

QST 

CANADA

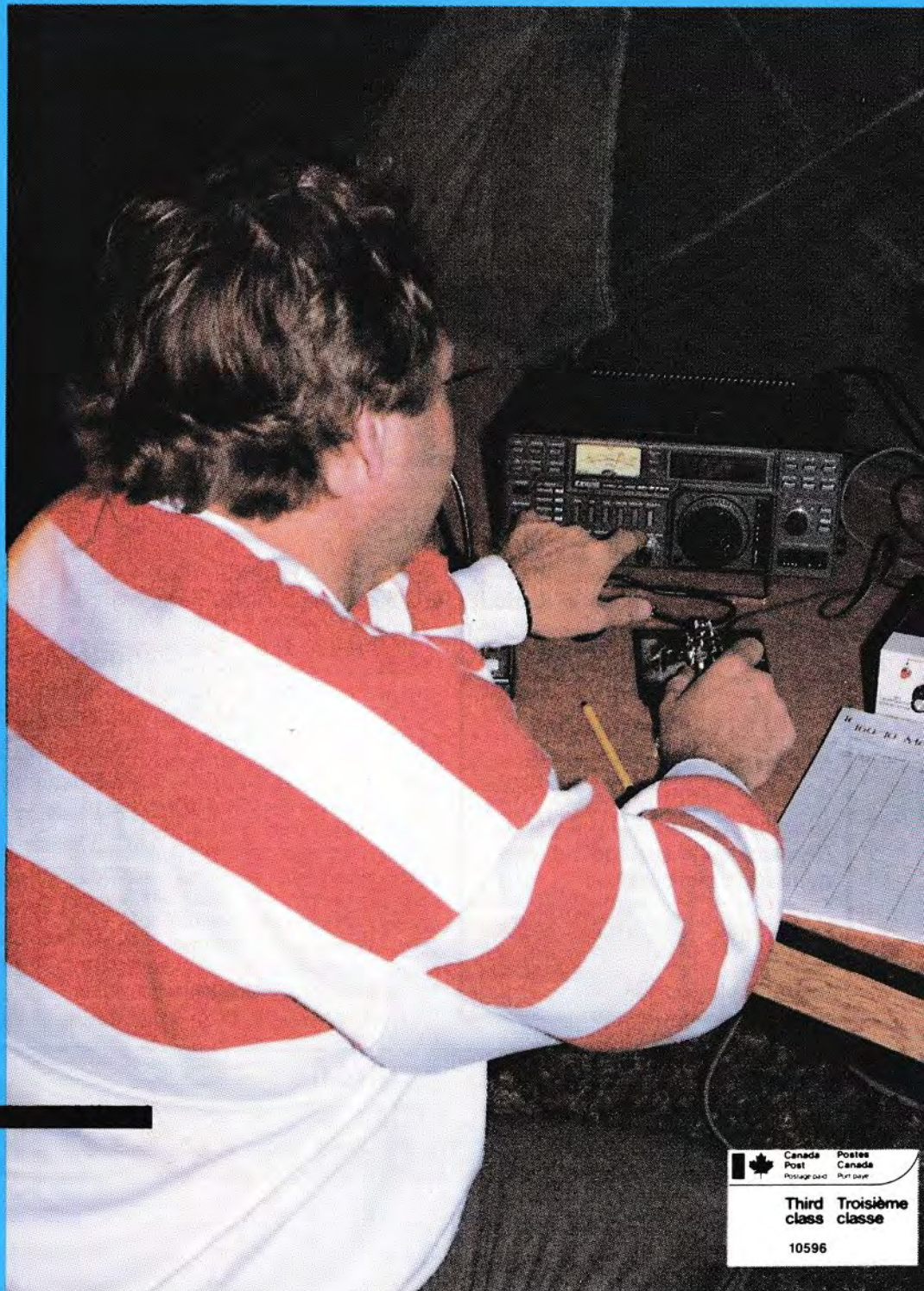
Devoted entirely to Canadian Amateur Radio
Entièrement consacré à la radio amateur canadienne


*Soo
Brier*

*Amp
Socket*

*Red
Cross*

\$2.50
June
juin
1990



 Canada Post
Postes Canada
Postage paid / Péri payé

Third class / Troisième classe

10596

Com-West Price Spectacular!

Brand New

Kenwood TH-215AT Handhelds

for as little as

\$303.60 each*



Now is your chance to own a new Kenwood VHF Handheld at a super special limited offer while stocks last!

- If you buy one TH-215AT you pay only \$399 (regular \$529)
- If you buy two TH-215ATs you pay only \$699 for both (\$349.50 each)

Or

- *If you get a group together and buy five TH-215ATs, we'll give you the lot for only \$1549! Take advantage of our 2% cash discount (not valid with credit card orders) by enclosing a money order or certified cheque with your order, and the total price drops to \$1518.00, or \$303.60 each!

Features

- Wide receiver frequency coverage - 141 to 163 MHz
- Five watts output (with optional PB-1 battery pack)
- Multiple scan modes
- Large, easy-to-read LCD display
- Selectable CTCSS Tone Encoder built-in
- 10 memories
- Intelligent 2-Way Battery Saver Circuit
- Includes PB-2 Battery and Wall Charger

Also available: TH-415AT
UHF Handheld for
\$429 - very limited
stock!

Price

Breakthrough

Now Only \$299.95

A limited supply of Uniden 2600 10 meter rigs with RIT, ON/OFF, Repeater splits, sub audible tone, mike and power cable.

Cash price
\$299.95
incl. shipping



Optional Accessories

- | | |
|---|-------|
| • BC-7 Rapid Charger | \$179 |
| • BC-8 Compact Charger | \$69 |
| • PB-1 Battery Pack (12VDC 800mAh) | \$99 |
| • PB-3 Battery Pack (7.2VDC 800mAh) | \$76 |
| • PB-4 Battery Pack (7.2VDC 1600mAh) | \$109 |
| • BT-5 Battery Case (AA size batteries) | \$29 |
| • PG-3E Filtered Cigar Lighter Cord | \$32 |
| • SMC-31 Speaker Microphone | \$79 |
| • SC-12 Soft Case (for PB-2,3) | \$29 |
| • SC-13 Soft Case (for PB1,4) | \$29 |

Terms: Cheque or Credit Card only. Surface Shipping included to most Canadian points.

**COM-
WEST**
Radio Systems Ltd.

(604) 321-1833

Fax: (604) 321-6560

8179 Main Street Vancouver, B.C. V5X 3L2

Store Hours:

Monday - Thursday
Friday
Saturday

(PST)

9:00 am to 6:00 pm
9:00 am to 6:00 pm
9:00 am to 4:00 pm

QST Canada (ISSN 0840-1670) is published monthly by CRRL Publishing, Inc., to provide radio amateurs, others interested in radio communications and electronics, and the general public with information related to the science of Amateur Radio communications.

Staff

Harry MacLean, VE3GRO
Editor

Bob Boyd, VE3SV, Garry Hammond, VE3XN, George Murphy, VE3ERP, Mitch Powell, VE3OT, Dana Shtun, VE3DSS, William Skidmore, VE3AUI, Ray Staines, VE3ZJ, Jack Strangleman, VE3GV
Contributing Editors

Ray Staines, VE3ZJ
General Manager

Keith Bentley, VE3DHL
148 Donhill Cr, Box 96
Kleinburg, ON L0J 1C0 (416) 893-1984
Advertising Manager

Butler Graphics
Linatronic Output
WEBCO Division of Bowes Publishers, Ltd
Printing and Distribution

Mailing Address

Box 7009, Station E
London, ON N5Y 4J9

Office Location

2025 Richmond Street
Arva, ON (519) 660-1200

Subscription rates: \$27 for one year (seniors over 65 with proof of age, \$24 for one year); in combination with QST: \$49 for one year (seniors, \$46 for one year). QST is available separately. Two- and three-year subscriptions are available at multiples of the yearly rate. Copyright © 1990 by CRRL Publishing, Inc.

ABOUT THE COVER



Dave Toth, VE3GYQ (that's Dr Dave to you, and we won't tell you what his VHF friends call him), takes the night shift at the 2-metre position, VE3QST, during last year's Field Day. Plan to take part in this year's Field Day, June 23-24. ■

It Seems to Us.../Il nous semble...

The Romance of AM Phone

In the beginning, there was spark. Then CW took over. Then crystal-controlled CW and Fone, which in the early days meant AM. There were excursions into other modes, but for half a century, Amateur Radio was divided into CW Men and Fone Men—and Fone still meant AM. CW drove out spark completely and no one ever went back to self-excited oscillator transmitters after crystal control and decent VFOs became available. But AM became a survivor. Some amateurs continued operating AM, ignoring SSB and even splendidly isolating themselves from it, claiming that SSB was an unpleasant aggressive mode that went against the spirit of Amateur Radio.

If you have tuned across the HF phone bands lately, you have noticed a growing number of amateurs using AM and enjoying it immensely. These amateurs are fully aware that AM is less efficient and requires more spectrum space than SSB. They don't care. Not *that* much more space is required when AM stations form a roundtable, and who really cares how much electricity you have to buy from the utility company to work your friend in Moose Jaw? AM is fun, and its use squares nicely with some current trends in Amateur Radio.

Almost everybody has an old receiver, perhaps a Hallicrafters or a National, a medium-priced set that works great for listening to the BBC. Why bother with this junk? Most of us do it because playing around with the old gear recaptures a lost feeling of Amateur Radio the way it was—or we think it was—which comes to the same thing in 1990. It is relaxing to turn a knob you can actually handle without needlenosed fingers. The warm yellow glow of an SX-28 S-meter cannot be duplicated in art or nature. And there's nothing more orderly and reassuring than a nice row of tubes with warm filaments, promising pleasure or a little excitement.

It is impossible to have these kinds of feelings towards neat, modern rigs that don't even get warm. AM equipment is gear of the forties and fifties, the salad days of US manufacturers when everything from Heathkit novice transmitters to Collins and Johnson kilowatts could be put on phone. Of course, that fabulous old gear is part of the fun of AM today.

But today's AM is by no means all commercial gear. Many amateurs build or restore the classic homebrew designs of yesteryear. AM is accessible to the average amateur today, whether in terms of parts, gadgets, knowledge or skills required. And today, as always, AM men

take their signal quality very seriously. There is even a small industry developing around the modification of audio circuits and the elimination of design flaws in certain manufactured gear.

But there is more to AM than restoring or building. Forget what they taught you in community college. All the intelligence in a phone signal is *not* contained in one sideband, and the carrier is *not* a dead freeloader soaking up power. The carrier is extremely significant. Psychologically, it is indispensable.

When an AM operator hits the transmit switch, that lovely fat carrier comes bang on the air, bending S-meters for miles around. Without saying a word, the operator has established what he's doing: he is "on the air".

The expression "on the air" is part of AM phone. With SSB, when you aren't talking, you aren't "on the air", even if your microphone button is depressed. Being "on the air" means having the frequency for a few moments. It's like having the floor in a discussion. You are having your little time in the limelight.

Since your carrier establishes that you are "on the air", there is no need to hurry about what you have to say. In fact, old-timers usually wait for a moment before they start to speak, just to let the carrier soak in at the receiving end. In the old days, this delay was planned so the receiving operator could bring his drifting receiver onto frequency before the conversation resumed. Nowadays, it's more like a tip of the hat to tradition and the romance of the carrier. It makes "on the air" really mean something.

Since you are "on the air", there is no need to hem and haw between ideas and words. SSB operators do this to keep their VOXs locked on in a vain attempt to create a sense of being "on the air". In SSB, there's a good chance that if you *aren't* talking, someone else will be. This results in the edginess and sense of hurry found in most SSB operators' speech, as each operator desperately tries to think of something to say to hold the frequency. Not so in AM. The carrier takes care of that. You have all the time you can decently use. You "make a transmission" in the same way that Radio Canada International makes a transmission.

Of course, that carrier is what the S-meters responds to. Strong carriers establish a strong, manly presence, heavy with the significance of being "on the air" and all its nuances. Weak carriers are like little

It Seems... —continued on page 19

All letters are considered carefully. Letters are edited and may be condensed in order to have more information and readers' views presented. The publishers of *QST Canada* assume no responsibility for statements made by correspondents.

OPPOSES RESTRUCTURING

I think that Amateur Radio is great, but I do not agree with the Restructuring of the Amateur Service proposals, particularly almost giving Amateur licences to those who don't have the interest to do what we had to do to get our licences.

It took me a full year of working CW and studying theory to get an Advanced licence only two years ago. Why should all those who decided just to stay on two metres and put no effort into upgrading be given an Advanced? I think that those who are involved in this restructuring should reconsider. —*Russel Canning, VE1VAZ, Westville, NS*

AMATEUR RADIO MUSEUM

We are a unique and relatively new museum devoted mainly to artifacts related to Amateur Radio. We are constructing a new building on the grounds of the Manitoba Agricultural Museum in Austin, Manitoba, in May of this year.

We would like to solicit your support. We are looking for donations of money and/or equipment for our museum. All donations will be recognized: donations of equipment on the displays themselves, donations of money on a special plaque.

The museum is located where 60,000 people visit each year. We have a complete amateur station in operation during

events taking place on the grounds. We are committed to a single purpose: collecting, preserving and exhibiting articles related to Amateur Radio. —*Duncan Emerson, VE4OD, President, Manitoba Amateur Radio Museum, Inc, Box 10, Austin, MB R0H 0C0*

Calendar



Attention: Deadline for items is the 1st of the second month preceding the month of publication. For example, information would have to reach *QST Canada* by January 1 to be included in a March issue.

ARRL Field Day: June 23–24. See May *QST* for details.

Boissevain, MB/Dunseith ND: 27th International Hamfest, July 13–15, at the International Peace Gardens on the Canada-US border. Camping, "Ham of the Year" award, mobile judging, bunny hunts, barbecue and breakfast, amateur and non-amateur activities. Talk-in on 146.52-MHz simplex. For more information, contact Dave Snyder, VE4XN, 25 Queens Cr, Brandon, MB R7B 1G1, Tel (204) 728-2463.

Burlington, ON: Ontario Hamfest, July 7, at Milton Fairgrounds. Sponsored by Burlington Amateur Radio Club (BARC). 807 garden, beef-on-a-bun, radio demonstrations, inside and outside flea markets. Opens 9 a.m., 8 a.m. for vendors. Admission: \$5, \$3 for spouses, children under 12 free. Inside tables: commercial vendors only, donate a prize; outside tables: bring your own! Talk-in on VE3RBC, 147.21(+) MHz. For more information, contact BARC, Box 835, Burlington, ON L7R 3Y7.

CARF Canada Day Contest: July 1. See June *TCA* for details.

Chatham, ON: Special-event station VE3CRC, Chatham-Kent Amateur Radio Club, will operate on the phone portions of all HF bands, from the Chatham Highland Games on June 2, and from the Chatham Festival of Nations, June 28–30. For special certificate(s), send QSL card to VE3CRC, Box 284, Chatham, ON N7M 5K4.

