing bands, as you don't want to be stuck for ten minutes on a dead band after making one QSO. As well, collecting the prefixes necessary to make your good score great involves looking at the

multipliers collected so far. If you have lots of the USA prefixes, say 100 or 110, you may find that there are relatively few new ones waiting for you on the low bands.

Good JA openings should be exploited, as there are easily 30 or 40 easy prefixes to work there. With 200 or more European and USSR prefixes roaming around, every attempt should be made to work these.

As Europe, USA and Japan are your bread-and-butter, it can become easy to get lost and forget about the Latin American, African and South Pacific multipliers. Not so easy is it? On the other hand, the CQ World-wides have different multipliers on each band, so you have to spread your activity out. The Commonwealths require you to collect bonus points. The old "you've worked one, you've worked 'em all" principle doesn't work here, as you can collect extra points for the first three QSOs with any area on each band.

Almost any variation of the competition theme is available in contests, and you should set your objectives, while choosing your contest, and therefore choosing your competition with great care.

10-X SUMMER QSO PARTY

Period: 0000z 18 July to 2400z 19 July. A maximum of 24 hours may be operated.

Band: 10 metres only, SSB and CW.

Classes: Single or multi-operator, or single-operator QRP (less than 20 w PEP).

Exchange: Name, City, Province and 10-X number if applicable.

Scoring: 2 pt. per QSO with 10-X members, 1 pt. for others. There are no multipliers.

Awards: Only 10-X members are eligible. Certificates are awarded to high scoring entries in each class in each Province, State and DXCC Country.

Entries: should be received by

Aug. 19 by Robert Watson, 2 Suffolk Court, Oceanside, NY, 11572, USA.

EUROPEAN DX CONTESTS

Period: CW: 0000z Aug. 8 to 2400 Aug. 9. SSB: 0000z Sept. 12 to 2400 Sept. 13.

Bands: 3.5 through 28 MHz.

Classes: Single op all bands, or multi-op single transmitter, all bands. Single op entrants may work a maximum of 36 hours. Multi op entrants may change bands only once every 15 minutes, unless they are collecting new multipliers.

Exchange: RST and serial number. Work only stations in Europe.

Scoring: 1 pt./QSO. QTC rules, one of the most interesting aspects of this contest. Non-Europeans may send Europeans reports of stations worked. Each QTC consists of the time, call and QSO number of a European station previously worked. A maximum of ten reports can be transmitted in any QTC. Each QSO reported is worth one point. A typical QTC would be:

1300/DA1AA/134. Any QSO may be reported only once.

Multiplier: Number of WAE countries worked on each band. Each country is worth 4 pt. on 3.5 MHz, 3 pt on 7 MHz and 2 pt on 14/21/28 MHz. WAE countries are as follows: C31, CT1, CT2, CT3, DL, EA, EA6, F, FC, G, GD, GI, GJ, GM, GM Shetlands, GW, HA, HB9, HB0, HV, IS, IT, JW, JW Bear, JX, LA, LX, LZ, M1, OE, OH, OH0, OJ0, OK, ON, OY, OZ, PA, SM, SP, SV, SV5, SV9, SY, TA1, TF, UA1-3-4-6, UA1P, UA2, UB5, UC2, UN1, UO5, UP2, UQ2, UR2, Y2, YO, YU, ZA, ZB2, 3A, 4U1ITU, 9H. Each Canadian call area counts as a separate multiplier for Europeans.

Awards: Certificates will be awarded to top scorers in each class in each country. Continent winners will receive a plaque in each class.

Entries: Official forms are available for an SAE and IRCs from DARC Contest Committee, P.O. Box 1328, D- , Kaufbeuren, FR Germany.

CARF Log Sheets

The new CARF log sheets are selling very well. They were designed after hearing many comments from Amateurs around the country.

To accommodate most people's wishes they are printed in vertical format on loose leaf paper, so you do not have to rotate your log book when you change pages. You can use a three ring binder or have one sheet on a clipboard. Since you only receive log sheets, you are not paying for extra material which will be outdated before your log book is used up!

The format uses metric spacings so you get as many entries as you had on a normal horizontal page. However, we left every second line blank for

those necessary comments. This is great for traffic listings etc. We put the date and station call near the left side so can easily relocate entries. Contest operators can use a ruler to connect all the vertical lines and get 44 entries per log page. You no longer need special log sheets. (We even left a margin so you won't have to write on the binder rings!)

With the addition of spaces you can keep separate logs for VHF etc. Each year's log can be easily filed!

The CARF log sheets were designed for Amateurs from Amateur comments. They are a bargain at \$2.00 post paid from CARF headquarters.

Ron Walsh VE3IDW

DX

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

The Summer months are usually a time of reduced activity in DXing. Propagation tends to be a little uncertain and, after our long Canadian winter, thoughts turn more to outdoor activities. (Naturally we can include routine maintenance and improvements to our antenna farms among these activities.)

It is always interesting to meet those who consistently seem to beat us in the pile-ups, and in early May I had a chance to do just that. Brian VE3CRG, Dave VE2ZP and I made a pilgrimage to Toronto and the Niagara region. It was truly a humbling experience.

Our first stop was at the QTH of Yuri VE3BMV, and his 110-foot rotatable pole with stacked 15 metre Razor beams is an impressive sight. It's funny, but my TH6 looks a lot larger than the one that was $\frac{2}{3}$ or so the way up his tower.

After a pleasant visit with Yuri and a good nights sleep in Toronto, we carried on to Milton where we met with Bob Nash VE3KZ and son Tom VE3MFT. Multiple towers supporting various and sundry long-boom mono-banders quickly explained why Bob is fierce competition. The 800-foot or so drop just to the East of his QTH doesn't do him any harm either.

From the Nash's, we turned south towards St. Catharines, our ultimate destination. The underlying reason for the trip was to pick up two mono-banders that Howard VE3WT had made for me. Arriving at Howard's, we also found Al Leith VE3FRA and

Glenn VE3ICR waiting for us. We spent an enjoyable time in Howard's back yard sipping 807's and discussing, you guessed it, DX and contesting.

Both Al and Glenn have similar 20-metre antennas to the one I was picking up, and I was quite interested in what they had to say about it. There is no question that the antennas are very well

made, and designed to withstand the rigors of Canadian winters.

Bidding our farewells, we wound our way back to Ottawa, tired but anxious to get the antennas up at the contest site in Perth. The 20 metre and 15 metre antennas got their test of fire at the end of May during the WPX CW contest, and they performed extremely well.

Longer hours of daylight and seasonally higher levels of static will reduce the opportunities for good DX openings on 40, 80 and 160 metres. However, there will still be very good openings to various parts of the world on 40M during the hours of darkness.

Similar openings, but with weaker signals, should also be possible on 80M, and an occasional DX opening may also present itself on 160M. Few DX open-

ings, other than to the Caribbean and Central and South America, will be evident on 10M until the end of August, at which time we should begin to see some East-West path openings.

Fifteen metres should still provide some good DX, and 20M will be the best all-round band, with good DX openings possible to some part of the world almost around-the-clock.

A DXers 'Hit List'

In March 1980, K6YCM prepared the following list of countries that should have ranked fairly high on most new DXers' (and some not-so-new DXers') "wanted" lists:

1. BY China
2. VS9 Kamarans
3. XZ Burma
4. ZA Albania
5. VK0 Heard Island
6. VU7 Laccadives
7. 7O PRD of Yemen
8. FB8W Crozet

9. XU Cambodia
10. 3Y Bouvet
11. VU7 Andamans
12. 3X Guinea
13. 6O Somalia
14. FR7 Glorioso
15. CE0 San Felix
16. YA Afghanistan
17. XV Vietnam
18. 9U5 Burundi
19. 4W Yemen
20. FR7 Juan de Nova
21. S9 Sao Thome
22. HK0 Malpelo

- 23. 5A Libya
- 24. 7Q Malawi
- 25. 5X5 Uganda

At the time of this listing, only 3Y had demonstrated any activity. Just a year later, by June 1981, many on this list had fallen by the wayside. Operations from XZ, VK0 Heard (although few worked either of these two from the Eastern part of North America), 3X, 6O, FR7G, 9U5, FR7J, HK0 Malpelo, 5A and 5X5 gave many a new one.

The June 1981 issue of QST lists the following countries as requiring either a large DXpedition or a major change in political situation before they're likely to be heard on the air again:

1. 1S Spratley
2. 3X
3. 4W
4. 5A
5. 5R Malagasy Rep.
6. 5X
7. 7O
8. 7Q
9. BY
10. C9 Mozambique
11. CE0X
12. ET Ethiopia
13. FB8W
14. FO (Clipperton)
15. PY0 St. Peter & Paul's Rock
16. S9
17. TL
18. TZ
19. VK0 Heard
20. VS9K
21. VU7 Andaman & Nicobar
22. VU7 Laccadives
23. XU
24. XV
25. XW
26. YA
27. ZA

Many of these countries have not been on the air while I've been an Amateur (3½ years), so it is easy to see that getting on to the DXCC Honour Roll is not something that can be accomplished in a short time, no matter how good a system you have.

Bits & Pieces

- HS4ANK Thailand - Joel maintains daily skeds on 14.220 MHz at 1200 GMT, and 21.300 MHz or 28.500 MHz from 1600 GMT. QSL to Joel Dunlap, P.O. Box 38, Khonkain, Thailand.

- KA2AA Minami Torishima - This station is supposed to be active again in July. Emphasis will be on 40/80M, but they will be operating on all bands. Exact times and frequencies are not known, so keep your ears open for additional info.

- KH1 Canton Island - Larry KS6DV/KH1 had apparently cancelled his trip to Canton Is. until further notice, but was heard operating on 15M on June 4. He will apparently be there for one month, operating all bands 10-160M. Watch 14.310 at 0300 GMT for details. He will also use his T3 call, and the contact is worth 2 DXCC countries, due to the joint US/Kiribati administration. QSL to WB6FBN.

- LU1ZA South Orkney Is. - This station occasionally appears Tues. and Fri. at 0100 GMT on 14.215 MHz. QSLs go to LU2CN.

- VP8ZR South Orkney Is. - 14.275 from 1930 GMT. QSL to G3KTJ.

- TL8CN Central African Republic - Daily on CW, 7003 KHz from 0400 GMT, and 21.020-025 MHz from 1300 GMT. Also SSB on 28.525 MHz from 1900 GMT. QSL via W5RU.

- TL8RC - CW, Bottom of 40/80M from 0000 GMT. QSL to F6EZV

- 3A0 Monaco - A group of Dutch Amateurs plan to be on from July 10-20. They will operate on all bands and all modes (inc. OSCAR). Listen on the usual DX frequencies. QSLs go to PA3ARM.

- 3B8AE/3B9 Rodriguez Is. - Moussa has been appearing on a list operation run by F6EXV on 21.285 MHz at 1630 GMT. QSL to

Box 18, Rodriguez Island, via Mauritius.

- OD5RZ Lebanon - Ahmed is a new Amateur and can be heard at 14.230 MHz around 0500 GMT nightly. His present antenna does not give him much of a signal, but he will be putting up a quad or yagi in the near future. This information from his QSL manager, Cliff Erbach VE5QY, 145 North Grant St., Moose Jaw, Sask S6H 5Y9.

- XZ5A Burma - This surprise operation by JA8BMK and friends created quite a stir. The lic. was for a total op time of 48 hrs. which was spread out over a few days. Very poor propagation to the east of N.A., but many Europeans, VKs, ZLs and West coast VE and U.S. stations worked them.

This station is now QRT, but the equipment and antennas were left behind, so hopefully by the time you read this, XZ5B will be on the air. Listen on 14.170 MHz and 21.270 MHz. If you were fortunate enough to work XZ5A, QSL to JA8BMK.

- VK9ZD Willis Is. - If you need Willis Is. for a new one, hopefully this station is in your logs by now. Dave is reported to be going QRT June 27. QSL via Steve VK3OT.

- S79WHW Seychelles - Bill has been active on 14.255 MHz at 0200 GMT, 21.249 MHz at 1800 GMT, and is now giving W7PHO as his QSL manager. Also, S79NLB on 21.238 MHz at 1800 GMT, and S79RD on 21.280 MHz at 2000 GMT. This last station apparently will work 2 x CW upon request. QSL to Box 391, Victoria, Rep. of Seychelles.

- 9V1UY Singapore - Daily on 3.503 MHz from 1230 GMT and 14,018 MHz from 1400Z. QSL to CBA.

- KH9 Wake Island - K6XT and KT6V were active from June 13-16 from this relatively inactive Pacific Island. If you were fortunate enough to have worked them, QSLs go to Art Charette, 6142 Tooley St., San Diego, California 92114.

