

THE CANADIAN AMATEUR

\$2.50

Canada's Amateur Radio Magazine

JULY/AUGUST

La Revue des Radio Amateurs Canadiens

1989

No, it's not a Garage Sale!

It's Ralph VE3BBM taking steps to contact Ray VE3FN on 10,2232 GHz.

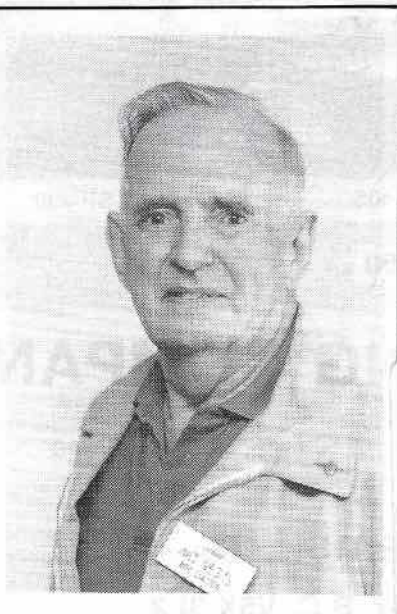
The unit is a government disposal portable unit with built-in dish antenna running 25 MW with tunable Klystron, FM Modulation and 12 Volt operation. First QSO was over 5 km. No EMI up there!



**Art
Stark
VE3ZS**

**Silent
Key**

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SM-220

TL-922

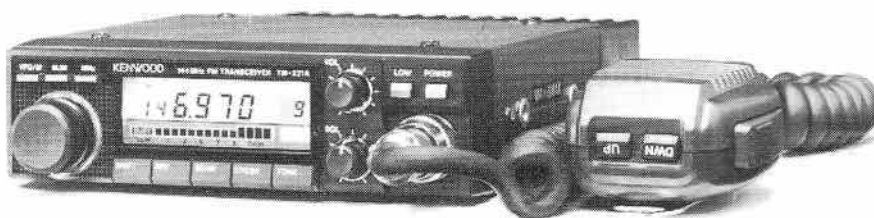
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1. To act as a coordinating body of Amateur radio organizations in Canada;
2. To act as a liaison agency between its members and other Amateur organizations in Canada and other countries;
3. To act as a liaison and advisory agency between its members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



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EDITORIAL

VE3KCE is not dead!

(He's alive and well as VE1GRS!)

Recently I attended the Smiths Falls, Ontario, Flea Market to help man the CARF table. During the course of events, VE3KCE won a prize. As soon as it was realized that VE3KCE wasn't Geoff Smith, a number of concerned hams came over to the CARF table to inquire if Geoff had become a Silent Key. Hence the title.— Editor.

EDITORIAL

By Geoff Smith VE1GRS

The Editor of this august journal has long passed the stage of politeness in attempting to get some sort of 'guest editorial' from me. I hope that this mixture of recollections, 'thank you's, and other convoluted scribblings from the fevered mind of the most recent addition to the Amateur community in the Annapolis Valley will at least serve as a holding action.

I just recently became a 'packeteer'. We even have our own song— you all know how it goes: 'P-A-C'... C— 'cause its convenient; 'K-E-T'... T— 'cause its technical; 'R-A-D-I-O'. Want another chorus?

With this change in 'Amateur status' must come a small confession— yours truly is not going into the history books as a threat to the memory of Reginald Fessenden. And if you do not know who he is then shame on you! My 'Amateur Career' is not redolent with technical frontiers pushed back. If Amateurs were bread I would be your basic loaf of white (with a lot of crust according to my students), your typical member of the ranks who got his ticket and stayed with CW just long enough to get on phone. Aside from a little antenna work and building a couple of power supplies, I have not done anything more technical than flip a switch. My 'bag' was net controlling and the administrative side of the hobby— no moon bounce or SSTV for me. Reginald must be spinning in his grave. So how did I become a 'packeteer'?

My penchant for the 'back room' aspects of Amateur Radio has taken me down some very interesting avenues and I would like to tell you about one of these, for in a roundabout way it describes my conversion from 'neo-Luddite' to novice 'high techie'.