Kitchener, ON: Central Ontario Amateur Radio Flea-market, June 2, at Bingeman Park, 1380 Victoria Street. Sponsored by Guelph and Kitchener-Waterloo ARCs. Ontario's premier flea market. Opens 8 a.m., vendor setup 6 a.m. Admission: \$5. Tables (all inside, no outside vendors): \$8. Talk-in on VE3KSR, 146.97 MHz(-), VE3ZMG, 144.21 MHz(-), and 146.52 simplex.

Orillia, ON: Annual Olde Tyme Radio Operators' Reunion, Thursday, June 21, at Couchiching Park. Look for VE3 licence plates and meet near Champlain's Monument at 2:30 p.m. Cash bar at 4 p.m., dinner 5–7 p.m., Saturn Room, Sundial Inn, five minutes from the park. A few surprises, but no speeches. Dinner tickets \$16. Order by June 1 from Bob "Ding" Dunn, VE3ATK, 318 Short Ave, Woodstock, ON N4S 4B1, Tel (519) 537-7343. Other information from Roy Bennet, VE3VS, Willowdale, ON, Tel (416) 493-5526.

Red Deer, AB: Annual Picnic, June 15–17, at Burbank Campsite, 2.5 km east of Highway 2A on Highway 597, then 3 km south. Sponsored by Central Alberta Amateur Radio League. Activities for amateurs and the whole family. Registration: \$15 per family unit camping, \$10 per single unit camping, \$10 for optional private stall, \$6 per person not camping. Registration includes all activities and Sunday pancake breakfast. Saturday barbecue extra: \$5 per adult, \$3 per child.

The Canadian Radio Relay League, Inc La Ligue Canadienne de la Radio Amateur, Inc



The Canadian Radio Relay League (CRRL) is a noncommercial association of radio amateurs organized for the promotion of Amateur Radio communications and experimentation, for the establishment of networks to provide communications in the event of disasters or other emergencies, for the advancement of the radio art and the public welfare, for the representation of radio amateurs in legislative and other matters, and for the maintenance of fraternalism and a high standard of conduct.

CRRL is incorporated under the Canada Corporations Act. Its affairs are governed by a seven-member Board of Directors elected every two years by the CRRL general membership. CRRL is noncommercial, and no one who could gain financially by the shaping of its affairs is eligible for membership on its Board.

CRRL is the Canadian member-society of the International Amateur Radio Union (IARU). "Of, by and for the Canadian Radio Amateur", CRRL numbers within its ranks the vast majority of active amateurs in the nation and has a proud history of achievement in amateur affairs.

A bona fide interest in Amateur Radio is the only essential requirement for membership. An Amateur Radio licence is not required, although full voting membership is granted only to licensed amateurs in Canada.

Membership inquiries and general correspondence should be directed to CRRL Headquarters, Box 7009, Station E, London, ON N5Y 4J9 (519) 660-1200.

Officers and Directors

President: Bruce Balla, VE2QO

CP 876, Succ B, Montreal, PQ H3B 3K5
(514) 623-1303

Honorary Vice President: Noel Eaton, VE3CJ

Vice President: Harry MacLean, VE3GRO
500 Riverside Dr, London, ON N6H 2R7
(519) 473-1668

Vice President: Dana Shtun, VE3DSS
500 Willard Ave, Toronto, ON M6S 3R6
(416) 763-1761

Vice Pres Int'l Affairs: George Spencer, VE3AGS
R R 1, Jordan, ON L0R 1S0
(416) 562-4891

Secretary-Treasurer: William Loucks, VE3AR
155 Brentwood Rd N, Toronto, ON M8X 2C8
(416) 231-8474

Alberta Director: Ken Oelke, VE6AFO*
7136 Temple Dr NE, Calgary, AB T1Y 4E7
(403) 280-5340

Atlantic Director: Carl Anderson, VE1UU*
25 Lawnsdale Dr, Dartmouth, NS B3A 2N1
(902) 469-9756

Quebec Director: Pat Franklin, VE2EDO*
51 Bayview Ave, Point Claire, PQ H9S 5C4
(514) 695-5873

Ontario North Director: Raymond Perrin, VE3FN*
128 Withrow Ave, Nepean, ON K2G 3N7
(613) 225-8132

Ontario South Director: George Gorsline, VE3FIU*
118 MacPherson Ave, Toronto, ON M5R 1W9
(416) 921-4214

Midwest Director: Dave Snyder, VE4XN*
25 Queens Cr, Brandon, MB R7B 1G1
(204) 728-2463

Pacific Director: David Fancy, VE7EWI*
14455 104A Ave, Surrey, BC V3R 1R2
(604) 584-6517

Section Managers

Alberta: William Gillespie, VE6ABC
10932 68th Ave, Edmonton, AB T6H 2C1
(403) 438-2510

British Columbia: Ernest Savage, VE7FB
4553 West 12th Ave, Vancouver, BC V6R 2R4
(604) 224-5226

Manitoba: Jack Adams, VE4JA
227 Davidson Ave E, Dauphin, MB R7M 2Z4
(204) 638-9270

Maritimes-Newfoundland: Carl Anderson, VE1UU
25 Lawnsdale Dr, Dartmouth, NS B3A 2N1
(902) 469-9756

Ontario: Larry Thivierge, VE3GT
34 Bruce St W, Renfrew, ON K7V 3W1
(613) 432-5967

Quebec: Harold Moreau, VE2BP
80 rue Principale, St-Simon Co, Bagot, PQ J0H 1Y0
(514) 798-2173

Saskatchewan: Bruce Rattray, VE5RC
128 Durham Dr, Regina, SK S4S 4Z2
(306) 584-2059

Staff

General Manager: Raymond Staines, VE3ZJ
Field Services Manager: Jack Stranglerman, VE3GV
512 Pinetree Ave, London, ON N6H 3N1
(519) 471-2301

Awards Manager: Garry Hammond, VE3XN
5 McLaren Ave, Listowel, ON N4W 3K1
(519) 291-4813

Central Incoming QSL Bureau Manager:
Don Welling, VE1WF
Box 51, Saint John, NB E2L 3X1

Outgoing QSL Bureau Manager:
John Henderson, VE3HFT
Box 56, Arva, ON N0M 1C0

General Counsel: B Robert Benson, QC, VE2VW
652 Lansdowne Ave, Westmount, PQ H3Y 2V8
(514) 487-1224

*Voting member, CRRL Board of Directors

At Work with the Red Cross

What they're doing in Alberta...

By Jon Marles, VE6BIW; Len Kochan, VE6LEN;
Gus Baker, VE6AK; and Bill Goodwin of
Emergency Services, National Red Cross

SOS! Help! Grab those radios! A group of Alberta amateurs are helping ensure that the Red Cross is ready to respond quickly and efficiently to disaster situations.

When the 1987 tornado ripped through a corridor in east Edmonton, several local amateurs set up a station and makeshift antennas, and handled emergency traffic for Red Cross House. From this experience, both Amateur Radio operators and Red Cross staff learned how important Amateur Radio communications can be in time of emergency.

Today, a well-equipped station, VE6RCE, is in place should a serious and large-scale disaster strike again. A 48-foot tower with a three-element triband beam and 80- and 40-metre dipoles sit atop the three-story Red Cross Building. An IC-761, an MFJ tuner and two 2-metre rigs are installed. The station has standby power supplied by a 45-kW generator fuelled by natural gas. An IBM computer with a PK-88 TNC is in operation. A new PK-232 TNC should be available soon.

pleted across Canada and overseas. Twenty amateur volunteers are now on the station roster, and picture ID cards will soon be issued. Several training sessions have been held. A telephone tree (fan-out system) is in place for calling operators in case of emergency, with primary and secondary VHF frequencies established in case telephones do not work. Computer programs are being prepared to transform various Red Cross message formats to the standard CRRL CD-3 format.

The 20 amateurs who volunteered their time and effort to establish and/or operate VE6RCE are VE6s ADV, AKY,



The VE6RCE Red Cross station has been in operation on HF and VHF since September, 1989. Schedules have been maintained with VE6RCG in Grande Prairie, and many QSOs have been com-

pleted across Canada and overseas. Twenty amateur volunteers are now on the station roster, and picture ID cards will soon be issued. Several training sessions have been held. A telephone tree (fan-out system) is in place for calling operators in case of emergency, with primary and secondary VHF frequencies established in case telephones do not work. Computer programs are being prepared to transform various Red Cross message formats to the standard CRRL CD-3 format.

The 20 amateurs who volunteered their time and effort to establish and/or operate VE6RCE are VE6s ADV, AKY,

expand as more Red Cross stations come on the air. A snap exercise in February had nine operators report within 20 minutes. Stations similar to the one in Edmonton are being established in other cities. VE6RCG in Grande Prairie, using antennas ready to connect to rigs brought in by amateurs, is up and running. Red Deer, using the callsign VE6RCR, has office space set aside. Negotiations are now under way with the leaseholder of the building so the amateurs can use an existing structure for their antennas. VE6RCE is expected to be in operation by late spring or early summer.

Left: Bill Goodwin, Acting National Coordinator, Emergency Services, Red Cross, presents a certificate to Edmonton-area ARES Coordinator Gus Baker, VE6AKY, at the official opening of VE6RCE. Above: VE6AKY works on the VE6RCE tower.

Calgary amateurs have had trouble obtaining permission to run their coax, but Red Cross there agrees with the concept of amateur involvement, and intends to set up a full base station as soon as time and resources permit. Leithbridge amateurs have their tower up supporting an inverted-V. They have a packet node operating on HF with the callsign VE6LBR. Initial meetings about setting up a Red Cross station have been held in Medicine Hat, and amateurs at Fort McMurray, Lloydminster and Yellowknife are being encouraged to raise funds for equipment and participate in Alberta's growing Red Cross communications network.

All across Alberta, various Red Cross locations are working to establish emergency stations staffed by Amateur Radio volunteers, with VE6RCE as net control station for the Red Cross Alberta-Northwest Territories Division. A minimum standard for each location is an antenna on the roof ready for immediate connection to a rig, and an operational agreement with local amateurs.

Across Canada, many cities have already made arrangements to use Amateur Radio communications in time of emergency. Amateurs in the BC lower mainland have a motor home with state-of-the-art equipment ready for any emergency in that area. Winnipeg and Halifax amateurs have stations at Red Cross locations. Work is being done to establish a station at the Red Cross national office in Ottawa. The aim is to create a nationwide network similar to that being established on a provincial scale in Alberta.

Moving abroad, the International Committee of the Red Cross (ICRC) established radio station HBC88 at its headquarters in Geneva in 1963. It communicates with more than 22 stations worldwide. Over 36000 messages are sent and another 32000 messages are received annually. HF equipment includes some 400 transmitters. VHF equipment includes some 750 transceivers. ITU has assigned special frequencies (not in the amateur bands) to the Red Cross. Red Cross knows the value of radio communications and lately, has recognized the emergency communications capabilities of Amateur Radio and the dedication of volunteer Amateur Radio operators.

Amateurs can offer Red Cross immediate and effective communications that cannot be duplicated in any other way. If your emergency group would like to become involved in this kind of work, call the local Red Cross division in your area. A growing network is being established. You can be in on the ground floor! ■

**COMING SOON !
TALK TO THE WORLD FROM CRRL**

IPARN Update

At the stroke of midnight, New Year's Eve, 1989, IPARN, the Inter-provincial Amateur Radio Network joined forces with high technology and tested its VHF communications concept using a commercial geostationary satellite.

IPARN has been working towards building a Canada-wide communications network since its formation in 1988. This network will consist of numerous VHF and UHF "terrestrial" repeaters already in place across Canada. These repeaters already serve a major part of the Canadian amateur population, providing reliable general purpose mobile and emergency communications on a regional basis. Using a commercial geostationary satellite will enable IPARN to link these local-coverage repeaters and create an integrated communications system.



The IPARN satellite dish in Burnaby, BC.

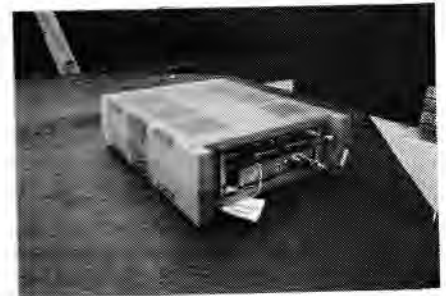
The January test was a major milestone in reaching IPARN's objective. During the test, a repeater network in British Columbia covering an area from the Lower Fraser Valley to the Southern Caribou was connected to a similar repeater network in Alberta. This Alberta network covers most of the province south of Red Deer.

IPARN used a narrow-band FM single-channel per carrier (SCPC) format on the Anik C2 (Ku band) satellite. The 7.5-kHz channel was operated on a press-to-talk (PTT) basis for an entire month. Both the satellite and the ground equipment were evaluated.

The test marked a world's first for Amateur Radio and satellite communications. It was the first large-scale VHF communications system using a satellite. Amateurs in western Canada communicated across the Rockies using nothing more than handheld VHF radios. The test also included packet radio. This ensured that data systems could be used in the final configuration. News of the test made its way to the HF bands. The air waves were "buzzing" about this new development in Amateur Radio.

The IPARN test was closely watched by government and commercial interests.

Both made positive comments. INFOSAT, a Canadian company based in Burnaby, British Columbia, assisted IPARN with the use of their facilities. Nigel Bailey, president of INFOSAT, was eager to see this innovative use of satellite technology. The federal and provincial governments were interested in the emergency communications aspects. IPARN organization does include a Director of Emergency Planning whose role is making the network available for emergencies. Earthquake, oil spills, forest fires and severe weather are all examples of emergencies where the new network could be useful.



The Anik earth station "indoor unit".

IPARN is supported by a growing membership base across Canada. For more information, contact IPARN, Dept 290, Box 3156, Langley, BC V3A 4R5. ■

VHF-UHF

We ran out of room! The following are holdovers from last month's VHF-UHF column:

ACTIVITY REPORTS

1296 MHz: More new stations are appearing on 23 cm including VE3EMS, VE3FAC and VE3FVW. Richard, VE3FAC, has developed a jig for making loop yagis. Once in production, these antennas will be available at a reasonable price. Sinclab's VE3BFM is investigating volume production of high power (150 watts) water-cooled 23-cm amplifiers based on the N6CA design.

Members of the VE7VHF group are working on amplifiers for OSCAR mode L, and discovering the joys of terrestrial 23-cm SSB. Scott, VE7FYC, is one of the sparkplugs. More on these keen fellows in a future column.

Tasmania will be QRV on 23-cm EME in the near future, thanks to Moss, VK7IK of Hobart, who will be running a 5-metre dish, a KK7B no-tune transverter and an N6CA 200-watt final. Thanks to VHF, UHF and Above for the info.

