

Canada Post / Postes Canada
Postage paid / Port payé

Third class / Troisième classe
PICTON
23

TCA



The Canadian Amateur Radio Magazine

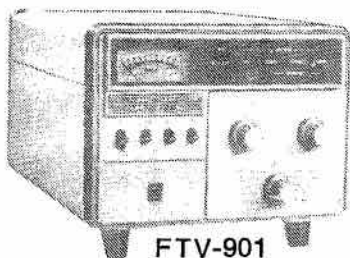
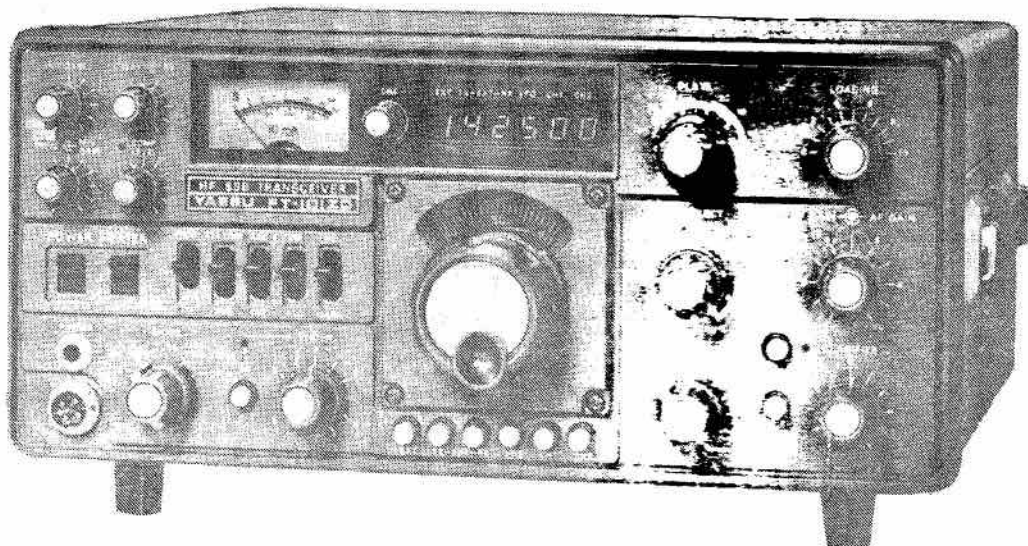
\$1⁰⁰

JULY/AUGUST 1980

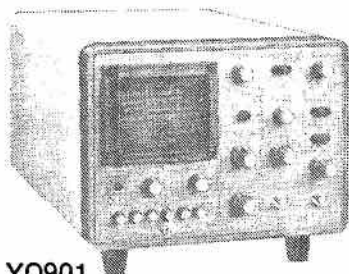
Flames in the Snow

A true life drama of an Amateur to the Rescue
in the Northwest Territories!

Plus • News • Technical Section • Contest Scene
• Computer Column • Swap Shop



FTV-901

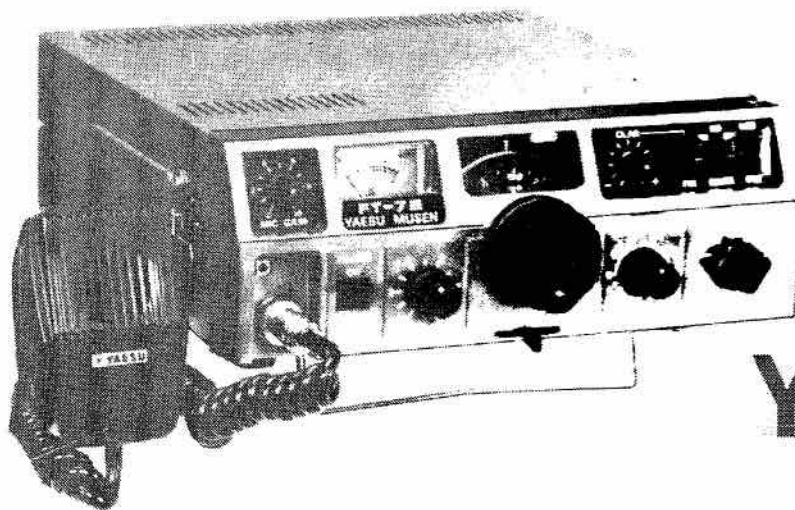


YO901
MULTISCOPE

Write for Catalogue Sheets
 c/o J.H. Williams VE3XY
 Wayne Deactis VE3JFV

C.M. PETERSON CO. LTD.

Communications Electronics Division
 Head Office C.M. Peterson Co. Ltd.
 220 Adelaide St. North. London, Ont. N6E 3H4
 519-434-3204
 Toronto Amateur Dept.: 47A Colville Road
 Toronto 15, Ont.



YAESU



THE CANADIAN AMATEUR

July/August 1980

Vol. 8 No. 7

EDITOR

Doug Burrill VE3CDC
151 Fanshaw Ave.
Ottawa, Ont. K1H 6C8
(613)-733-7108

ASSISTANT EDITOR

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

DESIGN & PRODUCTION

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

ADVERTISING

REPRESENTATIVE

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

TECHNICAL EDITOR

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

CRAG COLUMN

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

DX COLUMN

Garth Hamilton VE3EUP
P.O. Box 1156
Fonthill, Ont. L0S 1E0

CONTEST SCENE

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

COMPUTER COLUMN

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

PRINTED IN CANADA

Contents

Letters to the Editor.....	14
VE3LC receives Massey Medal.....	15
CRAG.....	16
Hamilton Symposium.....	16
Canadian Contest Scene.....	17
The eyes have it.....	18
Social Season.....	18
AMSAT-OSCAR launch fails.....	20
Editorial: Amateur Radio Standards.....	20
QTC CARF 1.....	21
Satellite TV.....	22
Amateur Radio Emergency Service.....	23
Chips & Bits.....	26
News Briefs.....	28
50 MHz Canadaward issued to VE1AVX.....	28
Flames in the Snow.....	29
AMSAT forges ahead.....	35
RF versus AF - Detente in sight?.....	36
Infosection.....	45
Swap Shop.....	45
TECHNICAL SECTION	
Good, Better, Best.....	37
Workbench Test Accessories.....	40
Switchable CW Filter for TS520S.....	41

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.

The contents of this publication are copyright and may not be reproduced without prior consent except by a bonafide Amateur organization which may reproduce them provided the source is acknowledged.

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

Indexed in the Canadian Periodical Index: ISSN 0318-1867.

COMM/PLUS

Division of 86235 Canada Ltd.

3680 Côte Vertu, St-Laurent, Québec, Canada H4R 1P8
1-514-337-7255

PLEASE ADD \$ 2.00 shipping per meter

To save C.O.D. costs include your cheque
or VISA - MASTER CHARGE number

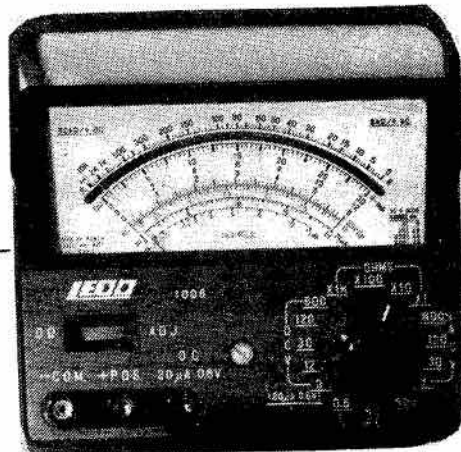
- This multimeter is designed for the following functions:
- * To measure DC voltages from 0.005 (5mV) to 1000V.
 - * To measure AC voltages from 0.05 to 1000V.
 - * To measure direct currents from 1 μ A to 500mA.
 - * To measure DC resistances from 0.5 Ω to 5M Ω .
 - * To measure audio power levels from -20 to +62dbm.

LEDO HIGH QUALITY LEDO MULTITESTER

1/3 ORIGINAL COST

14.95

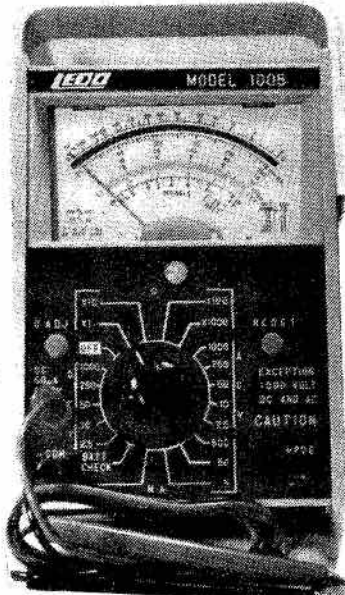
20,000 ohms
per volt D.C.



- DC Voltage:** 6 ranges; 20,000 Ω per volt
0-0.25-2.5-10-50-250-1000V
- AC Voltage:** 5 ranges; 5,000 Ω per volt
0-2.5-10-50-250-1000V
- Direct Current:** 5 ranges:
0-50 μ A
- Re** 0-1-5-50-500mA
- Resistance:** 4 ranges:
 $\times 1, \times 10, \times 100, \times 1000$ (30, 300,
3k, 30k ohms at center scale)

16.95

50,000 ohms
per volt D.C.

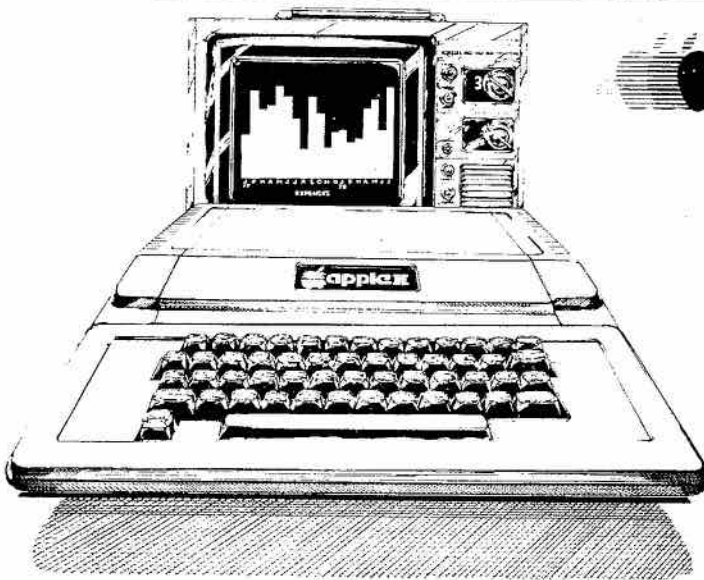


DC Voltages
50,000 ohms per volt:

24.95

20,000 ohms per volt D.C.

DC Voltage
20,000 ohms per volt:



in the Ham Shack -- POWER TO GROW

Apple is the computer for the radio Amateur. It can

- send and receive Morse and RTTY
- send and receive SSTV
- help with antenna design
- speed electronic circuit design
- control repeaters
- teach code and theory
- log contacts

and much more! Apple Starter Systems for as low as \$1695.00. Of all the personal computers, only Apple has 8 expansion connectors for your own interface designs or factory-built intelligence interfaces.

APPLE

Ham Radio Communications Package by C.H. Galfo
- Send and receive Morse and RTTY with your
Apple II.....\$27.95

SSTV Communications Package by Galfo.....	\$24.95
Bomber by Bob Bishop	14.95
The Electronic Index Card File	29.95
Craps by Roger Walker	21.95
Tic-Tac-Talker by Bill Depew	29.95
Jupiter Express by Gary Shannon	14.95
Star Warriors by Bob Bishop	18.95
Music Kaleidoscope by Bob Bishop	14.95
Golf	11.95
Bowling/Trilogy	11.95
Mortgage with Prepayment	11.95
Accounting Assistant	11.95
Mimic	11.95
Math Tutor I	11.95
Math Tutor II	11.95

PET

Target Pong	9.95
Casino I	11.95
Casino II	11.95
Trek-X	11.95
Checkers/Baccarat	11.95
Dow Jones	11.95
Tangle/Supertrap	11.95
Mimic	11.95
Penny Arcade	11.95
Arcade	11.95
Digital Clock	11.95
Dungeon of Death	11.95
Arcade I	11.95
Arcade II	11.95
Turf and Target	11.95

TRS-80 level II model I

Utility I	11.95
Utility II	11.95
Video Speed Reading Trainer	11.95
Demo II	11.95
Doodles and Displays II	11.95
Cards	11.95

Heath Data Systems H-8

Mental Gymnastics	11.95
-------------------	-------

Many other software products in stock.

MAXELL Magnetic recording products are known the world over for quality. Now your data can have the same quality working for it. 5 1/4 inch soft sector or 16 hard sector diskettes 10 for \$75.

Apple II or Apple II Plus - 16K RAM	\$1695.00
Apple II or Apple II Plus - 32K RAM	1895.00
Apple II or Apple II Plus - 48K RAM	2095.00

Disk II - Drive only	795.00
Disk II - Drive and Controller	895.00
Sanyo VM4209 - Video Monitor (B&W)	329.00
Electrohome 914 Video Monitor (B&W)	289.00
Vinyl Carrying Case	49.95
16K Memory Expansion Module	200.00
Centronics 779-2 Printer with Interface	2195.00
Centronics 779-2 Printer only	1925.00
Modem IIB with Interface	579.00
Tape Recorder	69.00
Modem IIB only (CAT Modem)	290.00
Clock Calendar Card	319.00
Graphics Tablet	1149.00

Prototyping Hobby Card	35.00
Parallel Printer Interface Card	269.00
Communications Card & DB25 Connector Cable	295.00
General Purpose Serial RS232 Serial Card	295.00
Language System with Pascal	695.00
Centronics Printer Interface Card	300.00
Applesoft II Firmware Card	275.00
Integer Card for Apple II Plus	275.00

COMPUMART

(A DIVISION OF EMILE STATE INC.)

THE PERSONAL COMPUTER STORE

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

Ottawa's first Apple dealer is always ready to help you select the microcomputer for your needs. We carry systems from several manufacturers, from \$250 to over \$6,000. Also the Godbout and SSM range of plug-in boards for S-100 and other popular computers, not to mention books and magazines, software and supplies.

VISA and MasterCard are welcome, and yes, we will ship COD with a 15% deposit.

Please send me more information on:

- Books Apple II PET/CBM
 Software Computer Supplies

Name _____ Call _____

Address _____

Postal Code _____

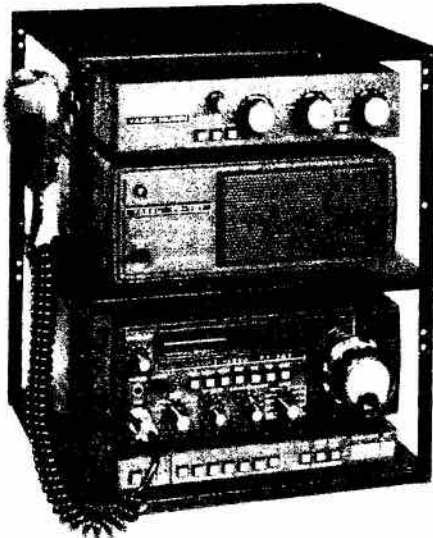
FT-707

YAESU



HF SSB TRANSCEIVER

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



NEW BANDS FACTORY INSTALLED

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

FP-707 POWER SUPPLY	\$239.00
FV-707DM DIGITAL VFO	\$439.00
FC-707 ANTENNA COUPLER	\$189.00
RACK MOUNT YOUR STATION	\$35.00
FT-707 TRANSCEIVER	\$1199.00



FT 707 \$1199.00

GENERAL

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

TRANSMITTER

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

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

RECEIVER

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

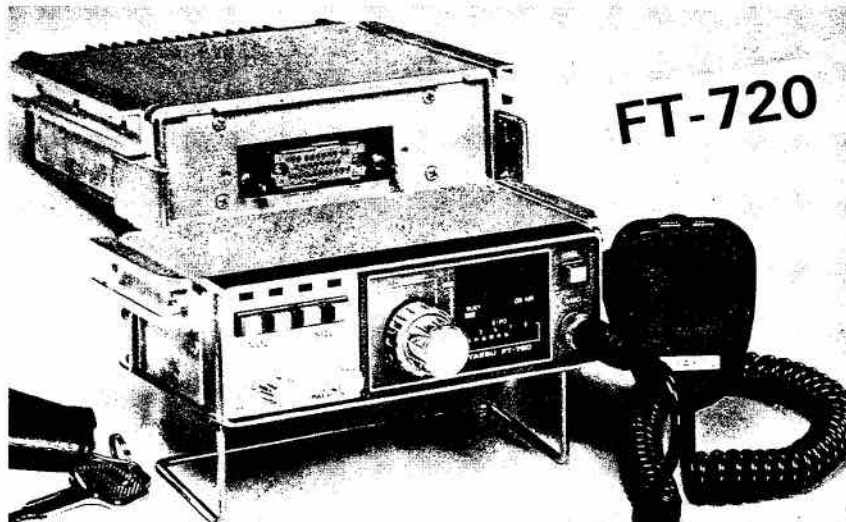
* with optional 600 Hz CW filter
** with optional 350 Hz CW filter



**AMATEUR
RADIO
SALES**

378 WILSON AVE.
DOWNSVIEW, ONT. M3H 1S9
PHONE (416) 636-3636 TELEX 065-24751

FROM  YAESU



ULTRA COMPACT VHF/UHF COMPUTERIZED FM TRANSCEIVER

Choose Your Favorite Band

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

Advanced PLL Technology

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

Scanning

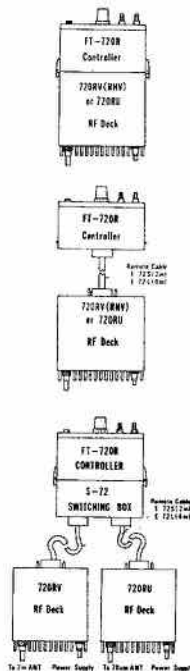
Fingertip controls on the microphone provide instant up/down scanner control. The scanner may be programmed to stop on a busy or clear channel, if you wish.

Optional Control Box

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

Five Memory Channels with Priority Feature

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



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

Specifications subject to change without notice.

PRICES

FT 720R CONTROL HEAD WITH BRACKET	\$329.00
720 RVH 2 MTR. RF DECK - 25 WATTS	\$370.00
720 RU 440 MTR. RF DECK - 10 WATTS	\$450.00
S72 SWITCH BOX	\$129.00
E72L REMOTE CABLE	\$63.00

ALL YAESU PRODUCTS
ARE AVAILABLE FROM
YOUR LOCAL
AUTHORIZED YAESU
DEALER.

DEALER ENQUIRIES INVITED

TRIBAND LTD.
IMPORTERS AND DISTRIBUTORS
OF YAESU EQUIPMENT

378 WILSON AVE.
DOWNSVIEW, ONT. M3H 1S9
PHONE (416) 636-3636 TELEX 085-24751



WRITE FOR YOUR FREE WSI RADIO JUMBO CATALOG!