For several years I was a member of the VE3CNE Committee, severing my direct connection with this group last July when I moved to Nova Scotia from Ontario. The committee was struck in the early 1980s when the Amateur Radio display at the Canadian National Exhibition was in danger of becoming defunct. Not wanting to see this high-profile forum for Amateur radio disappear, clubs in the Toronto area formed a loose consortium, the aforementioned VE3CNE Committee, to organize, coordinate and mount the display annually. This merry band has met once a month since 1983 at the CNIB building in Toronto, with many of the original members still involved.

I very much enjoyed our meetings and the people I met. There was Evan Herriott VE3IND, who chaired our meetings with panache and who had the knack of getting people to volunteer for the chores which had to be done but which no one wanted to touch with a three metre pole. I managed to keep him at bay by volunteering to look after publicity and antennas— others were not so fortunate. Thelma Woodhouse VE3CLT looked after the secretarial and financial aspects of the group and never missed a beat. Wib Back VE3NID did all sorts of duties from Construction Manager to Station Manager and looked after communications for the Warrior's Day Parade.

I know I risk offending those I have not mentioned by name but I cannot locate my files with the names of the players— one of the casualties of my move. However, you know who you are, and I salute you and thank you for your companionship and for what you have given back to your hobby. And yes, this is about packet— just give me time.

The first three years that we ran VE3CNE, it had its hairy moments but eventually procedures were established which made it a relatively painless exercise to mount the display, the only real tasks being getting everything set up and dismantled, and staffing it for the duration of 'The Ex'.

The latter was no mean feat, as you might gather— we had to have operators on duty for 12 hours a day for nearly three weeks. Some days you could skimp, but on weekends you

needed a full complement. However we always seemed to do it and so our monthly organizational meetings after the first three years tended to dwell more on the cosmetics of the display than anything radical.

Please do not get me wrong— we made changes but the process was more evolutionary than revolutionary. In retrospect perhaps we did get a little complacent. Then one of our number really dropped a clanger in the middle of one meeting. Larry Allen VE3FXQ, who had served as Station Manager for at least two tours of duty, suggested that we should have a packet display. I have known for Larry for some time and have enjoyed the constant stream of ideas which seemed to flow non-stop from his imagination. But we had the display planned, and who knew anything about packet anyway. So Larry was given an ultimatum of sorts, a kind of 'put up or shut up' deal— he would have to come up with the equipment and staff.

We figured that the first item would not be a problem for him but thought perhaps getting the staff might be a tad challenging, as we had jack-booted our way through the ranks of various Amateur Radio clubs, press-ganging volunteers into a tour of duty at VE3CNE and figured that there were not too many sparebodies left. However we had not done our homework and were surprised at the number of 'high techies' who came out of the woodwork to help with the initial display. The first shot in the revolution had been fired!

It also caught the attention of the computer buffs who visited our booth and I am sure that it brought some converts to the cause of Amateur Radio. I still wasn't convinced that this was the mode for me but, having acquired a computer, and finding a few surplus bucks to buy a modem, I took the plunge. Thanks, Larry, for the kick in the mental backside— you were right and I am sorry I found your passion suspect.

It isn't perfect, as the occasional hard disk crash attests, but it is a definite step forward. I grant you that it lacks the warmth of the human voice or the mystery of CW, but there is a huge

Continued on next page ►

Art Stark VE3ZS— Silent Key

Amateurs across Canada will be sorry to learn that Art Stark VE3ZS passed away in Ottawa on June 6 at the age of 81. He was well-known across the country, especially on the West Coast where he had spent a number of his early years with the then Department of Transport. Most Amateurs in Canada's capital knew the call VE3ZS belonged to Art Stark, who faithfully monitored the regional repeater, VE2CRA, for many years. He was always quick to respond to a call for assistance and played an active part in more than one local serious emergency.

Art retired in 1967 from the Department of Communications and then put his vast knowledge of its operations and regulations at the disposal of Canadian Amateurs. He became the Canadian Amateur Radio Federation's liaison officer with the DOC and wrote the first handbook on Amateur radio regulations, published by CARF and widely used by Amateur classes.