10 GHz: The San Diego Microwave Group has a number of PC boards available for 10-GHz Gunnplexer systems. For information, send an SASE to Chuck, WB6IGP, 6345 Badger Lake, San Diego, California, USA, 92119.

See you all in the June VHF QSO Party —Dana Shun, VE3DSS ■

High Power Amplifier

A homemade socket puts a 4CX1000A on the air...

By Gerry King, VE3GK
1152 Tara Dr
Ottawa, ON K2E 2H2

The main focus of this article is socket construction. However, for those interested, I have included the schematic of a complete HF amplifier RF deck, 4CX1000A (and the more powerful 4CX1500A) tetrodes are often available at fleamarkets at reasonable cost, but sockets for these tubes are rare birds indeed. Here is a homemade socket that works as well as the commercial units.

Socket Construction

Two 2" x 4" x 8" chassis are used back to back as shown in the drawings. The bottom of the 4CX1000 is centred on a 4" x 8" surface, and a pattern is drawn and cut out. Be precise! The tube is then inserted and twisted 120 degrees so the screen tabs are lined up with the chassis tabs. The tube is compressed onto the chassis using its teflon holder which is attached to the chassis cover. Because the screen tabs of the tube are on top, they act as anchor points, making a neat, compact package.

The upper chassis is pressurized so the bulk of the air from a small blower emerges through the plate fins. Some air also escapes along the sides of the tube and cools the ceramic seals.

Wiring and Operation

Normally, the cathode of a 4CX1000 runs at "ground potential" and the screen grid runs at +300 volts. With this homemade socket, the screen grid is connected to the chassis. As a result, the screen grid is at ground potential. Thus, for the 4CX1000 to function properly, the cathode must be made negative, 300 volts worth, with respect to the screen. This will require a special power supply. I will be glad to furnish details. Write to me at the address given in the byline above.

The tube is grid-driven in the passive mode. A 50-watt non-inductive resistor from the input coupling capacitor to the chassis makes the amplifier "user friendly" to its driver. I find it takes about 25 watts of drive to produce full output. Stability is excellent on all bands.

Conclusion

When working with tubes, especially in high-power amplifiers, there are lethal voltages about. Be careful! Know what you are doing! Still a high-power amplifier makes an excellent project. Why not start locating that 4CX1000A now? ■

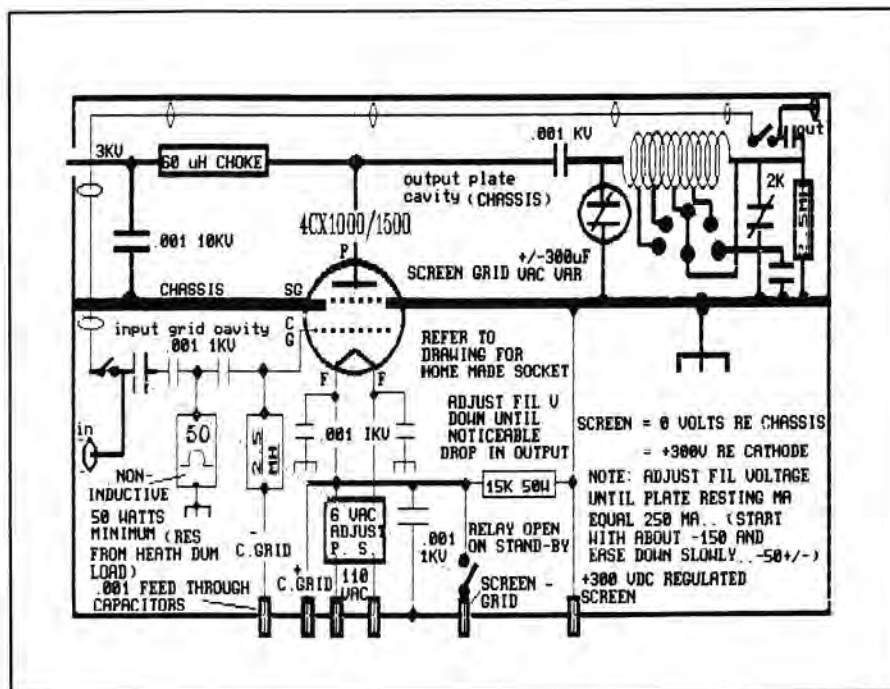
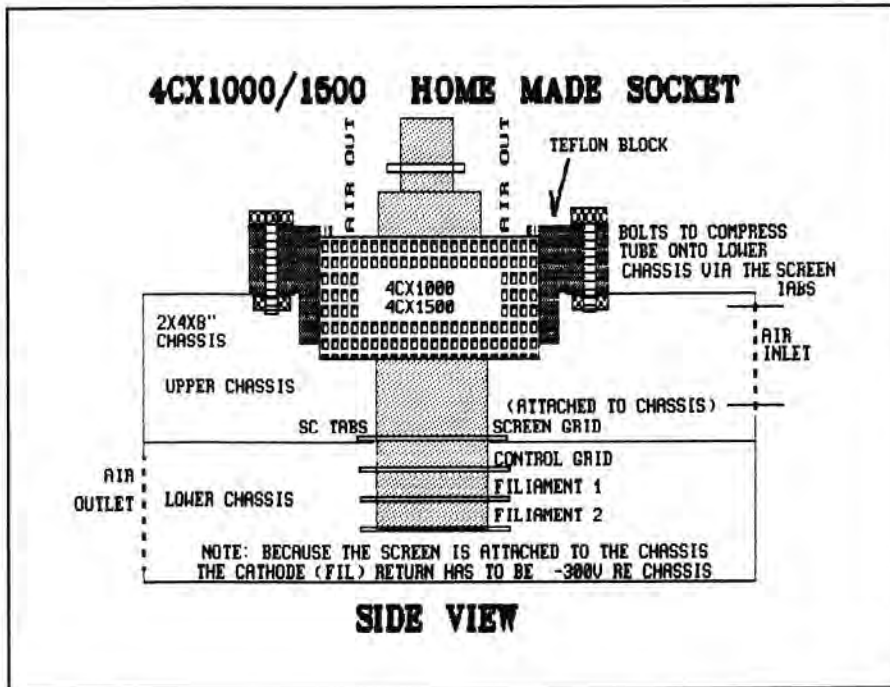
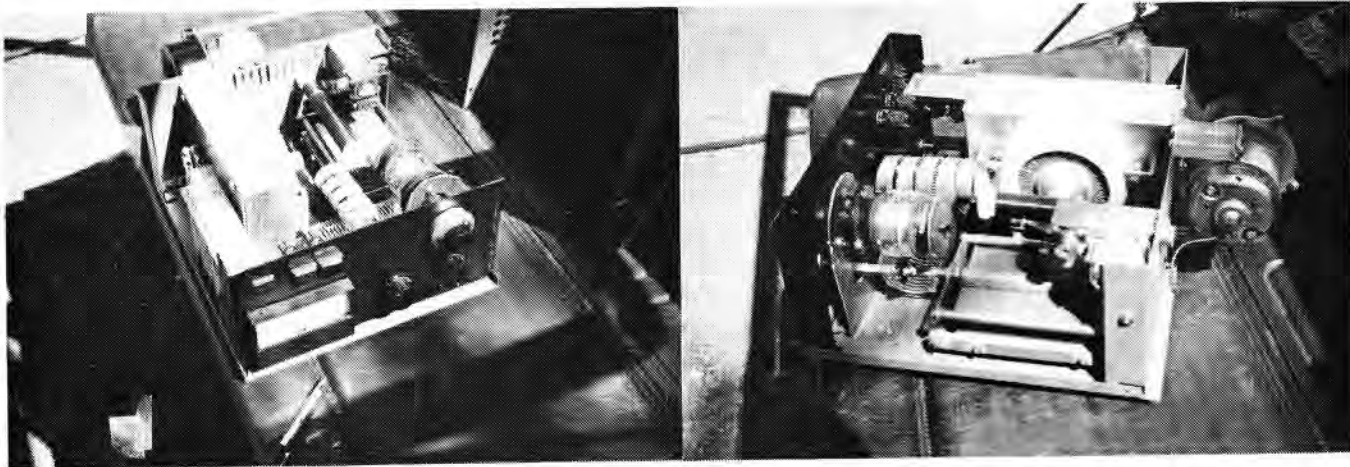


Fig 1 (above)—The homemade 4CX1000A socket. Chassis bottoms face down. Fig 2 (below)—The amplifier. Screen grid is at "ground potential", cathode is at negative 300 volts with respect to the screen. Note: disconnect the screen supply if the plate supply fails! (VE3GK drawings)



Figs 3 and 4—The 4CX1000A amplifier constructed by VE3GK. Details of the homemade tube socket can be clearly seen. (Photos by the author)

Algoma Amateurs Catch Brier Fever

Well the Labatt Brier, the Canadian Men's Curling Championship, has come and gone: a real challenge for Algoma Amateur Radio Club and some 1300 other volunteers. From all reports, we met the challenge and did an outstanding job!

While the Soo Brier Committee (Soo—that's short for Sault Ste-Marie, Ontario!) had been working towards this event for five years, the Algoma Amateur Radio Club was not invited to take part and supply trained radio operators until late in 1989. A club committee headed by Brent MacMillen, VE3OTL, was set up to plan training and operations.

By mid-December, the committee had finalized its program. During January and February, training seminars were conducted for the over 400 non-amateurs who would be using the radio system. The seminars emphasized proper procedures and allowed prospective users to become familiar with equipment. These training sessions were led by Robbie Gordon, VE3APP, and Jim Scotland, VE3ADP.

The Communications Committee, of which we were part, had responsibility for all communications for the Brier including telephones, pagers and radios. The radio system consisted of three base stations, three repeaters, 100 handheld portables and over 100 digital pagers. Five different channels in the UHF business band were used. The amateurs were primarily concerned with channels for transportation and personnel (mostly security), and operated base stations in the communications office at Memorial Gardens. It was a very busy spot with all the incoming telephone calls, two paging transmitters and two voice base stations operating from 8 a.m. to 2 a.m. every day.

Operators worked long shifts, sometimes boringly dull shifts, but occasional-

ly it was a bit like an Amateur Radio contest. Operators from the club and other local amateurs involved included Jim, VE3ADP, Robbie, VE3APP, Ben, VE3BPS, Ron, VE3BVF, Sean, VE3CTF, Walt, VE3CWE, Wilf, VE3EOW, Geoff, VE3FGT, Roy, VE3FOD, Ken, VE3GWN, Howard, VE3JIP, Cliff, VE3JIX, Fraser, VE3KOF, Brent, VE3OTL, Garry, VE3PHB, Susan, VE3PHG, Gary, VE3PHM, Alan, VE3RET, Bob, VE3SDX, Bill, VE3SYS, Norbert, VE3TNL, John, VE3UFO, Dirk, VE3UNX, and club associate members Jason and Jeff. A special mention: Mark, VE3MOU, and his wife drove the 150 miles from Wawa to help on weekends.

Although everything was planned very carefully, everything did not go as planned! It was found that the repeater for security personnel working inside the arena was giving spotty coverage. It was necessary to move the repeater. This change improved things greatly. Also no one gave a thought to static electricity.

But with the very cold, dry weather, carpeted floors, woolen sweater uniforms and so on, static did occur. It played havoc with the computers keeping track of the paging and telephone calls. However, once the operators of the paging system were grounded (literally), the problem stopped! It was a point to remember for future operations.

Comments from the Curling Executive and from the curlers themselves indicated that this was the best Brier ever, and that the Soo had been a wonderful place in which to hold it. The radio club was certainly on display and comments received from the Brier's National Executive and its local committee were that we had done an outstanding job. Added to this were the comments of the operators themselves: they enjoyed the operation and were even caught up in the excitement of the occasion. All in all, we felt Algoma Amateur Radio Club could be proud of a job well done. —Jim Scotland, VE3ADP, and Walt Kimball, VE3CWE

Robbie, VE3APP (left), and Geoff, VE3FGT (right), man the communications office at the 1990 Labatt Brier, Canadian Men's Curling Championships held in Sault Ste-Marie earlier this year. (VE3TNL photo)

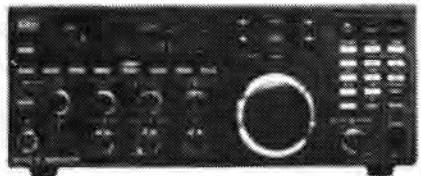


The Global-Communicator

HF TRANSCEIVER JST-135

JST-135 available with:
ECSS-Exalted Carrier SSB
Bandwidth Control Unit
Notch-Follow Unit.

JRC HF GENERAL COVERAGE COMMUNICATIONS RECEIVER NRD-525



- General-Coverage Receiver
- Electronic Tuning • Heavy-Duty Design
- Transceive Operation with the NRD-525 Receiver

- Wide Frequency Range
- Scan Reception • Sweep Reception
- Fully Solid-State, Modular Design

Receiving frequency range 100kHz - 30MHz
Type of emission SSB(LSB/USB), CW
AME, FM, AFSK
Frequency stability Within ±10ppm 5 to 60 min. and within ±2ppm one hour after powered on

Power Output 150W
Dimensions 330W x 130(142)H x 280(391)Dmm
Weight Approx. 8.5kg

Receiving frequency range 0.09 - 34MHz
34 - 60MHz (*)
114 - 174MHz (*)
423 - 458MHz (*)
Receiving mode RTTY, CW, SSB(USB/LSB)
AM, FM, FAX
Channel memory 200 channels

NOTES * With option mounted
Dimensions 330(W) x 130(H) x 280(D)
(excluding projected parts)
Weight Approx. 8.5kg

KENWOOD



TS-950SD
TRANSMIT THE ULTIMATE SIGNAL
• Digital Signal Processing
• Dual Frequency Receive
• Digital AF Filter • 100 Memories
CALL FOR DETAILS AND ORDER TODAY!

KENWOOD



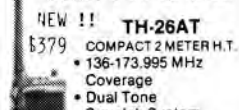
TS-140S AFFORDABLE DX-ing!
• HF Transceiver With General Coverage Receiver
• All HF Amateur Bands
• 100 W Output
• Compact, Lots of Features

KENWOOD



TH-225A
HIGHER POWER 2 METER H.T.
• Now 5 Watts Output
• Odd Off Sets
• Wideband Frequency Coverage
• Same Accessories as TH-215
CALL TODAY!

KENWOOD



TH-26AT
COMPACT 2 METER H.T.
• 136-173.995 MHz Coverage
• Dual Tone Squelch System
• 5 W Capability
• Automatic Repeater Offset
CALL FOR ALL DETAILS!

MFJ Full MFJ line stocked in depth!

MFJ... making quality affordable
All MFJ Tuners Stocked!