G3MUV/CE0A
 TI2JIC
 N6DPH/DU2

via WD4HMG
 via AG1K
 via buro, or
 PSC#1, Box 1832
 APO S.F. 96286 USA
 via KA7IJA

W6YB/3D6

A9XCE	21.022.1	03:15	via: call book
C31WK	7.006.8	03:58	via: KB9AW
DJ6SI/6W8	7.002.5	06:59	via DJ6SI
D4CBC	21.026.4	17:22	via: Mgr
	14.031.3	03:24	
	3.508.5	03:09	
FK8DK	14.030.0	06:55	via: P.O. Box 104 NOUMEA
HV3NJ	3.512.5	03:16	via: ? Do need the info myself $\frac{1}{2}$
HZ1AB	21.028.7	02:59	via: Callbook
HZ1HZ	7.007.6	03:07	via: "
J28CL	21.016.7	19:56	via: PO Box 1928
J88AY	7.028.6	03:06	via: PO Box 93
M1IPA	21.008.3	19:47	via: F6CXJ
	14.010.5	03:28	
	7.011.3	02:10	
OH2BAZ/OH0	7.006.9	03:01	via: own call
OH0XX	14.021.1	03:08	via: OH2BBM
PY5AAX	1.845.0	00:54	via: own call
TR8IG	7.017.0	04:27	via: Bureau
TY9ER	14.020.0	02:41	via: DL8DC
	7.005.9	03:11	
	3.504.7	05:02	
XT2AW	7.013.6	05:14	via: KN1DPS
3B8CF	21.031.0	03:04	via: Callbook
3B8DB	14.021.1	03:47	via: Mgr
3D6BX	21.021.7	19:17	via: ZS6ADV
4X4VL	3.502.5	02:39	via: Callbook
5NORRP	28.482.2	16:16	via: Bureau
5Z4SA	28.455.1	17:25	via: ?
	14.005.0	17:32	
9J2KO	28.452.3	17:51	via: ?

A note to the wise: The following stations are not being accepted for DXCC credit at this time for a multitude of reasons, including unauthorized operation, shipboard operation and pirated callsigns.

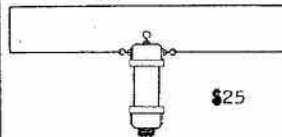
A6XJA	9U5JM	WOYR/VP2V
HP2XBA	K4YT/5R8	WB8HUP/VP2V
TG7AA	60QDX	(Before July 28, 1980)
TG9CH	(Nov. 24/25, 1979)	ZB2A
TH8JM	KV4KV/D	ZB2FU
4W2AA	I8JN/FH8	ZB2GM
VR1BE/KH1	K1CO/PJ7	(Oct. 27, 28/80)
7Z2AP	J3AAE	604LS
9U5DS	J3ABD	

Y291M	via	YU2LM
ZB2BL		W2UTH
ZB2BO		X30NW
ZB2G		K2FJ
ZB2GH		DFLAH
ZB2K		K2FJ
ZD7HH		W4FRJ
ZD8FS		K4FS
ZD8KH		G3LFB
ZD8RC		W8BLT
ZD8RH		G4DWB
ZD8RW		W8SMT
ZD8TC		N2CW
ZD9GH		ZSLZ
ZK1CL		G3TKO
ZF2AD		N3ED
ZF2AF		W4GI
ZF2AG		N8AG
ZF2AI		W4CW
ZF2CC		N4RA
ZF2CK		K4YED
ZF2DR		K5RQ
ZF2DW		N4BF
ZF2DX		E4GVB
ZF2DZ		W83GPR
ZF2EA		N4LTA
ZF2EF		W4ADE
ZK1ACE		F489M
ZK1BD		ZL1GZ
ZK1IG		DL2PK
ZK2JL		K9AUB
ZK2VU		DL2RM
ZL1BIQ/K		ZL2HE
ZL2BCF/A		"
ZL3AFH/A		"
ZL5MC		"
ZL6ADG		W7PQE
ZP5PT		W3HNE
ZS1DM		W4LJQS
ZS1XR		N7RO
ZS3HL		W4LJCP
ZS3N		DK2DZ
ZS6YK		VE2EWC
LA9KM		I9GCH
3A2EE		PY8M
3B2DB		K5BDI
3B3RS		DJ6QT
3B9CP		3B8CF
3B9RS		DJ6QT
3C1AE		K4IQP
3D2FJ		JA7FGV
3D2GH		PA6GM
3D2HK		JA2JSP
3D2VU		DL2RM
3D2WW		W9GW
3T6BS		N7RO
WB4ZNH/3D6		K4PHE
VK4NIC/3X		W4FRJ
4K1A		UR5LHC
4K1B		UA1CMA
4M3AZC		TV3AJ
4N3F		YU3ZV
4N5M		YU5JQR
4N7NS		YU7BPQ
4N7NT		YU7AJU
4N7PS		YU7ABJ
4N7SP		YU7AJJ
4N7ST		YU7AJU
4N7TC		"
4N8RA		YU1KLM
4U1UN		W2NZV
VE7AAZ/4U		VE1BKV
4X4JI		DL3BE
4X4NJ		W4WTC
4X4UP		"
4X4VB	via	"

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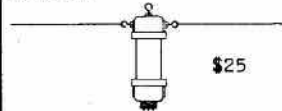
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For folded dipoles fed with 50 or 75 Ohm coax



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KW-15	15 meters	
KW-20	20 meters	\$85
KW-40	40 meters	
KW-80CW	80 CW	>
KW-80F	80 Phone	

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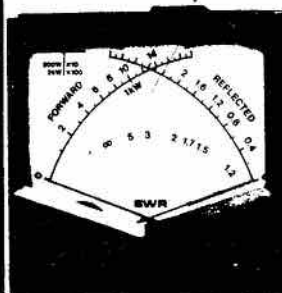
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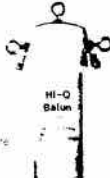
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RF660 Speech Proc	\$159
RM940 Infrared Mk	\$120
CS201 Switch	\$ 35
CS401 Switch	\$105

INTRODUCTORY OFFER \$ 99
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HI-Q BALUN

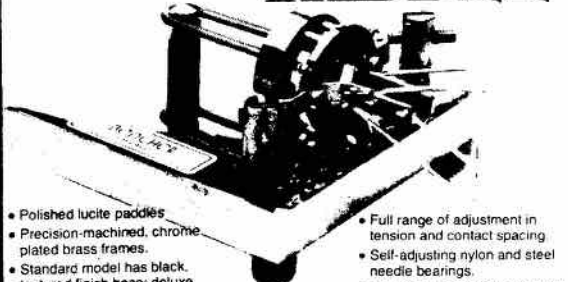
- For dipoles, yagis, etc.
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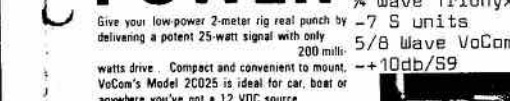
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- REMOVABLE HEAD:** The control head may be located as far as 100 feet away from the main unit using the optional connecting cable.

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FT207R 5km away using 200mw on desk. HT was NOT MOVED during test of 3 ants Rubber ducky 1/2 Wave Trionyx -7 S units 5/8 Wave VoCom --+10db/59

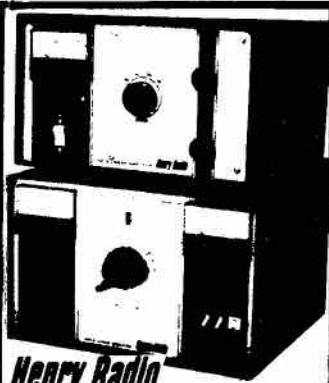
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• Dual Microcomputers provide more features than any other keyser

- Approximately 500 character memory with unique "soft-partitioning"
- Morse trainer mode with programmable speed-up from start to finish of practice
- Beacon mode for VHF DX scheduling
- Automatic serial number sequencing for contesters
- Far too many features to describe: use it and you will believe it!

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- Beacon mode for VHF DX scheduling
- Automatic serial number sequencing for contesters
- Far too many features to describe: use it and you will believe it!

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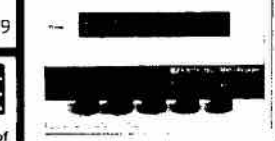
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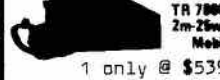


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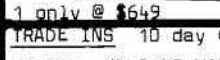
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Only Butternut's HF5V-III with Differential Reactance Tuning leaves the entire antenna active on 10, 20, 40, and 80 meters! On 15 a loss-free linear decoupler provides a full unloaded quarter-wave conductor (with the added advantage of decreased wind loading and lower center of gravity).

- Compare active element lengths band-for-band for the HF5V-III and any multi-trap design of similar height; when it comes to SWR bandwidth, efficiency, and overall performance, there's really no comparison! And if your rig covers 160 meters, what other antenna offers six-band capability?
- No lossy traps or unsightly, wind-catching "top hats".
- Useable on adjacent MARS frequencies with little or no adjustment.
- Longer elements mean greater bandwidth and significantly higher efficiency for superior low-angle DX performance.
- Heavy duty air-wound inductors permit correct resonance on 80 and 40 meters and can be adjusted for lowest SWR on these bands.
- Easiest five-band vertical to assemble and adjust.
- Sleek, trim design makes the HF5V-III "XYL approved" and requires no guying.

SAVE \$30

*With optional TBR-160
SPECIAL TILL SEP 15 \$119 + \$8 S&H
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TBR-160 160M adaptor for HF5 \$ 59
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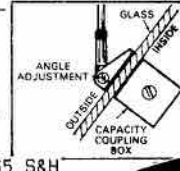
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How you can't detect Overmodulation of your SSB Signal

by Ed. Casas, VE3EKC

You don't need an oscilloscope to detect overmodulation of an SSB transmitter. In fact, you can't detect the overmodulation of an SSB signal for the simple reason that SSB signals cannot be overmodulated. This description of modulated AM and SSB waveforms will try to show why.

An unmodulated AM signal is a constant level R.F. carrier (fig. 1). When this carrier is modulated, its amplitude varies above and below the no-modulation level. With maximum (100 per cent) modulation, the most negative portions of the modulating signal (fig. 2) just manage to reduce the R.F. signal level to zero (fig. 3).

If the negative portions of the modulating signal go even more negative, they will cut off the carrier (fig. 4). This is called overmodulation and causes distortion because the R.F. signal envelope no longer follows the modulating signal waveform.

SSB modulation is quite different. With no modulation, no carrier is transmitted. With a sine-wave (fig. 2) modulating signal the R.F. signal has a constant amplitude which is proportional to the level of the modulating signal (fig. 5). As the modulating signal level is in-

creased, the R.F. signal level also increases. In theory, we could keep on increasing the level of the modulating signal indefinitely and the R.F. level would also keep on increasing. Since there is no maximum modulation level, overmodulation (or per cent modulation) cannot be defined for an SSB signal.

Obviously, there is a limit to how much we can increase the modulating signal level and expect to keep on increasing the R.F. signal level (otherwise the smallest SSB transmitter could run a kilowatt!). This limit is determined by the signal levels that the transmitter's amplifiers can produce. If these stages are overdriven, the signal will be clipped or otherwise distorted. This generates harmonics and distorts the received signal. To prevent this type of distortion the transmitter must be operated within the power limits specified by the manufacturer.

The point of this explanation is that there is no such thing as overmodulation for SSB transmitters. All SSB transmitters (and transceivers) therefore meet the requirements of the General Radio Regulations Part II section 64.2(a)(ii) since they all have a "reliable means of preventing overmodulation". □

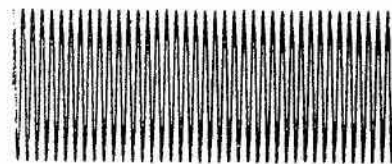


Fig. 1 Unmodulated Carrier

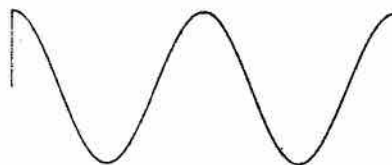


Fig. 2 Modulating Signal

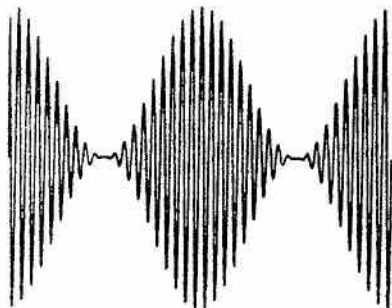


Fig. 3 100% Modulated AM Signal

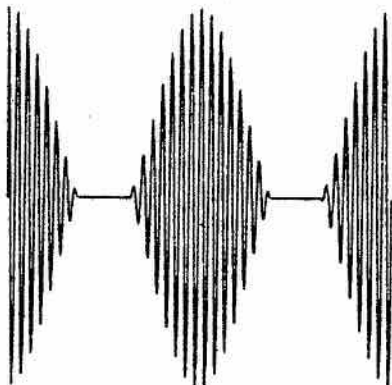


Fig. 4 Overmodulated AM Signal

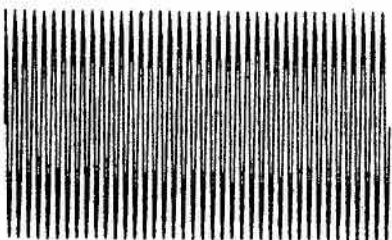


Fig. 5. Sine-Wave Modulated SSB Signal

'Opticon' aids blind poet/Amateur

A recent article in 'The Citizen', the Orangeville, Ont. community newspaper, told the story of Devon VE3DEV, and how a new device allowed her to read for the first time.