That task was a familiar one to Art as he had developed a series of procedural manuals for DOC radio operators and inspectors and standards for all classes of radio operators' certificates during his years with the Department of Transport and latterly with DOC when it took over the communications sector of DOT. As Chief Operations Supervisor for DOC, Art was responsible for the training programs for radio inspectors and participated in many international conferences with the International Civil Aviation Organization on aeronautical communication procedures.

Art spent 30 years with DOT and DOC head offices in Ottawa. His dozen years with DOT as a radio operator on West Coast ships, coast and radio range



stations served him well in his work. World War II saw him serving as a wireless op in the famous Ferry Command which he survived after many hazardous trans-Atlantic flights delivering aircraft to Britain.

He was born in the U.K. but his family settled in the Kootenay Valley of B.C. His first Amateur station was in that province in 1930, VESAE, where he was active on the Red Cross Emergency Net. This interest in the usefulness of Amateurs in emergency and public service nets ensured Art's participation in such activities. One unique activity which Art headed up during the past few years was the provision of a half-dozen ops to provide radio communication for the emergency management training courses for municipal and provincial officials at the national Emergency Preparedness Canada College at Arnprior, Ontario.

His friends were not confined to this continent, as on his trips to Australia he

obtained a VK call and kept up his contacts with Aussie Amateurs and their national Amateur organization whose problems were similar to many of our own.

Art's contribution to Amateur radio in this country was a significant one and he will indeed be missed by his legion of friends and those with whom he worked to build the Canadian Amateur Radio Federation. ■

CALLING ALL HAM RADIO OPERATORS

For several days after Hurricane Gilbert devastated the island of Jamaica last September, three Amateur radio operators provided the only international communications from the hard-hit Mandeville area. Two of the volunteer operators are retirees of Alcan Jamaica Company and the third is an active Aljam employee.

Operating from a club station located in the Mandeville office, the trio transmitted and received messages on behalf of Aljam, its employees, and members of the local community.

Following the hurricane experience, Bert Walsh, a ham operator and personnel manager for Alcan Rolled Products Company, Kingston Works, Ontario, contacted Don Ashdown, one of the Jamaican operators. Their conversation concluded with a decision to form a worldwide association of Alcan ham operators and to compile a directory that would include both active and retired employees.

Ham operators are welcome to send their comments and suggestions on the proposal, along with their registration to: H.J. Walsh VE3KBW, Alcan Rolled Products Company, 921 Sir John A. Macdonald Blvd, P.O. Box 2000, Kingston, Ont. K7L 4Z5.

—Alcan's Compass

STEADY FLOW OF ISRAEL APPLICANTS

Mid-April was marked by Amateur examinations for the three different licence classes on three consecutive days at the Ministry of Communications. There seems to be no tapering off of committed interest in our hobby, as the number of hopefuls flocking to the exams indicates.

— Hagal Int'l,
Israel Ham News

EDITORIAL (cont'd)

measure of convenience in being able to dump a message into a PBBS and mysteriously getting the reply when I 'connect' at my convenience to pick up mail. No longer am I at the mercy of 'skeds' or the gods of propagation. And thanks to all the Amateurs who have volunteered their equipment and time to run the various bulletin boards—VE3WHY, VE1EI and VE1AIC have been particularly kind to me but let me thank all of the SYSOPs on your behalf. In a recent issue of *The Canadian Amateur* we thanked Doug Lockhart VE7APU for his contributions to packet radio.

Lastly, a belated tip of the hat to Dr. John de Mercado. Back in 1978 most of the Amateur community was swearing at him and now they are swearing by the

consequences of his vision— he certainly challenged the Amateur community to look beyond the traditional communication modes. Prophets such as Larry, Doug and the good Doctor are not always honoured in their own land. We too easily forget that experimentation has long been a significant factor in our hobby, and without this we are, at best, merely appliance operators.

Now perhaps George will leave me alone for another year although he knows where I hang out (VE1GRS @ VE1AIC) and I know I cannot hide from him.

P.S. Before you take any shots at me about my new call, be advised that my call suffix represents my initials (from Geoffrey Read Smith) which I had long before DOC assigned them to some other purpose! ■

LETTERS

MORE MERGER

Having received the May 1989 issue of *The Canadian Amateur* today and reading the letter from VE7ARS, I am prompted to comment.