MFJ-949D 300 Watt Tuner
• Built-in dummy load
• New peak and Average Lighted 2-color Cross-Needle SWR/Wattmeter
• Built-in antenna switch, balun
• Covers 1.8-30 MHz

MFJ-1278Tuner also in Stock!!



MFJ-1278 Multi-mode
• All 9 digital modes
• Easy Mail™ Personal Mailbox
• 20 LED Precision Tuning Indicator
• Includes free power supply
• Includes free eeprom upgrade
Call now for all MFJ products... wattmeters, dummy loads, coax switches, keys, clocks, speaker/mics, software, books and more! One year unconditional guarantee.

Special of the Month

UNIDEN HR-2600 10M Mobile All Mode
1 @ \$279.95 2 @ \$269.95 3 @ \$259.95
6 @ \$249.95 12 @ \$239.95
VISA-M/C add \$6 per Radio.
Insured Shipping add \$6 per Radio
HURRY BEFORE THEY'RE ALL GONE !!

Advanced Electronic Applications

PK-232 Multi-mode Data Controller Now with PakMail function



- NEW IBM Fax Screen Display Program Available
 - Transmit/Receive on Six Modes
 - CW/RTTY/ASCII/AMTOR/Packet/FAX
 - IBM and Commodore terminal programs available
 - Radio Ports for HF and VHF
- In Stock for Quick Delivery

Kantronics/KAM



- True dual port - simultaneous HF/VHF packet operation
- Personal Bulletin Board
 - RTTY/ASCII/AMTOR/CW/Weather Fax
 - Programmable MARK and SPACE tones
 - Terminal programs for PC compatibles and Commodore
 - WEFAX programs for PC, Commodore, and Macintosh
- One-year Warranty

ATLANTIC HAM RADIO LTD.

Tues.-Fri. 10 a.m.-6 p.m. 368 WILSON AVE.
Saturdays 10 a.m.-2 p.m. DOWNSVIEW, ONT.
After 7 p.m. Call (416) 222-2506 CANADA M3H 1S9
For Orders. (416) 636-3636

YAESU



FT-1000
THE BEST OF THE BEST
• 200 Watts Output
• All Amateur Bands
• Dual Receive
• DDS-Direct Digital Synthesis
CALL FOR ALL THE DETAILS!

YAESU



FT-736R VHF-UHF BASE STATION
• SSB, CW, FM on 2 Meters and 70 cm
• Optional 50 MHz, 220 MHz or 1.2 GHz
• 25 Watts Output on 2 Meters, 220 and 70 cm
• 10 Watts Output on 6 Meters and 1.2 GHz • 100 Memories

YAESU

FT-470
COMPACT DUAL BAND FM HANDHELD (2M/70CM)
21 Memories for Each Band
Dual VFO's for Each Band
Up to 5 Watts Power
Built-in CTCSS
Built-in 10-Memory DTMF Autodialer

ICOM



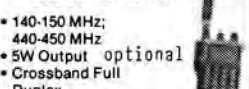
IC-765 NEW HF TRANSCEIVER
• Built-in Automatic Antenna Tuner and Power Supply
• 99 Memories • 100 W Output
• 160-10M General Coverage Receiver
• Band Stacking Registers

ICOM IC-725



NEW!
• USB/LSB/CW, AM Receive
Optional Module for AM Transmit and FM TX/RX
• 160-10M Operation • 100 W Output
• Receive 30 kHz to 33 MHz
• 26 Memories with Band Stacking Registers

ICOM IC-24AT



Optional Rx: 750-940
108-174 400-480
NEW!
• 140-150 MHz;
440-450 MHz
• 5W Output optional
• Crossband Full Duplex
• 40 Double-Spaced Memories
• 4 DTMF Code Memories
CHECK OUT ALL THE FEATURES!

In VE1, VE3 & VE2 Land outside of the Montreal area.

For orders and pricing only please!

Call Toll Free: 1-800-363-0930

Technical inquiries and regular business call (514) 336-2423.

If you have a FAX, use (514) 336-5929 at any hour.



Kenwood TH75A

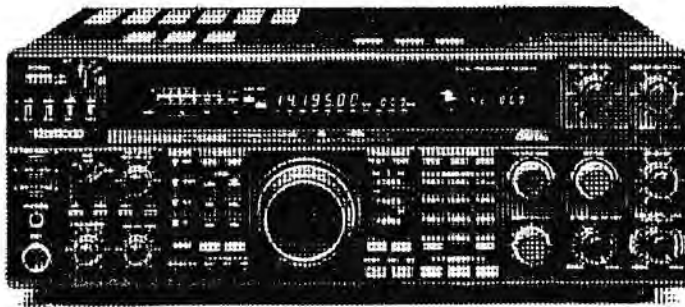
Our least expensive VHF/UHF handie. Features simultaneous monitoring of both bands and full duplex cross band operation. CTSS encode and decode standard.

Special price! \$CALL.

Store hours

Mon	closed
Tue-Thu	9-5
Fri	9-9
Sat	10-2

Kenwood TS950SD



Feature Highlights!

150 watt continuous output.
Built-in antenna tuner with new fast-tune circuit.
Three digital peak-reading meters with peak-hold.
99 memories which store frequency, mode, filter and tone info.
New digital signal-processing unit.
Direct frequency input with improved calculator format keypad.
Independent selection of filter bandwidths at both I.F. frequencies.
Dual receive capability.
High performance S.S.B. filter options.
Electronic keyer.
Plus all the features of the popular TS940!

Ordering Information

Shipping charges for prepaid orders are 2% of order, minimum \$4, except for large or heavy items. For C.O.D. orders, shipping charges are 3%, minimum \$7.

Quebec residents please add 9% sales tax.

TS950S. The base model includes the electronic keyer, antenna tuner and power supply. \$CALL.
TS950SD. The Digital model adds the digital signal processor, CW filters and high performance SSB filter to the 455KHz I.F. as standard equipment. \$CALL.
TS940SAT. The popular TS940 will continue to be available for the foreseeable future. An excellent radio at an affordable price. \$3099.



Inventory Clearance.

Now you can get on 10M with the Uniden HR-2600.

Features SSB and FM operation with 25W PEP. Covers 28-30 MHz.

A terrific mobile radio. Get in on the fun on 10M now! Conditions are great!

Take advantage of this outrageously low price!!

Save 45%. Reg \$529. Cash price: \$299!



8104A Trans-Canada Hwy, St. Laurent, Qué. H4S 1M5

Hobbytronique Inc.

CRRL and CARF Meet

Members of the CRRL-CARF Merger Committee met in London, Ontario, on Saturday, April 21. Discussions were friendly and productive. Committee members reviewed the constitutions of the two existing organizations and agreed on a basic constitutional framework for a new single Canadian Amateur Radio organization. Next step? The committee planned to forward its recommendations to the CARF and CRRL Boards of Directors for their approval. The CRRL Board was scheduled to meet on May 12. The CARF Board was scheduled to meet on June 17.

RESTRUCTURING UPDATE

□ On Monday, April 23, representatives of CRRL, CARF and DOC met by conference telephone call to discuss progress on Restructuring of the Amateur Service. On line: VE3AGS and VE3GRO for CRRL; VE3CES and VE3NR for CARF; and VE2PPP, VE3JPC and VE3WM for DOC. DOC reconfirmed that restructuring is on track. DOC remains committed to implementing the restructured Amateur Service on October 1 of this year. At that time, all those who hold the current Amateur certificate will be brought into the new structure with full privileges—the same as if they had passed the new basic exam, the new 12-wpm code test and the new advanced technical exam. (Note that it will be possible to qualify for the current Amateur certificate up to September 30 of this year.) Those who hold the current Amateur Digital certificate will receive full VHF/UHF privileges—the same as if they had passed the new basic exam and the new advanced technical exam with no code test.

□ Here is the preferred terminology for the Restructured Amateur Service. Under restructuring, there will be only one certificate: the "Amateur Operator's Certificate". An Amateur Operator's Certificate may show up to four "qualifications": the Basic qualification, the Morse code (5-wpm) qualification, the Morse code (12-wpm) qualification, and the Advanced qualification. Note that DOC will issue a new Amateur Operator's Certificate every time a candidate upgrades and receives an additional qualification.

NEW AMATEUR RADIO MUSEUM

□ CRRL Midwest Director Dave Snyder, VE4XN, reports that the Manitoba Amateur Radio Museum has secured a grant and is proceeding with plans for a display and operating building on the grounds of the Manitoba Agricultural Museum in Austin. Actual construction of the build-

ing was scheduled to begin in May. Purpose of the museum is to collect, preserve, research and exhibit articles related to Amateur Radio and radio communications. At present, the museum has some 400 items. If you have something to donate, or are interested in supporting the museum through a founding membership, contact Dave at 25 Queens Crescent, Brandon, Manitoba R7B 1G1.

9th COMPUTER NETWORKING CONFERENCE: CALL FOR PAPERS

□ The 9th Computer Networking Conference, this year a joint ARRL/CRRL venture, will be held in London, Ontario, on Saturday, 1990 September 22. Deadline for receipt of camera-ready papers is 1990 August 06. Topics may include, but are not limited to HF packet investigations, packet satellites, network development, hardware, protocols, software, packet services and future systems. Those wishing to submit papers for this conference should obtain an author's package from Lori Weinburg at ARRL, 225 Main Street, Newington, Connecticut 06111, Telephone (203) 666-1541, Fax (203) 665-7531.

□ Some additional information about the Computer Networking Conference. These conferences deal with the leading edge of packet radio (no beginner's forums here, hi) and generally attract 120-150 participants from all over North America. Exact site of this year's conference: the London Regional Art Gallery and Museum overlooking the forks of the Thames River in London, Ontario. London is approximately 200 km (130 miles) east of Detroit or west of Buffalo or Toronto. It is readily accessible by car, rail or air. Registration for this year's conference: \$25 Canadian or \$20 US. Registration includes one copy of conference proceedings and a luncheon. Arrangements have been made with London Centre Radisson Hotel to give conference participants a special rate. For additional details and a registration form, contact Harry MacLean, VE3GRO, 500 Riverside Drive, London, ON N6H 2R7, Tel (519) 473-1668, packet VE3GRO@VE3GYQ.

SOUTH OF THE BORDER

□ South of the border, the battle for 220-222 MHz goes on. At press time, briefs for the ARRL Petition for Review were scheduled to be filed with the US Court of Appeals for the District of Columbia by June 19. Oral arguments were scheduled for October 19.

□ Steve Mendelsohn, WA2DHF, was

recently named Dayton Amateur Radio Association's 1990 Amateur of the Year. Steve is well known for his work in repeater coordination, public service communications and promoting Amateur Radio through the media, and as ARRL Hudson Division Director.

□ David Sumner, K1ZZ, Executive Vice President of ARRL, has been named member of the US FCC's WARC-92 Advisory Committee.

NOTES FROM ALL OVER

□ The CRRL Board of Directors did meet in Rexdale, Ontario, on the weekend of May 17-18. We'll have a full text of the minutes in July *QST Canada*.

□ Once again, International Marconi Day was celebrated on the Saturday closest to Marconi's birthday. This year's event, on Saturday, April 21, saw more stations than ever taking part. All stations had a Marconi connection, and many were operated from sites used by Marconi or his associates in the early part of this century. Included were 1) K1VV/IMD, Cape Cod, Massachusetts, where the first US to Europe contact was made, 2) VE1IMD, Glace Bay, Nova Scotia, site of the Parks Canada's new Marconi Museum, 3) VO1IMD, Cabot Tower, Signal Hill, St. John's, Newfoundland, where Marconi received the first transatlantic signals, 4) GB4IMD, Poldhu, Cornwall, England, where those first transatlantic signals originated, and 5) DAØIMD, EI2IMD, GBØIMD, GB2IMD, GB2MDI, GB4MDI, IYØTCL, IY1TMM, IY4FGM, and ZS6RSA, all at sites of Marconi's early work. Amateurs who contacted ten of these stations qualified for the Marconi Award, issued by sponsors of International Marconi Day, Cornwall Amateur Radio Club in England.

□ At press time, launch of the STS-35 Space Shuttle, with astronaut Ron Paraise, WA4SIR, on board, was delayed to May 15. Ron was expected to be active on 2-metre FM voice and AFSK packet radio. His packet station, a HK-21 "pocket packet TNC" marketed by Heathkit, was expected to transmit bulletins providing updates on the mission, and also operate in a "robot mode" where stations on the ground could connect to the TNC and obtain a QSO number to validate their contact.

□ A DX note: Contacts with Walvis Bay made after 1977 September 01 now count for DXCC credit. However, ARRL is not accepting cards before 1990 June 01. Cards submitted before this date will be returned without credit being given. ■

KENWOOD

...pacesetter in Amateur Radio

All-mode tri-bander!

Warp Drive!



TS-790A Satellite Transceiver

The new Kenwood TS-790A VHF/UHF all-mode tri-band transceiver is designed for the VHF/UHF and satellite "power user." The new TS-790A is an all-mode 144/450/1200 MHz transceiver with many special enhancements such as Doppler shift compensation. Other features include dual receive, automatic mode selection, automatic repeater offset selection for FM repeater use, VFO or quick step channel tuning, direct keyboard frequency entry, 59 memory channels (10 channels for separate receive and transmit frequency storage), multiple scanning and multiple scan stop modes. The Automatic Lock Tuning (ALT) on 1200 MHz eliminates frequency drift. Power output is 45 watts on 144 MHz, 40 watts on 450 MHz, and 10 watts on 1200 MHz. (The 1200 MHz section is an optional module.)

- **High stability VFO.** The dual digital VFOs feature rock-stable TCXO (temperature compensated crystal oscillator) circuitry, with frequency stability of ± 3 ppm.

- **Operates on 13.8 VDC.** Perfect for mountain-top DXpeditions!

- **The mode switches confirm USB, LSB, CW, or FM selection with Morse Code.**

- **Dual Watch allows reception of two bands at the same time.**

- **Automatic mode and automatic repeater offset selection.**

- **Direct keyboard frequency entry.**

- **59 multi-function memory channels.** Store frequency, mode, tone information, offset, and quick step function. Ten memory channels for "odd split."

- **CTCSS encoder built-in.** Optional TSU-5 enables sub-tone decode.

- **Memory scroll function.** This feature allows you to check memory contents without changing the VFO frequency.

- **Multiple scanning functions.** Memory channel lock-out is also provided.

- **ALT—Automatic Lock Tuning—on 1200 MHz eliminates drift!**

- **500 Hz CW filter built-in.**

- **Packet radio terminal.**

- **Interference reduction controls:** 10 dB RF attenuator on 2m, noise blanker, IF shift, selectable AGC, all mode squelch.

- **Other useful controls:** RF power output control, speech processor, dual muting, frequency lock switch, RIT.