WSI RADIO

SWL RADIOS—HAM RADIOS—ANTENNAS
18 SHELDON AVENUE NORTH
KITCHENER, ONTARIO N2H 3M2
Telephone (519) 579-0536



USED GEAR CLEAROUTS FOR SUMMER..BARGOONS

FREE S&H !..(1)KENWOOD R-820 RECEIVER..6 MONTHS
OLD!! @\$1399...now \$1299.00 (2)BEARCAT 220 SCANNER
@\$399.00 (3)RADIO SHACK DX-160 +SPKR @\$150.00

- (4)YAESU FT-221R 2M MULTI MODE TRANSCEIVER @\$799.00 (5)KENWOOD TS-520 +DC SUPPLY @\$899.00
- (6)ICOM IC-230 2M FM RIG..PLL...146-148 COVERAGE @\$299 (7)HAMMARLUND HQ-100 RECEIVER @\$150.00
- (8)DRAKE R-4C RECEIVER...MINT...\$899 (9)McKAY DYMEK DR22C PLL RADIO..50 KHZ-30 MHZ..MINT...\$1199
- (10)COLLINS 32S3 TWANSMITTER..MINT...+AC SUPPLY @\$999 (11)HEATH HP-13A DC POWER SUPPLY @\$79.00
- (11)DRAKE TR-4C TRANSCEIVER +MS-4 +AC-4 @\$799.00 (12)PANASONIC RF-2200 PORTABLE RADIO @\$199.00
- (13)HEATH HW-101 +AC SUPPLY + SPEAKER @\$599..LIKE NEW! (14)DRAKE SPR4 SOLID STATE RECEIVER @\$799
- (15)TEN-TEC #244 DIGITAL READOUT @\$199 (16)TEN-TEC #570 CENTURY/21 SOLID STATE TRANSCEIVER \$399
- (17)DRAKE PS3 POWER SUPPLY @13.8 VOLTS-8 AMPS @\$99.00 (18)TEN-TEC OMNI B AC SUPPLY..18 A @\$129.00

NEW STOCK @WSI PRICES

- (19)YAESU FT-207R 2M FM DIGITAL HAND HELD @\$469 +FREE S&H (20)YAESU FT-107M @\$1779 +FREE S&H
- (21)TEN-TEC CENTURY/21 CW SOLID STATE TRANSCEIVER @\$469.00 +FREE S&H VIA CN EXPRESS
- (22)TEN-TEC CENTURY/21 DIGITAL MODEL TRANSCEIVER @\$569.00 +FREE S&H VIA CN EXPRESS.....
- (23)TEN-TEC OMNI C WITH DIGITAL 9 BAND TRANSCEIVER @\$1499.00 +FREE S&H VIA CN EXPRESS.....
- (24)TEN-TEC #244 EXTERNAL DIGITAL READOUT +FREQUENCY COUNTER @\$229.00 +FREE S&H...IN STOCK.....
- (25)TEN-TEC OMNI B POWER SUPPLY.....13.8 VOLTS...18 AMPS.....METERED.....\$149 +FREE S&H.....
- (26)DRAKE TV-3300-LP 1000 WATT LOW PASS FILTERS @\$36 +\$2 S&H(27)DRAKE TV42LP..100 WATT LP FILTER @\$22 +\$2 S&H (28)DRAKE TV300HP..300 OHM HIGH PASS FILTER @\$17 +\$2 S&H (29)DRAKE TV75HP 75 OHM HIGH PASS FILTER @\$20 +\$2 S&H (30)DRAKE DC4 MOBILE SUPPLY..WASS289...NOW \$199 +\$5 S&H..IN STOCK
- (31)DRAKE DL-300 DRY DUMMY LOAD @\$36 +\$2 S&H(32)DRAKE DL-1000 DRY DUMMY LOAD @\$69 +\$2 S&H.....
- (33)DRAKE RCS-4 REMOTE COAX SWITCH...MATCHES TWINS..@\$179 +\$6 S&H(34)NEW DRAKE CS7 REMOTE COAX SWITCH..MATCHES TR7...@\$249 +\$6 S&H (35)NEW DRAKE PS75 POWER SUPPLY..ECONOMY MODEL FOR TR7..... 13.6VDC/15A CONT./25 AMPS PEAK/\$249 +\$9 S&H..IN STOCK(36)DRAKE PS7 POWER SUPPLY @\$399 +\$10 S&H...
- (37)DRAKE TR7/DR7 IN STOCK @\$2199 +\$10 S&H(38)NEW DRAKE SP75 SPEECH PROCESSOR @\$239 +\$2 S&H.....
- (39)NEW DRAKE AK75 MULTIBAND ANTENNA \$45 +\$2 S&H (40)NEW DRAKE RP-700 RECEIVER PROTECTOR \$145 +\$2 S
- (41)DRAKE TR-33C 2M MOBILE/PORTABLE TRANSCEIVER..WITH 10 NICADS..12 CHANNELS...ONE XTAL PER CHAN. \$299.00 +\$6 S&H...IN STOCK.(42)DRAKE PS-3(UV-3)POWER SUPPLY...VERY RUGGED..13.8 VDC...8 AMPS @\$129 +\$5 S&H...NO LONGER PRODUCED!(43)DRAKE MS-4 SPEAKERS(4 LEFT)@\$40 +\$2 S&H..(44)DRAKE 1525EM ENCODER MIC @\$65 +\$2 S&H...(45)DRAKE MN-2000....1 KW MATCHING NETWORK @\$349 +\$5 S&H....IN STOCK
- (46)DRAKE W4 HF WATTMETERS 5% ACCURACY...@\$109 +\$2 S&H (47)DRAKE 7077 MIC'S FOR TR7...\$65..NOW \$55 +\$2 S&H...JUST FOR SUMMER!(48)DRAKE RV4C REMOTE VFO(ONE ONLY IN SEALED CARTON)@\$279 +\$6 S&H
- (49)TELEX HEADPHONES...100 % IN STOCK...WRITE FOR CATALOG + PRICING....TELEX IN STOCK.....
- (50)SWAN SWR-1A SWR + POWER METER...1000 WATTS....\$45 +\$2 S&H..(51)BALANCE OF SWAN STOCK BEING SOLD @ 20 % OFF DURING SUMMER MONTHS!(52) HY-GAIN BN-86 BALUN @\$23 +\$2 S&H (53)MFJ CWF2BX CW FILTER @\$45 +\$2 S&H (54)MFJ SSB FILTER SBF-2BX @\$45 +\$2 S&H (55)MFJ LSP-520 BX 11 SPEECH PROCESSOR @\$90 +\$2 S&H..IN STOCK (56)MFJ 941 ANTENNA TUNER @\$119 +\$2 S&H (57)MFJ 721 SUPER SSB/CW FILTER @\$90 +\$2 S&H (58)B&W AIR INDUCTORS IN STOCK 100% (59)PALOMAR ENGINEERS RX NOISE BRIDGE @\$85 +\$2 S&H (60)PALOMAR ENGINEERS IC KEYS @\$149 +\$3 S&H (61)PALOMAR ENGINEERS ANTENNA TUNER...160-10M..BUILT IN NOISE BRIDGE...2000 WATTS CONTINUOUS @\$449.00 +\$7 S&H (62)W2AU BALUNS 1:1 OR 4:1 @\$22 +\$2 S&H..(63)VIBROPLEX "ORIGINAL"DELUX KEYS @\$99 +FREE S&H (64)VIBROPLEX "LIGHTNING BUG" @\$99 +FREE S&H(DELUXE) (65)VIBROPLEX "VIBRO-KEYER DELUXE" @\$99 +FREE S&H.....
- (66)NYE HAND KEYS 100% IN STOCK...NYE #114-330-001 MASTER KEY @\$35 +\$2 S&H IN STOCK ALSO!
- (67)McKAY DYMEK PROFESSIONAL PLL RECEIVER 50 KHZ-30 MHZ @\$2479.00 +\$15 S&H...IN STOCK.....
- (68)HY-GAIN LA-2 #577 LIGHTENING ARRESTOR ..52 ohm..no insertion loss....\$12 +\$1 S&H.....
- (69)BARKER & WILLIAMSON COAX SWITCHES..100 % IN STOCK...(70)1980 CALLBOOKS..US @\$20 +\$2 S&H DX @\$19 +\$2 S&H...BOTH @\$40 +FREE S&H (71)CALLBOOK MAP LIBRARY SETS @\$5.50 +FREE S&H..IN STOCK

IN SEPTEMBER 1980....WSI RADIO ENTERS OUR 5TH YEAR OF OPERATION.....THANKS GUYS!

DYNAMITE.



the new
**ICOM IC-2A
SYNTHESIZED 2
METER HANDIE
TALKIE**

FEATURES YOU'VE WANTED

- 800 T/R Channels. Synthesized.
- 1.5 Watt Output High/Low Power Battery Saving Switch to .15 Watt.
- Separate built in Speaker & Mic. Excellent audio quality.
- Compact. About the size of a dollar bill.
- Variable size Nicad Power Pack, 3 sizes available to suit your needs. (250 MA standard). Makes the IC-2A the most compact synthesized HT on the market.
- ICOM level Receiver Performance-ICOM Quality Receiver in a compact package (.2uv/ 20db typical)
- Optional Tone Pad, Desk Charger, Speaker/Mic available.
- With slip on/slip off Bottom NiCd Pack, you can vary the size of the HT from about 116 mm high to 175 mm high. Easy to carry extra Snap-on packs with you for extended trips.

*see your nearest ICOM dealer,
or contact us:*

 **ICOM** Canada

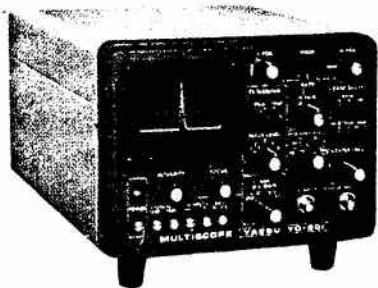
P.O. BOX 58236, VANCOUVER, B.C.
V6P 6E3 (604) 321-1833 TELEX 04-54315

WACKID RADIO

312 Parkdale Ave. Ottawa,

613-728-1821

MONDAY TO WEDNESDAY 8:30 A.M. TO 5:30 P.M.,
THURSDAY & FRIDAY 8:30 A.M. TO 9:00 P.M.,
SATURDAY 8:30 A.M. TO 5:00 P.M.



YO-901
MULTISCOPE



YAESU FT-207R
Synthesized
Handie-Talkie

YAESU



Unsurpassed monitoring capability is yours with the YO-901 Multiscope. Featuring a high performance oscilloscope, useful for countless station adjustments, the YO-901 also includes a two-tone generator, as well as an optional band scope for instant determination of band conditions and activity.

Narrow-band IF signal observation is not possible with the FT-101ZD and YO-901.



YAESU

FT-901DM

COMPETITION-GRADE HF TRANSCEIVER



HF CLEARANCE SALE

BIG SAVINGS!!!



ATLAS RX-110 & TX-110

RX-110 RECEIVER

- Frequency Coverage: 3500-4000 kHz, 7000-7500 kHz, 14,000-14,500 kHz, 21,000-21,500 kHz, 28,000-29,000 kHz.
- All Solid State, High Performance Design. Excellent Sensitivity, Selectivity, and Dynamic Range. Superior to Most Receivers currently on the market.
- Receives CW and normal SSB. Lower Sideband on 3.5 and 7 MHz bands. Upper Sideband on 14, 21, and 28 MHz bands.
- Built-in AC supply and loud speaker.

A REAL BREAKTHROUGH IN VERSATILE LOW COST AMATEUR EQUIPMENT!

SALE PRICES:

TX-110 TRANSMITTER

- Provides CW and SSB communications
- All solid state
- Full band coverage on 15 through 80 meters, 28 to 29 MHz on 10 meters

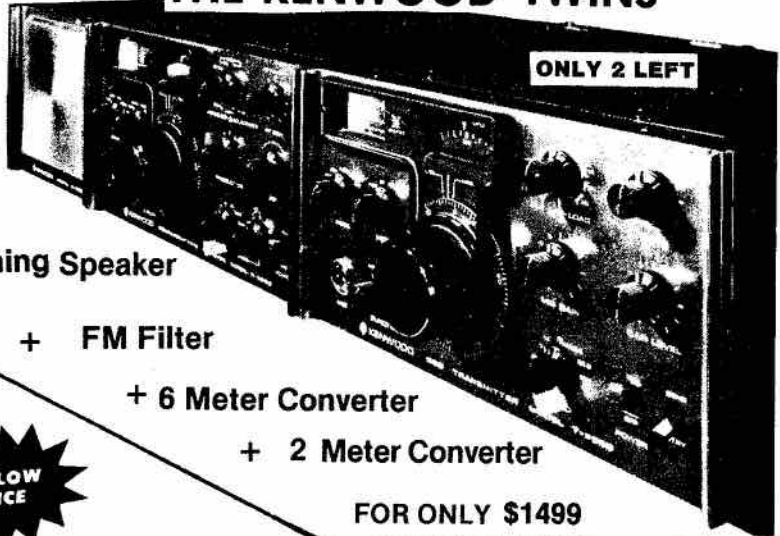
RX-110 \$279
 TX-110-H \$299
 PS-110 \$139

SUPPLIES ARE LIMITED.

FANTASTIC SAVINGS

ON THIS COMPLETE STATION.

THE KENWOOD TWINS



THE TWINS

+ Matching Speaker

R-599 RECEIVER

+ MATCHING SPKR
\$679

ONLY 3 LEFT

+ FM Filter

+ 6 Meter Converter

+ 2 Meter Converter



FOR ONLY \$1499

(regular value \$1911.) **SAVE \$412**



100MX SSB Transceiver



ALL SOLID STATE
 235 WATTS PEP & CW
 NOISE BLANKER
 VOX
 R.I.T.
 25 KHz CALIBRATOR
 INTERNAL SPEAKER

ONLY 1 LEFT

SAVE \$90

\$899⁰⁰

MATCHING POWER SUPPLY \$209

WAS \$249

SAVE \$40



GLENWOOD TRADING COMPANY LTD. ORDER DESK

278 East 1st St., North Vancouver, B.C. V7L 1B3

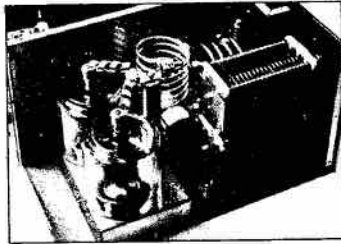
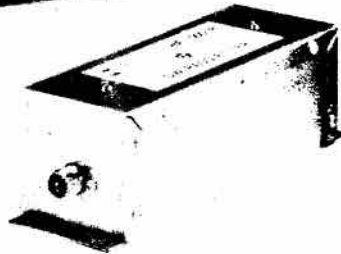
(604) 984-0405



HL-2000A. LINEAR AMPLIFIER

Hammond POWER BAR

HF-1000LP LOW PASS FILTER



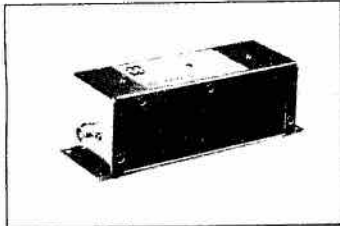
HL-2000A LINEAR AMPLIFIER

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.

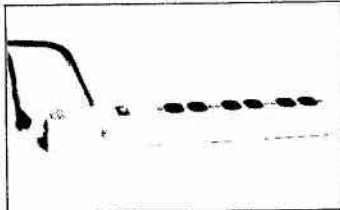


HF-1000LP LOW PASS FILTER

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:
HAMMOND COMMUNICATIONS DIVISION
394 Edinburgh Rd. N. Guelph, Ontario N1H 1E5



Please send further information:

- HF-1000LP LOW PASS FILTER
- HL-2000A LINEAR AMPLIFIER
- Hammond POWER BAR

Name

Street

City

Prov.

Code

IN SEPTEMBER HAM RADIO ATLANTIC (HRA) WILL BE ONE YEAR OLD..... OUR ANTICIPATED SALES FOR 1980 ARE IN EXCESS OF 1/4 MILLION, AND IT SEEMS THAT'S CUTTING INTO SOME OF THE OTHER DEALERS. IT'S A SHAME THAT ONE OR MORE OF THESE DEALERS NOW ATTEMPT TO DISCREDIT HRA. ONE THING IS FOR SURE - HRA IS HERE TO STAY - AND TO CONTINUE TO GIVE THE BEST VALUE FOR THE LOWEST PRICES.....

COME AND SEE US AT HAM CEILIDH 80 ON THE LABOUR DAY WEEKEND IN SYDNEY. HRA WILL BE THERE WITH OVER \$40,000 IN STOCK TO OFFER THE BIGGEST BARGAINS EVER. WE WILL ALSO BE AT THE BIGGEST HAM-FEST OF THE YEAR - THE RSO CONVENTION IN TORONTO - IN OCTOBER...

HAM RADIO ATLANTIC

HOURS: MON-FRI 6-11
SATURDAY 11-6
SUNDAY 1-5
ATLANTIC TIME

MIN \$50

P.O. Box 755
Saint John, N.B.
Canada E2L 4B3
(506) 652-5753



SST A-1 VHF AMPLIFIER KIT

14 watts input gives you 15 watts output across the entire 2 meter band without retuning. This easy-to-build kit (approx. 1/4 hr. assembly) includes everything you need for a complete amplifier. Short and open protected - not damaged by high SWR.

Kit includes:

- Etched and drilled 6-10 epoxy solder plated board.
- Heat sink and mounting hardware. All components - including coils.
- Top quality TRW RF power transistor.
- Complete assembly instructions with details on a carrier operated T/R switch (parts kit available).

COMPLETE PARTS KIT INCLUDING T/R SWITCH \$55 insured shipping \$2.50
FULLY ASSEMBLED \$75 shipping \$3



YAESU

Call now

FT-707 Hand-held Transceiver

Dial for your discount!



FT-707

NOW IN STOCK!

TRIONYX INC.

2 METER TELESCOPING ANTENNA

with BNC with PL259

- 3dB GAIN OR BETTER OVER ANY RUBBER DUCKIE



NEW! Bearcat 300

The Ultimate Synthesized Scanner!
LIST \$799.95 HRA \$649.00

300, 250, 220 IN STOCK!!!

4-Band, 50 Channel • Service Search • No-crystal scanner • AM Aircraft and Public Service Bands. • Priority Channel • AC/DC Bands: 32-50, 110-136 AM, 144-174, 420-512 MHz. The new Bearcat 300 is the most advanced automatic scanning radio that has ever been offered to the public. The Bearcat 300 uses a bright green fluorescent digital display, so it's ideal for mobile applications. The Bearcat 300 now has these added features: Service Search, Display Intensity Control, Hold Search and Resume Search keys, Separate Band keys to permit lock-in/lock-out of any band for more efficient service search.

Bearcat 250

LIST \$629.95 HRA \$475.00

60 Channels • Crystals • Searches • Retrans • Recall • Digital clock • AC/DC Priority Channel • 3-Band • Count Feature. Frequency range 32-50, 144-174, 420-512 MHz. The Bearcat 250 performs any scanning function you could possibly want. With push button ease you can program up to 69 channels for automatic monitoring.

Bearcat 220

LIST \$629.95 HRA \$475.00

Aircraft and public service monitor. Frequency range 32-50, 110-136 AM, 144-174, 420-512 MHz. The Bearcat 220 is one scanner which can monitor all public service bands plus the exciting AM aircraft band channels. Up to twenty frequencies may be scanned at the same time.

Kantronics' state-of-the-art Signal Enforcer® introduces quality and versatility to variable-frequency/variable-bandwidth dual filtering

Specifications

Filtering: two identical filters, both providing peak and notch capabilities. Both filters are independently variable in frequency and bandwidth. **Modes:** The filters may be operated in parallel or cascade modes. Regardless of mode, both filters can peak or notch. **Bandwidth:** continuously variable from less than 30 Hz to over 1000 Hz. Once set, bandwidth remains constant regardless of frequency changes. **Frequency Range:** from less than 150 Hz to over 3000 Hz. **Audio Power Output:** 2 Watts maximum - variable through volume control. **Power Requirements:** 115 VAC or 230 VAC at 50 to 60 Hz or external 12-18 VDC source. **Inputs:** signal input, external DC input. **Outputs:** external speaker, external headphones, demodulator output. **Indicators:** Power, one tuning eye for each filter. **Size:** 2 1/2" by 8" by 6".



Kantronics
INTRODUCTORY PRICE
\$259.00

7010/7010.1
600 MHz
9 DIGITS



8010/8010.1
1 GHz
9 DIGITS



K-7000
550 MHz



MICROCOMPUTER CONTROLLED

2 METER FM TRANSCEIVER
25 watts
3 BAND SCAN & 6 HENDRY SCAN

NEW LOWER PRICE

PRICE TOO LOW TO PRINT

Dial for your discount!



NEW CLOSEOUTS, OVERSTOCK & DEMOS. (ALL IN FACTORY CARTONS)

YAESU
FT202R 2M 6ch Handie SPECIAL \$199.99; FT207R 2M Synthesized Handie SPECIAL \$ CALL;
8 Nicads G.E. for 202 SPECIAL \$ 19.99; NC1 charger for 202 SPECIAL \$39.99; PA1 DC-DC Adaptor for 202 SPECIAL \$39.99; FT227RB "Memorizer" SPECIAL \$499.99; CPU2500RK Demo with keyboard mike \$599.99; YD901P Multiscope with bandwidth option SPECIAL \$599.99; FV9010M Scanning memory VFO for 101ZD & 901 SPECIAL \$479.99; SP901P speaker patch - SPECIAL \$94.99; FV101Z VFO for 101Z(D) & 901 SPECIAL \$259.99; YS200 Meter SPECIAL \$119 M.F.J.

SF22BX SSB filter SPECIAL \$27.99; CW22BX CW filter SPECIAL \$27.99; 721 CW & SSB filter SPECIAL \$79.99; 10308X Receiver preselector SPECIAL \$68.99; LSP5208X II Speech processor SPECIAL \$79.99; 402 Econo keyer with built in paddle SPECIAL \$59.99 400 Full feature economy keyer SPECIAL \$66.99; 943 antenna tuner 300W SPECIAL \$79.99 901 antenna tuner 200W SPECIAL \$66.99; 16010 antenna tuner 200W SPECIAL \$39.99..... S.S.T.

T-1 tuner SPECIAL \$36.99; T-2 tuner SPECIAL \$46.99; T-6 tuner SPECIAL \$69.99; NEW AS-1 antenna switch 1000W 3 antennas SPECIAL \$16.99

NYE VIKING KEYS NYE Phone patch SPECIAL \$55; with speaker SPECIAL \$65
114-310-1 SPECIAL \$10.99; 114-312-2 SPECIAL \$12.99; 114-320-1 SPECIAL \$13.99
114-322-1 SPECIAL \$13.99; SSK-1-K IAMBIC KEYS SPECIAL \$139.99

VIBROPLEX - Original Standard SPECIAL \$67.99; Champion SPECIAL \$63.99
CODE OSCILLATORS- NYE with standard key SPECIAL \$27; KANTRONICS c/w key&tape \$29.
SWAN PEP & RMS Meter WM2000A SPECIAL \$139.99; DT3 antenna tuner SPECIAL \$289.99.
LARSEN TRUNK LIP MOUNT 2m 5/8 wave antenna complete SPECIAL \$34.99 incl SHIPPING.
1980 ARRL HANDBOOK SPECIAL \$9.99 SHIPPING Postal code A-N \$1.50, O-Z \$2.50.
TEMPO 3DA02 or 530 2M amplifier 1-5 in, 25-35 out SPECIAL \$129.99
KENWOOD TR7625 2M synthesized transceiver 25 Watts was \$699 SPECIAL \$549.99
YAESU YD844 high impedance mike 50k ohms SUPER SPECIAL \$39.99
J.W.MILLER Audio filter C506R for speaker lines SPECIAL \$6.99; C505R for audio input (tape or record player lines) SPECIAL \$4.99.
C.D.E. 100amp alternator & generator noise filter SUPER SPECIAL \$3.99 SHIPPED..

ALL OF THE ABOVE ARE IN LIMITED SUPPLY. ONCE SOLD YOUR CHEQUE WILL BE RETURNED. NO BACKORDERS CAN BE HELD AT THESE PRICES. ALL ORDERS MUST BE PREPAID BY CHEQUE. REGULAR SHIPPING CHARGES APPLY UNLESS SHIPPING INCLUDED - 2% Minimum \$2.50.