The president's reply to Robby's concerns, while detailed, missed the point—in my opinion. While I have no intention of letting my membership lapse, I think that VE7ARS expressed the frustration many Canadian Amateurs feel with the impasse that has developed in the efforts to have Canadian Amateurs speak with one voice. I have never joined the CRRL, although it is probable that I would have had that organization existed as an autonomous Canadian entity when I was first licensed in 1979. As it happened, CARF was the organization with which I first came into contact as a fledgling Amateur operator. It is mainly because of *The Canadian Amateur* that I retain my membership, although I am well aware of the other services and privileges which come with such membership. While I feel a certain sense of loyalty to CARF, I would have little difficulty in transferring that same loyalty to an organization which I knew represented the majority of Canadian Amateurs.

I know of several Amateurs who continue to hold membership in both the CARF and the CRRL. This is probably because, like me, they developed long-standing loyalties to the ARRL in their early years, while at the same time wanted a little more Canadian 'flavour' in their reading such as contained within the pages of *The Canadian Amateur*. (I refer of course to the period before the CRRL became autonomous.)

In addition, it must be stated that the ARRL (and by extension the CRRL) has contributed enormously to Amateur radio since its inception (which of us doesn't have at least one ARRL publication in the 'shack?'), regardless of what some people may think about that organization today.

It is my opinion that put to a free vote, the members of both national organizations would overwhelmingly support a merger. I personally don't care if the resultant organization is called the Canadian Amateur Radio Federation, the Canadian Radio Relay League, the Canadian Amateur Radio Society, whatever—as long as the word Canadian appears in the name. Similarly, I don't care how the existing executive committees are merged, as long as all the members continue to receive the same (or better) service and

representation that they currently enjoy.

While I agree with John VE3CES (President of CARF) that we could never hope to compete with QST in terms of quantity, number of advertisers or outward appearance, I think we already have it beat in terms of quality of content, with *The Canadian Amateur*. Imagine how much better such a publication could be with the support of even 50% of the Canadian Amateur population. This was, I think, the point of VE7ARS's letter—duplication of effort.

I cannot comment on eastern-based petty jealousies, because I don't know if there is truth in such a statement. I suspect that it is rather just another manifestation of that peculiar Canadian malaise of being only half as good as we can be.

It is indeed regrettable that a Canadian Amateur, who presumably is or was, a member in good-standing with both of the national organizations, finds it necessary to join with an American organization as an expression of his frustration with the state of organized Amateur radio in this country.

Bob Byrne VE4ADE

MORE ON MARITIME CALLSIGNS

As far as separate callsigns for the Maritime Provinces. This is long overdue and they have my support in their efforts. I hope they will then pressure the ARRL to give each of the provinces separate multiplier status in the ARRL contests, such as Sweepstakes, ARRL DX contest, etc. I hope they have better luck than I have had getting separate multiplier status for VY1.

As far as deregulation of the subbands, ARRL should keep their nose and comments out of our business. They can't even get their own to obey the subbands, so why don't they clean their own house before they worry about ours. I am sick and tired of ARRL's attitude that they are the world's watchdog on Amateur radio.

Myself, I am looking forward to being able to work the Russians on 3640 to 3650 SSB, the Europeans between 7.000 and 7.050, the Australians at 3.500 to 3.600.

These are my personal views and the views of the Yukon Amateur Radio Association from our last meeting.

Bill Richardson VY1CW

Send Letters to the Editor to the Editor, *The Canadian Amateur*, Box 356, Kingston, Ont. K7L 4W2.

SILENT KEYS

VESWM— William Charles (Bill) Munday, April 1989 in Regina, Sask. He was a wireless operator with the Royal Canadian Navy in WWII. He worked at SASKTEL for 35 years, retiring in 1982. Bill was an active member in Telephone Pioneers and other Amateur organizations.

VE7BRI— Roy Barhan of Nanaimo, B.C. passed away May 24 in Victoria. A well-known Amateur in the Nanaimo area.