- **Voice synthesizer option.**

- **Computer control option.**

Optional Accessories:

- PS-31 Power supply • SP-31 External speaker
- UT-10 1200 MHz module • VS-2 Voice synthesizer unit • TSU-5 Programmable CTCSS decoder
- IF-232C Computer interface • MC-60A/MC-80/MC-85 Desk mics • HS-5/HS-6 Headphones
- MC-43S Hand mic • PG-2S Extra DC cable



Complete service manuals are available for all Kenwood transceivers and most accessories. Specifications, features, and prices are subject to change without notice or obligation.

KENWOOD

KENWOOD ELECTRONICS CANADA INC.
P.O. BOX 1075, 959 Gana Court
Mississauga, Ontario, Canada L4T 4C2

KENWOOD

...pacesetter in Amateur Radio

All New
Compact HF!

“DX-citing!”

TS-440S Compact high performance HF transceiver with general coverage receiver

Kenwood's advanced digital know-how brings Amateurs world-wide “big-rig” performance in a compact package. We call it “Digital DX-citement”—that special feeling you get every time you turn the power on!

• **Covers All Amateur bands**

General coverage receiver tunes from 100 kHz—30 MHz. Easily modified for HF MARS operation.

• **Direct keyboard entry of frequency**

• **All modes built-in**

USB, LSB, CW, AM, FM, and AFSK. Mode selection is verified in Morse Code.

• **VS-1 voice synthesizer (optional)**

• **Superior receiver dynamic range**

Kenwood DynaMix™ high sensitivity direct mixing system ensures true 102 dB receiver dynamic range. (500 Hz bandwidth on 20 m)

• **100% duty cycle transmitter**

Super efficient cooling permits continuous key-down for periods exceeding one hour. RF input power is rated at 200 W PEP on SSB, 200 W DC on CW, AFSK, FM, and 110 W DC AM. (The PS-50 power supply is needed for continuous duty.)

• **Built-in automatic antenna tuner (optional). Covers 80–10 meters.**

• **5 IF filter functions**

• **VOX, full or semi break-in CW**

• **Dual SSB IF filtering**

A built-in SSB filter is standard. When an optional SSB filter (YK-88S or YK-88SN) is installed, **dual** filtering is provided.

• **AMTOR compatible**

• **Adjustable dial torque**

• **100 memory channels**

Frequency and mode may be stored in 10 groups of 10 channels each. Split frequencies may be stored in 10 channels for repeater operation.

• **TU-8 CTCSS unit (optional)**

• **Superb interference reduction**

IF shift, tuneable notch filter, noise blanker, all-mode squelch, RF attenuator, RIT/XIT, and optional filters fight QRM.

• **MC-43S UP/DOWN mic. included**

• **Computer interface port**



Optional accessories:

- AT-440 internal auto. antenna tuner (80 m – 10 m)
- AT-250 external auto. tuner (160 – 10 m)
- AT-130 compact mobile antenna tuner (160 m –

- 88SN 2.4 kHz/1.8 kHz SSB filters • MC-60A/80/85 desk microphones • MC-55 (8P) mobile microphone • HS-4/5/6/7 headphones • SP-41/50/50

Kenwood takes you from HF to OSCAR!



- 10 m) • IF-232C/IC-10 level translator and modem IC kit • PS-50 heavy duty power supply • PS-430/PS-3D DC power supply • SP-430 external speaker • MB-430 mobile mounting bracket • YK-88C/88CN 500 Hz/270 Hz CW filters • YK-88S-

- mobile speakers • MA-5/VP-1 HF 5 band mobile helical antenna and bumper mount • TL-922A 2 kw PEP linear amplifier • SM-220 station monitor (no pan display) • VS-1 voice synthesizer • TU-8 CTCSS tone unit • PG-2C extra DC cable.

Complete service manuals are available for all Kenwood transceivers and most accessories. Specifications and prices are subject to change without notice or obligation.

KENWOOD

KENWOOD ELECTRONICS CANADA INC.
P.O. BOX 1075, 959 Gana Court
Mississauga, Ontario, Canada L4T 4C2

THE CRRL BOOKSHELF

STUDY MATERIALS

	Non-Member	Member	Stock#	Postage	✓
Talk to the World	20.00	18.00	102	1.00	<input type="checkbox"/>
Canadian Amateur Licensing Manual	18.75	17.00	100	.50	<input type="checkbox"/>
Canadian Amateur Question Bank	10.00	9.00	112	.75	<input type="checkbox"/>
Canadian Amateur Code Tapes (OT)	38.00	34.25	200	2.50	<input type="checkbox"/>
Canadian Advanced Question Bank	10.00	9.00	116	.75	<input type="checkbox"/>
Banque de questions première	10.00	9.00	113	.75	<input type="checkbox"/>
Banque de questions supérieur	10.00	9.00	117	.75	<input type="checkbox"/>
First Steps in Radio, W1FB	8.00	7.25	470	.75	<input type="checkbox"/>
Premier pas en radio, W1FB	8.00	7.25	F900	.75	<input type="checkbox"/>
Operating an Amateur Radio Station	1.25	1.25	300	1.25	<input type="checkbox"/>
Help for New Hams	12.50	11.25	475	1.00	<input type="checkbox"/>

CRRL INSIGNIA

Lapel Pins (OT)	3.00	3.00	130	.75	<input type="checkbox"/>
Large Cloth Diamond (5") (OT)	3.00	3.00	141	.75	<input type="checkbox"/>
Small Cloth Diamond (3") (OT)	2.00	2.00	151	.75	<input type="checkbox"/>
ARES Circular Patch (4") (OT)	4.00	4.00	161	.75	<input type="checkbox"/>
Set of 3 CRRL Logo Decals (OT)	1.00	1.00	180	.75	<input type="checkbox"/>

OTHER

Fifty Years of ARRL	5.75	5.25	460	.75	<input type="checkbox"/>
From Spark to Space	25.00	22.50	465	1.00	<input type="checkbox"/>
Gil (cartoon collection)	6.25	5.75	860	.75	<input type="checkbox"/>
Night Signals (adventure)	6.25	5.75	856	.75	<input type="checkbox"/>
Tompkins Adventures (6 books)	30.00	27.00	855	1.50	<input type="checkbox"/>
200 Metres and Down	10.00	9.00	560	.75	<input type="checkbox"/>

OPERATING AIDS

1990 Repeater Directory (OT)	7.50	6.75	194	1.50	<input type="checkbox"/>
1990 North American Callbook (OT)	35.00	31.50	721	2.50	<input type="checkbox"/>
1990 International Callbook (OT)	37.50	33.75	711	2.50	<input type="checkbox"/>
Chicken Junction Directory (OT)	15.00	13.50	780	1.50	<input type="checkbox"/>
Log Book (pack of 3) (OT)	10.00	9.00	122	2.00	<input type="checkbox"/>
Super Log Book (pack of 3) (OT)	17.00	15.00	126	2.00	<input type="checkbox"/>
Radiogram Forms (OT)	2.50	2.25	171	1.50	<input type="checkbox"/>
Grid Locator for North America (OT)	2.00	1.50	800	1.00	<input type="checkbox"/>
DXCC Countries List (OT)	2.00	1.50	812	1.50	<input type="checkbox"/>
1990 Net Directory (OT)	2.00	1.50	824	2.00	<input type="checkbox"/>
ARRL World Map (OT)	14.00	12.50	840	2.50	<input type="checkbox"/>
Callbook Prefix Map of the World (OT)	8.50	7.75	RA10	*3.50	<input type="checkbox"/>
Callbook Prefix Map of N America (OT)	8.50	7.75	RA11	*3.50	<input type="checkbox"/>
Callbook Great Circle Map of World (OT)	8.50	7.75	RA12	*3.50	<input type="checkbox"/>
Callbook <i>folded</i> Map of the World (OT)	6.50	6.00	RA10F	1.00	<input type="checkbox"/>

ANTENNA BOOKS

	Non-Member	Member	Stock#	Postage	✓
ARRL Antenna Book	\$22.50	\$20.50	411	\$1.50	<input type="checkbox"/>
RSGB HF Antennas for All Locations	19.00	17.00	330	1.00	<input type="checkbox"/>
Antenna Compendium #1	12.50	11.75	420	1.00	<input type="checkbox"/>
Antenna Compendium #2	15.00	13.50	421	1.00	<input type="checkbox"/>
Antenna Notebook, W1FB	12.50	11.25	405	.75	<input type="checkbox"/>
Novice Antenna Notebook, W1FB	10.75	9.75	425	.75	<input type="checkbox"/>
Antenna Impedance Matching	19.00	17.00	450	1.00	<input type="checkbox"/>
Yagi Antenna Design	19.00	17.00	630	1.00	<input type="checkbox"/>
All About Cubical Quad Antennas	12.50	11.25	RP110	1.00	<input type="checkbox"/>
All About Vertical Antennas	13.75	12.50	RP120	1.00	<input type="checkbox"/>
Simple, Low-Cost Wire Antennas	15.00	13.50	RP140	1.00	<input type="checkbox"/>
Transmission Line Transformers	12.50	11.25	880	.75	<input type="checkbox"/>

OPERATING

Operating Manual	19.00	17.00	522	1.50	<input type="checkbox"/>
Complete DXer, 2nd edition	16.00	14.50	441	.75	<input type="checkbox"/>
Low Band DX	12.00	11.00	890	.75	<input type="checkbox"/>
Low Band DX Software (available for many computers; send SASE for prices)					

TECHNICAL

1990 ARRL Handbook	29.00	26.00	495	2.00	<input type="checkbox"/>
ARRL Electronics Data Book	15.00	13.50	516	.75	<input type="checkbox"/>
Radio Frequency Interference	6.25	5.75	532	.75	<input type="checkbox"/>
Solid State Design	15.00	13.50	551	1.00	<input type="checkbox"/>
Hints and Kinks, 12th edition	10.00	9.00	512	.75	<input type="checkbox"/>
QRP Notebook, W1FB	8.00	7.25	590	.75	<input type="checkbox"/>
Transmitter Hunting	24.00	21.50	390	1.00	<input type="checkbox"/>

VHF-UHF

All About VHF Amateur Radio	15.00	13.50	RP130	1.00	<input type="checkbox"/>
Satellite Anthology	10.00	9.00	700	.75	<input type="checkbox"/>
Satellite Experimenter's Handbook	12.50	11.25	540	.75	<input type="checkbox"/>
Space Almanac	27.50	25.00	705	1.50	<input type="checkbox"/>
Microwave Handbook, Vol. 1 (RSGB)	44.00	40.00	345	1.00	<input type="checkbox"/>

PACKET AND COMPUTERS

AX.25 Packet Protocol	10.00	9.00	430	.75	<input type="checkbox"/>
Gateway to Packet Radio, 2nd edition	16.00	14.50	901	.75	<input type="checkbox"/>

*Callbook Maps—A Special Note: Callbook maps (rolled versions only) ordered together can be shipped together. Add \$3.50 postage only once on orders of two and three Callbook maps.

CRRL Publishing, Inc., Box 7009, Station E, London, ON N5Y 4J9

How to order: Please check (✓) the box at the end of the line for each item you want. Add costs and the amounts shown for postage. Enclose your personal cheque or money order for the total amount of the order. Ontario residents: Add sales tax on total of costs and postage for all items marked (OT). Thank you.

Name: _____ Call: _____

CRRL Member?

Address: _____

Yes No

I enclose \$ _____

Postal Code: _____

(Signature) _____

The CRRL Field Organization Forum

SECTION MANAGER ELECTION RESULTS

Congratulations to Jim Crooks, VE4JR of Winnipeg, who was recently elected CRRL Manitoba Section Manager. Jim ran unopposed, eliminating the need for a balloted election. He will begin his two-year term of office on July 01.

REPORTS FOR MARCH 1990

Alberta: SM/STM/DEC: Bill Gillespie, VE6ABC; ASM: VE6AMM; SEC/TC: VE6AFO; OO: VE6TY. Amateur Radio stations are being installed and manned by local amateurs at Red Cross locations in Edmonton, Grande Prairie, Red Deer and Calgary. Alberta Public Safety Services conducts another Emergency Site Managers' Course on April 4-5. Band conditions remain poor and NCS are finding problems in reporting monthly totals. Many clubs in Alberta are preparing for annual Field Day.

British Columbia: SM: Ernie Savage, VE7FB. British Columbia Public Service Net: Members have switched their managers. Ford, VE7DDF, is now Net Manager and Jim, VE7JM, is Assistant Net Manager. March check-ins: high-191, low-102, total-4938. British Columbia Emergency Net: Net is looking for a volunteer to become Net Manager. Acting Net Manager Ferdi, VE7EJU, reports 860 check-ins, 259 QTC—the highest for many months. That net activity means lots of traffic. Keep it up. A QNA roll call was introduced. Most members approve of the new format. Vancouver Communications Group held a seminar on the duties of amateurs in time of disaster. One hundred and sixty attended. Clubs: we need more reports of your activities. Thanks for the reports we do receive.

Manitoba: SM: Jack Adams, VE4JA; ASM: VE4IX; SEC: VE4TM; ATC: VE4ADP; NMs: VE4LB, VE4IX, VE4TE. Not much to report this month. Nice to see the snow disappearing. It has been a long, hard winter. Dauphin Amateur Radio Club (DARC) is purchasing UHF radios for its linking system. Hopefully, in the near future, Baldy will be linked with Spearhill and Lundar, and from Lundar to Nepawa or Gimli which will link us to the WRS system. Recently, yours truly accepted a position as Manitoba coordinator of the Interprovincial Amateur Radio Network (IPARN). If you would like information about IPARN, we will be happy to answer your questions. We encourage membership in IPARN and will send out an application form to anyone interested. DARC will hold its fleamarket and model aircraft show on May 26. Should be a good day of bargaining and entertainment.

Maritimes-Newfoundland: Acting SM: Carl Anderson, VE1UU; ASM: Ned Muirrooney, VO1MN; STM: Mel Lever, VE1VX; BM: Brent Taylor, VE1APG. Field Day planners: Don't forget that your Field Day entry gets an easy 100 points for sending a formal message to your Acting Section Manager, VE1UU, during Field Day. See Field Day rules in May *QST*. Pass your traffic into the Maritimes Phone Net, 3750 kHz, 1900 ADT on Saturday during Field Day. Halifax ARC reminds all Canadian Amateur Radio clubs of the Field Day award jointly sponsored by them and Cowichan Valley (BC) ARC. It consists of a plaque that goes to the highest scoring Canadian Class 2A entry in Field Day. Halifax ARC was last year's winner, and extends a friendly challenge to all Canadian clubs for Field Day '90.