"The Citizen's readership was raised by one last week when Devon Wilkins, a local poet blinded since birth, used a device called an Opticon to read the Citizen for the first time.

"Except for a little bit out of the Toronto Star, the Citizen is the first newspaper I've ever read," she said.

This device, manufactured in California, allows her to literally read letters and words.

The \$3900 Opticon, which she received through the Vocational Rehabilitation Service branch of the provincial government uses an electric eye principal. The machine, which resembles a cassette recorder, comes with a sensor, which, when moved over the letters on a page, will create an electrical impulse received through a groove in the machine designed to fit the reader's finger.

The impulses form the shapes of letters, enabling the reader to read through her fingers.

Devon had to go through an intensive two week course to operate the Opticon, and added that she is not very quick at it yet but that will come with time.

However, the Citizen is not the only printed matter she can now read. For the first time she can read her own poetry as well.

Devon has been writing poetry for many years and has already published three books, two of which contain her poetry.

The first, called *Inbetweensville*, published in 1978, recalls her childhood home, a town in Quebec called Mansonville. This town was so small it didn't even merit a mark on the map, being

"Inbetween" three larger communities, all of which made it on the map.

Her second book called *The Life of a First Aid Instructor* depicts the life story of a 94 year old man who served 24 years on the St. John's Ambulance. Devon laughed and said she used 2400 feet of reel-to-reel tape when interviewing him for the book because she said, being 94, his mind tended to wander a bit.

Her third book, called *Pennies For Your Thinking*, published in 1979 contains poetry to provoke thinking in the reader.

On 6.30 p.m. on Wednesday nights, Devon also has her own television show called *Pennies for Your Thinking*. The show, aired on Orangeville Cable VU, has a theme each week and Devon recites poetry, both her own and other authors' relating to the given theme.

Devon said she prefers not to tell the audience she is blind. She said she does this because she wants people to either like or dislike her poetry not as a blind person.

She said many bestsellers etc. are transferred to cassette tape but added that actually reading it is much more satisfying. During the whole conversation with Devon she did not hesitate to use the words "see" and "watch". She said many people feel uncomfortable speaking these words to a blind person.

She added, "I like it when people use these words to me because it shows people have forgotten about my blindness and it's not a barrier any more."

Blindness is not a barrier in her marriage either. Her husband, Fred Raymond is also blind.

They met on the airwaves of their Amateur radio sets. Devon laughed and said she still doesn't know how Fred got her phone number.

Despite her blindness, she seems to have opened many doors for herself in poetry, television, as a massuese therapist and even as secretary for the Dufferin Ham Radio Society of which she and her husband are members.

Now that Devon has the Opticon, those doors are going to open that much more.

And being the poet that she is, she wrote this to commemorate the occasion;

*I'm standing on a pinnacle of
joy,
The height of which is far
beyond my scheming.
I feel it in my reach to scale the
moon
With the thrust of happiness
beyond my dreaming.
My sight is fairly dazzled by the
brilliance
Of challenges that I might soon
be facing.
And yet, I scan the years to
come, and I'm
Confronted by a view that's all
embracing.
There is a future plainly mapped
by God,
And here am I with but powers
of man.
I pray to God that he will light
my way,
And help me to do justice to His
plan.*

Holiday Hamming in the U.K.

By Jerry VE5DC ex G4JWH

Going to the U.K. for a holiday this summer? Why not take along your two-metre handheld or mobile rig and enjoy your hobby while you are in another country? It is not all that hard to get a 'G' licence. During the summer of 1980, my family and I were in southern England and I was operating using my issued callsign of G4JWH. There are no portable callsigns such as VE5DC/G, etc.

If you are going to the U.K. and want to obtain a callsign, the first thing to do is send for an application form and information leaflet *right now*. The address is: The Home Office, Radio Regulatory Division, Licensing Branch (Amateur) Waterloo Bridge House, Waterloo Road, London SE1 8UA.

At the same time, you should probably send for the *International VHF-FM Guide* direct from J. Baldwin G3UHK, 41, Castle Drive, Maidenhead, Bers. SL6 6DB, England.

Enclose a couple of British Pounds to cover the cost and mailing, or you can ask for the U.K. Repeater Information leaflet which will give you most of the information you need for travel in Britain.

When you receive the application form, you will be asked for copies of your station licence, your certificate of proficiency, your current station renewal slip and a copy of your birth certificate. The fee for the licence is 6.40 Pds. or about \$18 in our deflated money.

You should allow about two months for all this to take place. It can be done in a lot less time, but it

is better to be early. I obtained my call sign in a few weeks, but had it mailed direct to an English address.

In my own case, I was only interested in two-metres, but you may operate HF as well; of course the equipment problem is a lot harder to solve. My equipment consisted of the Icom IC-2A handheld with a portable antenna called the coathanger special. It consisted of a quarter wave vertical and four radials and about six feet of coax.

This small antenna could be hung up in a room and would greatly increase my range over the 'rubber duckie'. The antenna was made by using a SO 239 coax connector. The vertical element was soldered to the centre connector and the radials were fastened to the four small bolt holes on the corners of the fitting. The coax was then simply connected to the fitting in the normal manner. This antenna could be broken down to a small handful of elements for travelling.

The batteries of the hand-held were charged from the battery of our rental car or any convenient car battery. The British line voltage is 230V, so my charger was not used. I made up a special cord to be plugged into the lighter of the car or else could be clipped direct to the battery. If I were going again I would take my mobile rig and a magnetic mount antenna.

The two-metre band overseas is only 2 MHz wide— from 144 to 145 MHz and all operation is channelized. I would not advise anyone to take along a Xtal controlled rig.

The channelized frequencies are as follows:

Repeater Frequencies (Output)

R0 145.600	R5 145.725
R1 145.625	R6 145.750
R2 145.650	R7 145.775
R3 145.675	R8 145.800
R4 145.700	R9 145.825

Simplex Frequencies

S0 145.000	S22 145.550
S20 145.500	S23 145.575
S21 145.525	S24 145.600

The repeater offset is the same as this country, 600 KHz down for transmit. All repeaters are tone accessed with a 1750 Hz tone. Most repeaters require this tone each and every transmission, but the odd one only requires an initial access and then normal transmission.

I did not have the tone burst, but was able to whistle up most repeaters at will. Of course, there is a lot of simplex operation and no tone burst required. The main simplex calling frequency is S20 so use this when trying to make a simplex call.

Operating Amateur Radio in England was a lot of fun and was very interesting as a lot of local points of interest were discussed and visited. In some cases we visited with local Hams.

By the way, it is a good idea to get your call as soon as possible, so you can practice it by yourself. It took me many contacts before I could remember my new call while in QSO with my English friends. Hi. It is pretty embarrassing when you have to stop and look up your call sign. □

Repeater Etiquette

When I first got on 2 metres, in the old days, I drove around chanting, "CQ 2, CQ 2, anyone out there?". Thanks to some friends who could not stand watching me make a fool of myself, I was soon taught the proper procedure. Now it's my turn to pass on the wisdom of my advancing years.

On a recognized frequency such as a repeater, three phrases are commonly heard, 'monitoring', 'on frequency' or 'listening' (preceded by a call, of course). Any one is acceptable, there are always people listening to repeaters and if they feel like talking to you they will come back to this invitation. Don't call every 20 seconds, the audience does not change that quickly; a call every 10 or 15 minutes is adequate.

If a conversation is taking place, you can get into it by announcing your call as one turns it over to another. But a QSO is no different from any other conversation, and courtesy is the key. Unless you have something to add or know the participants well, stay out of their conversation.

What then should you do if you have a real need to communicate, say you have come across a traffic accident or something of that sort. Then you should announce your call and state your situation. If you have a life or death situation, you have an *emergency* and should so declare it. If you have a time sensitive situation, you only have a *priority* and that's how you describe it. For example, if a 1300 volt power line falls in your front yard and you want it fixed by the Hydro fast, that's a Priority. However, if it falls on Uncle Murphy, you have an Emergency.

If you are talking and someone

declares either an Emergency or a Priority situation, you stop talking, listen and help. If two call in at one time, the Emergency is handled first, fast.

All of which goes to prove you have to drag your feet a bit between transmissions, otherwise you may miss out on the good feeling of helping out.

Back then, when we got the first repeater, they were for use only by mobiles and base stations were not allowed to use them. That proved a little troublesome when a mobile came on the scene of an incident and wanted help relayed, so we encouraged base stations.

Over the years, the real purpose of repeaters has become lost; their real function is to extend the limited range of mobiles (and handhelds) with low power and not very good antennas. Bear the purpose in mind; if you can QSY to a simplex frequency, do so and leave the repeater for those who may be a greater distance apart.

My friends also told me of two practices which I could easily get in the habit of, both of which would get me a citation when the DOC caught me. (In those days it was the RI, but you don't remember him.)

The first is the mobile operator with the radio (or tape player, now) going in the background. The music retransmitted is a no-no, but as it likely makes it hard to hear what you have to say, it's not needed.

The second is the person who keys the repeater so that by hearing the tail he can assure himself that his rig is working. The person doing it may get a warm feeling knowing his rig is alive and well, but everyone else listening at that

time hears nothing but the 'Kerchunk'. Thus the phrase 'accursed kerchunkers'.

Any unidentified transmission, which is what you did when you pushed the mic button, is technically illegal. You can get the same warm feeling of hearing the tail drop out if you say "VE???? testing" which would not be illegal. You might have said "VE???? listening" — who knows, someone might have spoken to you and given you a real warm feeling! □

Ray VE3ZJ

LARC Bulletin with thanks to
Repeater Etiquette & Protocol by
John K18Y.

MEXICO, SI!! CANADA, NO!

Every Wednesday at 2300Z I contact Luis XE1LCH at 28.466 MHz while he drives to his office in downtown Mexico City. Well, you say, nothing very exciting in that! But I didn't tell you that my good friend Luis is transmitting back to me from his *two metre rig* in his car.

That's correct, Luis is on 146.79, back to his QTH on 2 metres, then into his Kenwood TS820S and back to me in London, Ont. on 28.466 MHz.

Not legal, you say? Perhaps not in Canada but, as I pointed out to Luis, permission would be doubtful and even Canadian jails for ham radio regulations law-breakers are unpleasant.

Luis will be visiting my QTH in July this year. I hope many London hams will have the opportunity to meet him while he is here.

Dick Reiber VE3IBV
From LARC Bulletin

CARF Dues Increase

Because of increased production, publishing and circulation costs of TCA, plus the increased costs of administration and operations, the CARF Board has, reluctantly, approved that membership dues be increased to \$15⁰⁰ annually commencing on October 5, 1981.

Multi-year memberships will also change, so that 3 years will cost \$40⁰⁰; 5 years, \$65⁰⁰ and LIFE membership \$225⁰⁰. However, in order to save Amateurs money, the Board has approved that any new or renewal memberships received prior to Oct. 5, 1981 will be accepted at the current rate of \$10⁰⁰ for 1 year, \$27⁵⁰ for 3 years, \$45⁰⁰ for 5 years and \$150⁰⁰ for LIFE membership. Note that LIFE membership may be paid by installments*, and the receipt of a first installment payment by Oct. 5, 1981 will enable the member to continue payments at the present low rate. Family membership dues remain at \$1⁰⁰ for each calendar year and \$15⁰⁰ for Family Life memberships.

As a further inducement, for new and renewal memberships received prior to Oct. 5, the Federation offers a \$1.00 reduction on single copies of both Study Guides and the 1981 Regulations Handbook if ordered at the same time as membership dues are paid. A considerable saving will result by prompt action. NOW is the time to support your own national society.