SUMMER SALE

MODEL	GATE TIMES	RESOLUTION	TCXO TIME BASE
7000	(2) 1.1 SEC	12 MHz 10 Hz	60 MHz 10 Hz MAX FREQ 550 MHz 1.6 PPM FREQ.
7010 7010.1	(3) 1.1 SEC	(1)0	1 Hz 10 Hz 800 MHz 1 PPM 0.1 PPM
8010 8010.1	(8) 0.20 SEC	1 Hz	1 Hz 10 Hz 1 GHz 0.1 PPM 0.1 PPM

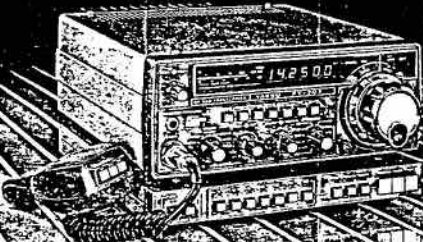
MODEL	RANGE 100 Hz to	LED DIGITS	SENSITIVITY			M-Z INPUT 10Hz - 80 MHz
			50 OHM INPUT	200-450 MHz	400 MHz-10Hz	
7000	550 MHz	7	5-20 mV	10-30 mV	20-50 mV to 500 kHz	1-10 mV
7010 7010.1	600 MHz	9	1-10 mV	1-10 mV	1-10 mV to 600 MHz	1-10 mV
8010 8010.1	1 GHz	9	1-10 mV	1-10 mV	1-10 mV	1-10 mV

7000 KIT \$149; 7000 ASSEMBLED \$199
7010A \$299; 7010.1A \$399
8010A \$599; 8010.1A \$675
OPTOELECTRONICS, INC.

Now in stock! CALL FOR PRICES... SAVE!!!

FT-707

HF SSB TRANSCEIVER

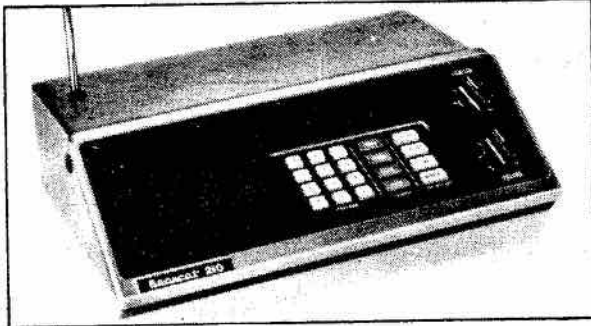




Kenwood Transceiver
 TS-820S 160 thru 10M
 Reg. \$1695.00 Special \$1449.00



MIDLAND MODEL
 13-510
 Reg. \$699.00
 Special \$549.00



Bearcat®

**PROGRAMMABLE
 SCANNERS**

- #210 Regular \$439
Special \$329.
- #220 Regular \$599
Special \$439.

KENWOOD SPECIALS

- TS 120S \$939.
- TR 7625 \$609.
- TR 2400 \$499.
- TR 9000 \$749.

CDE ROTORS

- CD-45 \$185.
- Big Talk \$129.
- Ham III \$189.
- Ham IV \$239.
- Tail Twister \$325.

Purchase any H.F. Beam and receive Hy-Gain TH3Jr, CDE Big Talk Rotor, 150 ft. cable, Delhi DME-44 Tower for \$529.

Write for special package deals on antennas!

Opto 7000 Counter 10 Hz to 550 MHz with pwr supply \$139.
 wired \$199.

Delhi DMX-HD-48 \$345.

MOSLEY

- TA33 Jr. \$249
- TA33 319
- CL-33 \$369.
- CL-36 \$439.
- MPK-3 pwr kit for TA33Jr \$85.
- RV4C 10-40m vertical \$98.
- RV8C 80m adapter \$59.
- DI-2 2m groundplane \$39.
- MM-144 mobile c/w trunk mount, coax, etc. \$47.50

CUSHCRAFT

- ATB-34 \$369.
- A-14-3 3el 14MHz Yagi \$199.
- A-28-4 4el 10MHz Yagi 112.50
- A-147-2m 4el Yagi \$34.95
- A-147-11 2m 11el Yagi \$52.95
- ARX-2 Ringo Ranger \$53.95
- A-147-22 PowerPak 2m \$129.
- ATV-5 80-10m vertical \$149.95
- Unadilla KW-40 all band trap antenna with wire etc. \$42.50

HY GAIN

- TH3 JR \$225.
- TH3 Mk3 \$345.
- TH5DXX \$395.
- TH6DXX \$449.
- 204BA \$339.

YAESU

- FT207R Hand-held \$449.

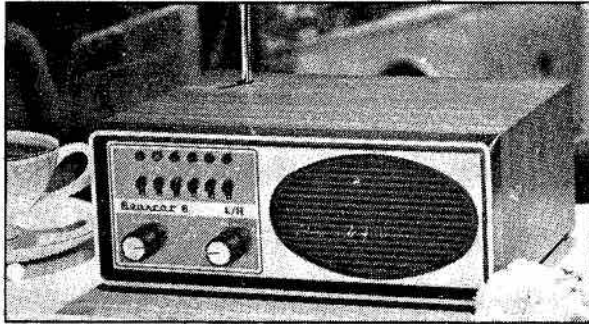
H.C. MacFarlane Electronics Ltd.

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

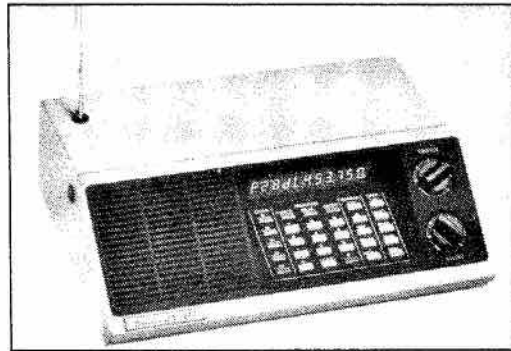
YOUR ONE-STOP HAM SHOP

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





Bearcat®



The Bearcat scanners you see here represent just about the broadest range available. Whether you want economy or the ultimate quality in a scanner, Bearcat has it. Basic features include track tuning, single antenna, single manual scan switch, light emitting diodes, decimal display. Specific model features will

SCANNING MADE EASY.

help you choose the Bearcat you want. But no matter which model you select, you've made the right choice with a Bearcat scanner.

A.C. Simmonds & Sons Limited



YEARS OF PROGRESS

975 Dillingham Road • Pickering • Ontario L1W 3B2 • Phone (416) 839-8041 • Telex 06-981383

Glenwood Trading Co. Ltd.
278 East 1st Street
North Vancouver, B.C.
V7L 1B3

Les Services V.E. Inc.
1375 Charest Blvd., E., Suite 9,
Quebec, Quebec.
G1K 7W9

Hamtraders Inc.
45 Brisbane Road, Unit 18,
Downsview, Ontario.
M3J 2K1

Payette Radio Ltd.
730 St. Jacques Street, West
Montreal, Quebec.
H3C 1G2

H.C. McFarlane Electronics Ltd.
R.R. No. 2,
Battersea, Ontario.
K0H 1H0

Electronic Wholesalers Co. Ltd.
1935 Church Ave.
Montreal, Quebec.
H4E 1H2

LETTERS:

VE7BTG REPLIES ON SWR

I read with interest Dr. J.S. Belrose's (VE2CV) letter printed in the May issue of TCA in which he discusses my earlier article, 'How Important Is Your SWR?'.

The main points of my article were firstly to point out how standing waves are produced in a mismatched system, and secondly how the effects of standing waves on the radiated signal are manifested at the receiving site. The conclusion is that, in the overwhelming majority of installations, the extra losses produced by operating a mismatched system are totally insignificant.

It is true that the reflected power can approach the total power generated by the source, if the mismatch is severe. A directional wattmeter would show this large reflected power, but would indicate a forward or incident power **greater** than the source alone is able to produce. This is because the incident power travelling toward the antenna is comprised of **both** the source energy and that which is 're-reflected' by the matching device connected to the transmitter. The load (antenna) will therefore absorb and radiate the net difference between the incident and reflected power, namely the power produced by the source less these insignificant I^2R losses.

There are occasions when one may wish to limit the SWR in a system. The problem Dr. Belrose mentioned of certain rigs reducing their power output depending on the mismatch is due to the output transistor seeing a complex impedance, other than that for which it was designed. In such cases, power limiting is employed to prevent

these transistors from drawing large currents.

Having a ferrite core balun in a mismatched system may also cause problems if the mismatch is extremely severe, using close to the legal power limit, due to the high voltage stress produced. It should be noted that, in many cases, using a balun can result in an artificially low SWR reading due to the core being saturated. Further incident power merely heats the balun. The true antenna impedance will not now appear at the balun input.

One common reason given for limiting the SWR is the reluctance to use RG-8/U, heliax or better coax. It should be realized that, unless the operator is trying to ram a few kilowatts down an extremely long transmission system at very high SWR, RG-58/U and RG-59/U are perfectly adequate from the point of view of power capacity and voltage breakdown level, and the extra losses are insignificant.

Many Amateurs will nevertheless spend hard-earned cash upgrading unnecessarily to RG-8/U.

My rule of thumb has always been "if you can load into the system, don't worry about losses". Hopefully, my article showed why this is true.

Ralph Zbarsky VE7BTG
Vancouver, B.C.

VISUAL EAR

This refers to the article 'Visual Ear for the Deaf' which appeared in the April 1980 issue of TCA. I would like to take this opportunity to add some more recent information on the unit.

Design changes by the manufacturer limits its use to 60 wpm Baudot which makes it

compatible with the existing TTY network used by the deaf, but not compatible with the higher speeds, nor ASCII for use with computers.

The Federal Government funded the development work by BNR and Northern Telecom in manufacturing the unit, so you can see a high Canadian content objective has been achieved.

The telephone industry has aided in the introduction of the unit and it will be made available as a telecommunication aid to the deaf and hard of hearing public through the telephone companies across Canada at no financial profit to them. The cost will be \$375 less Federal Sales Tax for those with the necessary medical certification of the need.

R.W. Wilson VE3WI
Standards Engineer
Canadian Telecommunications
Carriers Association

DX QSL-ING

I read VE3EUP's article on DX QSL-ing with great interest. As a reasonably rare DX station, I would like to add or amplify on a few comments he made.

1. **Never** use anything by a 9x14 centimeter card. (5½x3½ inches).

2. Use only UTC time on your cards. It is surprising how many Amateurs use local time and expect the DX station or his manager to figure out the time conversion so the contact can be verified in the log.

3. Always include a self-addressed envelope. (When you are living in the bush, you don't stroll down to your corner stationery store for envelopes.)

4. Include the correct amount of International Reply Coupons as listed for the subject country in the 'Callbook'.

5. The internationally accepted format for layout of QSL cards is: Call sign of station worked, date, time (in UTC), frequency or band, mode, RST, followed by any other data you wish to add. When the DX station is filling out 100-200 cards per evening, the standard format saves a reasonable amount of time. I have received cards which have no place to indicate the date. It is also interesting to note the volume of cards that are laid out correctly, but the Amateurs sending them have no idea of what to put where. Typical errors are filling in their call sign where the DX call should appear, not indicating the mode and, worst of all, using a non-standard method of showing the date, e.g. 3-5-79 when they mean 5-3-79. (Except for the U.S., everyone else in the world uses day, month and year; the Americans use month, day and year.). The best method is to write in the name of the month or use a Roman numeral for it.

Anyway, I have no doubt that by following the above few suggestions you will increase your QSL returns.

Rob Bareham
VE3ACY/5Z4YW

SEARCHING FOR GEAR

Some years ago I purchased some RCAF surplus gear; an AT-12 transmitter, an ATR-11 transceiver and other bits and pieces. I never was very successful in getting the gear to work 100% but liked having it around, mainly because I had served in the RCAF. Due to some unfortunate circumstances, I lost all this gear when I was located in Sudbury around 1968. I tried to locate it, but it was hopeless.

I would still like to locate either (or both) an AT-12 or ATR-11 in near-mint condition. I would also like to locate a good 19 set. If you can help with any suggestions it would be apprec-

iated; swap shops and other Amateurs just haven't got the interest in this sort of gear now.

J.A. MacKinnon VE1IAX
Box 295
Mulgrave, N.S. B0E 2G0

VE3FXT

Did anyone ever get a QSL card from VE3FXT portable whatever? A lot of Amateurs may be interested.

Several years ago, George Collins operated from various small countries in South Africa.

He made numerous contacts on different bands but, to my knowledge, no one ever received a QSL card.

George VE3FXT is now in South East Asia. Will the same type of operation take place? Let's hope not.

Bruce Balla VE2QO
Dorval, P.Q.

All who got cards from George, please raise your right hand ... or better still, put a pen in it and let's have an answer for Bruce, c/o CARF.



Dr. Maurice Hall Haycock VE3LC, left, received the 1980 Massey Medal of the Royal Canadian Geographical Society from

Governor-General Schreyer. The medal honours his contribution to Canadian historical and cultural geography.

VE3LC receives Massey Medal

A well-known Amateur, 'Doc' Haycock VE3LC was recently presented the Canadian Geographical Society's Massey Medal by Governor-General Schreyer.

Doc, who as a professional geologist comes honestly by his

nickname, has made significant contributions to our nuclear industry and is widely known as a painter and photographer of our northland. On top of all that, Doc founded the Ottawa Youth Symphony Orchestra.



Canadian
Repeater
Advisory Group

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

What is the Canadian Repeater Advisory Group?

About seven years ago, when it became apparent that repeater activity was going to become a rather complicated exercise in frequency co-ordination, CRAG was proposed and sponsored by your Federation as a clearing house for repeater information and as an instrument to promote the establishment of repeater councils across Canada, whose prime purpose was the allocation of repeater frequencies.

In the earlier days, when crystal control was the order of the day, CRAG proposed and publicized a six-channel two-metre band plan for Canada and encouraged the formation of

councils. In the tradition of our relations between our regulatory body, DOC, and the Amateur world, these groups have voluntarily set up the machinery for agreement on frequencies and the solution of interference problems which arose with the proliferation of repeaters, rather than have their operations and frequencies made a matter of regulation. Since 1975 the number of repeaters has doubled, from about 150 to 300, but the existence of councils has meant that problems concerning frequencies have been few and usually quickly solved.

CRAG, through its coordinator Hugh Lines VE3DWL, keeps

a computer listing of repeaters and, through the publishing and distribution facilities of the Federation, provides a means of keeping up to date on repeater progress in Canada.

NOTE:

VE1HI Charlottetown unfortunately did not appear in our CRAG Directory, but it's alive and well on 146.34/146.94.

NOTE:

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

Japanese Agreement?

DOC is currently working on an arrangement with the Japanese administration which will enable reciprocal operating privileges by Canadian and Japanese operators. Due to Japanese regulations, however, Canadians will only be able to operate club stations; Japanese operators, working under the more liberal Canadian regulations, will probably be able to operate on their own in Canada, according to DOC.

This is hardly a reciprocal arrangement when one considers the restrictions on Canadians operating in Japan ... and with hundreds of thousands of Japanese Amateurs and thousands of visitors each year vis-a-vis 20,000 Canadian Amateurs, few of whom ever travel to Japan, just who is going to benefit from this 'reciprocal' arrangement?

1981 EXAM SKED

The 1981 Amateur exams will be held on February 4, April 15, June 17 and October 21. The next and last exam for this year will be on October 15.

Hamilton Symposium

Despite stiff competition from the long weekend and the Rochester Hamfest, some 23 well-qualified Amateurs and DOC officials passed May 17 in day-long discussions on the post-WARC environment for Amateur Radio at the 1980 CARF

National Amateur Radio Symposium in Hamilton. Representatives from the East and West Coasts attended, as well as those from Central Canada.

The symposium workshops recommended that the new 10 MHz assignment under the WARC 79 agreements should be CW only for the initial period at least. They also suggest that no sub-allocations be made in the regulations for the new bands 10, 18 and 24 MHz but that (as is done in most other countries) 'gentlemen's agreements' decide what modes would be used in what segments of the new allocations. Special endorsements for ATV should not be required for Advanced Amateurs and SSTV should be permitted in all bands.

The symposium endorsed the concept of allowing any mode of transmission on Amateur bands with bandwidth limitations, rather than modes, being regulated.

Type approval in Kenya

From Kenya, a CARF foreign correspondent reports that the government has started a move that the Radio Society of Kenya believes to be the first step toward eliminating Amateur radio in that country. By June 1, all Amateur gear in the country must be what is termed 'type-approved'. The fee for this so-called type approval is \$150 U.S. for each transmitter. If any modifications are made the equipment must go through the approval process again.

CONTEST CALENDAR

July 12-13 IARU Radiosport
20 Worked All Britain LF CW
Aug 2-3 ARRL UHF
9-10 European DX Contest
CW
16 SARTG WW RTTY
23-24 All Asian CW
Sept 13-14 European DX Contest
Phone
13-14 CAN-AM Phone
13-14 ARRL VHF
14 North American Sprint
27-28 CAN-AM CW

It appears the level of dissatisfaction with the new rules of the ARRL DX contests is quite high. Not only U.S.A. Amateurs, but DX and Canadians have had little complementary to say. The feeling is that the CQ-magazine-style contests are nice, but four is quite enough. A change back to the old rules seems likely for 1981, and there are indications that this might be our chance to be considered DX, just like Mexico, the Caribbean, Bermuda and Sable Is. For Canadians, this would mean being able to run Ws, roll up high scores, and perhaps win the contest.

As many of you know, participation from this country in the ARRL DX contests has been pretty poor. Many of us get discouraged competing with some of the BIG W stations considering the relatively poor propagation of a higher latitude. The change would be welcome to many and, if you are interested in this change, NOW is the time to write your letter to the ARRL Contests committee. If things are going to change anyway, we should try to do what we can to change things to our benefit. If enough response is evoked, the committee may be disposed to make us DX at least.

On a note more relevant to CARF, the Federation will be sponsoring a Phone version of the popular Commonwealth Contest on 21-22 March 1981.

IARU RADIOSPORT

Period: 0000z July 12 to 2400z July 13 1981. Bands: 160 thru 2 metres.

Classes: Single operator: CW only, SSB only, mixed. (max 36 hrs. op.) Multi/Single: mixed only. Exchange: RS(T) plus ITU Zone number.

Points: 1 pt./QSO with your own zone, 3 pt./QSO with other N.A. zones, 5 pt./QSO with zones on other continents. Multipliers: total of zones worked on each band added together.

Entries: Should be on official logsheets and entry forms, or a reasonable facsimile. Entries with more than 200 QSOs must include dupe sheets. Entries must be postmarked not later than 25 August and sent to IARU, Box AAA, Newington, Conn., 06111, USA.

WAB LF CW

Period: 0900z to 2200z July 20 1980. Bands: CW only on 160, 80 and 40 metres.

Classes: Single or multi-op, single or multi-band, with a special section for mobile stations. A maximum of 12 of the 13 hours of the contest period are available to all stations. Exchange: RST plus serial number. UK stations will add WAB area and county.

Points: 5 pt./QSO, each station may be worked once per band. Multipliers: each WAB area, county and UK prefix area (i.e. G, GJ, etc.) worked on each band, then added together.

Entries: postmarked not later than 20 August and sent to R.L. Senter G4BFY, 27 Station Rd.,

Thurnby, Leicester LE7 9Pw, U.K.

EUROPEAN DX CONTESTS

Period: 0000z Aug. 9 to 2400z Aug. 10 1980 CW. 0000z Sept. 13 to 2400z Sept. 14 1980 SSB.

Bands: 3.5 thru 28 MHz bands. Classes: Single or multi-op., all band only. Single op station are permitted a max. 36 hrs. Exchange: RS(T) plus serial number.

Points: work only Europeans. 1 pt./QSO. QTC rule: QTC are details of previous QSOs, including time, call and exchange received. Up to ten can be sent to one station, at one point per QTC. Multipliers: Each European DXCC Country worked on each band. Each multiplier worked on 80 is worth 4, on 40 worth 3, and on 20/15/10 worth 2. Entries: Official forms are available for a SAE and IRCs from DARC Contest Committee, D-895, P.O. Box 262, West Germany. Entries should be sent to that address, and postmarked not later than Sept. 15 for CW, and Oct. 15 for SSB.

ALL ASIAN CW

Period: 0000z Aug. 23 to 2400z Aug. 24 1980. Bands: 1.8 thru 28 MHz bands.

Classes: Single op, single or all band, multi-op. multi-transmitter. Exchange: RST plus age. YLs send 00 for age. Points: 3 pt./QSO on 160 m, 2 pt on 80m, 1 pt on others. Multipliers: Number of Asian prefixes worked on each band. Exclude USA military stations in Japan (KA). Entries: Must be sent to JARL, P.O. Box 377, Tokyo, Japan, postmarked be Sept. 30.

CAN-AM CONTESTS

Period: 1800z Sept. 13 to 1800z Sept. 14 SSB. 1800z Sept. 27 to 1800z Sept. 28 CW. Bands: 1.8 thru 28 MHz bands.

CAN-AM (continued)

Classes: Single op, all band (max. 20 hrs. op.), multi/single. Exchange: RS(T) plus serial number and prov/terr.

Points: for Canadians: 3 pt/QSO with USA, 2 pt/QSO with Canada. Multipliers: potential 65 mult. on each band

from 10 Cdn prov, 2 Cdn terr, 1 for Sable and St. Paul, 50 US states, 1 for US Caribbean possessions, 1 for US Atlantic possessions. Stations outside their own call area must sign portable.

Entries: Must include dupe sheets is more than 200 QSOs

are made on one band. Official log forms are available for a SASE from VE3BMV, P.O. Box 292, Don Mills, Ont. M3C 2S2. Entries should be sent to the above address not later than 30 days after the contest.

The eyes have it

From Charlottetown comes a lament from Doug Cormier VE1BCN who, as editor of the P.E.I. ARA bulletin, had received complaints about the quality of his Gestetner printing. In reply, Doug wrote in a recent issue:

"It sure is hard to keep everyone happy. The printing of the last newsletter was fuzzy enough that nobody knew for sure what was said, or so we thought. Now it turns out that one Dr. J. William Moreside M.D. VE1ZW found it completely readable and suggests that anyone having the slightest difficulty in reading it requires an immediate eye examination.