Ontario: SM: Larry Thivierge, VE3GT; BM: VE3GSA; SEC: VE3GV; STM: VE3CYR; TC: VE3EGO; NMs: VE3AJN, VE3BDM, VE3CYR, VE3GSQ, VE3ORN and VE3POJ. Congratulations to Marvin, VE3DQX, who recently marked the 25th anniversary of writing his column, "Current Events" in the *Toronto Star*. For Marvin, it's been "a labour of love" to keep students, and plenty of adults, abreast of history in the making. The column is syn-

Reports invited: CRRL Section Managers (SMs) and their Section-level assistants coordinate traffic handling, emergency communications and bulletin service across Canada. Your SM (name and address appears on page 2 of this *QST Canada*) welcomes reports of individual and club activities for publication in this column. Activities do not have to be related to the CRRL Field Organization or to CRRL.

dedicated to newspapers from Vancouver to New Glasgow, Nova Scotia. The executive of Timmins ARC includes president VE3MNR, and secretary-treasurer VE3LQW. Manitoulin ARC (MARC) is two years old and growing, especially in the summer months when membership swells to about forty. Three repeaters that service MARC: VE3RMI, VE3TOP and VE3LTR. VE2BXP, VE3DTY, VE3LYT and VE3ROD were visitors at a recent Ottawa ARC meeting. The club now has a membership of 187, up from last year. VE3CNE is sponsoring a Hamfoto contest. They will display the most interesting pictures at the station booth. Prizes will be awarded. Closing date for entries: June 30. Send entries to VE3CNE Hamfotos, Box 307, Station H, Toronto, ON M4C 5J2. In case you didn't see the recent packet bulletin, please be sure that when you remove formal NTS traffic from a BBS for local delivery, or for relay by a traffic net or other mode, that you "kill" the message using the KT command. Some stations are not doing this, resulting in multiple deliveries, much to the annoyance of recipients. VE3EFX is sporting a new IC-765. VE3DAN is the new EC for Chatham, replacing VE3FUN. VE3PHL is glad to be back on the air from Thunder Bay after being away for three months. On June 01, it is expected that the three London-area repeaters, VE3LON, VE3MGI and VE3TTT will go on full tone encode/decode using a CTCSS frequency of 114.8 Hz. These repeaters will be joined by VE3NDT in Dorchester on the same date. NM VE3FGT advises that the Laurentian Net has moved to 7055 kHz for the summer months. Starting time remains 2345 EDT. On the satellite front, VE3HFS has worked UA0ALA, SM4JWI, DL1CX and HG5BH. Ex-VE3BWN is now relicensed as VE3EEA. VE3CAP's XYL passed her amateur exam and is now VE3PAC. VE3PVE has earned his Advanced. Don't forget that 100 bonus points can be earned by sending your Section Manager a message during Field Day. Have fun during Field Day. Good luck to all participants.

Quebec: SM: Harold Moreau, VE2BP; STM: VE2EDO; SEC: VE2LYC; BM: VE2ALE. VE2QST (operators: VE2BP and VE2WH) will be on the air on Field Day. Congratulations to Bernard, VE2MS, who recently earned USA-CA All Counties Award #640, all on SSB. André, VE2GVS, est maintenant VE2ZT. Espèrent vous rencontrer au Field day, comme dans le passé, je serai l'opérateur de VE2QST. Avec regret, j'ai vous annoncer le décès de VE2DMV, VE2OV et VE2YC.

Saskatchewan: SM: Bruce Rattray, VE5RC; ASM: VE5GHC; STM: VE5ELJ; SEC: VE5FY. A number of volunteers are and continue to be very busy putting in countless hours of work and personal money as well, linking repeaters throughout the province. Their efforts are much appreciated. Saskatchewan amateurs are few in number, and money isn't exactly growing on trees. (In Saskatchewan, we have to grow our own trees, hi!) Provincial groups, clubs and individuals could assist these efforts in several ways: equipment donations, club projects to raise money, and your time. Think it over, as everyone will benefit. Right now, packet devotees can access Regina to Saskatoon and reverse via VE5ARG-7 (Avonlea), VE5UJ-3 (Last Mountain), VE5HAN-3 (Hanley), and VE5USR-3 (Saskatoon). Congratulations to Fred, VE5FMW, and Jim, VE5JAL, on obtaining their Advanced licenses. They did it the old-fashioned way—they earned it. So far, no word on the Saskatchewan Provincial Hamfest. Congratulations to Saskatoon ARC which just produced twelve new amateurs through the club's annual radio course. 73! ■

Field Day Notes

□ Don't forget this year's Field Day, scheduled for the weekend of June 23-24. Once again, this year's rules include the provision that any Class A group whose entry classification is two or more transmitters may add one "Novice/Tech operating position" without changing the basic entry classification. For Field Day purposes only, the rules states that any Canadian who has been licensed for less than six months prior to Field Day will be considered to be a Novice to provide a means for Canadian Class A stations to take advantage of this provision. The "Canadian Novice station" must observe US Novice subband, power and mode restrictions. Why not plan to set up this extra station for your newcomers. It offers a great opportunity to introduce newcomers to HF operating while letting them help your Field Day group earn some extra points as well.

□ Speaking of extra points, you can earn a quick 100 points by using "natural power", or by initiating a Field Day message to your CRRL Section Manager. Names of CRRL Section Managers appear on page 2 of this *QST Canada*. ■

Silent Keys

Conducted By Ray Staines, VE3ZJ

It is with deep regret that we record the passing of these amateurs:

VE1AXX, L A "Tex" Mattinson, Ellershouse, NS
VE1LZ, Don Bain, Tantallon, NS
VE3DME, Alf Armstrong, Trenton, ON
ex-VE3KGC, Harold Sterling, Woodstock, ON
VE3RT, C Ray Thornton, Manotick, ON
VE6RM, Robert Moore, Edmonton, AB
VE7DDL, Bill McLaughlan, Crofton, BC
VE7WP, Walter Porter, Vernon, BC

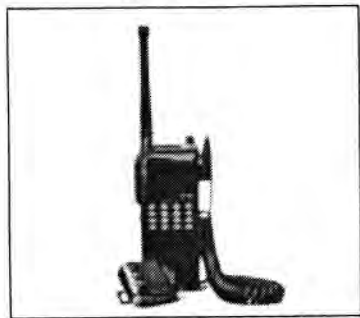
Note: Silent Key reports sent to *QST Canada* must include name, address and call sign of reporter in order to be listed. To avoid unfortunate errors, reports are confirmed only through acknowledgement from the family of the deceased. Thus, those who report a Silent Key may not receive an acknowledgement from *QST Canada*. ■

KENWOOD
ICOM
ALINCO
A.E.A.
CUSCRAFT
VIBROPLEX
BENCHER
ARRL

NORHAM RADIO SUPPLY

YAESU
TEN TEC
JRC
DAIWA
M.F.J.
KANTRONICS
UNADILLA
& MORE !!

WE SERVICE AND SELL
ALL MAJOR BRANDS !



NEW KENWOOD TH-26AT

- NEW 2M HANDHELD 136-174MHZ
- 2.5 Watts OUTPUT, COMPACT
- 20 MULTI-FUNCTION MEMORIES
- 4 AUTO-DIAL STORAGE, EXTENDED WARRANTY

LIST \$399
SALE PRICE \$379

YAESU FT-747GX



- NEW COMPACT HF TX
- RCVR/GEN COV.
- 100W OUTPUT, 13VDC

KW TM-701A



- DUALBAND 25W OUT
- 20 MEMORIES
- 136/174MHZ REC

T.T. OMNI V



- EXCEL PERFORMER
- 2 YEAR WARRANTY
- DELUX HF TRANS

SALE \$1089 SALE \$649 SALE \$2899



AEA PK-232
ALL MODE INTERFACE
RTTY/WEFAX/AMTOR
PRICE \$539

AEA-AT300-\$349
AEA-AT3000-\$599
AEA-MM3-\$289
MFJ-1278B-\$449
MFJ-1270B-\$219
KANT-KAM-\$499
KANT-KPC-II-\$269

MFJ-989C-\$589
MFJ-986-\$419
MFJ-962C-\$349
MFJ-949D-\$239
MFJ-945C-\$139
MFJ-941D-\$169
MFJ-901B-\$109

KW-TH-75AT
SALE \$599
YA-FT-411
PRICE \$449
ICOM-IC-32AT
PRICE \$779
AND MORE !

WHEN YOU PURCHASE ANY KENWOOD OR YAESU TRANSCEIVER OR ICOM VHF/UHF TRANSCEIVER WE WILL EXTEND THE MANUFACTURES WARRANTY

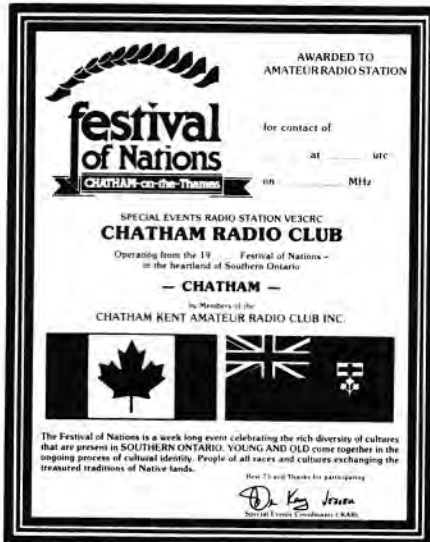
NORHAM RADIO SUPPLY

4767 STEELES AVE. W
NORTH YORK, ONTARIO M9L 2W1
HOURS: TUES 10am-8pm
WED-FRI 10am-6pm
SAT 10am-3pm

(416) 745-1000
PLEASE ADD 2% (MINIMUM \$5.00) TO YOUR ORDER FOR SHIPPING & INSURANCE
FOR PRICE LIST PLEASE SEND 78c IN STAMPS

Some Unique Wallpaper

□ When Harry "Sandy" Sanderson, VE3AHW, passed away, his friends made sure he wouldn't be forgotten. Sandy's station is now on display at the Hammond Radio Museum in Guelph, Ontario. Work VE3AHW to receive this special QSL. ➤



□ Each year Chatham-Kent Amateur Radio Club operates VE3CRC from the Festival of Nations—a week-long multi-cultural celebration held in Chatham, Ontario, at the end of June. Work VE3CRC on June 28–30 and receive the handsome certificate shown above.



□ Bob Morden, VE3EIM, is sponsor of the Worked Ontario Ports Award. To qualify, North American amateurs work ten different Ontario stations in places that have the word "port" in their names. Amateurs outside of North America work five such stations. Use fixed, mobile or portable stations, any mode, any band. Contacts must be made after 1990 January 01. Fee for this award, which features a photo of the lighthouse at Port Dover, Ontario, is US \$2 or ten IRCs. Send application to Bob at 106 Renny Cr, London, ON N5E 2C5. ■



HARRY SANDERSON, VE3AHW,
August 12, 1916 – February 18, 1988

known to his many amateur radio friends as "Sandy", was first licensed in October 1938, while residing in Hagersville, Ont.

He was active in the early days of the R.C.A.F. Commonwealth Air Training Programme at the Wireless School #1 in Montreal and later at the Wireless School #4 in Guelph, Ontario.

After overseas service in Europe, he continued service with the R.C.A.F. depots in Claresholm, Alberta, Centralia, Trenton and Clinton, Ontario.

After this faithful service to the R.C.A.F. he retired on November 21st, 1966. (R.C.A.F. #28167, W O 2) with more time available for his hobby of building equipment and operating on the 75 meter band, he soon had the very popular "Sanderson Hour", which is still active on 3762.50 KC, each evening.

SANDERSON MEMORIAL STATION

VE3AHW

QSO WITH	DAY	MONTH	YEAR	TIME	FREQ.	R	S	OPER.
				AM				#
				PM				

LOCATED IN
HAMMOND MUSEUM OF RADIO
95 CURTIS ROAD
GUELPH – ONTARIO – CANADA – N1K 1E1





SELF-SUPPORTING DMXHD, DMXMD CONCRETE-BASE TOWERS

Medium Duty and Heavy Duty Ham Towers

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

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

ANTENNA LOAD LIMITS

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

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

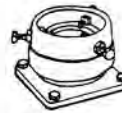
Guy wires must be used if larger loads are required or cross mounted antennas, or if greater height using straight sections is needed.



Unglue beaded channel leg resists bending



244A Cast Alum. Mast Clamp



BBMB Ball Bearing Mast Bearing



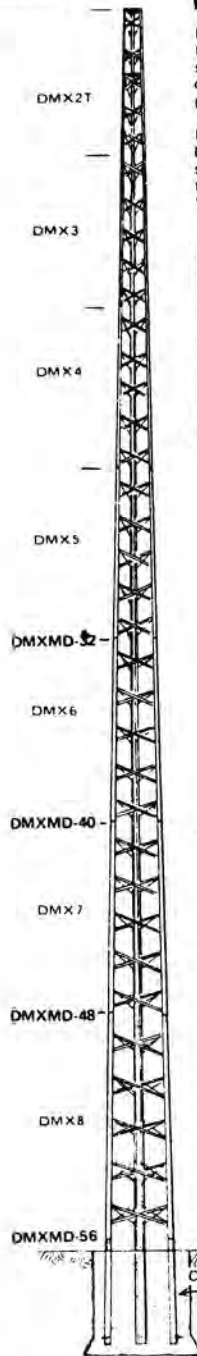
Top section of a Ham Tower with a rotator, mast and a Model BBMB installed.

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

Specifications:

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

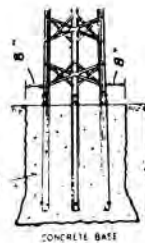
Items which may be ordered separately.



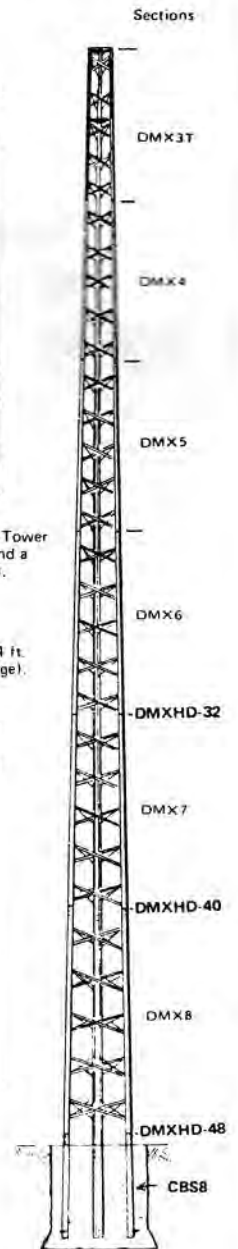
Compact Tower Package



Hinge-Up Base
HUB3-6
HUB7-8



CONCRETE BASE



Choose the tower system suitable for your location. We will tailor your requirements with respect to antennas, rotors, etc. Our firm has over 25 years experience with tower systems. Freight allowance available.

H. C. MacFarlane Electronics Ltd.

Harold MacFarlane, VE3BPM, R.R.2, Battersea, ON K0H 1H0, Telephone (613) 353-2800
Open Monday to Saturday, 7:30 a.m. to 9 p.m. Closed Sundays

IN BUSINESS SINCE 1958—YOUR ONE-STOP HAM SHOP

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

Dealer for Delhi Towers, Hy-Gain, Cushcraft, Kenwood, Yaesu, Icom, etc.