The costs of running a Canadian national organization have increased from about \$25,000 in

1975 to \$100,000 today, but this quadruple increase in costs has only resulted in a doubling of CARF dues in this period. This minimal increase was due to a substantial increase of membership support coupled with the use of Canadian expertise in administration and financing. Our philosophy is that CARF members would rather see their dues spent on developing TCA and the supply of services than on travel junkets by senior officials.

About 50% of costs are incurred in operational and administrative expenses with the other half dedicated to the production etc., of TCA. Revenue from the sale of advertising and publications amounts to about 25% of total income so that, with inflation causing costs to rise about 10% per year, estimated membership increase will ensure that dues remain steady for some considerable time.

Switch the Leads

Do you use your Volt-Ohm-Milliammeter on the ohmmeter scale for testing diodes and transistors? Most VOMs reverse the polarity on the leads when you switch to ohmmeter ranges. That is, the red lead (previously used for measuring positive DC voltages) now is negative and the black lead has become positive.

To properly test forward and reverse bias conduction, we must have the correct polarity. Instead of trying to remember that the leads are opposite to normal, I find it easier to change over the leads by plugging the red into common and the black into the plus socket of the VOM. Now the red lead is delivering positive voltage and the black is negative. Proceed with your testing but remember to switch the leads back again after you have finished your transistor tests.

Also, you might think that the safest range on the ohmmeter would be R x 1. Not so! The short circuit current is greatest for R x 1 position. On my Triplett multimeter, the short circuit current on R x 1 is 200 mA, enough to damage lots of transistors! On R x 10, the current is 30 mA, still too

high. But on R x 1000, the short circuit is less than 0.5 mA. Needless to say, I do my testing on R x 1000. You might be wise to measure the short circuit current of your own tester. Even a dual FET VOM that I tested delivered 110 mA on R x 1.

Ralph Miles VE3CMQ
London (Ont.) ARC Bulletin

SOUND THE ALARM

Amateurs should beware of burglar alarms - especially of the motion detecting type which are connected to outdoor sirens, gongs, hooters and flashing lights. These relatively new consumer electronic devices, which are selling like hotcakes, are often very susceptible to radio frequency energy. The cause seems to be inadequate shielding.

Reports tell of how Amateur transmissions are triggering false alarms and disturbing whole city blocks. An Amateur who runs into this kind of problem should take prompt action rather than stir up his whole neighbourhood. Under some kinds of municipal anti-noise by-laws, this kind of disturbance could result in an Amateur facing prosecution.

* LIFE membership may be paid by installments within a 12 month period — 2 installments of \$80⁰⁰; 3 of \$55⁰⁰; or 4 of \$45⁰⁰. Credit is given for current unexpired membership if in excess of six months.

ARES

The following is a letter to the editor reprinted from the Ottawa Valley Mobile Radio Club 'Rambler'.

The Amateur Radio Emergency Service (Canadian edition), simply does not understand where Amateur radio operators fit into the overall scheme of disaster planning locally or, for that matter, nationally.

Although I cannot lay claim to being fully conversant with ARES philosophy, it seems to me that local ARES representatives feel that the only way to become involved in the provision of Amateur radio services in emergencies is to go about knocking on doors with vague offers of service. From the observations I have made and the comments I have heard, these offers of service are, for the most part, not understood and are therefore viewed with some considerable suspicion.

So what is the answer? Well, that is what I hope to convey to you by this letter. One answer that has been suggested to me is that the Amateur literally take his radio under his arm and go home. That, I would suggest, is not a reasonable alternative. Signing lengthy protocols with individual participating agencies is not the answer either.

As most of you must surely realize, responsibility for the provision of emergency services is not something that can be taken lightly. Agencies involved in the provision of such services must know what is expected of them and have the legal authority to carry out these responsibilities.

In Ontario, this legal authority is delegated to municipalities by Section 242 of the Municipalities Act, RSO 1970 Chapter 284. This section of the Act enables municipalities to enact by-laws to provide for the provision of emergency services and to outline the duties and responsibilities of participating agencies.

All municipalities, certainly those in the Ottawa area, have enacted such by-laws. By-law 212-80 passed by the City of Ottawa council is typical... That by-law identifies the Co-ordinator of the Ottawa-Carleton Emergency Measures Organization or his Assistant as being responsible for making available *additional communications systems*, and for arranging the assistance of local *voluntary organizations* as necessary. Amateur radio would seem to fall into those categories.

So what is my point? Simply this: although fully aware of EMO's overall responsibility as outlined, local ARES representatives continue to pound on doors and although they are repeatedly told where to go, quite literally, the door-knocking persists.

This perhaps explains why the local EM Co-ordinator has decided to form what is sometimes regarded as a separate Amateur agency. When you're up to your armpits in water and there's no lifeguard in sight, you have to do something.

Having explained that, hopefully, I would like to clarify again what I thought I made clear at the February OARC meeting. One person in the room showed visible discomfort at my remarks about politics. There were undoubtedly others, but they chose to remain comfortably anonymous.

Judging by the excellent return in registration forms, I should hope that all of my future engagements are so disastrously successful. It is not my intention to convey the view that Amateur clubs or organizations are not appreciated by EMO. The fact is that EMO, which is still smarting from an EMO/CB relationship, is not interested in dealing with specific groups which, whether you are

prepared to believe it or not, are very much political entities.

EMO is interested in individual Amateurs who are duly licensed and equipped and who are prepared to register with it so that they can reach the destination to which they are assigned.

Experience has shown that people in general are better able to cope with a situation if they have some idea of what is expected of them. EMO is not interested in forming a competing club, nor does it intend to select only those Amateurs who are members of a particular club or association. Essentially, what is wanted is a one-to-one relationship with Amateurs.

EMO is only too pleased to have dedicated Amateurs regardless of their political affiliations register with it so long as they are prepared to answer to those responsible locally for what comes up. We all know that before being appointed the local EC had to be *approved* by officials in Newington, Connecticut, U.S.A. and that the appointee had to be a member of the ARRL in order to receive that approval. Admittedly, disasters themselves may not be political, but appointments such as the one just described can hardly be described as anything else.

One final point: five groups will not be reporting to a disaster scene in this area, only one will be able to get past the perimeter road-block. Those that do get past will be carrying proper identification and will not have to go looking for an agency to serve, as was the unfortunate case in Mississauga. By the way, I'm not knocking the excellent job that was done there by some very dedicated Amateurs. □

Joseph MacPherson VE3CAT
Emergency Planning Officer,
Communications
Ottawa-Carleton EMO

Books of Amateur Interest

While convalescing from a recent re-arrangement of the circulatory system, I had the opportunity to catch up on reading and was interested to find that three of the books I devoured had some interest for Amateur operators.

Trials and Tribulations of a Tibetan Operator

The first, *Wind between the Worlds*, is not exactly current, having been published in 1957, but it relates an extraordinary first-person account of a Westerner's life in Tibet where the author became one of the few Europeans to hold an official position in the Dalai Lama's government.

The writer, Robert Ford, was an English Amateur who joined the Royal Air Force and was sent to India as a radio instructor during WWII. Tired of barracks life, he volunteered to work as a radio officer with the British Mission to Tibet in 1945. After a leave from that unit, he returned to Tibet in 1948 as a civilian under contract to set up a radio network for that Himalayan country's government.

All went well until 1950 when the Chinese invaded Tibet and Ford was arrested as a spy and imprisoned in China. The assumption of his guilt was a perfectly logical one on the part of the Chinese Communist officials who had never heard of Amateur radio and grilled Ford incessantly about his activities on both the Amateur bands and the commercial frequencies.

Ford's problem was to prove that his Amateur activities were quite innocent; but how do you explain to a Chinese interrogator that a transmission to a Russian



Amateur such as "TX QSO OM SRI CONDX PR" is not encoded secret information? His QSL cards, among them a number from Russian operators with plentiful pictures of Stalin and Lenin plus the Russian version of the inventor of radio, Popov, certainly didn't help Ford's case.

There was worse to come: Ford dug himself in deeper when, knowing that his station had been monitored, he admitted that he had told American and British contacts that his location, a city called Chadmo, was in Tibet. Because, from the Chinese viewpoint, Tibet was and always had been a Chinese province, his captors accused him of promoting Tibetan separatism.

Asked to explain just why he spread such treasonous propaganda, he tried to answer this charge by telling his incredulous jailers that because his contacts all believed the place he worked from was in China (because most Western Atlases showed it as being in that country), he had to set them straight. The disbelief of his inquisitors can be imagined when he tried to explain that his contacts

were after their WAZ certificates and his Tibetan call AC4RF was one of the rarest ones going.

Ford was held in Chinese captivity for about five years, and although he was never physically maltreated, his description of Chinese brainwashing is mind-boggling to a Westerner.

He was eventually released in 1955, after relations between England and China began to assume some normality. Ford came out of his ordeal with little but a fluent knowledge of Tibetan and Chinese. His present whereabouts are unknown, however, his main English contact with his parents before his capture, C.E. Jeffries G5JF, is still listed in the callbook.

Winds between the Worlds, Robert Ford, 1967, David McKay Co. Inc., New York.

About China

As a passing comment, anyone who believes that Amateur radio will blossom forth in China in the foreseeable future should heed the words of a Canadian who knows the country well. He told me, "Don't hold your breath for BY stations to come on the air. A nation of 700 million people, most of whom exist at a subsistence level, has other priorities and things to do besides Amateur radio."

A good background to this remark is provided by two hard-cover books on China: *Journey between Two Chinas* and *Stranger in China*. *Journey* is written by Seymour Topping of the New York Times (Harper & Row, New York, 1971), whose wife is China-born Audrey Ronning, daughter

of Chester Ronning, a Canadian diplomat who represented this country in China in the 40's. The other book is by writer and editor Colin McCullough on his years in Peking as a Globe and Mail correspondent. (*Stranger in China, Wm. Morrow & Co., New York, 1973*).

Britain's Boffins

With the lifting of the restraints under the British Official Secrets Act, there have been a number of books by British back-boys or boffins as their WWII scientists were called.

For those who enjoy science fiction stories, there are two current paperbacks which prove that fact is stranger than fiction. With a background of intelligence and counter-intelligence activities mixed in with the development of radio and other weapons and defences, both of these books should appeal to the spy thriller reader and the technically minded.

The first one, *Most Secret War*, is the story of British scientific intelligence from 1939 to 1945, told by one of England's top scientists, Dr. R.V. Jones.

The whole 700 pages of this paperback are written in a most readable fashion, lightened by Jones' puckish sense of humour which more than once got him into hot water. His contacts with Churchill and his scientific advisors Lord Cherwell and Sir Henry Tizard found him quite capable of matching wits with them in pursuing one of his innovative inventions.

Jones, who was in his 20's at the time, was regarded as a somewhat brash young man, but as Lindemann's protege he managed to survive in high level office politics until he had proved himself one of the most important Allied scientists in the radio war with German inventors on the other side of the Channel.

With access to the now-famous 'Ultra' secrets decoded by the cryptologists and a flair for

deduction which would have shamed Sherlock Holmes, Dr. Jones was able to counter the German radio aids used to guide their bombers.

The myth that he was able to 'bend' the radio beams was encouraged as a cover story for a number of ingenious methods devised for jamming or misdirecting the enemy aircraft. Another myth, that of generally accepting Sir Robert Watson-Watt as the single inventor of radar is dispelled when one reads the work of Jones and others in this field.

The important part that Amateur radio can play in a country's time of need by providing a pool of people familiar with electronics and radio is underlined by Jones' observation after the commando raid on the German radar station at Bruneval on the Channel coast. The raiders not only bagged the vital parts of the enemy radar equipment, but also captured one of the operators.

Jones quizzed the prisoner, but was disappointed at the low technical competence of the operator which contrasted with the high technical standard of the equipment. After the war, in a conversation with his former German opposite number, General Martini, he commented on this fact. The general replied that "...he had not skilled reserve to draw upon among radio Amateurs, as we had, because Hitler had banned Amateur radio

"Hitler had banned Amateur radio before the war since it might provide communication links for disaffected organization..."

before the war since it might provide communication links for disaffected organization."

The book deserves its description by one critic as one of the classics of WWII: "... the battle of beams, the discovery of the secrets of German radar, the struggle against the night fighters and the discovery of the V1s and the V2s and Jones' part in the campaign against them were all magnificent feats".