"By some strange coincidence, Dr. Moreside specializes in the field of human visions, and the newsletter filled his waiting room. To date, Bill VE1ZW hasn't opted out of Medicare (this is called optic nerve) and doesn't indulge in flea-spitting (sometimes known as flea-splitting or fee-splitting), but even so, we still must consider those with 20-20 or 80-40-20 vision so, as of now, we will double-space, use capital letters and put a ribbon in the machine.

"This will probably slow the development of special spectacles currently being designed by Dr. Moreside for reading news-letters and 'Moreside' code (known as Morse code for short). These occult oculars allow anyone having a 5 wpm speed to copy 'Moreside' code effortlessly at 25 wpm with either hand, while stamping his feet and whistling 'Dixie' through his teeth."

THAT plus Bill's automatic morse reading glasses should satisfy Doug's critics and step up P.E.I. CW transmissions to no end!

PACKET GOES MOBILE

DOC recently announced a contract amounting to \$40,000 has been awarded to Carleton University, Ottawa, for the development of packet radio for mobile radio service. This seems to be in line with the proposed 900 MHz band personal radio service, for which packet radio could be permitted.

VE8 QSL BUREAU

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

PROBLEMS?

Enquiries about non-delivery of TCA or memberships should be directed to the CARF Administration office, Box 356, Kingston Ont. K7L 4W1, where the records are kept ... do not phone or write the TCA Editor.

CAMP-OUT

Pemberia Scout District is sponsoring a camp-out for Scouts and Guides Sept. 19-21 and one of the activities will be an Amateur station VE4VQ participating in the 23rd Jamboree on the Air. Phone and CW will be worked on 80 thru 10 metres from the Friday evening until Sunday noon.

Vernon Dutton VE4VQ

Social Season

August 22-24 RAQI Annual Convention, Tadoussac, Que. Details later.

August 29 - Sept. 1 Maritime Hamfest, or 'Ham Ceilidh '80', the Maritime Hamfest re-appears after a two-year absence, with a Gaelic title meaning 'gathering'. Hosted by Sydney ARC. Info and reservations, Box 1051, Sydney, N.S. B1P 6J7. Bring your own bagpipe and kilt. Haggis will **not** be featured at the banquet in deference to Sassenach stomachs.

October 2-4 RSO Convention at the Prince Hotel, Toronto. For information and registration write RSO Convention Committee, Box 997, Station B, Willowdale, Ont. M2K 2T6.

Licences in the mail

Radio station licences for the next five-year period have been mailed. Originally slated for delivery before the first of April, the forms were delayed by the unexpected election and the printing of new forms with the new Minister's signature. The obsession with things metric appears to have reached DOC, as the forms required a good deal of folding to fit into the frames used in the shack to accommodate the old ones.

AMSAT-OSCAR launch fails

By John Henry VE2VQ

Friday, May 23, 1980, was to have been a new day for Amateur Radio with the launch of the AMSAT/OSCAR Phase IIIA Satellite. Unfortunately, the first stage Delta rocket failed one minute into the launch. The subsequent loss of thrust condemned the launch to failure with no possibility of recovery. In addition to the loss of the AMSAT/OSCAR satellite, the multinational government experimental satellite known as 'Firewheel' was lost.

Shortly after the launch failure, AMSAT held an emergency meeting in Washington, D.C. to set in motion the search activities for a future satellite launch. It is true we lost a satellite, representing a considerable investment of time and money, but the experience, plans and knowledge gained in the preparation of this OSCAR satellite is not lost. Much of the equipment that will be used for future construction is still available, and the ground-based command network is ready. We have not failed, only momentarily delayed.

Much needs to be done: negotiations, approval from government departments and myriad interface documents are required aside from the actual construction of a new satellite. The launch vehicle must be determined first, as it basically defines the orbit, payload and the physical space available for the satellite structure that will be accepted by the government agency.

Time and money are the greatest loss - this satellite represents perhaps 30 man-years for AMSAT and its contractors. About \$150,000 was invested in five years of real time since the start of the project.

But even with this setback, it is you, the Amateur Radio community that must now let us, your representatives, know what you wish us to do. Do you support us? With eight NASA and two Russian successful launches, shall we quit now?

Your memberships, contributions and assistance to

AMSAT, Box 27, Washington, D.C. 20044 or to AMSAT-Canada Box 7306, Vanier, Ont. K1L 8E4 is your way of telling us that you wish us to continue. (As of July 1, 1980, annual AMSAT membership is \$16 U.S., with life memberships equal to 10 years payment, which can be made in installments or by credit card.)

DOC plans post-WARC Conferences

DOC has unveiled a plan for extensive public input to the preparation of Canada's position for post-WARC international conferences. Five major conferences at both regional and world-wide levels and comprising 13 sessions will be held over the next few years.

These meetings will seek to implement the frequency allocation agreements reached at Geneva last fall at the WARC 79 conference. The ongoing action will include bilateral negotiations with the U.S.A.

The Department will seek to have five industry-government working groups organized to assist in framing the Canadian role in all of this post-WARC international bargaining. The on-going work primarily affects industry, but Amateurs will be represented on those groups which may affect their assignments. This news was unveiled at a public briefing on the work of the Canadian WARC 79 delegation, held in Ottawa on June 18.

Another major decision facing ITU is whether to set up a fourth Region which would take in all of Africa.

CARF President Bill Wilson VE3NR, DOC Liaison Committee head Art Stark VE3ZS and Bud

Punchard VE3UD, the CARF WARC 79 Working Group Chairman, attended, as did Mitch Powell VE3OT, ARRL Canadian director and Noel Eaton VE3CJ, head of IARU. Special tribute was paid by DOC's Ed Ducharme, the meeting chairman, to the work done on the delegation by two non-government members, VE3UD and VE7BS, Bob Eldridge, both old hands at international radio conferences.

MOUNT ST. HELEN DISASTER

The Mount St. Helen volcano disaster apparently claimed the lives of at least two Amateurs who were camping in the area. Amateur assistance to the authorities on both HF and on repeaters was invaluable. The principal HF channel was 3987 kHz, working with the state emergency services. The regional net which tied Washington Amateurs together is on 7295 kHz.

PACKET RADIO PAPER

A second paper on packet radio is being prepared by Hugh Pett VE3FLL. Copies of the first series of these papers and the new ones can be obtained from CARF, Box 356, Kingston, Ont. K7L 4W2. Send \$5 to cover publishing and mailing costs.

Amateur Radio Standards

QUALITY OR QUANTITY?

Once again a movement is underway to create a NOVICE class, similar to that of U.S.A., in Canadian Amateur Radio.

The last time (1977) that this attempt was made, less than 1/3 of CARF's membership supported the concept, and representatives of Amateur organizations and clubs from across Canada decisively defeated a proposal for its introduction at the 1977 National Amateur Radio Symposium. This defeat came about as figures released by the FCC and presented at the Symposium showed that the US Novice program had not met its objective of providing a stepping stone to a higher class of Amateur operation.

In fact, for the five years previous to the Symposium, when the Novice licence was non-renewable, the number of Novices that gained a higher class was not even enough to meet the normal attrition rate of Amateurs in the U.S.A. so that there was a steady decline in numbers for this period. In this same period, Amateur Radio was thriving in Canada with substantial gains in numbers.

Since that time the FCC, faced with a decision to either do away with a program that did not work or lower the standards of Amateur Radio, opted for the latter by making the Novice class renewable.

The 1980 movement for a Canadian Novice class has to be classified as an attempt to lower the present Canadian standards. This raises the question "Are present Canadian Amateur class standards adequate or too high?"

During an Instructor's Seminar hosted by the Federation in 1978, the standards for gaining

Amateur certification were fully discussed and the general comment made was that, if the theory qualification necessary for gaining the Advanced Amateur certificate was taken as 100%, then it took 70% of this knowledge to gain the Amateur certificate. This was considered to be too high a percentage for the Amateur class and it was felt that it should be lowered to 60% to enable more persons without a technical background to become Amateurs, but with sufficient background to attain the higher class.

On the standard for Morse operation - 10 wpm - opinions were mixed. Some instructors recommended the lowering to 8 wpm; some wanted no change; the rest recommended the 10 wpm requirement but with allowance for one or two errors in the test copy. Judging from the published results of recent DOC examinations, the Morse requirement is the main reason for failure. Is the failure to qualify

AMATEUR TARIFF

The removal of duty on Amateur transmitters and transceivers recommended by the Tariff Board last year can only become effective if it appears as an item in the forthcoming federal government budget. Since this is now under consideration, and with a new Minister of Finance in power, Amateur organizations and individuals are urged to write immediately to bring the recommendation to his attention. CARF has already written to the Minister but needs your support. Write now to Hon. Alan J. MacEachen, Minister of Finance Ottawa, K1A 0G8.

in Morse the result of lack of proper training, lack of study and practice, or is the present requirement a little bit too high? Your comments and advice would be appreciated.

Present day standards for theory and regulations knowledge appear to be satisfactory with a good percentage of candidates passing. But it does take many weeks of instruction for a normal candidate to gain the required knowledge of theory. Should this requirement be reduced and, if so, in what areas?

From feedback at symposia and opinion polls plus the results obtained in the U.S.A. versus the satisfactory growth rate of Amateurs in this country, your Federation has concluded that the Novice class should not be introduced into Canadian Amateur Radio. There would probably be a significant upsurge in Amateur numbers if Novice were to be introduced, but this would be brought about by the numbers of persons who would like to become Amateurs but are not sufficiently motivated to devote the time and study to becoming Amateurs under the present standards. From the U.S. experience, this lack of motivation results in a very high rate of drop-out with few 'Novices' gaining a higher class of Amateur operation.

Instead of recommending a Novice class, CARF has always advocated the introduction of more and better training for would-be Amateurs and the results obtained in the last few years indicate that this has brought results with substantial increases in the number of qualified Canadian Amateurs.

-VE3AHU

QTC CARF 1

By Edmond (Chip) Schoenherr
VE3JLL

Why use the 'Q' code for a title? Well, it's to attract your attention and for those of you that do not know what the three word message means, this article is for you: What the messages says is, the writer has one message for CARF; and by CARF the writer means the membership at large.

One of the services being provided by a good number of Amateur Radio stations that could help put some more meaning into your Amateur radio operating is Traffic Handling. Traffic handling can not only help to give you a feeling of accomplishment, but it also helps to make our hobby visible to the general public by written or verbal messages from a friend or relative via Amateur radio.

WHAT IS TRAFFIC HANDLING?

When we speak of traffic handling, we are referring to the transfer of third party messages via Amateur radio. For example, Mrs. Jones, on vacation in Vancouver, wants to let her son John in Kingston know that she arrived safely and she sends a message to John via Amateur radio.

In traffic handling, as with all other parts of operating an Amateur station, there is a right way and a wrong way of operating. As with good operating procedures, traffic handlers follow a specific pattern to ensure the message gets through. Good traffic handling, enhances the public views of Amateur radio.

WHAT IS INVOLVED?

There is a good deal more to traffic handling than simply calling CQ and hoping a station in the city you want hears your call and tries to get the message

through. Before we can send that message to John Jones we must know the procedure to follow and the proper method used to ensure that the message as it is received at your station gets through.

If no traffic training nets are being run on the air or by local clubs, (a) Read over the material carefully, (b) Check the Net Directory for a traffic net in your section or local area (preferably a good slow speed CW net), (c) Listen and learn how to check into the net as each Net Manager likes to see a specific form of Check-In being used on their net. (d) Study the 'Q' Signals, to know how and when they are used and (e) If you have a recorder, tape some traffic nets in operation and later play it back and watch the pattern being used in handling the traffic.

After listening to the various nets and you are sure that you're ready, go right ahead. Until you have at least checked in to the net (QNI), what you have studied, listened and learned won't get you handling traffic.

On your first check-in to a local net, the NCS (Net Control Station) will ask for your QTH, First name and possibly if you can handle phone and/or CW. This information is forwarded to the Net Manager. You will find that all stations that share the NCS duties will log your info for their own future reference. All stations in a net work together as a team and try to help each other and the Net Manager operate the net on an efficient, formal, yet friendly basis. Nets that operate in this manner, usually have very good records of handling traffic and have a loyal following of regular net

traffic stations (NTS) that check-in.

IS IT ONLY FOR CW?

Traffic handling is not only for CW, there are a good number of phone nets around, but if you want to really handle traffic, you should be able to check-in into both Fone and CW nets. The best place to start is in a slow speed CW net until you become fully accustomed to handling traffic. The procedures in the phone and CW nets are somewhat the same, but there are enough subtle areas of difference that you should listen and learn from both forms of nets.

In the Ontario Section, there are two very good slow speed CW nets, the **Grey Bruce Slow Speed Net (GBSSN)** on nightly at 2315Z on 3645 and the **Pot Lid Traffic Training Net (PLTTN)** following the **Pot Lid Slow Speed CW Practice Net (PLN)** Sunday mornings at around 1630Z on 3620. In the Maritimes, the **Maritime Slow Speed** is on Wednesdays at 2000Z on 3680. These are wide coverage nets, and if they are readable in your area they do provide good training. They are worth listening to, to help you learn and be able to check into a net in your area.

Traffic handling can be a very rewarding part of your Amateur life, you can compete with other traffic stations if you wish or do it just for your own satisfaction. When handling traffic, you are building up experience which in an emergency can provide a very valuable public service. In addition you are doing a service to Canadian Amateur Radio by gaining more recognition of our hobby from John Q. Public.
QTC IMI QNI K

Satellite TV

— by Chris Schultheiss VE2FRJ —

Satellite television terminals are reaching a stage now where the Amateur Radio Operator may be considering the purchase of a home system. This, the first of five articles covering the TV 'earth station', hopefully will begin the process of guiding the Amateur in the subject of TVRO (Television Receive Only) so that he may make an informed decision regarding the purchase of information and hardware. We will first tackle the availability of information about TVRO, and the system in general. Subsequent articles will discuss the antenna, LNA (low noise amplifier) and the receiver in depth, covering costs, legalities, suppliers, recent developments and trends.

Just about all of the available information on the subject of TVRO comes from one source, Robert Cooper Jr., who markets various booklets, maps, manuals, and a small magazine under the company name of 'Satellite Television Technology'.

Several recent magazine articles on TVRO (e.g. Popular Science Mar 80) contain much useful information although their claims regarding construction costs seem a bit unrealistic. In Radio Electronics (Feb 80), Mr. Cooper suggests that you can build your own TVRO for 'under \$1,000.00' (US funds). Well, remember articles like 'build your own 20 amp power supply for only \$15'? When we tried it, \$15 barely covered the cost of the chassis and hardware alone. By the time the remainder of the necessary components were added, the cost had climbed to \$60. In the case of a TVRO project, it must be noted that the stripline type of microwave design is very complicated, requiring a good insight into 4 GHz behaviour.

The test equipment required to hack around with in the microwave region is expensive and hard to find at a fleamarket. Unless you have a great deal of kit-building experience and sound microwave theory behind you, stay away from the microwave front end and LNAs as a home-brew project.

A large number of manufacturers were present at a recent (Feb 80) Satellite Trade Show and seminar held in Miami, Fla. There was a definite feeling of excitement in the air, seeing the equipment bringing in those pictures from 23,000 miles in space — perhaps akin to building a spaceship in your backyard. Here was the answer to the question 'Why should I have a TVRO system?' Because — it's neat, space age, a lot of fun, and a little bit of the future right now.

Back to cost. Expensive, it is. A Turnkey type of system installed at your Canadian location would cost you at least \$10,000. Importation of a 'dish' and LNA, and the building of the receiver from a kit could lower the price to \$7,000. It is possible however, that the price could be lower yet were the equipment to be constructed right here in Canada. The 'dish' price would not change much as it is primarily a materials-and-labour product. The LNA and

receiver, on the other hand, could drop drastically in price with some breakthroughs in mass production and design technology.

The following article to this will deal in depth with the antenna and LNA, providing you with enough information to enable you to check out your backyard for clear view of the satellites and to match your antenna size to LNA quality in relation to your available site. The 'polar mount' to allow you to DX the satellites will also be covered.

This article has not been meant to be discouraging, but realistic. TVRO is a new product, handled mainly by companies with little experience in microwave technology. Be advised not to buy a product unless you have reliable information about the unit's performance. Seek companies who are knowledgeable and capable of backing up their product with repair facilities. Try to talk with someone who is familiar with the product and has seen it in actual operation. It is probable that within six months, TVRO equipment will begin appearing in Canadian retail stores. Perhaps by that time, the purchase of a TVRO system will be a more reasonable proposition.

Microwave mishap

Incidents involving radio transmitters and automobile electronic devices resulting in runaway cruise controls and malfunctioning anti-skid devices are topped by this one reported by Fred Towner VE6XX. It seems his father, WD6ERN, turned on his computer-controlled micro-

wave oven and then sat down to work his rig while waiting for supper to cook. His 750 watt transmitter, however, did more than get out on the air; it upset the oven control and his supper not only overcooked, it exploded when the control malfunctioned and didn't turn off in time.

Emergency Service...

This was originally a letter to the editor of the official publication of Emergency Planning Canada, and it is reprinted here because of its interest and importance to Amateurs.

Amateur radio operators in Canada have been taking part in handling emergency traffic for at least 50 years. A review of communications planning at the municipal and provincial levels in Canada indicates that the use of Amateur communications systems in an emergency is anything but national in scope.

On the other hand, individual Amateurs have been effective even on an 'ad hoc' basis during such emergencies as the St. John River floods and, more recently, the 1979 Manitoba flood and the re-entry of Skylab. Their performance during these emergencies strongly indicates that organized groups of Amateur operators would be a useful addition to any emergency agency's communications system...

Amateurs are located in many diverse locations from coast to coast, often where no other communications facilities exist.

This versatile communications resource should not be overlooked when a back-up to official emergency communications is being considered. Yet there is no formal, official, national recognition of the capability of communication of the Amateur Service in Canada.

This valuable resource of communications equipment, operating personnel and expertise could be developed into a national Canadian Amateur Radio Emergency Service to serve in times of crisis as required.

About seven years ago, Canadian Amateurs and the

former Canada EMO (Emergency Measures Organization) held a conference at Arnprior, Ontario, to discuss just such an organization. But for one reason or another, nothing came of it. This was a pity, because the readiness to serve by Canadian Amateurs is well known... Why then is it so difficult to convince governments at all levels of their willingness to dedicate their resources to a national communications system? Is it a fear that official recognition would result in demands for funds? Is it a fear that an organization of Amateurs might be difficult to control? Is it a fear that their service might not be available when most needed? Or is it simply a lack of official understanding of the potential value of such a service?

Possibly the answer is a combination of all of the above. As far as funds are concerned, Amateurs expect none, their only aspirations being official recognition, a higher public profile, and the satisfaction that comes from public service. Difficulty of control is not a valid

reason as the Amateur organization is self-policing and the need for control is minimal. Concerns for reliability and efficiency are unfounded as the reputation of Amateurs speaks for itself.

The solution, in the writer's view, lies in building from the ground up. Organization at the provincial level is an essential first step and when this becomes Canada-wide, national recognition should follow as a natural consequence. □

VE3YE 'Wiggie' Wigglesworth
(The outcome of the 1973 Amateur conference, of which your editor was the secretary, was an excellent paper entitled 'A Canadian Amateur Radio Emergency Service', the basis of which was an excellent plan drafted by Bill Parker VE5CU whose background as Saskatoon's EMO communications officer gave him a good insight into the requirements. The paper went to DOC and federal emergency authorities but, as noted, little came of it at the time. Maybe the times are more propitious now.)

China operators?

Speculation that Amateurs may be on the air from China has been filling space in some Amateur publications. One rumor was that the American Ambassador in Peking would be on with a 'BP' call. Correspondence from a CARF member in the Chinese capital labelled the rumor 'hogwash' and hinted that it may be a long time, measured in years, before we hear a legitimate call from there. The word came from VE7BC, the 'Big Cookie'.

With tours to China becoming popular, HR Report notes that some 50 visas will be

available for U.S. Amateurs to take in a tour of five cities during August. They will follow a delegation of U.S. FCC Commissioners and officials now touring the People's Republic. Seven Canadian Amateurs are in another tour group, mostly from British Columbia, which went to China in May. CARF director Ed Sheffman VE3FTO also went there in April to study acupuncture.

PACKET ON 220

Randy Smith VE1SAT is setting up a packet radio station at Greenwood on 220 MHz.

AMATEUR EQUIPMENT DELIVERED TO YOUR DOOR

(WE PAY SHIPPING!)



MFJ-941B Versa tuner II

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

\$124. postpaid.

\$589.



DENTRON GLA-1000B linear amplifier

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

KENWOOD TS-700SP all mode 2m transceiver

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

\$ 1199. Free mic!!

YAESU

**YAESU FT-207R
synthesized Handi-Talkie**
144-148 Mhz. 5 KHz steps, output: 2.5W hi/200 mW low, 4 memories plus programmable offset, prior ch., memory band & auto scan, keyboard encoder freq. entry, 2 tone input from keyboard, keyboard lock, programs odd splits, auto. battery saver for LED, rubber flex antenna & 15 hr. wall charger.



\$469. Call for deal



DRAKE TR/DR7 general coverage digital R/O transceiver

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

\$2098. In stock



TEN-TEC Century 21 CW transceiver

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

\$ 539. In stock



CDE Ham IV antenna rotor

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

\$239. Special!



IN STOCK!



KENWOOD TS-120S HF transceiver

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

NOW \$939.00



KENWOOD TS-180S solid state HF transceiver

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

\$1559!

You can use your
Master Charge or
VISA when you order.