VE7BTS— Walter Scholz of Surrey, B.C. on April 30, 1989. A well-loved and respected Amateur who, after a successful military career teaching at the School of Artillery at Camp Shilo, was also awarded the Centennial Medal of Canada. He spent his final years before retirement working for B.C. Telephone Company as a Supervisor. He was a member of the Surrey Amateur Radio Club and enjoyed all aspects of Ham Radio including DX via Amateur satellite, working friends around the world.

VE7FYI— Tom Grant of North Vancouver, B.C. in early April. A longtime member of the Vancouver Amateur Radio Club and friend of many in the Lower Mainland area.

VE6HB— Ray Jungling, Mar. 5, 1989. During the 1950's, Ray became interested in single sideband. He was a pioneer in the field, building one of the first sets in the province. Like many other pioneers, he was often disappointed in the reaction of his peers. Many people refused to talk to him on the air because the sound transmitted resembled a 'Donald Duck' voice. His new rig was built bit by bit over a period of years. All of it was of original design. In fact, many of the circuit diagrams were drawn on one of the myriad pieces of paper he scattered around the house, or in a small notebook he usually carried with him. If a brainwave happened to come to him while he was doing the summer fallow, the diagram was never written down, but existed only in his head. The completed rig never looked finished to the casual observer as it was not enclosed in a case, but instead left open on the off-chance that some minor but intricate adjustment would produce a better result.

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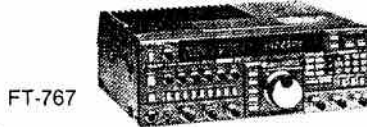
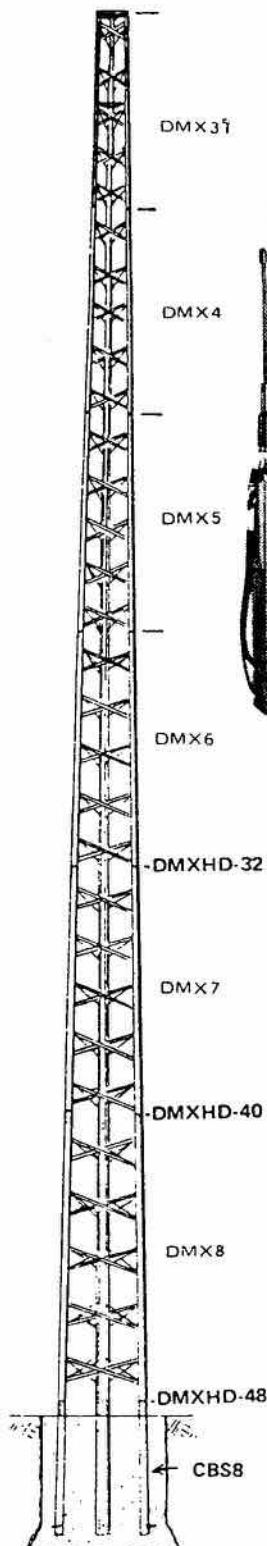


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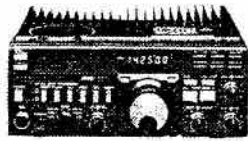
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SPECIFICATIONS AND PRICES
SUBJECT TO CHANGE

Amateur use of the 11 bands between 430 MHz and 10.5 GHz.

A new way of doing things is needed so Amateurs will get the most out of this part of the Spectrum.

By Bill Wilson VE3NR

Editor's note— This is the second article in a series of three. In his first, published in June The Canadian Amateur, Bill compared spectrum management in Canada with that in the States and showed how domestic band allocations in both countries have come to be different. Now he describes how shared band frequency plans and frequency coordination can help Amateurs ensure their use of the shared bands in which other services have priority over the Amateur service. In Part III, Bill will discuss an Amateur's Rights and obligations in the frequency coordination process when shared band plans are implemented.

PART II - SHARED BAND FREQUENCY PLANS

In Part I of this series, the philosophies of spectrum management which guided Canada (DOC) and the States (FCC and IRAC) were compared and the effect this had on domestic frequency allocation was described. You were probably asking yourself, "What has all this got to do with Amateur radio?"