(*Most Secret War, R.V. Jones, Coronet Edition 1979, Hodder & Stoughton Paperbacks, Sevenoaks, Kent, U.K.*)

The frosting on the cake in this kind of reading is to find out that Jones' book was made into a TV series by the BBC under the title, *The Secret War*. The series was researched by BBC producer Brian Johnson, who was a radar operator during WWII. This resulted in his writing a book of the same name in which Johnson tells essentially the same story as Jones but in a more succinct fashion and with a wealth of detail of interest to the technically-minded radio enthusiast and with stories added as a result of tracking down people who were engaged in electronic warfare and clandestine activities in Europe during the war.

He adds such interesting notes as that concerning the 1939 testing of the radar chain being erected as Britain's first line of air defence. The transmitters were about 200 kilowatts and operated between 10 and 13.5 metres.

This of course included an Amateur band allocated to English operators and the Radio Society of Great Britain was discreetly asked by the government to refrain from publishing in their publication letters from Amateurs commenting on the strange pulse signals on the ten-metre band.

At 400 pages, it's shorter than Jones' epic, but every bit as interesting and readable. (*The Secret War, Brian Johnson, Arrow Books Ltd., London 1979*)

The YL Heritage

The following story from The Ontario Trilliums' TOT Topics, was a speech by Louise Moreau WB6BBO, now W3WRE, which was taped almost in full by Cathy VE3GJH. It is reprinted here for the enjoyment of newer members, and to refresh the memory of the older ones.

Ever feel your hackles rise? Your tail begin to swish dangerously back and forth? Your ears flatten when some well-meaning person says "You mean you are a Ham? That's a funny hobby for a woman." After the red mist clears your fur settles, you've stopped spluttering and you're calm enough to answer, you will probably tell them all the usual things; The wonderful world of radio, our far-flung friendships, our public service record, contributions we've made to communications. Or— you might say casually that you are merely following a long tradition, for women have been a part of the communications story for almost 3,000 years.

To be exact, the first message that history records went to a woman telling of the fall of Troy and, no doubt, implying that the OM would be home as soon as he was mustered out. If we believe Aeschylus it was a woman who planned the system of fire beacons to get the news through. Her name was Clytemnestra.

Signalling by fires gave way to a lot less messy system and then we gals really got into it when the "lung telegraph" became very popular about 100 B.C. (not British Columbia either). Now I don't recommend that system. It would make us all into a bunch of "gravel gerties"

but those gals did it. In Europe, and what is now Scotland, there is documented evidence of women who were used to shout dispatches from point to point using, and here I quote "short staccato phrases". One historian comments that the higher pitch of the women's voices was peculiarly suited to overriding the noise of a storm or a waterfall.

Women were among the well-known whistlers of the Canary Islands who were able to communicate across amazing distances through this medium which is just as simple as saying a word and whistling at the same time. If you want a technical description they used lips, tongue, teeth, and fingers. It not only was effective it is still used by both men and women on the Island of Gomera.

Those are a few of the ancient forms of YL participation. On the modern side, Charles Dickens devoted an entire essay to the English "needle telegraph". He tells of 60 women who were trained to operate it. Shaffner, telegraph historian of the 1850s, has excellent woodcuts of these offices showing the YL "Needle clerks" and "Reading clerks" as they were called. In that system a gal could easily join the local chapter of a "Cross-eyed League" by constant reading of the Dial Plate with the needle, in

some cases two needles. In one case, five needles flipped back and forth at a rate of 15 to 20 w.p.m.

Building fires, whistling, shouting, flashing polished metal or turning the semaphore arms might have been the future of all YLs and OMs. Then came May 24, 1844. A delightful young lady, whose faith and belief in a brilliant inventor, was rewarded by being the one who chose the text of the first message sent on the electric telegraph and Miss Annie Ellsworth joined the club.

Within seven years there were not only YL operators in the rapidly growing industry but some of them had become so efficient that they were appointed office managers. Two years later the very familiar "73" was being used on the wires to the gals in the same way that "88" is used now, for in 1853 "73" meant "my love to you". It was also used in the telegraph journals of that time to welcome women operators newly come into the profession. There is further evidence in the many histories; James Reid in particular, that the presence of the ladies was a very good influence on the behaviour and language of the men operators.

The majority of the telegraphers of the Deseret telegraph that was installed in Utah in the late 1860s to maintain communications of the Mormon

church were YLs. Would you believe that some were involved in Indian attacks? They handled dispatches that now sound like a Hollywood script of new mines discovered, court proceedings, railroads, storms, arrests, grasshopper plagues. Messages like "keep a good lookout, saw smokes today", Another "two Indians seen today, others prowling raid may be impending". And still another, "stage-coach was robbed by masked men, one passenger shot". One of these women was chosen to be Brigham Young's personal telegrapher on one of his trips around the state.

So far as I can find there is no record of dedication to duty and sacrifice of life in maintaining the communications link between a stricken community and the outside world before 1889. There may be, but up to now the first one that I can find is a woman. The story of the disaster in Johnston, Pennsylvania, May 24, 1889, is well known. But what is less known is the story of three women and the part that they played. Mrs. Hettie Ogie was office manager of the Western union in Johnstown and her daughter, Minnie was her assistant. Mrs. Ogie remained in the office that day keeping in touch with the towns throughout the valley and into the Pittsburgh area, giving reports of damage, for there were flooded conditions before the dam broke. She sent the two men operators home to be with their families. Her final dispatch to Pittsburgh was grimly prophetic; "The south fork operator says the dam is about to go. This is my last message". The building housing the office was completely destroyed and both Mrs. Ogie and her daughter were victims of the flood. Their bodies were among the 777 "unknown dead" for they were never identified. In the wreckage where the office had been there were only two salvageable

objects; Mrs. Ogie's wedding ring and a telegraph key.

Many stories of heroism of operators, OMs all who remained on duty at the risk and often the cost of their lives are a part of the tradition of communications; but until we can uncover earlier documentation May 31, 1889 is the first of a long history of communication people.

"She looked out and saw a 71-ft. high wall of water coming down the valley..."

There is a happy side to the grim story. The telegrapher at the Pennsylvania railroad tower at South Park, Penn, was also a YL, Miss Emma Ehrenfield. Emma was on duty as usual that day and her western union counterpart was keeping in touch with the other towns along that line, sending them dispatches of the condition of the dam and receiving information of storm damage to the right of way. Now for those of you who are unfamiliar with RR telegraph the picture may be a bit clearer if I explain that a signal tower is built on two levels with a stove and tools on the ground floor and above it the telegraph office.

It was a cold day and the men who were checking the track damage had built a roaring fire in the stove. It got too hot and when Emma came down to cut the heat she looked out and saw that the 71 ft. high wall of water coming down the valley. She picked up her seven petticoats (nice girls always

wore seven petticoats) and she raced across the tracks and up the steps of a coal tippie and turned to see her tower swept away by the flood.

Marconi, unlike Morse, listened to the letter "s" on Dec. 12, 1901 without any feminine touch for radio began in a purely stag atmosphere but not for long. Five years later the first YL was a commercial operator at NY in New York. Three years after that Miss Lillian Todd was advisor and sponsor of the Jr. wireless club of America. From her guidance come such names as Edwin Armstrong, and Paul Godley. The next year 1910 the first YL Amateurs were on the air using the calls FN a Miss Glass in California and an Olive Hearberg in N.Y. By World War I there were 13 yls with Amateur radio licenses and over 30 others with commercial licenses as Marine ops. The war didn't stop the interest of radio minded women. Many went to wireless schools and then into Signal Corps. After, when Amateur privileges were restored we find the gals busily working the spark rigs again.

Oddly enough all Amateur operation by YLs until 1924 was by women in the U.S.A. with one exception. In 1913 the call IXI was issued by the Gov't Post Office in England to Mrs. Ingram for a transmitting license. In 1924 Canada's first Y made her appearance. 1925 opened Europe with Swedens first lady. 1926 - Brazil, 1927 - Peru, 1928 - France. We have a great heritage going back almost 2000 years.

About the guest speaker Louise Ramsey Moreau WB6 BBO now W3WRE up until last year was the writer for the YL page in QST when she retired. Louise has an antique collection of telegraph keys. She has always been interested in YLs in Radio. She attends most YL conventions and has been our guest on many occasions.

The Dressmaker's Dummy

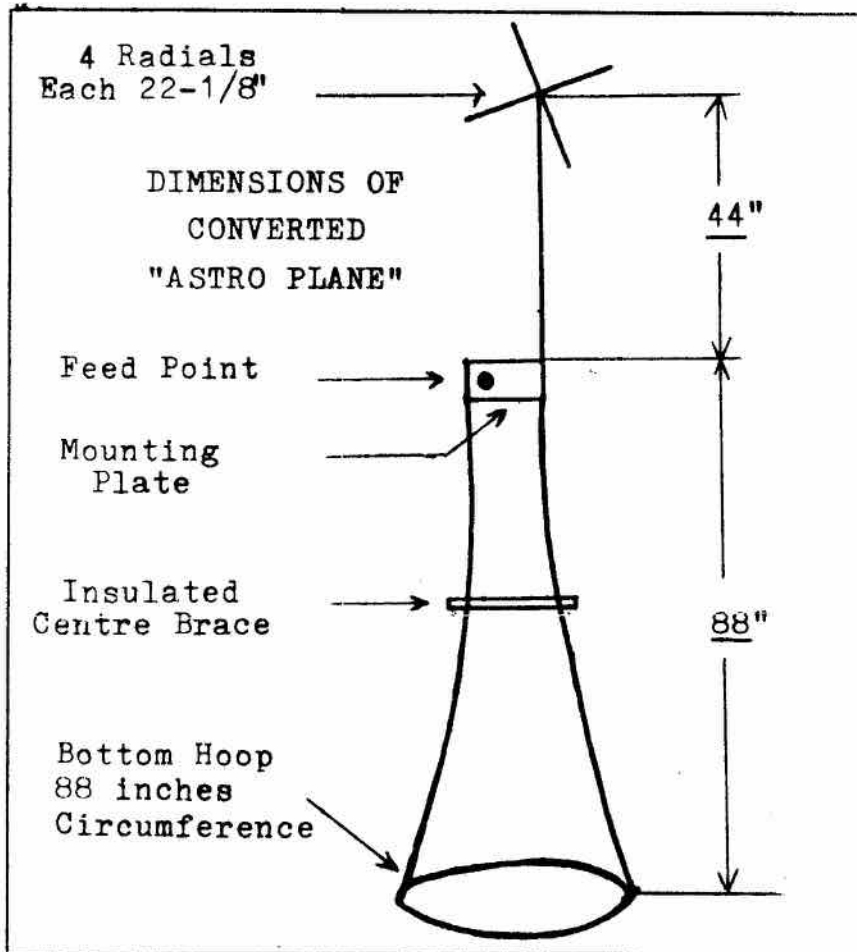
Although lots of articles have been published on converting GRS sets to 10 metres, information on converting GRS antennas has not been quite as common. After being offered a damaged "Astro Plane" antenna, I thought it would make a good prospect for 10 metres. The manufacturer's advertisements claimed a gain of 4.6 dB over isotropic, an SWR of 1.2:1 and a very low angle of radiation for this antenna, all of which made it sound quite attractive. Reg, VE1BAT and I drove over to visit Lawson VE1JY who had offered the antenna. We lashed it to the top of the car, and proceeded homeward to give it a good checkout. It was basically complete, except for one segment of the bottom hoop being missing. All the hardware that wasn't stainless steel was thoroughly rusted and had to be either hacksawed off, or broken off with a wrench. A handful of nuts and bolts from your local hardware store is all that's required for the re-building. Before disassembling the antenna, we measured all its dimensions, and noted them on a sheet of paper. While rebuilding, we subtracted 5% from

each dimension, since the change in frequency from the middle of the GRS Band to 28.5 MHz is roughly 5%. As it turned out, this was not quite enough reduction, and some further pruning was necessary. The finished dimensions are shown in the sketch. The three days after the rebuilding were wet or windy or both, so it wasn't until four days later that testing could be done. Reg had to work on test day, but Lee VE1BZM kindly offered to lend a hand. After taking a look at the odd shape of the antenna, he promptly dubbed it "The Dressmaker's Dummy."

We stuck the antenna up in the back yard on a temporary mount, with the bottom hoop ten feet off the ground, and gave a listen on the band. Lots of signals coming in, so at least it was receiving. The first contact was with Robin VP5GT, who gave us a report of 5 X 6, not too bad, we figured, for such a low height and about 60 watts of output at our end. Then came some scrambling around town to find TV masting, guy wires, a roof mount and the necessary hardware. (The cable TV boom has dramatically reduced the

inventory of such materials in a small town.) In the afternoon, we assembled everything on 20 feet of hollow masting, and put it up on the peak of the house roof, using four guy wires to steady the installation. Mounted in this location, the bottom of the antenna is about 28 feet above the ground, with the top radials at 39 feet. The feed point is an SO-239 socket on the mounting plate, so the coax feedline can easily be routed down through the hollow mast, making a nice, neat installation.