Check our Special Prices on Used Gear! Specifications and Prices Subject to Change

Random-Wire Antenna

Recent enquires have prompted me to do a writeup on the random-wire antenna I have been using. When I moved into a fourth floor apartment in Montreal in 1982, I encountered limited space. I had an antenna problem.

The diagram illustrates the results of my experiments. It has worked very well on all bands, 7-2.8 MHz, particularly at the angle shown. The reinforced steel brick apartment wall seems to act as a reflector, as results are better in an easterly direction. Incidentally, the angle was primarily chosen so that if I missed a tree branch, the lead weight would fall back against the brick wall instead of a neighbour's window!

When operating with an antenna tuner, the length of the 52-ohm feeder seems to be important for proper loading and low SWR. The length of the horizontal and vertical sections of rubber-covered wire will also affect loading on the 18- and 24.5-MHz bands. It will probably be necessary to do some adjusting, depending on your situation.

I live in the southeast corner of my building which is seven floors high. I operate a Kenwood TS-830S transceiver and a separate Kenwood antenna tuner rated to handle 200 watts PEP. —Harry Easton, VE2HLE (ex-VE4NW), 412-2420 Benny Cr, Montreal, PQ H4B 2P8

IDEAS WANTED

How have you solved a special antenna problem? Built any interesting gadgets lately? Have a homebrew project you're particularly proud of? Drop us a line so we can share what you've been doing with your fellow amateurs.

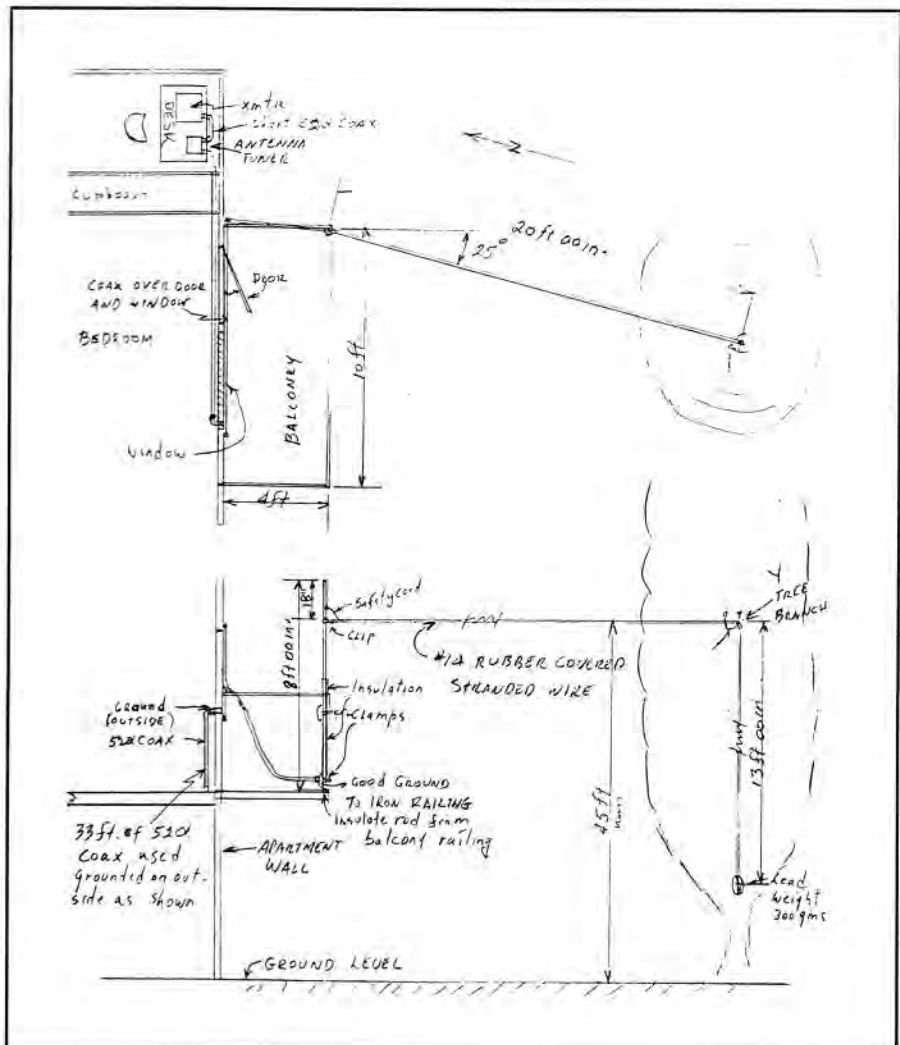


Fig 1—VE2HLE's random-wire antenna, top and side views. (Drawings by the author)

QSL CARDS FOR THE CANADIAN AMATEUR SINCE 1965



- ITEM B - RED MAP, BLUE PRINTING ON BUFF BRISTOL
- ITEM W - RED MAP, BLUE PRINTING ON WHITE BRISTOL

*ONTARIO RESIDENTS
ADD 8% SALES TAX

250 - \$37.95
Subject to Goods & Services Tax
when in effect
Price valid until December 1st, 1990

ADDITIONAL 250's
\$14.70 (when ordered
at the same time)

CALL _____ NAME _____
ADDRESS _____

QUANTITY _____ PRICE _____
INDICATE CALL SIGN STYLE _____ OST _____
1. (as sample) TOTAL _____

4. VE3GDZ

- ENGLISH
- FRENCH

INDICATE LOGOS TO BE PRINTED
(maximum of 3)
CARF CRRL

FOR SAMPLES SEND A 6x9 SELF-ADDRESSED ENVELOPE. SEND YOUR ORDER WITH FULL PAYMENT TO: CANADIAN QSL PRINTING SERVICES: 1128 BRYDGES ST. (rear), LONDON, ONTARIO, NSW 2B7. PLEASE PRINT CLEARLY ON YOUR ORDER. APPROX. 4 TO 6 WEEKS FOR PROCESSING AND DELIVERY BY CANADA POST.

A Milestone Reached

More than two years has elapsed since I was asked to write a monthly ARES column for Canada's two national Amateur Radio journals. In this, my twenty-fourth column, it is time to review what has been accomplished. Right from the beginning, my objectives have been threefold:

1. To establish the idea that "it can happen here" by describing recent disasters and ARES contributions in dealing with them. Past columns have described hurricanes, earthquakes and an aircraft disaster.

2. To review features and facilities of effective ARES organizations. Subjects covered included emergency plans, identifiers, generators, antennas, telephone trees, communications vehicles and public relations. I have spoken against the ad hoc approach to emergency communications and stressed the importance of training in message handling and net control. Suggestions for the makeup of emergency kits were made. One column was devoted to the important topic of working with volunteers.

3. To provide a medium for exchanging information on ARES activities across Canada. Reports were carried on activities of groups from Quebec to British Columbia. Emergency exercises were described ranging from simple tests of telephone trees to major tests involving several emergency response services. Some columns described how amateurs established ARES groups in their areas. Hopefully, we provided useful tips on how to establish an ARES group or run an emergency exercise. A survey of ARES groups across the country provided a basis for determining how individual groups stacked up.

We would like to pay tribute to the many amateurs who have provided reports for our columns.

What has been accomplished? That is for you to judge. All provinces from Quebec west have been heard from. Amateurs in eight areas have written for information on starting their own ARES groups.

What about the future? I will continue to stress the objectives listed above by reporting developments across the country. Let's just hope that actual disasters are few and far between. However, if recent history is a guide, there will be lots to write about.

One of our new objectives will be to provide coverage of ARES activities in the Atlantic provinces. We know there is lots of activity, but we receive few reports about what is happening. What about it, Atlantic Canada? Let's hear from you.

18 QST Canada

RECENT EXERCISES

Ken Oelke, VE6AFO, Alberta SEC and CRRL Director, provided these details on an emergency test in Calgary:

"The three Assistant Emergency Coordinators were requested to initiate our telephone tree. We attempted to contact all 70 registered ARES members. Each

member was to originate a message to the Emergency Coordinator. The message was to state year licensed, class of licence and emergency power capability. Those who weren't home but were mobile were contacted via a callout on local repeaters and simplex channels.

"Don Cole, VE6EY, activated the SW area. (Calgary is divided into quadrants.)

Field Organization Reports March 1990

CRRL Section Emergency Coordinator Reports

Reports were received from the following SECs (DECs and ECs reporting to SECs are listed in brackets) denoting a total ARES membership of 922.

Reporting	ARES Members
VE3GV (VE3s DAN, EFX, FOB, GNV, IFP, ITL, ITT, JJA, KXB, LKI, LPM, MB, OZT, SV, TNL)	578
VE4TM	34
VE6AFO	254
VE7FB (VE7BSL)	56

CRRL Section Traffic Manager Reports

Call	Orig	Rcvd	Sent	Divd	Total
VE1BTV	0	11	12	0	23
VE1ADJ	1	10	11	0	22
VE1DLC	0	11	4	4	19
VE1ALU	1	6	6	1	14
VE2BP	4	17	18	17	56
VE2WH	2	11	11	14	38
VE2ALE	0	7	2	0	9
VE3ORN	1	63	51	12	127
VE3BDM	0	75	42	3	120
VE3GT	0	53	40	0	93
VE3DVE	0	33	40	6	79
VE3BCZ	5	27	32	3	67
VE3KK	16	6	38	3	63
VE3GNW	0	25	37	0	62
VE3CYR	0	33	18	0	51
VE3K CZ	4	6	9	3	22
VE3AJN	0	8	13	0	21
VE3LPM	0	7	11	3	21
VE3SB	0	8	9	2	19
VE3EUI	0	8	10	0	18
VE3FGU	0	4	13	0	17
VE3NVJ	0	7	8	2	17
VE3WV	2	4	7	2	15
VE3MNI	0	2	4	1	7
VE3BAJ	0	2	2	2	6
VE4JA	29	56	74	40	202
VE4JR	0	25	25	8	58
VE4STU	0	14	16	3	37
VE4LB	0	13	13	0	26
VE6CE (BC)	1	15	13	3	32
VE6CPP	-	-	-	-	32
VE6XG (BC)	0	7	11	2	20
VE6XG (BC)	0	7	8	2	17
VE6GUS	-	-	-	-	9
VE6ABC	-	-	-	-	6
VE6AKY	-	-	-	-	4
VE7BNI	30	7	105	56	266
VE7EJU	1	101	118	6	226
VE7ANG	2	92	80	7	181
VE7FB	2	25	20	12	59
VE7FAZ	0	22	19	0	41
VE7XA	0	13	23	4	40
VE7CCJ	4	21	9	1	35
VE7BCL	5	18	5	4	32
VE7OM	0	9	19	2	30
VE7ESA	0	12	6	1	19
VE7AVA	2	1	15	0	18

Call	Orig	Rcvd	Sent	Divd	Total
VE7BZJ	0	9	8	0	17
VE7AJJ	0	8	2	1	11
VE7FME	0	7	1	0	8
VE7FVG	0	7	0	0	7
VE7WI	0	3	3	0	6

National Traffic System

Net (Mgr)	Sess	QNI	QTC
APN (VE1ADJ)	28	102	71
KTN (VE3AJN)	13	81	6
OLN (VE3POJ)	31	496	31
OPN (VE3BDM)	30	570	126
OQN-D (VE3ORN)	31	98	22
OQN-E (VE3CYR)	30	171	77
OQN-L (VE3GSQ)	24	60	14
MTN (VE4IX)	24	167	14
MEPN (VE4LB)	31	1020	33
MMWX (VE4TE)	31	419	21
APSN (VE6AKY)	31	844	15
ATN (VE6CPP)	31	201	60

Brass Pounders' League

This listing is available to amateurs who report to their SM a traffic total of 500 or a sum of originations and delivery points of 100 or more for any calendar month. All messages must be handled on amateur frequencies, using standard ARRL-CRRL form, within 48 hours of receipt.

BPL: None this month

Public Service Honour Roll

This listing is available to amateurs whose public service performance during the month indicated qualifies for 60 or more points in the following nine categories (as reported to their SM). Please note maximum points for each category: (1) Checking into CW nets, 1 point each, max 30; (2) Checking into phone/RTTY nets, 1 point each, max 30; (3) NCS CW nets, 3 points each, max 12; (4) NCS phone/RTTY nets, 3 points each, max 12; (5) Performing assigned NTS liaison, 3 points each, max 12; (6) Delivering a formal message to a third party, 1 point each, no max; (7) Handling an emergency message, 5 points each, no max; (8) Serving as an EC or NM for an entire month, 5 points max; (9) Participating in a public-service event, 5 points each, no max. Amateurs who qualify for Public Service Honour Roll 12 consecutive months, or 18 months out of a 24-month period, will be awarded a special certificate from CRRL Headquarters.

PSHR: VE4JA (146), VE4LB (106), VE3GNW (101), VE3BDM (95), VE3ORN (93), VE4STU (75), VE7ANG (66), VE7EJU (59)

Service and Specialized Nets

Independent Net Managers: Your monthly reports are welcomed. Send to CRRL, Box 7009, Station E, London, ON N5Y 4J9.

Net (Mgr)	Sess	QNI	QTC
ARES Canada (VE3GV)	4	99	1
ARES Ontario (VE3GV)	1	5	0
CRRL ONTARS (VE3FQV)	31	10321	0
Grey-Bruce (VE3BDM)	31	95	17
Grey-Bruce SS (VE3BDM)	31	106	31
Laurentian (VE3FGT)	31	-	2
Transprovincial (VE3EUI)	31	8898	1
ARES Alberta (VE6AKY)	31	95	17

Thirteen out of 25 registered amateurs were home. Frank Devitte, VE6ANL, activated the NW area. Ten out of 21 were home. Randy Rowe, VE6BOJ, activated the NE and SE areas. Eleven out of 24 were home. Thus, over fifty per cent plus the mobiles were reached quickly. This would be an excellent turnout in any kind of emergency.

"The formal written traffic seemed to flow fairly well, though a great deal of "net tutoring" was needed. Formal traffic handling improved from 7% in our last exercise to about 75%, but there was still considerable room for improvement. Another area for improvement: the average length of the messages sent to answer the three questions was 16 words—a bit too long. This should have been eight to ten words, including the 'X-rays'."

Niagara EC Bill Wilson, VE3OZT, provided this report on a recent exercise:

"An aircraft was reported down along the Canadian shore of Lake Erie. Amateurs were requested to come onto the VE3NRS, the Niagara Peninsula ARC repeater, and give their estimated time of arrival at the search site. VE3VM, with VE3OZT as net control, activated the telephone tree. Within 80 minutes, 66 stations checked in. Most could have been in the search area within an hour. Mobile homes and trailers, several small boats and even an aircraft were volunteered. If the exercise had been real, we would have had a complete repeater system, portable and independent, in the area. This exercise revealed some minor problems with the telephone tree, which will be addressed, and a need for coordination with area repeaters."