HAM



45 Brisbane Road

Downsview,

TO PLACE YOUR ORDER

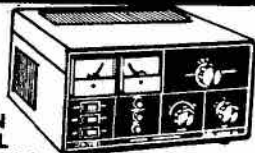
CALL COLLECT !

416-661-8800

ASK FOR ORDER DESK

CALL FOR SUPER DEALS!

KENWOOD R-1000 \$659.
 KENWOOD TR-9000 \$799.
 YAESU FT-107M \$1779
 ROBOT 400 \$1195.
 HY-GAIN TH6DX \$399
 & MUCH MUCH &
 MORE



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

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

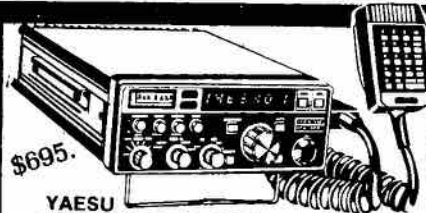
\$2089 In stock



YAESU FT-101ZD HF transceiver

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

\$1299 List Call for deal!



\$695.

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

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

Call for Deal!



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

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

SPECIAL \$1559!



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

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

\$ 929. In stock

**BENCHER BY-1
Iambic paddle**

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



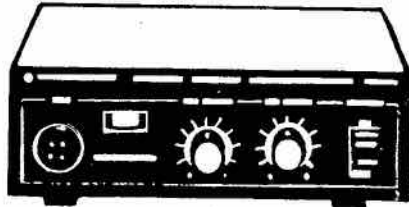
\$ 59.95

**BENCHER BY-2
Iambic paddle**

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



\$ 74.95



**KENWOOD PC-1
phone patch**

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

\$ 82.95 In stock

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

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

\$ 499. In stock



**KENWOOD
TR-7625 25W transceiver**

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

\$599!

TRADERS

rio M3J 2K1

Phone: (416) 661-8800

New Store Hours:
 Tues-Wed 10 am to 6 pm
 Thurs-Fri 10 am to 9 pm
 Sat. 10 am to 3 pm
 Sun & Mon appointment only

CHIPS & BITS

A COMPUTER COLUMN FOR AMATEURS

By Charles MacDonald

Hello again, and welcome to the world of computers. This month we will look at the start of a digital repeater system by Amateurs in Ottawa, and at a program that will let the computer send Morse code.

DIGITAL REPEATER

On April 14 1980 at the regular meeting of the Ottawa Computer Group, Hugh Pett and Larry Keyser, OCG members and Amateurs gave a demonstration of the Digi-Peater, a Digital Repeater. The system was put together by members of the OCG and may be the first digital repeater in Canada. The system will support up to 200 users simultaneously on one 220 MHz FM channel.

When an Amateur wants to send a message on the Digi-peater, he types it in to his computer, or into a standard terminal connected to a black box called an 8X11. The 8X11 is actually a small dedicated computer that handles the interface between the Amateur and the repeater. The 8X11 prototypes are being supplied by Warren Instotech of Ottawa, and they are hopeful that the complete computer can be built by the average Amateur for under \$500.00. The name 8X11 comes from the size of the board the unit is built on: eight inches by eleven inches.

The message of up to 250 characters in length is held by

the 8X11 until it is polled by the repeater. The repeater constantly calls every station that uses it regularly. When a station with a message ready is polled, the message is instantaneously sent out at a speed of 9600 Baud. The repeater will acknowledge the transmission and send it on to the station it is addressed to. It can be set to continue trying to send the message each time the addressed station comes up in the queue until the addressee acknowledges receipt. This latter feature is handy in a thunderstorm or under emergency conditions.

The current local stations are based on 220 MHz transmitter and receiver kits

LISTING 1

```
>LIST
0 HIMEM:16384
5 TEXT
10 DIM Q$(255):TO=16352:AD=16128
11 CALL -936: TEXT : VTAB 5: PRINT "*****
   ": VTAB 8: PRINT "      <*> MORSE CODE TRANSLATOR <*>"
12 VTAB 11: PRINT "      COPYRIGHT 1978, APPLE COMPUTER.": VTAB 14: PRINT
   "*****"
13 FOR L=1 TO 4000: NEXT L: CALL -936
20 INPUT "CODE SPEED (RELATIVE, MAX 250) ",S: IF S>250 THEN 20:S=(253-S)
   /3 .
30 PRINT "ENTER PHRASE TO BE CONVERTED TO CODE:": PRINT : INPUT Q$
40 FOR T=1 TO ( LEN(Q$)):L= ASC(Q$(T,T))-193
42 IF L=160 THEN 82
50 FOR Q=0 TO 7:R=(L*8)+Q+AD
52 J= PEEK (R): IF J>1 THEN 100
60 POKE 1,S+(S*3/2*(J<1))
70 POKE 0,40
80 CALL TO
82 FOR Z=0 TO (S/4): NEXT Z
90 NEXT Q
100 FOR Z=0 TO (S*2): NEXT Z: NEXT T: GOTO 30
65535 REM  COPYRIGHT P. LUTUS 1978
65535
```

made by VHF Engineering. The current local stations use one watt transmitters and the repeater has a 10 Watt unit. The master repeater station is currently mounted high above the Queensway at the studio of radio station CFRA, but there are plans to move it up to the top of the Ryan tower at Camp Fortune, Quebec, where most of Ottawa's radio stations and repeaters are located.

The software for the Digi-Peater system was developed on a Heath H-8 computer with a H-17 dual drive floppy disk and a Viewcom I terminal.

MORSE CODE TRANSLATOR

Many letters have come in asking how you get a computer to send Morse code. The program in the listing (listing 1) is a Morse code translator from volume one of the Apple Software Bank. This program is available from your local Apple dealer for a copying charge. If you do not have an Apple dealer in your area, send me a blank tape or a blank diskette and \$2.00 plus return postage and I will make you a copy and mail it back to you. Because of a few tricks used to make the program work automatically in any integer BASIC equipped Apple II, it will probably not work if you just type it in.

The first of those tricks is in

line 0 where the program sets the high limit of memory at 16384. This also moves the machine language portion of the program that has to be at the correct address in the machine in order to run to the correct spot. Line 5 makes sure that the machine is not in graphics mode. Line 10 sets up Q\$ to be 255 characters long. Q\$ is where the machine will hold the phrase to be converted. Also in line 10 the variables TO and AD are set up. In line 11 the CALL-936 clears the screen. The rest of lines 11 and 12 print a title on the screen. line 13 gives us enough time to read the title then clears the screen again.

In line 20 we are asked how fast we want the code sent. The part that says $S=(253-S)/3$ brings the value of S into a range the program can use. Line 30 lets us put in the actual phrase that we want converted. Lines 40 through 100 have the main loop of the program. The FOR T=...NEXT T loop is gone through once for each letter that we enter into Q\$ in line 30.

The part of line 40 that says $L=ASC(Q$(T,T))-193$ is used to convert each letter to a number that will be used to find the code elements (dit and dah) in a table that is kept in memory.

The loop using the variable Q (not to be confused with Q\$) breaks each character up into

the maximum seven possible elements in the Morse Code. L will be a different number for each letter of the alphabet. Line 50 uses the value of Q to find an entry in a table that shows if each element is a dit or a dah. Line 52 sets J equal to the table entry, and 60 puts a value in location 1 of the memory. The number is different if the element required is a dit or a dah. The POKE in 70 sets location 0 to 40. Next line 80 does a CALL to TO. this turns over the machine to the subroutine at \$3FE0.

The tones are generated by the machine code in listing 2. Memory location C030 is a special one in the Apple. When that location is accessed, the Apple's speaker is "toggled". So 3FE0 toggles the speaker, we then DEY DEcrement the Y register by one, and BNE, Branch if Not Equal to zero, to 3FEA where we DEX (you guessed it, DEcrement X by one) and Branch if Not Equal to 3FE3. The CPU continues to jump around this loop until one of the registers becomes zero. If X reaches zero it gets loaded with the contents of location zero, the BASIC part of the program set location zero to 40 decimal. This value is somewhat arbitrary as it sets the frequency of the tone. Now we jump up to 3FE0 and toggle the speaker again.

If Y reaches zero, we DEcrement location 1. This location has the value that corresponds to the length of time we want the tone to sound. When location 1 reaches zero we come back to the BASIC part of the program by the Return command at 3FF2.

The loop on line 82 sets the length of the silent gap between the elements, and line 100 does the gap between the elements, and line 100 does the gap between letters. After all the loops finish we go back to line 30 and get a new phrase.

LISTING 2

```

>CALL-151
*3FE0L
3FE0- AD 30 C0 LDA $C030
3FE3- 88 DEY
3FE4- D0 04 BNE $3FEA
3FE6- C6 01 DEC $01
3FE8- F0 08 BEQ $3FF2
3FEA- CA DEX
3FEB- D0 F6 BNE $3FE3
3FED- A6 00 LDX $00
3FEF- 4C E0 3F JMP $3FE0
3FF2- 60 RTS
3FF3- FF ???
3FF4- FF ???

```

News Briefs

CARF GENERAL MEETING

The CARF annual general meeting and the Board of Directors meeting were held in Ottawa at the end of May. The Board re-appointed the previous slate of officers except for the office of secretary. Don Emmer-son VE3KJW was appointed to that position to succeed John Gilbert VE3CXL, who resigned due to his work at DOC.

VO1NP BECOMES JP

CARF officers and officials hold varied jobs during their working days, but Nate Penney VO1NP, director for the Atlantic Region, is the first one to become a justice of the peace. Wrongdoers in Shoal Harbour will be in for heavy QRM to their evil ways. Nate has advised that Doug Cormier VE1BCN of Charlottetown is now his Atlantic Regional Assistant. Director Marv Nash VE3FON has appointed Les Brownlee VE3BLZ of Whitefish as his Regional Assistant for Northern Ontario.

U.S. SSTV AND FAX

The FCC is proposing to allow U.S. Amateurs on SSTV and facsimile on all frequencies above 3775. The U.S. Amateur population is now 372,958 and includes 3,815 clubs.

N.S. AMATEURS RAISE FUNDS

More than 200 Nova Scotia Amateurs contributed a total of \$1800 to assist in providing a workshop for mentally retarded persons at Church Point, Nova Scotia. Their donations commemorated Tom Doucet VE1TJ, a well-known handicapped Maritime Amateur who died last fall. The fund-raising was organized by the Nova Scotia Amateur Radio Association.

CAN-AM CONTEST

The Canada-DX Association and the Ontario Contest Club sponsor the CAN-AM contest to increase the friendship among Canadian and American Amateurs. For details and log sheets, write to VE3BMV, Box 292, Don Mills, Ont. M3C 2S2. Phone contest starts 1800 hrs UTC Sept. 13, ends 1800 hrs. Sept. 14. CW contest starts 1800 UTC Sept. 27, ends 1800 Sept. 28.

LIAISON WITH U.K.

CARF has established liaison with sister national societies in the United Kingdom and Australia. Publications and information on regulations and examinations have been exchanged. Third party traffic possibilities with Australia were discussed.

AMATEUR RADIO WEEK

The Algoma Amateur Radio Club obtained the co-operation of civil officials by having the mayor of Sault Ste. Marie declare June 22 to 28 as Amateur Radio Week.

CANADA/HAITI AGREEMENT

Canada now has Reciprocal Operating Privileges with Haiti. Third Party Traffic negotiations are under way.

GM CONDUCTS EXPERIMENTS

If you've ever had your electronic ignition or electric brakes malfunction when you pressed the mike button, you will be interested to know that General Motors is experimenting with its own station to find out what frequencies between 1.8 kHz and 470 MHz do to these systems. With more and more electronic devices appearing in modern vehicles, this research is long overdue.

The Numbers Game

TCA has obtained the following statistics from DOC on Canadian Amateur licences:

Year	Total Licences	New Certificates
1975-76	15,346	739
1976-77	16,573	1157
1977-78	18,262	1661
1978-79	19,781	1186
1979-80	20,329	752

Though the annual increases have declined somewhat since a peak year in 77-78, the above figures show that over the preceeding five years the number of Canadian Amateur stations has increased at an average annual rate of 6%, while the number of new Amateur certificates issued has averaged about 1100 per year. We seem to have done reasonably well in the numbers game over the last decade. Let us hope that the 80's will follow suit.

50 MHz Canadaward issued to VE1AVX

CARF has issued Bob Billings VE1AVX the first CANADAWARD ever for contacts on the 50 MHz band. This represents a rather unique achievement, and Bob should be congratulated for his efforts. The CANADAWARD is issued for confirmed contacts with all provinces and territories, and on 6 metres this can be

quite difficult. The administration of CANADAWARD has now changed, and the address listed last month in TCA was temporary until a P.O. Box in Ottawa could be found. The permanent address is now P.O. Box 2172, Station D, Ottawa, Ont. K1P 5W4. The awards manager is now Dave Goodwin VE2DZE.

Flames in the Snow



Last Issue VE2ABZ described the events that led him to a mining camp in the Northwest Territories. This issue features the conclusion to his dramatic and often humorous tale.

One summer morning our sylvan idyll was blasted apart by the arrival of the Royal Canadian Air Force with three airplanes, F/O Rutledge in command. They were there to do a photographic mission using Northrop Delta airplanes about which least said soonest mended. They gave me quite a bit of official traffic to Ottawa mostly to do with keeping their airplanes flying. They were a nice bunch of fellows, about twelve in all and I appreciated especially the sophisticated food that they had along with them such as canned chicken and sausage. The sausage was of a different brand to ours and far better; when they left we made a deal with them having to do with leaving sausage behind. I don't know how many of these lads survived the war as they were all on active service.

Towards the end of September I received a signal from our Company headquarters which upon deciphering at least twice, seemed to indicate that we were to either stay where we were or move the whole camp to another location. Permit me to hastily explain that this seeming ambiguity had nothing whatever to do with the way in which the message had been transmitted but rather due to its coding. In the business of looking for gold all traffic is encoded and I don't

think that even the military go to greater pains to preserve secrecy. The key to the code for any particular day or date was based on a book of code words which anyone having anything to do with traffic of any sort kept on his person and I guess was supposed to swallow if threatened by members of a rival mining faction.

When the text was finally sorted out it turned out that we were to pack up at Fort Reliance and stand by to be moved to a place called at that time Wray Lake. I believe that the name was later changed to Indin Lake. The place is in the Nahanni country not far from the famous Headless Valley featured in song and story mostly by people who have never been there.

The radio station was to be set up because of the isolation of the spot during the freeze up period. You can appreciate that there is a period, quite variable usually, between the water of the lakes being too hazardous for float planes because of the danger of quick freeze which would immobilize them but good and yet the ice not having achieved sufficient thickness to support an aircraft. Quite naturally many chances were taken between these two conditions and many true stories exist of planes glugging their

way to the bottom of lakes upon which the ice was too thin to support their weight, and of crews chopping their 'quick-frozen' airplanes out of the ice, and using various principals of leverage to get them ashore to await further ice development. However I am talking about the safe mode of prudent conduct during freeze-up in which you lay your airplanes up on land at a prepared base until the water is well-and-truly frozen over with hard blue ice of sufficient depth. The lay-up time is used to change over from floats to skis; this really places the airplanes out of service.

The man in charge of this new camp at Wray Lake was Slim Gamey, another employee of the Company with whom I was not previously acquainted. Besides Slim and myself there were three prospectors, Jack Tibbet, Pete Johnson, Bill Campbell and a cook hand-man Max Shemko. Max was from North Battleford, Saskatchewan and he never let anyone forget it. I have never been there but it must be a wonderful place. All were experienced at setting up bush camps and in making themselves



comfortable in what was, to say the least an inhospitable environment. It was cold all of the time; you could never forget the cold. it was a never ending battle and it started to snow the day after we arrived and it never stopped for all of the time I was there. True it was never a hard driving snow but rather a drifting down of granular type pellets. Consequently, it never did get very deep on the open lakes, but in the bush without snowshoes it was armpit deep in no time at all.

Placed alongside this place Fort Reliance took on the status of the Seignory Club in my mind; the encampment had four sleeping tents plus a larger tent as cook-house and mess hall with a small lean-to a hundred feet or more away to house the generator. These buildings, if they can be called that, consisted of an ordinary wall tent canvas top and mounted on a floor made up of saplings and having the first three feet or so of side walls constructed of small trimmed spruce trees about four to six inches in diameter suitably notched so as to be self supporting.

Primitive as these dwellings were, they were at the same time quite comfortable. The snow was banked up to the tops of the log wall base and rendered this part draught free, and they were heated by means of a wood-burning surveyors stove. They're made of light sheet metal, about two feet diameter and two and a half feet high; they can never be left unattended because of the draft control. Should the draft get out of hand the thin sides glow cherry-red hot within seconds. There was a plentiful supply of burning wood about but of course in giant economy sized lengths which had to be reduced by means of saw and axe to burning size, a never ending task. One department in which I

was able to shine, pardon the expression was the lighting of the shacks. The only lights had been naphtha lamps until I strung a 110 volt line and placed a 60 watt bulb over each bunk. This was considered to be great stuff by my fellow adventurers - all the comforts of home, almost.

The lake got its fringe of ice almost from the start of my stay but it was some time before it froze over in a sheet because of the wind which kept the surface of the water continually agitated. We were isolated alright except for the radio. Slim figured it would be three weeks before there would be sufficient ice for the planes to safely land.

I had the radio gear set up in my tent on a sort of bench made from two packing cases. We had three antennas, two centre fed doublets fed with EO1 cable, for the commercial frequencies and an end fed Zepp for the ham bands. Things developed into a very easy routine. Daily skeds with Gordon Lake and Yellowknife were dropped for the time being because of our lack of plane activity and all hands felt that should the need arise I could break in on their net with any traffic. I spent the time keeping warm, hamming, and collecting rock specimens.

Things kept to this even tenor for a couple of weeks until one morning, when just Slim, Max and myself were in camp, all three simultaneously thought we could hear a plane. A plane? What, in the world is a plane doing up here at this time? Where is he going to land? We dashed outside and to our horror, we saw that the noise we had heard was no plane but a FIRE! The radio tent and the one next to it were enveloped in flames.

"FIRE! FIRE!" we yelled to no one in particular and dashed towards the burning tents. To fight the fire we had hand pump

type Pyrene extinguishers but we may as well have saved our energies for all the good it did. You can imagine how quickly the canvas tops burned with the breeze behind the flames. The pine bottoms went just about as fast. I dashed down to the lake with a bucket in hand with some idea of starting a bucket brigade but then the ammunition which had been stored in Slim's tent started popping off.

About that time the other lads returned to camp but about all anyone could do was stand around helplessly while the whole lot went up in smoke.

Suddenly someone said, "dynamite!" He may only have said 'dynamite caps', I don't know, but none of us waited around to see which; we just decamped on the double.

With the ammunition crackling all around, it sounded like a major military engagement. I have found out since that there is little danger from ammunition going off in this way but the dynamite was another matter; here was real danger.

We got away with no casualties save burned hands, mostly mine, trying to get at the radio gear. We all well realized that the problem finally was going to be letting someone know of our situation. It was not good and was going to get a lot worse as time passed, hence the maximum effort to try saving the radio gear. It's funny the things one recalls. I remember very well screaming at the top of my lungs, "just the transmitter! just the transmitter! don't bother with anything else! Get the transmitter out!

What a hope; everything went! I lost just about everything and so did Slim. Oddly enough not all of the tents went; one sleeping tent and the cookhouse remained and praise the blessed Lord the generator was completely without damage.

Slim immediately called a

council of war to assess our situation and plan a course of action. It was clear that we had to have supplies and most of all sleeping bags and clothing. Bear in mind most of us had only the clothes in which we stood and only one sleeping bag, and not too much food and not ammunition. Even if we had ammunition the guns looked a sorry mess after the fire.

The possibility of one or perhaps two men walking out to the nearest settlement which I think was Fort Rae a distance of about a hundred and twenty-five miles through the bush, was discussed. For two men to undertake the march was ruled out immediately because we just didn't have the supplies. Finally this plan was set aside for later activation as an extreme measure. Slim then asked me about the possibility of using some sort of lash up radio gear produced out of the ashes as it were; I remember him so well saying "Just like the movies Charlie!"

We could see that we really didn't have too much hope. All of us had seen the remains by this time, and there wasn't much. I tried to put my best foot forward by saying that at least we had the 110 volts AC supply intact along with sufficient gasoline to keep it going for quite a while and we had the wire in the dynamite exploder HT coils and maybe I could turn out some sort of spark signal. I said it but I didn't believe it.

It was the middle of the afternoon, darkness was falling and the interminable snow made everyone just that much more miserable. I started to cover the now-cooling remains of the radio gear, figuring that we would have a real search by daylight for anything that could even remotely help us get on the air with a call for help. A tube or a crystal or power transformer, especially a tube I reflected

morosely as I pulled a loose piece of canvas over the remains, even should we be fortunate enough to salvage all of these things which is unlikely, it was going to take a heap of luck to get a signal out.

Better to look on the bright side I thought as I made my way back towards the cookhouse, we still had the primary power supply, it was untouched, the antennas likewise. These were positives at any rate, with these thoughts so to bed. What a night. I think the temperature got down around ten below zero and that searching wind was an icy blast, it seemed to send drafts everywhere, and that cookhouse floor, I can still feel those saplings carving furrows across my back even as I write about it. Finally I gave up and got up.

By first light I got out to the ruins and started placing aside anything that even faintly resembled a useful radio part. We appeared to have been very strong on glass type tubes so that even the ones I did come across had their glass envelopes collapsed by the heat. There was one 6L6 that did not seem to be too bad, though it did show signs of heat collapse. Anyway,

ANTENNA BATTLE

The next round in the year-long battle over antenna structures in Sparwood, B.C., is now being contemplated by its town council, which had its case against a local resident thrown out of provincial court on a technicality.