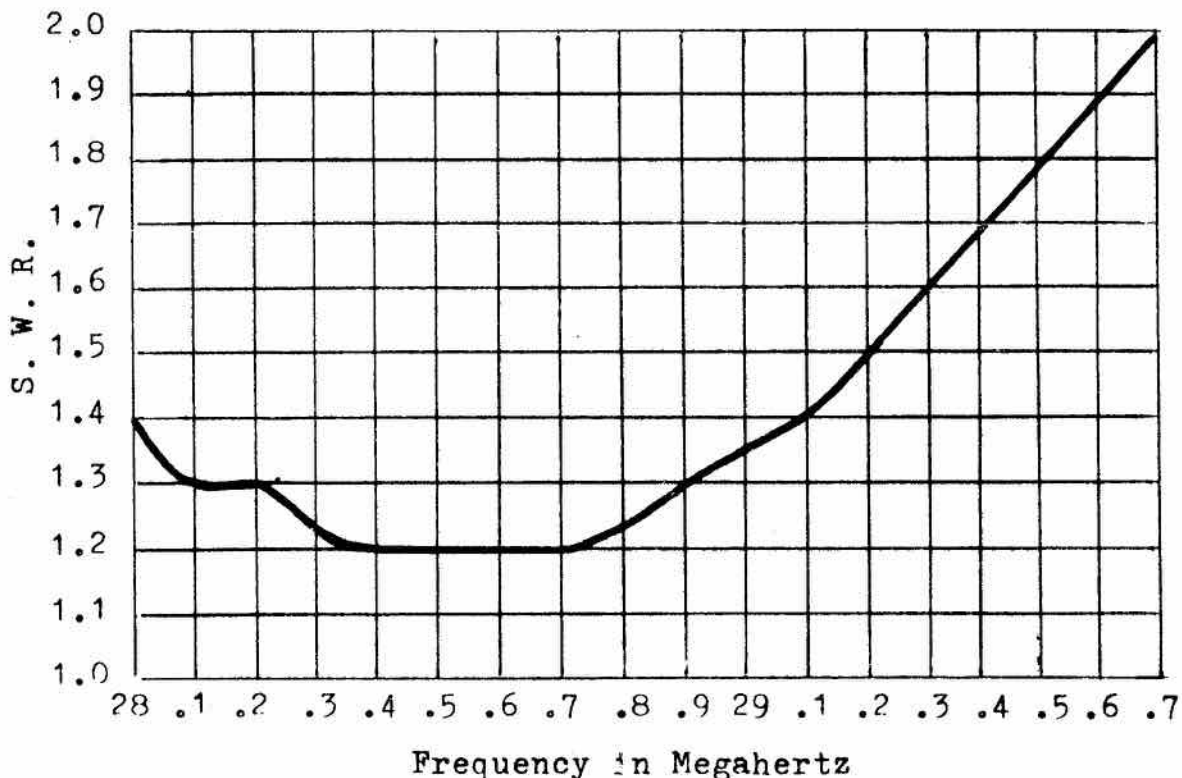
With the antenna now in place, SWR checks were made at every 100 KHz point across the band. The results were very satisfying, and can be seen on the chart. My 'other' antenna is a homebrew 5-band trapped dipole, 25 feet above ground, and that was what we had for a reference. Test results were encouraging, with reports of our transmitted signal averaging 3 S-Units better with the ground plane than with the trapped dipole. Tests were made with such diverse places as Siberia, Italy, England, Tasmania, Alberta and several Southern States. The smallest improvement (Florida) was 2 S-Units,



and the largest was with Alberta, 5 S-Units. The improvement on receive was somewhat better than on transmit, running an additional S-Unit or two over the dipole. The ground plane out-performed the trapped dipole consistently and substantially, so we felt that our exercise was well worth the time and effort, and the minimal expense involved.

No doubt there are many "Astro Planes" lying around the countryside, so if you haven't the inclination, the room or the cash for a Yagi or a Quad, give this antenna a try on 10 metres. We're sure you'll be happy with it.

David Vail VE1GM
21 Southeast Street
Yarmouth, N.S. B5A 3P4



Gremlins

Somewhere between the author's desk and your mailbox, Figure 1 disappeared from Peter Robertson's article "The VUcom 1 and Amateur Radio" in the

February 1981 issue of TCA. Here, through the courtesy of Peter and with the apologies of the Technical Editor, is the missing diagram.

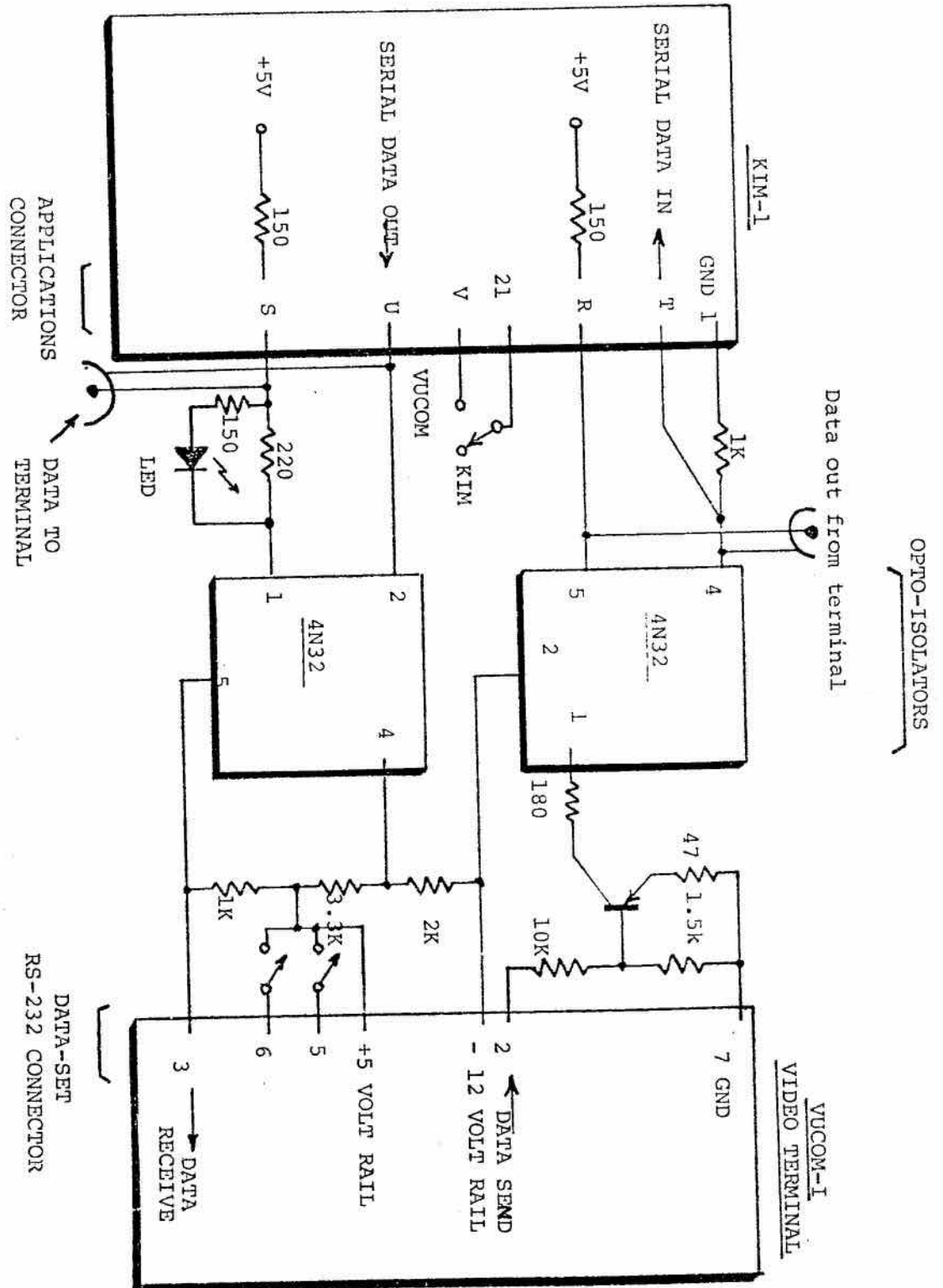


Figure 1. Interconnect diagram showing opto-isolators between an RS-232 Video Terminal and a micro-computer (in this case a VUcom-1 and a KIM-1). The transistor may be any PNP unit, I used a 2N404.

TCA: Technical Section

Easy-to-Build Electronic Indoor/Outdoor Thermometer

By Ced Tanner VE3BBI
548 Upper Queen St.
London, Ont.

Wouldn't you like to be able to push a button in your shack and read the outside temperature directly from a meter? Flip a switch and Presto! you have the inside temperature as well. Simple. Here is a circuit using only two common transistors, and the sensors are merely two IN4148 silicon diodes in series. There are no unusual parts and the whole circuit board can be mounted on the back of the meter. It is powered by a standard 9 volt battery.

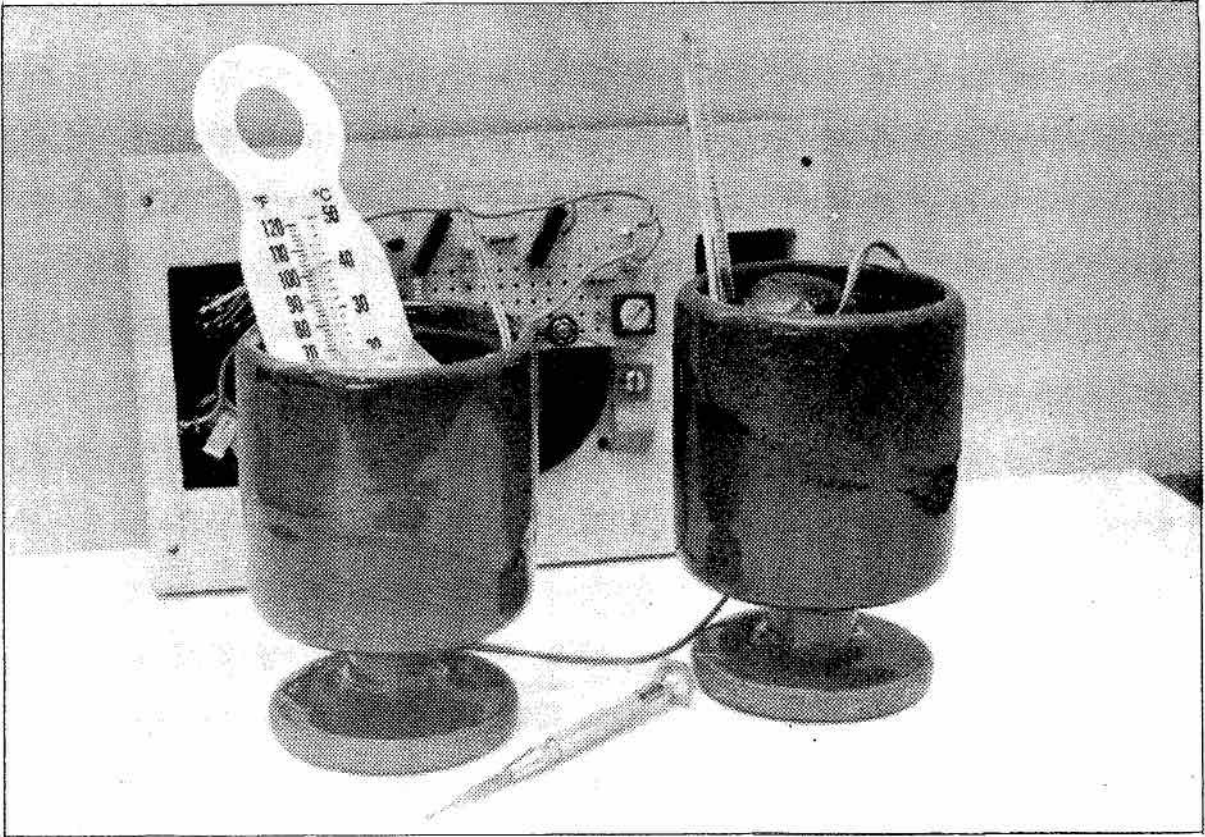
Two sensors are required, each consisting of two diodes in series on a small piece of perf-board mounted in a one inch length of aluminum or copper tubing and held in place with wax or epoxy. The wire connecting it to your console can be the light speaker wire which is readily available. Mount one sensor outside in the shade and the other on the back of the meter.