Hastings Country EC John Lester, VE3MB, sent in a comprehensive report on a recent exercise:

"Our operation used repeater VE3RAA in Picton, and involved Prince Edward County EC Ed Goodier, VE3KKX, and VE3GTF in Picton. Fifteen Hastings County amateurs participated. The test proved our ability to handle traffic between eight strategic points in the counties to places elsewhere. Through VE3AAU and VE3CTP, two high-power HF links were available. Through the VE3RTR repeater at Baltimore and the VE3ULR link, a direct line to Toronto and Queen's Park (Ontario government buildings) was established.

"To provide a link if a weather emergency had been involved, two amateurs were at VE3YTR, the VHF station at CFB Trenton. VE3ALC at Loyalist College, Kingston, was also part of the net, to help with health and welfare traffic. Net control was out of town at VE3MB's home in Foxboro. The repeater, HF stations and net control stations were all equipped for battery-only operation. All tactical stations had handheld transceivers for use if required."

John concluded: "Congratulations to all who came out and made the exercise a successful demonstration of Amateur Radio communications ability. The enthusiastic support given by county-area police forces and civic leaders helps make us a working emergency team ready to assist our communities." —Bob Boyd, VE3SV

ARES is a branch of the CRRL Field Organization, although you do not have to be a CRRL member to take part. It is hoped that this column, which also appears in The Canadian Amateur, will serve as an ongoing source of news and information about ARES activities across Canada. ARES members, particularly ECs, are invited to send information on what they are doing and developments they would like to share. We will pull this together for future columns with the objective of increasing our ability to serve, should disaster strike. ■

It Seems... —continued from page 1

boys trying to be grown up. They struggle against the static and the QRM, but eventually, they have to give way to a carrier equal to the task.

Every AM operator wants a carrier that will turn heads. It's like driving an XK-120. Big class-C final amplifiers and high-level plate modulators are the essence of striving in AM. And like the XK-120, the plate-modulated kilowatt in the six-foot black kinkle-finish rack, with a nice row of meters, all matching, is the sign of having arrived.

The balanced modulator kicked all this out of Amateur Radio. Hooking up grids in push-pull and plates in parallel and applying audio to screen grids was an act of violence against the essence of Amateur Radio phone. It was comparable in mischief to putting closed cabins on airplanes and automatic transmissions in cars—fine if all you want is *efficiency* or the capability of carrying out a mundane task in a mundane way in record time. But if it's an *experience* you want, if you want to get a *kick* out of your hobby, you have to select a technology that will give it to you, and not withhold it in the name of narrowness and niggardly conservation. You have to splurge a little.

Everyone has noticed that the current generation of transceivers have an AM position on them. These little creations do actually work on AM, and they are tolerated wherever AM is in use. But don't be fooled. Putting a Japanese transceiver on AM in the august presence of a Johnson 500 or a Globe King is not really AM operation in the true sense. Continuing the sports car analogy, this is a little like driving a Miata when you really want an MG-TC or a TR-3. The Miata is a cute car and the top comes off, but the ambience of the 40s and 50s just isn't there.

If you like the idea of trying AM, find or build some gear that once roamed the bands in its youthful vigor. Don't bother with controlled-carrier or grid modulation. Go for high-level plate. Don't bump up the power of your new AM transmitter with a SSB linear. It isn't the same as the real thing. If you are a new amateur and want to start small, get a Johnson Ranger or an AF-67. If you want to build a little, find a modulator circuit in a 1955 *Radio Amateur's Handbook* and plate modulate a DX-35 or AT-1. Of course, be careful. There are high voltages in this kind of equipment, and high voltages can kill. But living a bit dangerously to partake of the mystery and romance of the carrier is worth the risk. Enjoy. —William Skidmore, VE3AUI

VE3AUI, who lives near Hyde Park, Ontario, is a retired professor who drives a TR-3. Your editor, who drives an MGB, often thinks he would like a Miata. ■

COMING SOON!
TALK TO THE WORLD FROM CRRL

**SIGN UP A NEW
MEMBER**



**OR EXTEND
YOUR OWN CRRL
MEMBERSHIP
AND TREAT YOURSELF
TO A \$12 1989
HANDBOOK**

WHILE QUANTITIES LAST. USE THE COUPON ON THE INSIDE BACK COVER. ADD \$12 FOR EACH HANDBOOK.



Century 21 Communications

738-0000

Fax Line: (416) 738-1169

Store Hours

Monday-Friday: 9 AM-5 PM

Saturday: 10 AM-2 PM

	Jamr	McLeary Ct.
	Creststone	Hwy 7
400		

23 McLeary Ct.,
Concord, Ontario

KENWOOD

TS 140S/680S



ECONOMICAL FULL-FEATURED
HF TRANSCEIVER
TS-680 INCLUDES 6M

TS 940S/AT



DELUXE
COMPETITION CLASS

TS 950 SD



DIGITAL SIGNAL PROCESSING
FOR THE CLEANEST TRANSMITTED SIGNAL

TS 440S/AT



POPULAR HF TRANSCEIVER
WITH OR WITHOUT AUTOMATIC TUNER

TM 631/731A



DUAL BAND MOBILES
TM631A TM731A
2M/220 2M/440

TH 75A



TH 225A



TH 25AT



TM 231A



COMPACT 50 WATT
2 METER MOBILE

WE STOCK A COMPLETE LINE OF ACCESSORIES
FOR THE KENWOOD HANDHELDS.

IC-765



COMPETITION GRADE

IC-781



SIMPLY THE BEST

IC-751A



PERFORMANCE PLUS VALUE

IC-725



ECONOMY HF

IC-735



PROVEN WINNER

IC-726



HF PLUS 6 METERS

AUTOMATIC RANDOM WIRE TUNER AVAILABLE FOR THESE MODELS

IC-3210



DUAL BAND MOBILES

IC-2400



HANDHELDS



IC-2SAT



IC-2GAT



IC-32AT



IC-24AT

COMPLETE LINE OF ACCESSORIES FOR ICOM HANDHELDS

IC-228H
2 METER MOBILE



IC-901
Versatile Multi-Band
Remote System



Consider the Benefits...

...Join CRRL Today!

Pensez aux avantages...

...Devenez membre dès aujourd'hui!

Consider the benefits of joining CRRL: **QST Canada** and **QST** (either or both) monthly journals, **free CRRL Outgoing QSL Bureau**, and **discounts** on CRRL, ARRL and RSGB books and materials. Your membership supports many important services to Canadian Amateur Radio: **representation to DOC** and other government agencies, **representation to IARU**; Field Organization (NTS, ARES, OBS) for public service, the incoming QSL bureaus and much much more. Consider the **benefits** for you and Canadian Amateur Radio and **join CRRL today!**

Pensez aux avantages d'être membre de la Ligue Canadienne de la Radio Amateur (CRRL) : abonnement aux publications mensuelles **QST Canada** et/ou **QST**, **service gratuit de QSL vers l'étranger** et **réductions** sur les livres et produits de CRRL, ARRL et RSGB. Grâce à votre cotisation, nous pourrons continuer à servir les radioamateurs canadiens **en les représentant auprès du ministère des Communications** et d'autres organismes gouvernementaux, ainsi que sur la **scène internationale**, et en mettant sur pied des réseaux servant l'intérêt commun, pour ne nommer que ceux-là. **Devenez membre de la Ligue**. La radio amateur canadienne et vous en sortirez **gagnants!**

Count me in! Here's my application for a one-year CRRL membership! I choose... / Comptez sur moi! Voici ma demande d'adhésion. Je veux devenir membre pendant un an et recevoir...

QST Canada: regular rate \$27 a year / tarif régulier 27 \$ par an seniors' rate \$24 a year / âge d'or 24 \$ par an*

QST Canada + QST: regular rate \$49 a year / tarif régulier 49 \$ par an seniors' rate \$46 a year / âge d'or 46 \$ par an*

QST: regular rate \$42 a year / tarif régulier 42 \$ par an seniors' rate \$39 a year / âge d'or 39 \$ par an*

*Proof of age is enclosed. / Preuve d'âge ci-jointe.

Name/Nom: _____ Call/Indicatif: _____

Address/Adresse: _____

PC/CP: _____

Payment is enclosed. / Cotisation incluse. Please bill me later. / Veuillez me facturer.

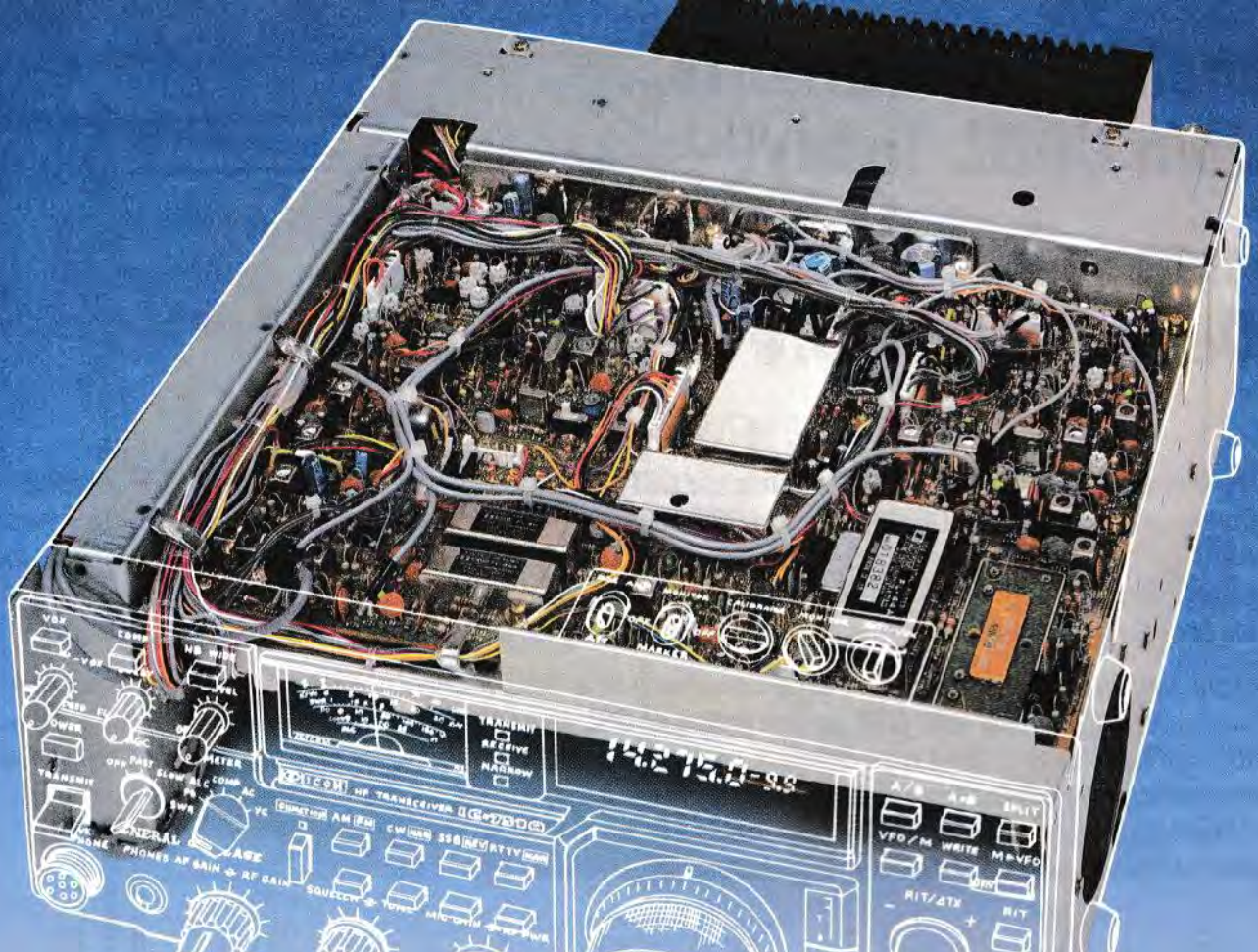
Thank you for your support! / Merci de votre appui!

The Canadian Radio Relay League, Inc.

La Ligue Canadienne de la Radio Amateur, Inc.

Box/CP 7009, Station/Succursale E, London, ON N5Y 4J9





ICOM IC-751A

"IT'S WHAT'S INSIDE THAT COUNTS!"

- All HF Band Transceiver / General Coverage Receiver
- Advanced Circuit Designs
- All Modes Built-in USB, LSB, FM, AM, CW, RTTY
- Superb Frequency Stability
- Continuous Duty Operation
- Crystal Clear Signal Quality

Midsize Masterpiece! The deluxe IC-751A includes more high performance features and professional circuitry per cubic inch than any other HF transceiver. Its smooth-as-silk operation and long-term reliability produce the ideal contesting, DX'ing, mobiling and portable rig. Owning an IC-751A truly means "Going First Class!"

Unsurpassed Quality and Reliability. Quality and Reliability is important to you and it's important to ICOM. ICOM now covers you and your investment with its exclusive



one year warranty. There's more! The IC-751A's receiver boasts 105dB dynamic range for superb listening. The 100% duty cycle transmitter defies abuse and delivers 100 watts of exceptionally stable and clean RF output. Reliability. Quality. One year warranty. That's ICOM.

All Bands, All Modes Included.

Operates 160 through 10 meters, it's easily modified for MARS operation, plus it includes general coverage reception from 100kHz to 30MHz. No compromise, no comparison!

32 Tunable Memories. Store both frequency and mode information. Use them to quick-access your favorite spots or as 32 preferred frequency-remembering VFOs.

A Modern Amateur's Delight!

Special attractions include an electronic keyer, semi or full break-in rated to 40 WPM, panel selectable 500Hz/FL-32A CW filter, and volume control-tracking sidetone. SSB transmissions are enhanced with an RF speech processor and tone control to produce sparkling clear audio. PLUS there's a new rubberized tuning knob for velvet-smooth tuning and a full line of accessories and filters.

RF Power Control. Varies output independent of mic gain, ALC and speech processor action. Enjoy maximum "talk power" at any drive level!

To see the IC-751A, contact your local ICOM dealer.

For a brochure on this or any other ICOM product, call our Toll-Free Literature Request Hotline 1-800-999-9877.

ICOM

First in Communications

ICOM America, Inc., 2380-116th Ave. N.E., Bellevue, WA 98004 **Customer Service Hotline (206) 454-7619**
3150 Premier Drive, Suite 126, Irving, TX 75063 / 1777 Phoenix Parkway, Suite 201, Atlanta, GA 30349
ICOM CANADA, A Division of ICOM America, Inc., 3071 - #5 Road, Unit 9, Richmond, B.C. V6X 2T4 Canada

All stated specifications are subject to change without notice or obligation. All ICOM radios significantly exceed FCC regulations limiting spurious emissions. 751A490