VE2VQ APPOINTED TO BOARD

John Henry VE2VQ, the president of AMSAT Canada and past president of CARF, has been appointed a director on the board of the international Amateur Satellite organization. This will facilitate co-ordination of Canadian input to future satellites and the operation of present ones.

my spirits rose a couple of points. About then I came across two crystal holders; the one was badly cooked and I discarded it out of hand, the other didn't seem to be too badly off and with feverish haste I took off the top plate.

Wonder of wonders, the crystal was intact and, more importantly, it was the emergency or calling frequency for the Northwest Territories. I believe it was 4355 kc or something near that.

Well, with a little more of this kind of luck we may have something here yet. The receiver that we had been using was an National NC 101Z, housed in a steel cabinet. I located the remains of the receiver without difficulty but it seemed to have really suffered from the heat, with melted solder all over. When I had pried open the lid the power transformer seemed to be in fair shape and the rectifier tube, a 280, seemed OK as well.

I got a handful of half-baked resistors and condensers plus a tuning condenser out of the transmitter and with this lot I went up to the cookhouse and set to. Drat the luck, no electric soldering iron; oh well, do the same as Heinrich Hertz had done and use a soldering copper heated on a charcoal burner. One of the lads, I think it was Pete Johnson, made me a charcoal burner out of a half a tin can and I was in business. The power supply was easy. That good old National receiver power transformer and rectifier worked first class in spite of their ordeal. I believe we salvaged a choke as well thus giving us HT of a sort, not necessarily pure D.C., and of course six volts for the filaments.

Now for the transmitter; what sort of circuit was I going to use, that was the first decision. Of course it had to be

the tried and true Tritet circuit, mainly because I had a 59 and PP 46 rig at home and knew my way around the circuit pretty well. The tuned circuits were not too hard to hit because the transmitter procelain coil forms came through the fire in fair shape and in a couple of cases, the wire as well. I carefully made the thing up checking as I proceeded and finally all set to try. No joy! Check all again and try once more.—

Same result, deader than a mackerel.

Now let's get down to business on this thing, this circuit is not all that complex; Filament OK, H.T. definitely there, ouch! Circuit seems OK but still no sign of RF. I was checking for it with the tip of a lead pencil, not very sophisticated in the light of neon bulbs, plate meter dips etc. but effective and available. What to do? think, think, think; it had to be the crystal, then again it could be that stove-in 6L6 as after all its envelope was almost touching the plate.

Well, no use sitting here dreaming about it, clearly the crystal had to be cleaned. Clean that crystal, I surely did, and then cleaned it some more. I cleaned it with everything I thought might do the trick, soap and water, gasoline, lighter fluid all to no avail, the thing just would not put out. All of this while I had more than an ordinarily interested audience whose faith in radio in general and me in particular was rapidly fading. So, the end of another day.

That night we didn't even try to sleep, we didn't even turn in in the usual sense but sat around the cook stove and dozed. I did plenty more thinking. The more I thought about it the more it became clear that crystal control, with all of its advantages had to go. I was going to have to try a

self-excited rig of some sort and more or less decided that the old-fashioned TNT would be it. I started work by first light to change over from the attempted crystal control circuit to the TNT, not without some misgivings about how I would get on the proper frequency. Oh well, first things first let's get some honest RF out of the thing and then start to worry about frequency of output. I strapped the plate and the screen of the 6L6 together to convert it into a triode figuring that since we had eliminated the crystal now for the tube.

There's not much to the TNT circuit as everyone knows, and with any luck at all one can usually get some sort of a squawk out of the thing. Getting on the right frequency was another matter again. Right frequency, there's the rub I thought, what a hope; oh well, someone is bound to hear me somewhere—this was wishful thinking of the most optimistic sort. I was using a screw driver and a hammer head as key contacts suitably connected of course, and checking for RF with my lead pencil. Easy does it; watch the plate of that precious 6L6 we can't just run down to the drug store and get another one if I should melt the plate of this one. No fear, the plate remained as black as always,

but sure enough I heard before I saw the tell tale 'sputt, sputt' of that lovely RF on the end of the pencil.

She was oscillating alright and we were on the air on God knows what frequency between 1.7 and 17 megacycles. It was at this point that I got another break. Pete Johnson produced that little radio that I had made up for Jack Barker back in Edmonton and wondered if I could do anything with the parts. Jack and Pete had been partners in the field and Jack had left the little radio with Pete over the freeze-up. Pete told me that it didn't work and he had forgotten all about it until he saw me literally scratching the earth for radio parts. He couldn't understand my elation, but clearly this was the answer to my pressing problem of getting on the right frequency. The little set had plug in coils and I had calibrated the dial with the aircraft and emergency frequencies clearly marked; here was my wavemeter and maybe just maybe, a receiver as well.

I had the lads round up all the flashlight batteries in camp figuring that likely the only thing wrong with it would be the filament battery having gone dead. It didn't draw much current from the B battery but the filament drain was high at

Turkey still forbidden

The rumor mill is churning out stories that operating in Turkey is legal. To clear the record, Turkey is still on the forbidden list insofar as Canadians are concerned. DOC adheres to international agreement in the matter of forbidden countries and will only lift the ban if and when it is notified by the ITU that Turkey has so stated to that international body.

Canadian operators should not take their lead from U.S. operators; the U.S. does not publish a forbidden list, but DOC certainly does. This is carried in the Infosection in TCA. Amateurs who violate the ban might do well to remember that they may be placing the operator at the other end in a serious position with regard to his government.

two volts and made use of a rheostat to control the three volts from the two flashlight cells. I brought out two short leads from the tuned circuit and wired a flashlight bulb in series and then started the tedious task of getting that lame duck TNT onto the Northwest Territories Signal service emergency calling frequency. Hand capacity was my biggest problem but finally about two in the afternoon I had the thing quite close to where I thought 4355 kcs should be according to that wavemeter.

Then another brain storm. Why not take out all of the filter in the power supply and put raw AC on the plate of the 6L6, this would surely make the signal broad enough so that an error of a few kilocycles would make little difference. No sooner said than done. I was hoping very much to get on the air in time for the afternoon traffic roll call at 1600 hours which would be the final one for that day. With an hour in hand I took a second look at that receiver of Jack Barker's that was now doubling as a wavemeter. Sure enough, when I had replaced the filament batteries it came to life and I was able to hear signals, it had a very smooth regeneration control and I was surprised at how hot the little thing was in spite of the microphonics. Boy, the tension was sure building up as 4 p.m. approached and I prepared to do or die.

A little before four I heard Don Jorgenson open up from Yellowknife calling Gordon Lake for traffic. This was my cue, I had all in readiness and immediately tapped out SOS and my emergency message, using the screw driver tapping the hammer head and prayed it would be armchair copy. Marconi never had a thrill quite like that one because Don came right back and I recall is very words: "OK, CY7F received, understand that you have been

burned out and require urgent assistance." This guy had plenty of savvy, I'll say that for him, and I often wonder where he is today. That was all there was to it. Needless to say radio was completely vindicated and the boys were most generous with their congratulations.

At that point though, I don't think even Slim quite knew just how this urgent assistance was going to be rendered. Joe Benkhe at Gordon Lake was right on there and he had copied the emergency message at the same time as Don; within minutes Jack Barker and the pilots had the story. They queried us on ice conditions and open water possibilities. There was open water in the middle of the lake but was quite a piece away; there was a place at a narrows though three miles to the north of camp. Here the current was strong enough to keep the water from freezing; Slim suggested that they use this spot and we would rendezvous with them. Followed a list of stuff to carry us over freeze-up.

Jack Barker told me later that they had intended pulling the last remaining airplane out

CARD COLLECTORS...

The Sorel-Tracy ARC VE2 CBS plans a 'DXpedition' in the northern part of Quebec July 20 to July 26 and will issue a special QSL card for the event, through the bureaus. Operation will be CW and phone from ten through to 80 metres. (Tx VE2EML)

CARFNET

CARFNET, the Federation's 20 metre teletype traffic net, has added a mid-week session which will meet on Thursdays at 0030 Zulu time. That corresponds to Wednesday evening across Canada. The frequency is 14.078 MHz and those stations using five level Murray code are welcome. CARFNET also meets on Sundays at 2000 Zulu on 14.078 as well.

of the water the following day for the change over to skis. In other words if we hadn't made contact right then the relief would have been further complicated and most certainly delayed. As it turned out Jack Barker and Charlie Lloyd came up the next day with most of the stuff we had requested. Jack Tibbet and Bill Campbell went up and met the boys. The transfer of the gear was made very smoothly and the plane left immediately to go back to Gordon Lake.

Along with the other stuff they had very thoughtfully included a couple of bottles of cheer in the form of Hudson's Bay rum. This was no ordinary rum even in those days and we enjoyed a convivial evening and sang a few songs. They had also sent some of the radio parts I required, a couple of crystals and two 6L6s plus a spare army Marconi receiver. I forget the type number but I recall it had the tuning meter operating on its side, sort of a drum type meter.

We were now back in business. We lost no time in erecting new quarters and I got busy and built up a crystal oscillator P.A. using the gear at hand to tide us over until air traffic got going again with the advent of thicker ice.

You may think that is all, but no, don't go away, there is more to the story of this fugitive radio enthusiast from southern Ontario. A week following the arrival of the relief airplane we had visitors into camp in the persons of Charlie Schwerdt, Sleepy Jim Macdonald, and Tommy Morimoto. I get news of Charlie now and then through his brother Pete, Jim Macdonald I have never heard from since, Tommy is now a chemical engineer with an oil refinery in Calgary.

Anyway these guys dropped into camp one afternoon saying that they had been the country

some little time and were in fact members of a party headed by an individual who, for obvious reasons I will call Harry Outflow. This is the only name in this narrative that is fictitious, however there was nothing fictional about this person.

It appeared that they had heard of our Company's find and had come along to tie on to our claims just in case we had something good. The visitors told a harrowing tale about Outflow due to mental strain or whatever, going berserk, telling them he had supernatural powers and to prove his point tried to walk on top of the hot stove which had promptly burned him so badly that even now he was laid up at their camp ten miles north completely round the bend, as the saying goes. These lads did not share their boss' religious convictions because they had taken his incapacity as an opportunity to decamp and head down lake to where they had seen our airplane land and take off only recently. They also told us that Outflow was armed with a rifle having a hair trigger with which he tried to force them to hold impromptu prayer meetings.

"This is just fine," I thought. "This is all I need; first a fire and now a nut running around loose with a loaded rifle just dying to send all and sundry to heaven, with a hair trigger yet." Slim said 'OK fellows we have radio contact with Yellowknife, we will send a message to the RCMP and have them come in and apprehend the nut. The RCMP at Yellowknife in those days consisted of one man, Constable Macdonald, no relation to Sleepy Jim by the way. This was to be sent on the following day. Fine. All satisfied, all went to bed including the guests. Clearly these fellows had sadly underestimated the perseverance of their boss because at the break of dawn the

following morning Outflow showed up, gun and all. He was a big man and looked very wild indeed. We were at breakfast when he appeared and all of us tried to be nonchalant while Slim took him by the arm and asked if he would like some coffee.

Meanwhile all I could think of was how the heck am I going to get out of there with the message without the nut noticing. He accepted the coffee but he wanted everyone to pray and without waiting for the rest of us to join in he started. While this was going on I took the shortest route out; I was praying alright but it was to get that doggoned message away to VEM Yellowknife and at least let the RCMP in on the fun. Of course this had to be the one time that the generator would not start. As it turned out I had let the gasoline get low and this turned out to be the trouble.

I found out later that while I was filling it up that Outflow seemed to be almost normal and Jack Tibbet said that as far as he could see earlier reports about him had been greatly exaggerated. Anyway, this was the general impression, so the boys and Slim went about their work and took Outflow's party with them, they being curious to see what we had discovered in the line of gold. Max Shemko and I were left in camp with Outflow.

I got the station on the air and was busy calling up Yellowknife when into the tent stepped Outflow. I well remember he looked huge as he stooped to get into the tent opening. My eyes were rivetted on that rifle which he gripped so hard you could easily see his white knuckle bones. He handed me a message and said, "Here, send this right away and mind what I say kid, you send it just as I have it set down. I can read the morse code, so remember, no tricks, I don't want those Boys Scouts

nosing around here. I'm on to something big and I don't want any trouble with the law". He must have known that a move would be afoot to have him taken into protective custody.

All sorts of possibilities flashed through my mind, I wondered why he didn't smash up the equipment and thus ensure we would send nothing out about his whereabouts. Of course if he had done that the very silence of the station would have brought an investigation pronto. I thought, well, if this be madness sure and there's some method in it. My soliloquy was shattered when he said, "what are you waiting for, get busy and remember what I said, I'm right here and you'll get the business with this the first sign of any hanky-panky such as changing my message for something else, understand boy?" and he slapped the butt of the gun just for emphasis. I forget just what I said in reply, probably 'yes Sir I mean no Sir' or something like that; I was plenty scared I can tell you. Well ... what to do? One thing for sure, I had better not let him see the message that Slim had composed. I figured the only thing to do was to find out if he really did know the morse code like he said he did; that was it, I had to call his bluff on the code angle. I took his

Post-WARC Conference

A public meeting to discuss a DOC paper on post-WARC 79 domestic frequency re-allocations was postponed. Originally scheduled for May 14 in Ottawa, the date was moved forward to June 18. CARF was present to voice Amateur viewpoints. The conference gave all user groups an opportunity to discuss and clarify the proposals put forth by DOC. Written comments will be accepted until early this fall.

message, counted it and told him the charges. "You'll get your money alright, just send that message" and again he made some reference to the Boy-Scouts. He seemed to have a fixation on the RCMP hat. I gave a few experimental taps on the key, there was absolutely no hope of any silent sending as that National receiver power transformer that I was using in the plate supply had a severe case of loose laminations as a result of its heat ordeal and I needed no keying monitor. You could hear that transformer grunting away in time to the keying twenty feet from the shack. Anyone that knew the code could read everything that was being transmitted. I got busy and called up Joe. He came right back, said he had nothing and asked me how everything was going. I chewed the fat with him for a few minutes and then told him I had an important message for Yellowknife and was going to wait until I could get it into VEM direct. At this Joe stood by and I turned to wait until I could get it into VEM direct. At this Joe stood by and I turned to the nut who seemed to be listening intently, and said OK Mister, your message is on its way.

It was a long moment until he said "Good enough, that should hold the fatherless sons for awhile". For a religious nut he had an interesting turn of phrase I thought, but one thing for sure he didn't know the morse code, at least not the morse code that we were using. I immediately called Yellowknife and gave the urgency signal which got quick action from Don Jorgenson on phone. I lost no time in telling him the situation and asked him to can the phone and get on CW. The message from Slim went to Constable Macdonald right away. He sent a reply straight away back to Slim saying he was charting a

Canadian Airways airplane and would be standing by for a report on landing conditions at the campsite, the message ending with "try to disarm but do not antagonize". Oh brother!

The temperature had been falling steadily day-by-day and Alim and all the experienced lads agreed that there was plenty of ice for a landing. This was duly forwarded to Constable Macdonald whose final word was, "leaving by first light". All of us wondered just how Constable Macdonald was going to cope. Outflow was hanging on to that gun and there was little doubt in anyone's mind that he would use it.

We certainly kept Outflow in the dark about all these preparations and he occupied himself for the balance of that day talking to his troops and trying to convince them that they should return to camp with him. There was a decided lack of enthusiasm but they, being privy to developments, tried to humour him.

The following day dawned cold and clear, and operation RCMP got underway. It was an anticlimax really. About eleven o'clock a Canadian Airways Norseman arrived. The pilot was Jack Crosby, who I believe is now operations manager for a west coast airline. I don't

remember who Jack's air engineer was but the only passenger was Constable Macdonald. Good Lord, I thought is he out of his mind, where's the posse.

I don't think he had his full uniform on, it being very cold but there was no doubt from his manner and bearing that he was a police officer. After briefly conferring with Slim he walked straight up to Outflow (the rest of us were peering out from behind trees) and said, "Alright Harry, you and I are going on a little trip but first you must hand over your gun, you know you can't shoot ptarmigan out of season". At this, Outflow, meek as a lamb, handed over his gun and went along with Macdonald. They climbed on to the airplane, Jack took off and that was that. A short time later I heard that Outflow had spent some time under observation but had made a complete recovery and after some further time in hospital had gone back into the North to look for his mine. I hope he found it.

Following this episode I sat back and drew a deep breath and waited for word as to when we would be going from hence. I didn't have long to wait. About the middle of December Slim passed the word to the Toronto office that nothing useful could

AMSAT forges ahead

The recent disappointment generated by the failure of the launch vehicle which would have put OSCAR 9 into orbit has spurred on efforts to proceed with the Amateur experiments in space communication. AMSAT, the international Amateur satellite organization, according to HR Report, will provide increased support to the English group at the University of Surrey and its innovative experimental satellite. The support will extend

to the Canadian Amateur synchronous satellite program as well. The acronyms are UOSAT for the British experiment and SYNCART for the Canadian 'synchronous Amateur radio transponder'. Both programs are coming to the point of building the hardware. AMSAT is looking at the possibility of producing a second machine to replace the one lost in the May launch from French Guiana.

be accomplished by keeping the crew at Wray and requested permission to move everyone out until the following Spring. We spent a feverish couple of days building caches to store the useable gear, canoes etc. I wrapped up the generator after first having coated it with old engine oil and put it fondly into cold storage; it had performed

faithfully and well. The receiver went back to the Signal Corps from where we had borrowed it and as for the transmitter I decided not to do anything with it. I walked out of the place without even a backward glance.

A long time later I found out that Canadian Airways Ltd. fell heir to that camp and all that

was in it. Years later, Harry Hardham the chief radio man for Airways, told me that they found everything just as I had left it complete with badly scorched bug that I had rebuilt after things got more or less normal after the fire; that is between the fire and the nut episode. Naturally on the way home we had to stop one night in Yellowknife. I took the opportunity to go up to VEM and have a visit with Sid McCaulley and Don Jorgenson. They had a message for me from old Joe Benkhe at Gordon Lake the text of which I can still remember. "So long big boy, don't get singed, see you in the Spring". Well, Joe's sentiments were certainly well intentioned, however I have never been any further North than the city of Edmonton since. Thank goodness.



Charles L. Skelding VE2ABZ
2249 Swallow Ave.
Dorval PQ H9S 2K4
(ex VE4CV, VE5CV, VE3ADU)

RF versus AF -- Detente in sight?

A recent Ottawa Citizen article claims that the EMI situation has improved considerably over recent years. Interference complaints have levelled off, according to the Ottawa district DOC.

Several reasons are offered to explain this improvement.

First, the 'CB Craze' has reached a plateau since peaking in 1976-77 when up to 1500 licences were issued monthly in Ottawa. That level has now shrunk to perhaps 150 per month.

Second, standards of manufacturing have been tightened, improving DOC control over "power and technical characteristics of CB units and reducing the chance of interference".


Third, the increased use of cablevision in urban areas, all but eliminating the once proliferation of receiving antennas. Last, the availability and use of inexpensive "rejection filters and other devices to reduce interference". Although radio operators "have no legal obligations as long as their equipment meets DOC standards", a responsible one would install a filter for a neighbour with an interference problem.

It was noted that improved technology makes it "quite possible" for manufacturers of home entertainment equipment to protect their customers from EMI, but that DOC has no control over the manufacturers to implement such protective measures. We can only hope that they will undertake to protect their customers voluntarily since "they are more aware of the problem now".

CBC comments to DOC

The Canadian Broadcasting Corporation in its comments to the DOC on the future of 890 to 960 MHz says it notes "with concern the allocation of 902 to 928 MHz to Amateurs". It "does not consider the sharing of spectrum with the Amateur Service to be viable".

What the CBC did not say is that it didn't mind sharing 3950 to 4000 kHz with 300,000 U.S. Amateurs. Just to rub it in, the People's Radio objects to the proposed 'personal radio' (i.e. CB) in the 900 MHz band but would not object if the proposed five meg CB band was centred on 923 MHz ... which, of course, is smack dab in the new Amateur assignment of 902 to 928 MHz. CN-CP Telecommunications went along with this idea.



Changes to TCA personnel

Changes to the personnel who report on Canadian happenings through CARF radio bulletins and the pages of TCA are being made. The management of CARF Radio Bulletin Service has been undertaken by Brett Delmage VE3JLG, leaving Dave Goodwin VE2DZE free to concentrate on the TCA Contest Column and CARF awards management. Doug Burrill VE3 CDC is leaving the post of TCA editor after seven years of nursing it from 300 to more than 5,000 readers. Cary Honeywell VE3ARS of Ottawa, assisted by Dave Nessman VE3GEA will fill the Editor's chair beginning with the September issue.

Good, Better, Best...

By J.G. Coulombe VE2HY

In which the author runs out of excuses and decides to investigate the science of phasing verticals.

Articles I've read and saved over several years on phasing verticals were usually for more than two antennas. This resulted in hundreds of feet of coax and a large, complicated switching system of either relays or switches.

Finding excuses against trying this type of system was easy. I didn't enjoy laying radials, necessary repairs to a second vertical cached away in the basement, the cost of additional coax ... and besides, it's too cold in the early spring and late fall.

Getting into this project came as a result of two things: my article on verticals in **TCA** and a conversation with Reg Walker VE2YG. Reg has been using elevated, phased verticals for some time and is very pleased with the performance. He kindly provided me with data he had obtained from Hy-Gain corporation. When the information arrived, I went to the excuse file, they were pretty thin, so it was necessary to do something constructive.