The meter is the interesting

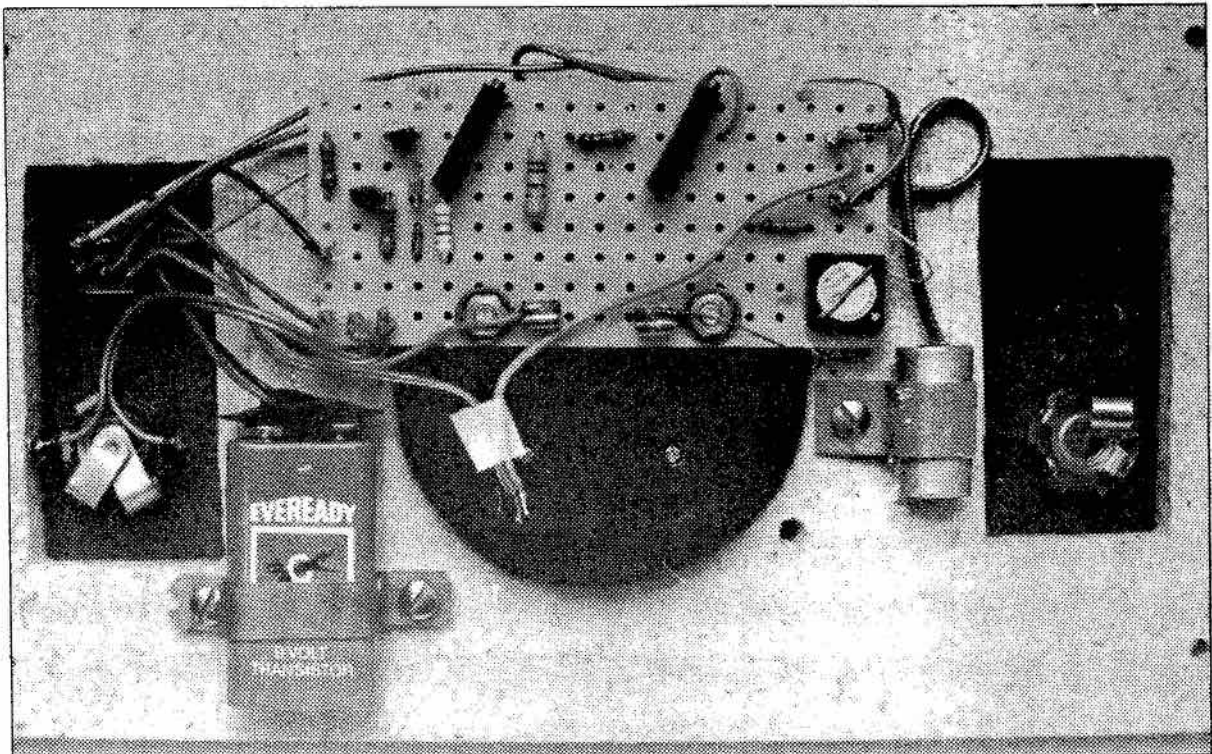
part. You will need a 50 micro-amp meter with a modified scale. Take the scale off the meter or stick a piece of blank paper over it with rubber cement. Working with a pencil, draw an arc where the scale should be and determine the end points. On most meters the needle covers an arc of 90° so it is relatively easy to construct a scale which goes from -40°C to +50°C. Just put a pencil mark every 10° and Voila! you have your scale. The freezing point will be just to the left of the centre. These marks will need to be only very slightly modified during calibration as most meters are quite linear. If you want Fahrenheit temperatures you can look up the conversion and add the scale later.

At this point you should construct your circuit board or wire it up on perf-board as I did. You are now ready for calibration. I trust that you have mounted a slide or toggle switch





Calibration. The coffee mug on the right contains ice-water while the one on the left has water at about 45° C. Two types of reference thermometer are shown (from my darkroom). The small screwdriver is for adjusting the trim pots.



Circuit board mounted on back of meter. The *Indoor* sensor may be seen at the right while the switch and push button are at the left. The two wires taped together go to the *Outdoor* sensor.

for Indoor/Outdoor in an appropriate place, with the push button near by. Connect the sensors using a short piece of wire for the Indoor one and the full length needed to reach outside for the Outdoor one. Now we are ready.

Calibration

Take two coffee mugs and into the first put three or four ice cubes and some cold water. Fill the second one with hot water at about 45°C. Oh yes, you will need a reference thermometer to cover this range.

Stir the ice-water about one minute and it will reach exactly zero°C (check with the reference thermometer if you wish) and proceed as follows:

COLD

(-switch in OUT position and R8 about mid range.

(..OUT sensor in ice-water

(-adjust OUT calibration (R7) to read 0°C.

HOT

(-OUT sensor in water at 45°C along with reference thermometer

(-adjust OUT 45°C Cal. (R8) to match thermometer.

Repeat above several times as there is interaction between them.

WARM

(-Both sensors in water bath at about 25°C.

(-Read Outdoor temperature (-Switch to Indoor

(-Adjust 25°C Cal (R4) till Indoor reads the same as Outdoor.

That's it! You have an electronic Indoor/Outdoor thermometer which should be as accurate as the weather reports. Feel free to contact me if you need further information.

Ced Tanner VE3BBI

PARTS LIST

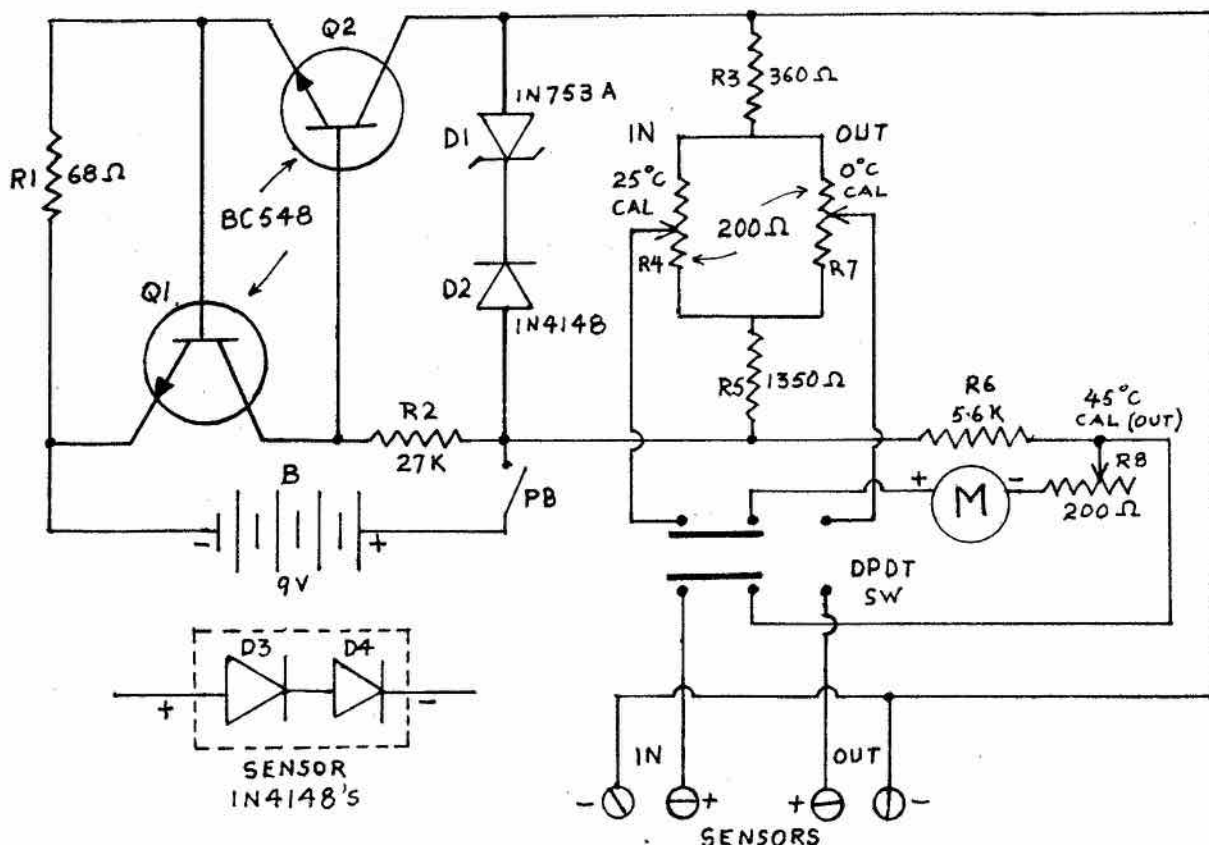
- R1 68 ohm
- R2 27K ohm
- R3 360 ohm
- R4, R7, R8 200 ohm trimpot
- R5 1350 ohm (1200 plus 150)
- R6 5.6 K ohm
- Q1, Q2 BC548 NPN transistor
- D1 IN753A zener diode
- D2, D3, D4 IN4148 silicon diode
- B 9 volt battery
- M 0-50 microampere meter
- PB push button
- SW DPDT toggle or slide switch

Notes

(1) All resistors are 1/4 or 1/2 watt.

(2) A terminal block for the sensors is not necessary if you provide a soldering lug on your circuit board.

(3) A small transformer, silicon diode and 1000 microfarad capacitor may be substituted for the 9 volt battery. You can use a IN4148 as the rectifier.



Volunteering

Down through history we are familiar with those events that have made it necessary for certain people to meet the challenge and serve a common need. Some examples would be volunteer firefighters, those that volunteer their services to help in a hospital, with service clubs or assisting the Santa Claus fund. Those who volunteer their lives in the service of their country have a rather more serious role, which could even require the supreme sacrifice.

It would appear, my friends, that the very act of volunteering is still a most-needed part of our everyday life. In the process of enjoying our beloved hobby and accepting the responsibilities that go with belonging to such an organization as the North Bay ARC, we are from time to time asked to volunteer.

Possibly there is a need for antenna raising, maybe someone's rig is ailing and a volunteer is needed to set it right. It might simply be that a volunteer is needed to make the coffee.

However, each year in the administration of our club, there are many capable bodies just lurking on the sidelines awaiting the call to perform a particular service. Mind you, most such persons are a little modest in admitting their expertise to the task.

The members of the NBARC have long recognized the leadership qualities in our fellows and have developed a system within our ranks that has worked well and recruits the best possible person for the task at hand.

My dear friends, our system is one of volunteering the services of

one of our modest and bashful members to a needed service. Such action is to be construed as an honour, and points up how one is looked up to by the rest of the club. The fact you have been volunteered is indeed an acknowledgement of your efficiency and should not be confused with the proverbial Joe jobs allocated to members of the Armed Forces (In those organizations, you don't volunteer for anything).

To those of you who have been volunteered in the past, our sincere thanks. For those to be volunteered in the time to come, take the bit in your mouth. You have been chosen among men to perform a service. You are one of the elite. □

Chuck VE3CEH
NBARC Bulletin

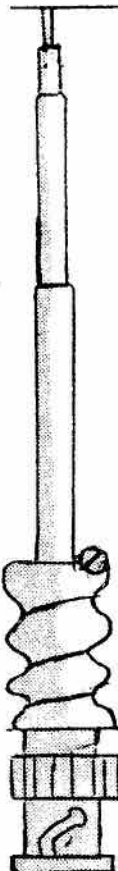
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(an anonymous contribution with
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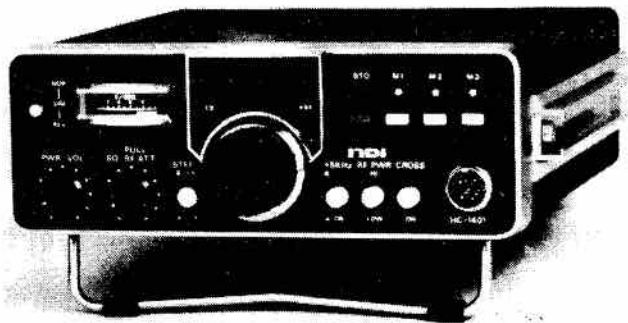
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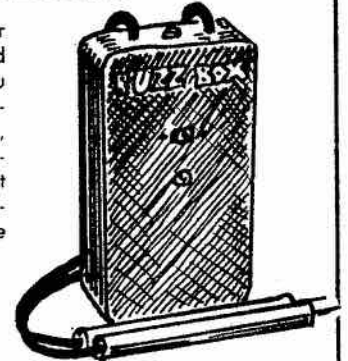
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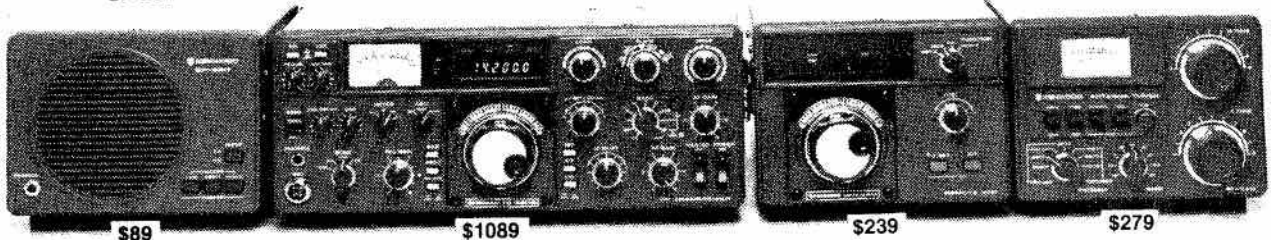
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Due to the mail strike, some articles originally scheduled for this issue will appear in the September issue. This includes articles on the Winnipeg Symposium and the CARF Annual General Meeting. Sorry for the inconvenience.