When it comes to the Amateur Bands from 430 MHz on up to 10.5 GHz, plenty, because we share 11 bands with other radio services AND Amateur Radio is the SECONDARY service in each. If Amateurs want any stability for their operations (and investments) they must know something about the primary services and how the bands are managed in both Canada and the States. Additionally, Amateurs have to know how the DOC, FCC and IRAC coordinate frequency usage across the border.

It is important to look at the Regulations applicable to stations in a secondary service. Such stations 'shall not cause harmful interference to stations of the primary services to which frequencies are already assigned or to which frequencies may be assigned at a later date,' and "... cannot claim protection from stations of a primary service to which frequencies are already assigned or may be assigned at a later date."

What we Amateurs want are arrangements which are recognized by DOC and which dilute the effect of that regulation so that we can use these bands just as we use the bands that are exclusively Amateur for as long a time as possible.

The only way for a secondary service to get any benefits out of a band shared with a primary service and not be bumped around is to have some sort of band frequency plan that provides for the band's joint use by both the primary and secondary services until the band is so crowded that the primary service finally has to take over. Along with such a plan there must be some sort of frequency coordination arrangement that ensures that neither service experiences harmful interference.

OUR FIRST FREQUENCY CONFLICT WITH A PRIMARY SERVICE STATION

This developed as a result of a proposal to DOC by the Atmospheric Environment Service to operate a wind profile radar at Egbert, Ontario. We all know roughly what happened. DOC took coordinating action in the customary way. Even though it was not obligated to do so and did not have all the needed information, DOC was hoping for cooperation. The Amateurs, never having faced this kind of problem before, quite expectedly, took a defensive position. It took a long time for each to understand the other's point of view and to work out a solution.

Had there been discussions with DOC a decade ago, a frequency plan recognized or even tentatively agreed to, Amateur operations in the Toronto/Egbert area would have been protected. Had there been a frequency coordination procedure in effect and had both parties known how to go about the business of frequency coordination, the problem of Egbert would have been resolved more rapidly with much less fuss.

PREVENTING FUTURE PROBLEMS OF THIS KIND

While there is no doubt that we must develop a plan for the 430-450 MHz band, there is a second part of the spectrum that will need our attention

soon. DOC is proposing that the 902-926 MHz band (in addition to the Industrial, Scientific and Medical Service which has primary status through an internationally agreed footnote), be allocated in Canada to the Fixed and Radiolocation (Radar) Services on a primary basis and to the Amateur Service on a secondary basis.

Now the radiolocation stations will be operated only at sea on both coasts. The fixed stations will provide spread spectrum low-power inter-office communications (voice and data) generally within buildings and are to be licensed.

Frequency plans have been used domestically and internationally for 40 years to ensure the orderly development and use of the radio spectrum. Even though a band may not be used at the moment, a plan ensures that frequencies will be there when they are needed. Also, a plan, the preparation of which involves those who may be affected some time in the future, ensures that they will be prepared to cooperate in the resolution of any problems that may arise.

The usefulness of plans is widely recognized and accepted in spectrum management circles. For example, one finds them governing bands used by the aeronautical and maritime mobile, radio relay microwave, FM and TV broadcast and railway (land mobile) radio services, to name a few.

An appropriate frequency plan will ensure that the Amateurs will have some stability in the frequencies available to them in this band and this could last for quite a long time if this office communications does not catch on.

HOW DOES IT DO THIS— THE DETAIL

In this case, a shared band frequency plan would describe how both services would share the band. It would do this by specifying compatible radio frequency growth patterns to be followed by both services in any given geographical area. These would be based on the best known forecast of technical performance characteristics

Continued on next page ▶

11 BANDS (cont'd)

of the equipment and stations in both services. The plan may have to be subject to periodic revision as technology changes.

The starting point for developing such a plan, as far as the Amateurs are concerned, would be their plan for the 902-928 MHz, hopefully, something as flexible as the Amateur 2 metre band plan. The very nature of the Amateur Service requires that the plan provide for as many different kinds of operation as the Amateurs may foresee—EME, scatter, mobile, repeater, repeater linking, etc. Throughout the negotiations with DOC, we will have to keep in mind the way in which the band is used and managed in the States. (See Part I of this series) because we may also have international frequency coordination problems along then Canada-U.S. borders.