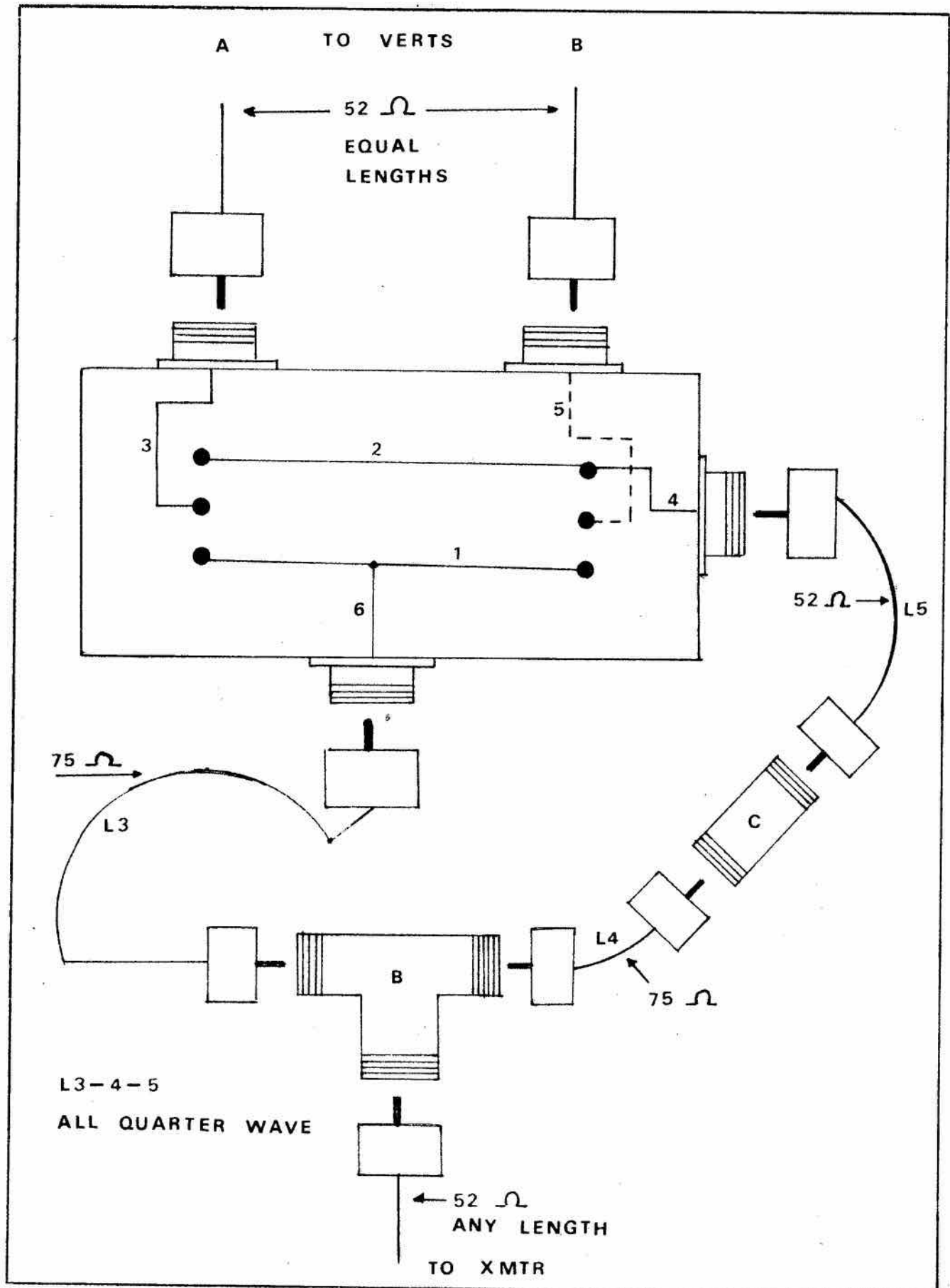
What I wanted was to use two verticals and feed them 90° out of phase so that a cardioid pattern would result. The pattern was to be switchable in two directions. This is accomplished by the insertion of a quarter-wave delay line in the feed to one vertical, causing the antenna to fire or be

directive to that particular element. It was decided to try as simple a system as possible for east and west phasing, and also cover three bands, 20, 15 and 10 metres.

As it appears in the title, 'Good' is what was opted for, because 'Better' and 'Best' were beyond my capabilities. The ideal (best) spacing is half a wavelength (66') for verticals. This was not possible in my case due to limited space. A quarter wavelength (33'), which is 'better' was out of the question; a large tree stood in the way a short distance to the west of the vertical now erected. I wasn't prepared at this stage to move that one and begin replacing 85 radials.

So, 1/8 wavelength was chosen, or 16 feet. This would permit me to erect the second antenna to the east with sufficient space to lay radials. A compromise in radiation pattern could result, plus a loss in efficiency over half or quarter wave spacing, but I was willing to give it a try. Twenty metres was chosen and it was estimated it should also function on 15 and 10 metres, with the use of an antenna matching unit.

The drawing shows the layout of the control unit and the necessary connec-



tions. The two SPDT switches have a contact rating of 10 amps at 125V. The four coax sockets are SO-239 type. Three additional sections of coax were purchased, one at 52 ohms and enough for two lengths at 75 ohms. With the switch to vertical B in the up position, and the one to antenna A switched down, the delay line is inserted into the B circuit. Thus the antenna will fire and be directive to B or west. A switch change will have them fire in the opposite direction, or east.

The 52 ohm output lines are of equal length. The remaining lines, L3, L4 and L5, are cut to the following formula which is used for either half or quarter wavelength.

$$\frac{246,000 \times \text{vel. factor}}{\text{freq. in KHz}}$$

The velocity factor for regular coax is 0.66 and 0.75 for foam. Since my operating is mainly CW, the lines were cut for 14,050 KHz. This worked out to 13.13 feet; L3, L4 and L5 were cut to these lengths and plugs attached.

The remaining items required are a "T" connector (B) and a coupler (C). The control box measures 5¼" long, 3" wide and 2¼" deep. Connections inside the aluminum enclosure were made with silvered or copper wire, 12 gauge at 1 and 2. The others at 3, 4, 5 and 6 were made with equal lengths of 52 ohm coax, permitting removal of the cover for modifications or repairs.

With the second vertical up and the lines plugged in, I just had to turn on the equipment and listen. One thing was immediately apparent ... the sharp rearward attenuation on all three bands. After a short period of enjoyment, it was back outdoors to the radials. I managed 48 before giving up to cold and boredom.

With four months of listening, two contests, numerous QSOs and some calculating, I'm completely satisfied with the end result. Phased verticals do make excellent DX antennas. For short range communications, however, its preferable to drop one off. This can be done either via the switching unit, or attaching one directly to the equipment, minus the phasing lines. My results indicate signals can be reduced from 20 to 25 dB from the

opposite direction of actual phasing. The test information from Hy-Gain predicts a 30 dB attenuation with a 4.5 dB forward gain; this is of course for ideal spacing. My forward gain is estimated to be nearer 3 dB. For such close spacing, the results are well worth the effort.

With the antennas phased East, for Europe, I've reduced signals from the west dramatically. This occurs up to a line drawn midway through Ontario, the state of Michigan and south. Any attenuation from that imaginary line and east is not measurable or noticeable. The same reduction occurs with opposite phasing and is ideal on 15 and 10 metres when band conditions are good. The Hy-Gain data also claims a side attenuation of 20 dB. However, either due to the spacing or possibly to the number of high power stations to the south of the antennas, no noticeable attenuation can be discerned irrespective of phasing east or west.

The antenna matching unit has permitted excursions into the 40 metre band. There is some loss in efficiency and altered radiation pattern, but it does work. The unit is a Dentron Super Tuner with variable settings for the built-in balun. Since the station is equipped with a Ten-Tec Triton IV, the unit is a decided advantage. Solid-state equipment is not tolerant of high SWR. It will function under this condition, but the output power will be reduced and dissipated as heat. If the SWR is high enough, you will either be QRP or have zero output and a very hot heat sink. As a matter of interest, on 80 metres it is necessary to drop one vertical and operate in the single mode.

If higher power were used, it would be necessary to convert the switches to the coax type; I do not believe those in use would stand up very long to a 1000 watt input.

There are four sheets of information and drawings on phasing verticals as supplied to me by VE2YG. I have not reproduced anything more than the formula and mention of some attenuation and gain figures. If anyone is interested in obtaining the four pages, I would be pleased to supply them for a business sized SASE.

J.G. Coulombe VE2HY

Workbench Test Accessories

CUT THE CLUTTER

Most repair jobs and experiments require a.c. power, d.c. power or audio connections. In order to make the necessary hookups, we generally employ a fistful of trusty alligator clip leads of various hues. The resulting lashup of power supplies, components, meters and clip leads bears close resemblance to a snake's honeymoon and can easily result in short circuits as one exposed conductor touches another. After years of procrastination, I built three small accessories which reduce my clutter considerably.

D.C. CURRENT BOX

Perhaps the most frequently used of the three boxes is the one for measuring d.c. current. As can be seen in the photo, it consists of two pair of binding posts and a switch. A small mini box houses the parts. One binding post goes to the positive side of the battery or supply and the other post continues to the circuit under test. The centre pair of posts, black and red, allow a milliammeter to be connected in series with the positive lead. The switch is used to short out the ammeter posts when you don't want a meter in the series circuit.

A few test sessions will convince you of the usefulness of this little gem. Applications include monitoring charging current of ni-cads or checking power drain of any d.c. load. You will probably discover more uses.

AUDIO PATCH BOX

One thing I never seem to have is enough patch cords to hook a certain size phone jack to a particular plug. The box shown in the picture allows for a reduction in the number of wires on the bench. The connectors

are all wired in parallel so that some combination should match your needs. The binding posts connect to the wire coming from the plug in use. No more time wasted by scrounging around in the parts drawer for odd connectors. Anyone contemplating stereo servicing can just duplicate the plan to allow for two audio channels.

FUSED A.C. BOX

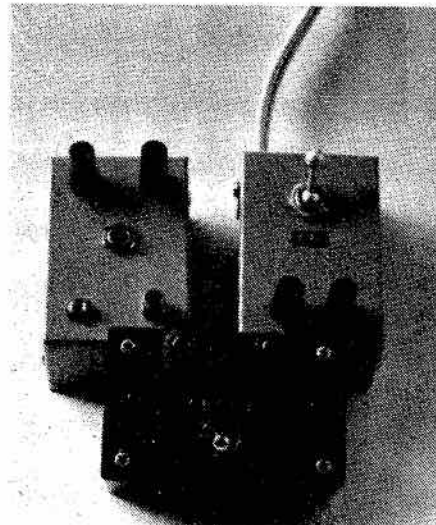
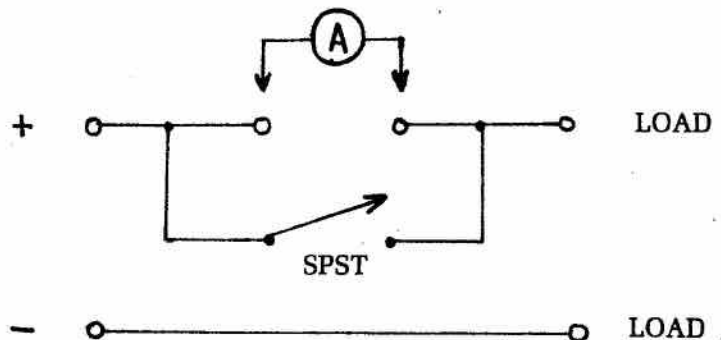
The last timesaver is a sanitized version of our old friend, the suicide cord. It exists in many forms - none of them safe. The one shown in the photograph is a bit better than most since it has a fuse in each side of the line and there is a handy on-off switch built into the box. If desired you could also wire in a neon lamp to show when power is applied to the

piece of gear under test. The set of binding posts gives a positive and secure connection for a variety of test leads and stripped wires. The live contacts are fairly well out of reach to prevent accidental shocks. Keep in mind however that great care must be used with a device such as this. 110 volts can give you a nasty frazz.

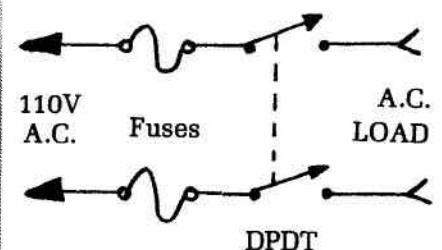
SUMMARY

The photo shows my choice of cabinets and parts placement. A search through your junkbox might yield many of the necessary jacks and connectors, saving a few dollars. Despite being extra simple and easy to build, each box serves a useful function by making your work quicker, safer and neater. □

Glenn McMichael,
Box 231, Goderich, Ont.



D.C. Current Box ↑



Fused A.C. Box ↑

Switchable CW Filter

for the Kenwood TS520S

I recently installed the optional CW filter in my Kenwood TS 520-S transceiver. There was, however, one problem with the filter wired as prescribed, in that it could not be switched off as certain situations warrant. I have performed some wiring modifications in order to obtain this switching capability.

In my case, the existing heater switch on the transceiver was not a very useful item, so I decided to use it instead to switch the CW filter on or off, without damaging the enclosure by drilling a hole for a new toggle switch.

The first step is to remove the top and bottom covers. On the left side of the rig (meter side), a solder strip is fixed on one of the meter screws. Unscrew this strip and push it gently aside, thus giving you clear access to the switch from the side. Also push aside the wires from the two jacks underneath the chassis. After resting the chassis on the right side, you now have two ways to reach the switch.

Originally, the heater switch was wired as in figure 1. Unsolder the wires on terminals 2 and 3 and solder them to terminal 1. Identically, wires from 5 and 6 are soldered to terminal 3. When the CW filter was first wired on the IF board, the brown wire on the SSB terminal was moved to the CW terminal. Unsolder this wire and reroute it to terminal 5 on the heater switch. Then solder a wire at terminal 4 and at the

SSB terminal. Repeat with a wire from terminal 6 to the CW terminal. The heater switch now looks as in figure 2.

In operation, the heaters are permanently connected to the

power supply. When the switch is in the OFF position, the CW filter is not used. □

Pierre Goyette VE2FFE
5855 Bretagne, Brossard, PQ
J4Z 1X7

Figure 1

ORIGINAL WIRING OF HEATER SWITCH

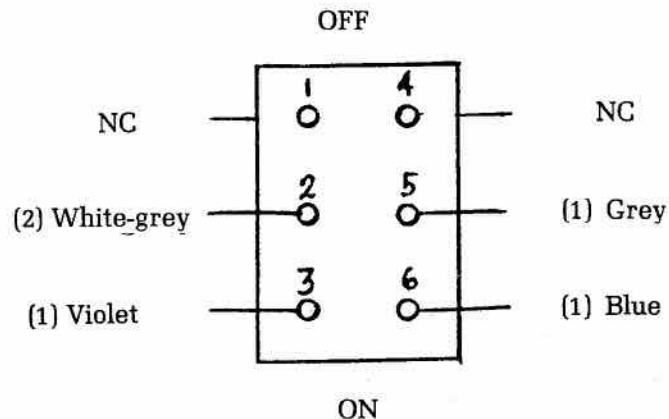
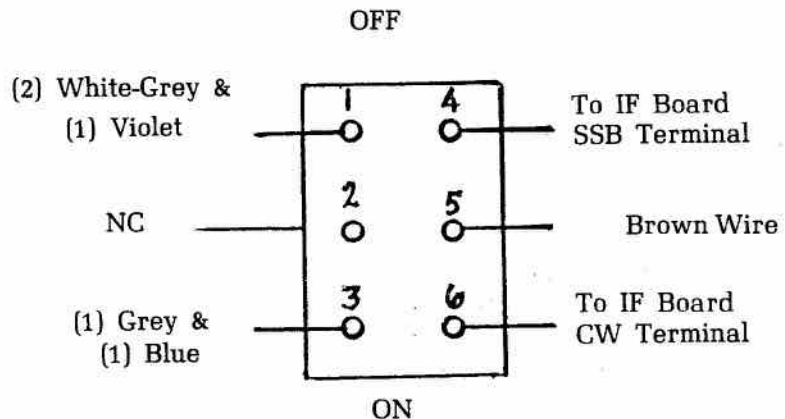


Figure 2

MODIFIED WIRING TO ALLOW CW SWITCHING



SURPLUS

Government

Electronic Equipment

Receivers, Transmitters, Tubes
Test Equipment, Xmfrs, Meters
APX 6 Transponders

MD141A/GR military modulator and power supply. Tubes include pr 811's and four 3B28 rectifiers. 110/220 volt input. Mil spec xmfrs (chokes rated 700 ma), blower cooled, with schematic. Size 12x19x23.....\$14.00
Aluminum floor racks, military MT686/GR, open frame 6 ft high, 20 in. deep. With 3 pr equipment support brackets. Wt. approx 80 lbs. Drilled for standard 19 inch panels.....\$25.00

FREE FLYER #3 AVAILABLE

William J. Ford

VE3KHB

RR 6 Smiths Falls, Ontario K7A 4S7

The world's first
FULLY SYNTHESIZED
COMPACT
VHF FM MONITOR
"SLIMSIZER"

1800

 channel

5" x 2 3/8" x 15/16"
130 x 63 x 25 mm

AR-22

COVERAGE CAN BE CHANGED TO ANY 9 MHz SPREAD IN THE VHF RANGE BY CHANGING THE REFERENCE CRYSTAL AND RE-ALIGNMENT OF THE RECEIVER.

EXAMPLE: 151-160 MHz or 161-170 MHz etc.....

A SCANNER TO SCAN THE MHz BAND SELECTED WILL ALSO BE AVAILABLE.....

\$199⁹⁵

 INSURED SHIPPING \$5

TEMPERATURE COMPENSATED

FROM THE MANUFACTURERS OF THE "TEMPO SA"

The AOR model AR-22 is 1,800 channel PLL frequency synthesized VHF FM communications receiver which covers entire 140.000MHz to 144.995MHz band in 5KHz steps. The AR-22 is designed primarily for 2 meter amateur band reception on the 144.00 to 148.00MHz band.

The AR-22 design is based on an advanced PLL synthesizer technology which generates the local oscillator signal for a dual conversion receiver with an outstandingly clean signal reception. The AR-22 receiver is the equal of many full size base station; sample measuring out at 12dB SINAD for less than 0.2 microvolts for all frequencies.

HAM RADIO ATLANTIC

MINIMUM CHARGE ORDER \$50 - CHARGES NOT ACCEPTED ON MONTHLY SPECIALS MARKED (1)



P.O. Box 765
Saint John, N.B.
Canada A1L 4B3
(506) 852-5785



QSL CARDS!

Print or write orders clearly. Send orders to Canadian QSL Printing Service at address below. Not responsible for incomplete copy or errors caused by illegible writing. Include Name, Call, Address, Province, Postal Code and specify colour scheme A, B or C & quantity required. Ont. residents add sales tax. No COD, enclose payment with order.



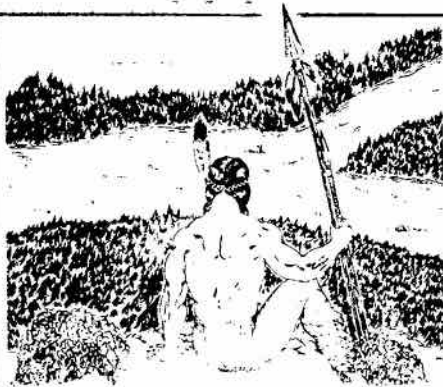
Canadian QSL Printing Service offers to members of The Canadian Amateur Radio Federation, Inc. a distinctive two colour QSL card for only \$14.25 per 500 gram lot (approx. 200 cards). Non-members of CARF may have the card without the CARF logo for only \$16.50 per 500 gram lot (approx. 200 cards). Ontario residents please add sales tax. The price INCLUDES insured parcel post anywhere in Canada. Individual calls, names and QTH printed as illustrated. The card is standard in design and is available in your choice of three colour schemes: (A) - Silver map with flag and all printing in red; (B) Flag and map in red and all other printing in blue; (C) Map in silver and all printing in blue. Printed one side on lightweight Buff Bristol stock. Please specify which colour scheme you desire: A, B, C. Make all cheques or money orders payable to Canadian QSL Printing Service, Bruce McCoy VE3GDZ. Send all orders to:

Canadian QSL Printing Service

1128 Brydges St., London
Ontario N5W 2B7

Send for your free catalogue of complete Canadian QSL's featuring the new one-sided cards and the magnificent Canadian Wildlife series.

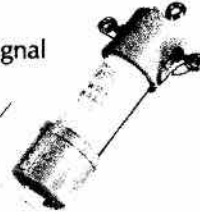
Allow 4 to 6 weeks for delivery. Prices subject to change without prior notice.



UNADILLA

FULL POWER - QUALITY
HAM ANTENNA ACCESSORIES
at your dealer

the Big Signal
**W2AU
Balun**



LONDON:
VICTORIA:
CONCEPCION:
BUENOS AIRES:
COL. ANAHUAC:
HELSINKI:

AMCOMM 01 804 1166
Scalar 725 9677
Telecom Trans Chile 25471
Multi-Radio 773-1266
Radiac 2-50-32-40
Erikoismediat (90) 611258

HAMS - call for our
free catalog PC-80

DEALERS - join over 400
dealers world-wide. Call
us today for no-risk deal.

HAMFEST MANAGERS -
UNADILLA cooperates!
Call us.

US - TOLL-FREE 1-800-448-1666
NY/Hawaii/Alaska/Canada -
COLLECT 1-315-437-3953
TWX - 710-541-0493

Ask for Hugh Gunnison, WAZZOT,
or Bonnie, or Emily.

For over 20 years, the choice
of Hams, Armed Forces and
Commercial Communications - world-wide.

the Old reliable
W2VS Traps



5-Band
Antenna
Kit

·Lo-Pass Filter 2000W
·Quad Parts
·Baluns / Traps
·Insulators
·Wire & Cable
·Connectors

UNADILLA / REYCO Division Microwave Filter Co., Inc., E. Syracuse, NY 13057

BARGAIN HUNTERS!