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.

CONGRATULATIONS

are extended to Western Director Peter Driessen VE7BBQ who recently obtained his PHD in Electrical Engineering.

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

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Note: As a general rule, DOC will consider licensed Amateurs of Commonwealth countries for reciprocal privileges in Canada if the other country does the same.

How to use the CARF QSL Service

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

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

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

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

Name, call Return Address CARF Membership No.	PRINTED MATTER	Correct Postage
-----------------------------------------------------	---------------------------	--------------------

CARF National QSL Bureau
P.O. Box 66
ISLINGTON, ONTARIO
M9A 4X1

Use this address
NOT Box 356 Kingston

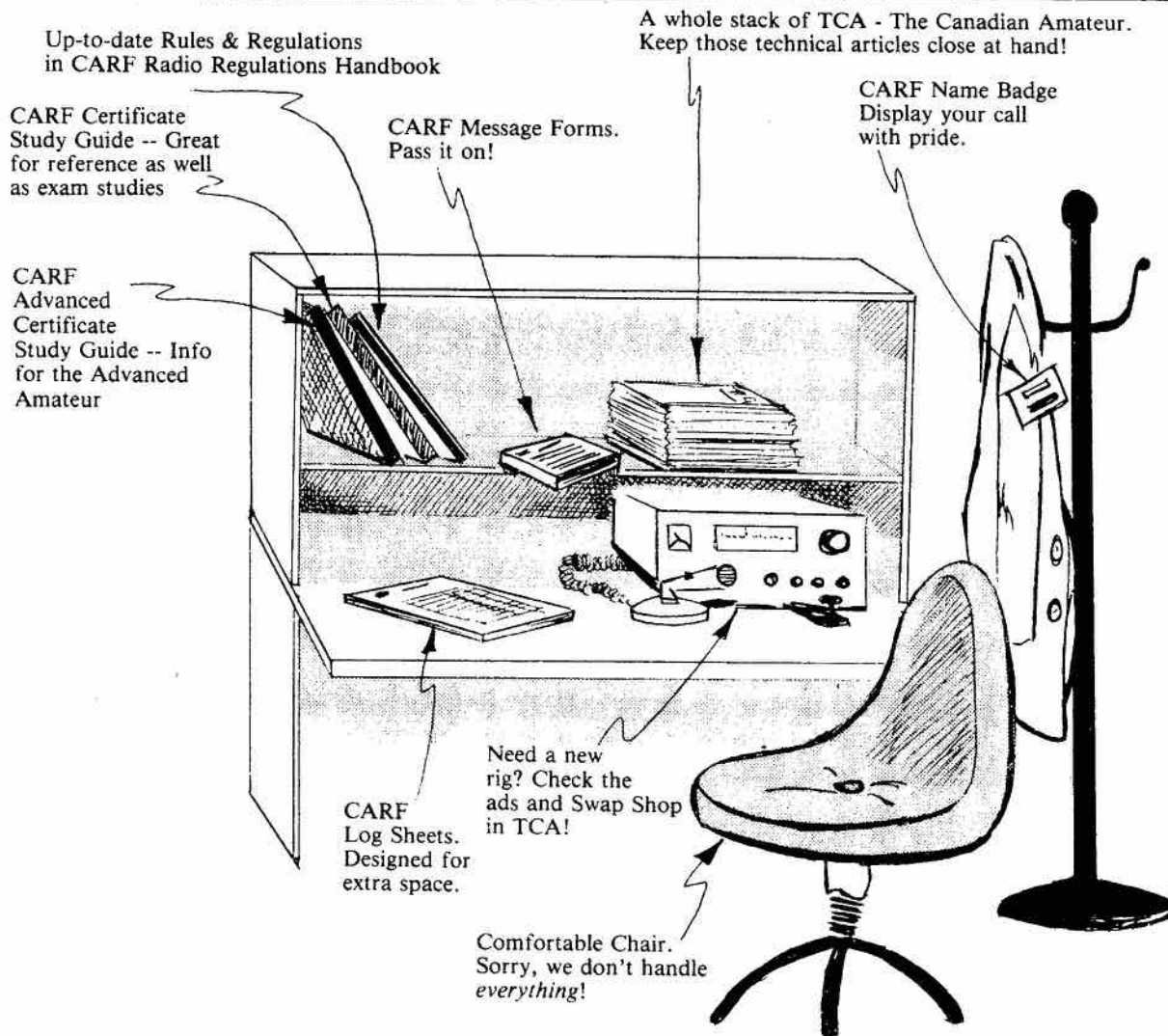
Le service d'envoi des cartes QSL de FRAC se charge de l'envoi de vos cartes QSL dans le monde entier. Ce service est gratuit à tous les membres de FRAC. Si vous envoyez beaucoup de cartes, les frais de votre souscription seront tôt récupérés dû au coût élevé du service postal quand les cartes sont expédiées directement.

Veillez observer les règles suivantes quand vous utilisez le service FRAC d'envoi des cartes QSL:

1. Classer les cartes (DX) alphabétiquement par préfixe
2. Classer les cartes canadiennes par ordre numérique de préfixe.
3. Veillez placer les petites quantités de cartes dans des enveloppes en papier épais et bien scellées. Envelopper les grosses quantités de cartes avec précaution de préférence dans du carton. N'utilisez pas de brocheuse!
4. Veillez adresser vos envois.
5. Ne Pas Recommander les envois de cartes. Cette pratique est plus dispendieuse et occasionne souvent des retards et par conséquent, n'est pas réellement nécessaire
6. Si vous désirez recevoir une preuve que FRAC a reçu votre envoi de carte QSL, veuillez inclure une enveloppe pré-adressée ou une carte postale avec timbre avec le mot 'Receipt' imprimé.
7. Si un colis était endommagé sur réception (très rare), FRAC vous fera parvenir une liste des cartes reçues de sorte que vous pourrez vérifier s'il y en a eu de perdues dans le courrier.

Traduisé par Jack VE2SF

CARF creates the *perfect* station!!!



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

Canadian Amateur Radio Federation

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

CARF is Canadian Amateur Radio!!!

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

Full Voting Member*

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\$27⁵⁰ for 3 years

\$45⁰⁰ for 5 years

Associate Member

(Foreign Call Sign Holders
and non-licensed supporters)

\$10⁰⁰ per year

\$27⁵⁰ for 3 years

\$45⁰⁰ for 5 years

Family Membership

\$1⁰⁰ for each year

extra per person

\$15⁰⁰ for LIFE

Life Membership

\$150⁰⁰

(Full or Associate)

Check Quantity Required:

Canadian Amateur Certificate Study Guide \$7⁹⁹ _____

Canadian Amateur Radio Regulations Handbook \$7⁹⁹ _____

Advanced Amateur Certificate Study Guide \$7⁹⁹ _____

Instructor's Guide \$5⁰⁰ _____

Log Sheets (Package of 50) \$2⁰⁰ _____

Message Forms \$2²⁵ _____

CARF Logos (6" x 2 1/2") 4/\$1⁰⁰ _____

Check one: adhesive sticker

window decal

CARF Name Badge \$3⁰⁰ _____

Print name and call desired _____

(Ontario add 7% sales tax)

Public Service Cards

25/\$1⁰⁰ First Class Mail _____

30/\$1⁰⁰ Third Class Mail _____

Money Order or Cheque Total _____

MY CALL _____ FAMILY CALL(S) _____

NAME _____

ADDRESS _____

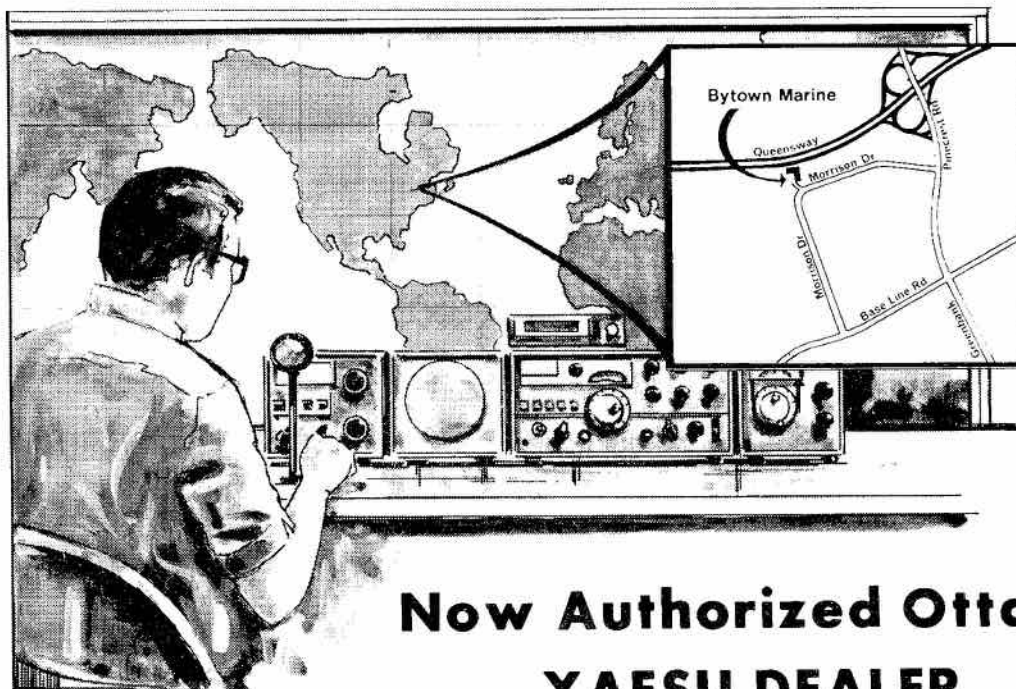
POSTAL CODE _____ DATE _____

* If renewing, Membership No. is: _____

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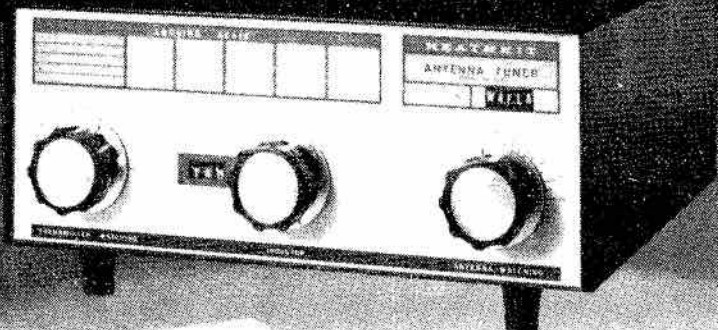
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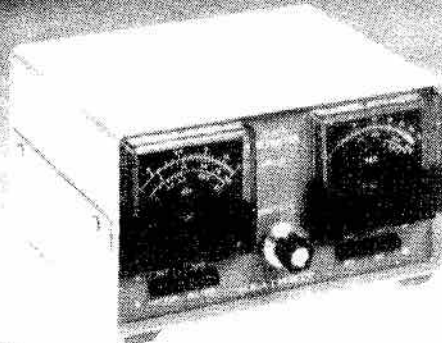
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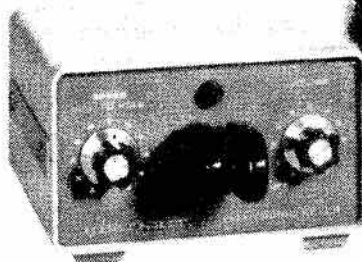
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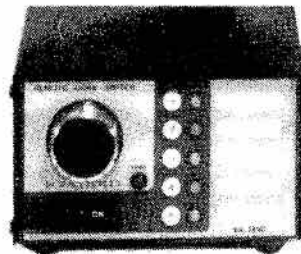
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