THESE ARE NEW, CLOSEOUTS - DEMOS - SHELF MODELS AND OVERSTOCKED MERCHANDISE ETC.
ALL CARRY OUR FAMOUS NEW DOUBLE TIME WARRANTY. LIMITED QUANTITY, FIRST COME BASIS
ALL ARE SUBJECT TO PRIOR SALE. SORRY NO TRADE-INS AT THESE PRICES.

DRAKE

TR/DR7	DIG. TRANSCEIVER	\$1899.00
PS7	POWER SUPPLY	355.00
MS7	SPEAKER	49.00
RV7	REMOTE VFO	276.00
VARIOUS	XTAL FILTERS	76.00

ROBOT

70A MONITOR & 80A CAMERA
OPERATES FAST & SLOW SCAN
COMPLETE WITH 25mm LENS
\$785.00

HEATHKIT

SB 320	LINEAR AMPLIFIER	\$285.00
HW 202	2 METER WITH XTALS AND	
HWA 202A	POWER SUPPLY	\$285.00

<u>ICOM</u>	IC22S 2 METER FM	\$375.00
-------------	------------------	----------

HYGAIN

TH6DXX	6 EL 3 BAND	\$346.00
204BA	4 EL 20 METERS	262.00
TH3MK3	3 EL 10/15/20	241.00
COMPLETE MOBILE SYSTEM:		
WITH BUMPER MOUNT, 60" MAST AND		
80/40/20/15/10 RESONATORS.		
	ONLY -	\$159.00

COLLINS

KWM2	WITH POWER SUPPLY, SPEAKER	
	AND REJECTION TUNING	\$985.00

PANASONIC

RF4900	0-30Mhz GEN. COVERAGE RCVR	
	(1st 819.00) ONLY \$699.00	

<u>NDI</u>	2 METER DIG. & SYNTH. 25W.	
	HC1400 WITH MEMORY	\$429.00

YAESU

FT901DM	TRANSCEIVER	
	KEYER-FM-DC not incl.	\$1599.00
FP12	POWER SUPPLY 12amps	159.00
FT202R	HAND HELD WITH XTALS	179.00
FT625RD	ALL MODE 6 METERS	1175.00
FT627RA	6 METER MOBILE	549.00
FC901	ANTENNA TUNER	239.00
FTV901R	TRANSVERTER-2 meter	529.00
FL2100B	1200 WATTS PEP AMP.	719.00
FT223	2 METER MOBILE 10W.	229.00
FT227RB	2 METER *MEMORIZER*	499.00

FLDX2000	LINEAR AMPLIFIER	285.00
FLDX400	TRANSMITTER	365.00

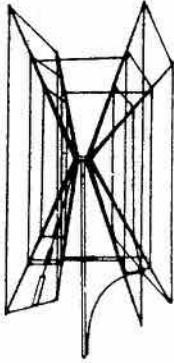
<u>REALISTIC</u>	SX190 GENERAL COVERAGE RCVR	\$280.00
------------------	-----------------------------	----------



**AMATEUR
RADIO
SALES**

378 WILSON AVE.
DOWNSVIEW, ONT. M3H 1S8
PHONE (416) 636-3636 TELEX 065-24751

**GEM-QUAD FIBRE-GLASS
ANTENNA FOR 10, 15, and 20 METERS**



Two Elements \$159
Extra Elements \$113

Price Is
F.O.B. Transcona

**INCLUDES U.S.
Customs Duty**

**KIT COMPLETE
WITH**

- SPIDER
- ARMS
- WIRE
- BALUN KIT
- BOOM WHERE
NEEDED

**WINNER OF MANITOBA DESIGN
INSTITUTE AWARD
OF EXCELLENCE**

*Buy two elements now — a third
and fourth may be added later with
little effort.*

*Get a maximum structural strength
with low weight, using our "Tride-
tic" arms.*

GEM QUAD PRODUCTS LTD.

Transcona, Manitoba, Canada R2C 2Z5
Box 53 Telephone (204) 844-3338

(613) 833-2974

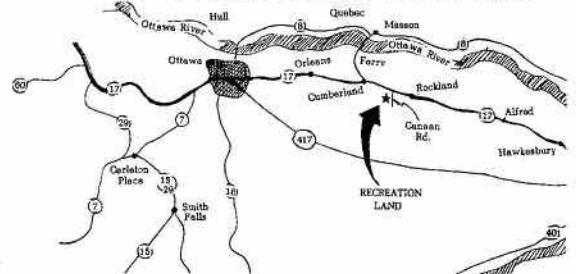


RR 2
14 MILES EAST OF OTTAWA Cumberland, Ontario

Near Ottawa, Canada - 4 mi. E of Cumberland
Reservations Accepted Catering to the Tourist

- Camping • Swimming Pool • Horseback Riding
- Groceries & Ice • Volleyball Court
- Dumping Facility (\$) • Full Hookups • Playground

All sites are oversized with a view for miles!



Your Host: Bruce Little VE3COL

25 minutes E of Parliament Hill
Only 14 mi. E of Ottawa on Hwy. 17

(613) 833-2974

SPECIAL OF THE MONTH

TR-7600

TR-7625

RM-76

The new TR-7600 (TR-7625) is a high-performance 2m FM transceiver with memory, designed to permit multichannel (800 channel) operation. Featuring the ability of repeater operation, this transceiver brings you all the convenience and versatility in both mobile and fixed station operation. The TR-7600 (TR-7625) has provision for connection of the optional microprocessor control unit, RM-76 for added versatility.

RM-76 FEATURES

- Selected frequencies are displayed by keying the last four digits (1000, 100, 10, or 1-kHz steps).
- Operating frequencies can be shifted up or down 5 kHz.
- Ability of utilizing a maximum of six memory channels (one channel may be used for transmit frequency shift).
- Transmit frequency can be shifted by ± 600 kHz or ± 1 MHz by using Repeater Mode. Also, it can be shifted any desired amount by using Memory.
- Ability of scanning both empty and operating channels plus six memory channels (M1-M6). Memory data remain stored even when Power Switch is OFF (power cord must be left connected).

PRICE REDUCTION



TR7600 (10W) WAS \$599 NOW ONLY \$549	SAVE \$50
TR7625 (25W) WAS \$659 NOW ONLY \$599	SAVE \$60
RM 76 WAS \$179 NOW ONLY \$159	SAVE \$20

**ORDER NOW Buy a TR-7600 or a TR-7625 plus the RM-76
and get an MC-45 Touch Tone Mic FREE!**

BIG SAVINGS!!!

GLENWOOD TRADING COMPANY LTD.



278 EAST 1st STREET, NORTH VANCOUVER, B.C. V7L 1B3

TELEPHONE: (604) 984-0404

Infosection

Bulletin Station sked

Effective when Daylight Time comes in, here is the new schedule for CARF News Bulletins transmitted from VE3TCA, the anchor station for CARF News Service.

On Sundays (Zulu Time); SSB on 14.140 MHz at 1745Z; CW on 14.078 MHz at 1900Z; Teletype 5-level, followed by 8-level, after CARFNET on 14.078 MHz at 2030Z and SSB on 3755 kHz at 2200Z. On Tuesdays (Zulu Time); CW on 3630 kHz at 0000Z and teletype 5-level followed by 8-level on 3630 kHz at 0030Z.

Moving/Renewing?

If you are changing your address or renewing membership in the Federation, please send the change, cheque or money order to CARF, Inc., Box 356, Kingston, Ont. K7L 4W2, where CARF and TCA records are kept in the administrative offices.

Message forms
\$2.²⁵

SWAP SHOP

Single insertion is \$1.00 (minimum charge) for 10 words and \$1.00 for each additional 10 words. To renew, send copy and payment again. Deadline is first of month preceding publication (e.g. Jan. 1 for Feb. issue). Put your membership number and call (not counted) at the end of your ad. Print or type your ad and include your address with postal code. If using a phone number, include the area code. TCA accepts no responsibility for content or matters arising from ads. This feature is for use of members wishing to trade, buy or sell personal radio gear. It is not open to commercial advertising. Send to: TCA Swap Shop, Box 356, Kingston, Ont. K7L 4W2.

FOR SALE: KDK-144, like new. Transceiver, HW-16, tribander (40, 20 and 15 m) crystal controlled, mint condition, economically priced. Glen Schleihauf VE3ISA, 270 Scarlett Rd., Suite 202, Toronto, Ont. M6N 4X7. 416-766-1750.

FOR SALE: Robot 70 Monitor, Robot 80 Camera, \$495.00. 50 foot self-supporting and tilt-over tower with counterweights \$700.00, TR7400A (Kenwood) 2M Transceiver with built-in Scanner \$545.00. Ultimate Transmatch will even match your bed springs, \$150.00. All prices F.O.B. Guelph, Ont. Rocco Furfaro VE3HGZ, 49 Wells St., Guelph, Ont. N1E 6B7. Phone 1-519-824-1157.

FOR SALE: Panasonic RF-2200 Shortwave receiver. 3 months old. \$225. Stan VE3IOO, 31 Rivercrest Road, Toronto, Ont. M6S 4H4. 416-763-7301.

FOR SALE OR SWAP: Stoddard NM20B Field Strength Meter, packing cases, connectors, ACPSU All offers considered. VE4AI, 551 Bruce Ave., Winnipeg, Man. R3J 0W3.

FOR SALE: 24, 10' sections of heavy duty guyed trylon towers with extra cable, anchors, etc. These are used sections, will be sold for \$2,500.00. Excellent for a repeater station. Please call or write to: Mr. Abbie Buck, Box 419, Madoc, Ont. K0K 3J0. Telephone No. (613) 478-3510.

FOR SALE: Heath SB-104 with SB-604 speaker and power supply. \$900. Heath IO-4510 Oscilloscope 15 MHz Dual Trace \$800. Chris Donald VE7MY, 2052 St. Andrews Ave., N. Vancouver, B.C. V7L 3M3. 604-987-4602.

FOR SALE: Yaesu FTDX-400 Transceiver 500W PEP, 80-10 M & WWV, CW Filter, good condition, very little use, \$350 o.b.o. H. Gorrissen VE7CZR, 4859 Albert St., Burnaby, B.C. Ph: (604) 298-2155 after 5 p.m.

FOR SALE: Kenwood TS 820S with DC converter. New \$1,500.00. A.G. Ten Cate, Box 848, Brockville, Ontario K6V 5W1.

FOR SALE: HW-8 Unused since alignment by Heathkit. \$200.00. Sony ICF 6700W Digital Display Communications Receiver. AM, USB, LSB 0.5-30 MHz. FM 88-108 MHz. \$420.00. Gordon Murray VE3JSJ, 294 First Ave., Ottawa K1S 2G8. (613) 238-6074 (home) 231-2437 (wk).

WANTED: Circuit diagram and/or handbook for Viking Valiant transmitter. Will purchase or borrow with security deposit. W. Nottingham, 17 Cedarbank Ave., Nepean, Ontario K2H 6E9. VE3ARZ. (613) 828-8282.

FOR SALE: CQ Wireless Operators. Hallicrafters HT4 - E (BC 610) TX. 80-40-20. A1. V.F.O. Each Band. Up to 500 Watts RF Output. Spare tubes, instruction manual. FB Condition. Weighs 400 lbs. Can be taken apart for transporting by vehicle. \$100.00. F.O.B. Kingston. VE3NB Bernie, 91 King Street East, Apt. 304, Kingston, Ont. K7L 2Z8. 613-544-4438.

FOR SALE: 60 ft. Delhi Tower with reinforced top section, heavy duty bearing Ham II Rotor. Plus Telrex 10 metre beam on a 23 ft boom plus extra ant. tubing. Asking \$675. Don Dawson, P.O. Box 133, South Mountain, Ont. KOE 1W0. 1-613-989-2316.

FOR SALE: Kenwood TV502, 2M Transverter c/w Data Engineering Preamp, \$200. P. Quick VE3GMQ, RR 3 Brockville, Ontario K6V 5T3. Tel. 613-342-3295.

FOR SALE: Yaesu 101E, Dentron Super Tuner, Heathkit RF Power Meter - all new. George Blank VE3JOI, 3311 Kingston Rd- 402, Scarboro, Ont. M1M 1R1.

FOR SALE: KWS-1 Transmitter and 75A4 Receiver, \$1200. F.O.B. Thunder Bay, Ontario. Contact: Vic Loewen VE3JAR, 93 Melvin Avenue, Tunder Bay, Ontario P7A 7C3. Phone: 807-345-7217.



Canadian Amateur Radio First!

WHAT IS CARF?

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

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

OFFICERS

President	VE3NR	Bill Wilson
Imm. Past President	VE2VQ	John Henry
Vice-President	VE3BID	Don Slater
Secretary	VE3KJW	Don Emmerson
Treasurer	VE3IWH	Lorna Hill
General Manager	VE3AHU	Art Blick

BOARD OF DIRECTORS

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

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

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

VE3FON Marv Nash, 43 Bruce Farm Rd., Willowdale, Ont. M2H 1G4. 416-223-5544.

VE3FTO Ed Sheffman, 182 Fenn Ave., Willowdale, Ont. M2P 1X9. 416-226-1701.

VE2SY Lionel Bonhomme, 22 Cinq-Mars, Hull, Quebec J8Y 6B7. 819-771-4953.

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

BANNED COUNTRIES LIST

Iraq, Khmer Republic**, Libya, Somalia, Turkey, Viet-Nam, Peoples Democratic Republic of Yemen.

** Station XU1AA has been authorized to exchange communications with Amateurs of other countries. Note: The calls 7OA to 7OZ are assigned to the Peoples Republic of Yemen.

THIRD PARTY TRAFFIC AGREEMENTS

Bolivia, Chile, Colombia, Costa Rica, Dominican Republic, El Salvador, Guatemala, Guyana, Honduras, Israel, Jamaica, Mexico, Nicaragua, Peru, Trinidad/Tobago, U.S.A. (Territories and Possessions), Uruguay, Venezuela.

RECIPROCAL OPERATING AGREEMENTS

Austria, Barbados, Belgium, Bermuda, Brazil, Colombia, Costa Rica, Denmark, Dominica, Dominican Republic, Ecuador, Federal Republic of Germany, Finland, France, Guatemala, Haiti, Honduras, Iceland, India, Indonesia, Israel, Luxembourg, Netherlands, New Zealand, Nicaragua, Norway, Panama, Peru, Phillipines, Poland, Portugal, Senegal, Sweden, Switzerland, United Kingdom, U.S.A., Uruguay and Venezuela.

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	PRINTED	Correct Postage
Return Address	MATTER	
CARF Membership No.		
CARF National QSL Bureau P.O. Box 66 ISLINGTON, ONTARIO M9A 4X1		
<i>Use this address NOT Box 356 Kingston</i>		

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.

Veuillez 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. Veuillez 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. Veuillez adresser vos envois.
5. **Ne Pas Recommander** les envois de cartes. Cette pratique est plu 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

\$7.99



100%

If you're studying for exams or just looking for information, turn to the all-Canadian sources ... CARF Publications!

- Coil-bound for easier scanning and studying
- Revised and expanded to suit modern exams and operation
- All-Canadian

- | | |
|---|--------|
| <input type="checkbox"/> Certificate Study Guide | \$7.99 |
| <input type="checkbox"/> Radio Regulations Handbook | \$7.99 |
| <input type="checkbox"/> Advanced Certificate Study Guide | \$7.99 |

Write your name in the space on the other side of this page and mail it to CARF today!

- | | |
|--|--------------|
| <input type="checkbox"/> Message Forms | \$2.25 |
| <input type="checkbox"/> Instructor's Guide | \$5.00 |
| Designed for instructors of Amateur Radio Courses. | |
| <input type="checkbox"/> CARF Log Sheets | \$2.00 |
| Package of 50 (2300 entries!) Metric spacing; extra space for remarks; drilled for 3-ring binder | |
| CARF Logos (6" x 2½") | 4/\$1 |
| Check one: <input type="checkbox"/> adhesive sticker
<input type="checkbox"/> window decal | |
| <input type="checkbox"/> CARF Name Badge | \$3 |
| Print name and call desired _____
(Ontario add 7% sales tax) | |
| <input type="checkbox"/> Public Service Cards | |
| <input type="checkbox"/> 25/\$1 First Class Mail | |
| <input type="checkbox"/> 30/\$1 Third Class mail | |

Money Order or cheque total: _____



IF YOU'RE PROUD TO BE A CANADIAN AMATEUR, JOIN CARF TODAY!

- Free QSL Service to members
- Informative monthly issues of TCA - The Canadian Amateur
- Close liaison with Canadian government officials and much, much more!

Just choose the membership plan that suits you and mail in this form.

- FULL VOTING MEMBERSHIP** \$10 per Year _____
27.50/3 YR. \$45/5 YR.
- FAMILY MEMBERSHIP** \$1/YR. extra per person _____
\$15 for LIFE
- ASSOCIATE MEMBERSHIP** \$10/YR. \$27.50/3 YR. \$45/5 YR. _____
(Foreign Call Sign Holders and non-licensed supporters)
- LIFE MEMBERSHIP** (Full or Associate) \$150 _____

Total: _____

MY CALL _____ FAMILY CALL(S) _____

NAME _____

ADDRESS _____

POSTAL CODE _____ DATE _____

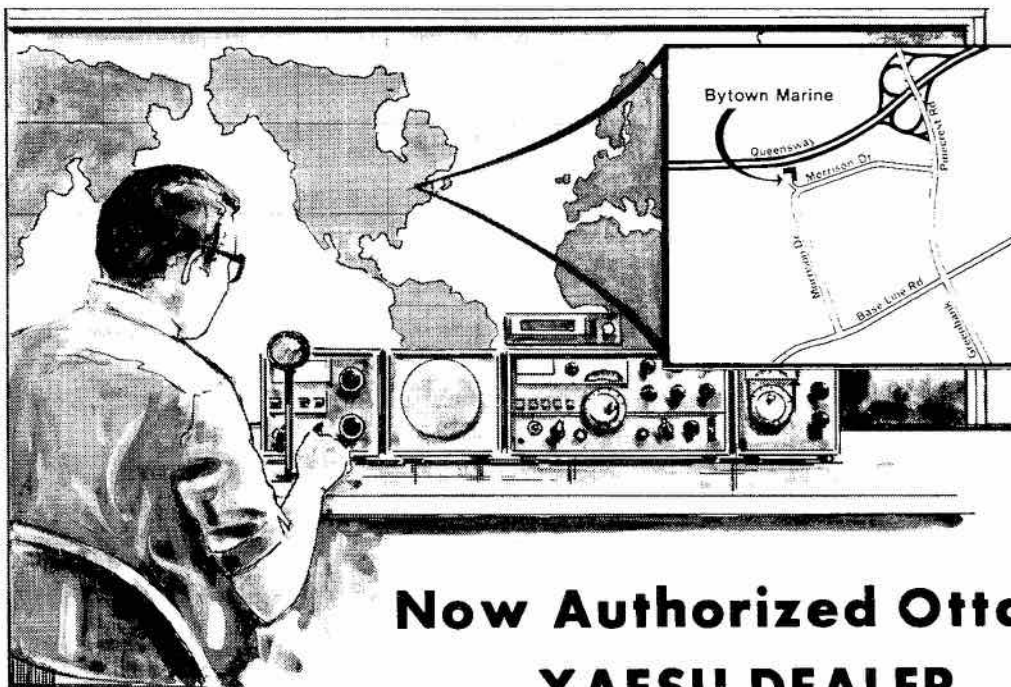
* IF RENEWING MEMBERSHIP NO IS: _____



Canadian Amateur Radio Federation Inc.

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

Ottawa's Newest Ham Store . . .



Now Authorized Ottawa YAESU DEALER

MANUFACTURERS

ATLAS RADIO
KENWOOD
M.F.J.
HY-GAIN
MOSELEY
A.R.R.L.
CALLBOOK
NYE VIKING
V.H.F. ENGINEERING
SHURE
CORNELL-DUBILIER
AMPHENOL
ANTENNA INC.
INTERNATIONAL WIRE & CABLE
TIMES WIRE
BARKER & WILLIAMSON

PRODUCTS

HF/SSB TRANSCEIVERS
2M-VHF TRANSCEIVERS
AMPLIFIERS
REPEATERS
ANTENNAS
INSULATORS
ROTORS
ANTENNA TUNERS
KEYS
FILTERS
PHONE PATCHES
MICROPHONES
CALLBOOKS
PUBLICATIONS
CODE TAPES
CO-AX SWITCHES



LEISURE TIME COMMUNICATIONS
SPECIALISTS AMATEUR • CB • MARINE

1140 MORRISON DRIVE, OTTAWA, ONT.

TELEPHONE 613-820-6910



The ~~HEATHKIT~~ SB-104A

good enough to measure up...to you!

In choosing the SB-104A you join a pretty select fraternity of fellow Amateurs. They're individuals whose imaginations were fired by the looks, feel, and reputation for outstanding performance that, since its inception, has become the trademark of Heath's entire line of famous SB series Amateur equipment.

You've joined a group of people who want state-of-the-art perfection, still insist on building their own to insure handcrafted quality, prefer to do their own maintenance and service, and above all want a rig that's good enough to measure up to their abilities, standards, and the reputations they've built for themselves.

Heath's SB-104A, it's the only choice when you're ready for a transceiver that's good enough to measure up....to you!

**Heath Amateur Radio Gear....
....the quality that measures up!**

FREE Heathkit Catalog

Catalogues also available at our 6 Heathkit Electronic Centres located in Montreal, Ottawa, Mississauga, Winnipeg, Edmonton and Vancouver, where Heathkit products are displayed, sold and serviced.



HEATH
Schlumberger

HEATH COMPANY
Dept. 1178
1480 Dundas St. E.
Mississauga, Ont. L4X 2R7

Gentlemen, please send me my free Heathkit Catalog
I am not on your mailing list.

AM-372A

Name _____

Address _____

City _____ Prov. _____

Prices and specifications subject to change without notice. Code _____