In more practical terms, with such a plan an Amateur would know exactly what frequencies in a shared band that he could count on being available and protected until the band in an area was getting full.

Associated with this would be an agreed frequency coordination procedure. This would ensure that Amateur services would be protected from interference and would not cause interference to the services. It would require an Amateur's telling DOC of any proposed use of the subject band. The Amateur might have to take part in frequency coordination discussions

REWARD OFFERED

A reward of 500 Microfarads is offered for information leading to the arrest of Hopalong Capacity. This unrectified criminal escaped from a Weston Primary Cell where he had been clamped in ions awaiting the Gauss Chamber. He is charged with the induction of an 18-turn coil named Milli Henry, who was found choked and robbed of valuable joules. He is armed with a carbon rod and is a potential killer. Capacity is also charged with driving a DC motor over a Wheatstone Bridge and refusing to let the band pass. If encountered he may offer series resistance. The electromotive force spent the night searching for him in a magnetic field, where he had gone to earth. They had no success and believe he returned ohm via a short circuit. He was last seen riding a kilocycle with his friend Eddy Current, who was playing a harmonic.

— Dots and Dashes

TECHNICAL ARTICLES

The Canadian Amateur welcomes technical articles. Please send them to the Technical Editor, Bill Richardson VY1CW, 36 Range Rd., Whitehorse, Yukon Y1A 3V1.

with other users to prevent interference problems.

It is recognized that this would be a new activity for Amateurs who have always had a free hand in selecting frequencies and in adopting or ignoring their own band plans. However, in bands where the Amateur Service is secondary, new methods of ensuring freedom from harmful inter-

ference will have to be found if the Amateurs want to be able to make the most effective use of those bands. Properly managed, the rewards could be quite significant. Ignored—well another Egbert could well spell an end to the use of the spectrum between 430 MHz and 10.5 GHz for any sophisticated work by Canadian Amateurs. ■



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WANTED: Wireless set no. 19 equipment and accessories. Especially looking for power amplifier and pocket-watch. I am willing to buy and/or trade equipment. Please write to Chris Bisailion VE3CBK, RR#1 Old Carp Road, Kanata, Ont. K2K 1X7.

WANTED: E.F. Johnson 250W Matchbox, must be unmodified. E. Crump, 790 Regent St., Cambridge, Ontario N3H 2V3.

SHACK ON REDUCING DIET: Drake TR4-CW, MS4/AC-4, RIT, NB.FF-1: \$495.00. Atlas 210X, AC & DC Consoles: \$525.00. Dentron DTR-1200L Amplifier \$695.00. Dentron DTR-3KA Antenna Tuner \$300.00. Both matched pair \$900.00. Central Electronic 200V Xmitter \$200.00. B&W Phone Patch 3000-2 (new) \$125.00. Commodore 64C (new) \$195.00. Commodore Disk Drive 1541 (new) \$350.00. Both \$500.00. Radio Shack 'CB' TRC-427 40 chn.PA. Car Telescopic Electric Antenna SRG-AM-FM. \$175.00. Radio Shack Computer TRS80/MC-10 colour 16k RAM (new) \$150.00. Kenwood TU-79 Tone-Encoder TR-7930/TR-7950 (new) \$60.00. Tubes: 3-400Z/8163 \$125.00. 4-400A/C-1136 \$65.00, sockets, etc. Many parts and tubes available. Inquire yr needs SASE. Television satellite receivers Channelmaster \$500.00. All mint condition. Negotiable. VE2OU, 2785 Valcourt St., Ste Foy, Quebec G1W 1W2. Phone P.M. only (418) 653-2016.

WANTED: Collins Transceiver KWM 380. Bruno Molino VE2FLB, 26 Rue des Anciens, Gatineau, Que. J8T 3T2. 819-561-3689.

FOR SALE: EIMAC 4C X 10,000D tube, socket and chimney (SH) \$450.00. Also, EIMAC 4-1000 tube with socket (SH) \$150.00 and EIMAC 4-125A new

\$35.00. Filament transformer for 4C X 10,000D \$60.00 (SH). **WANTED:** Operating instructions and schematic drawing for Yaesu DXL-2000 linear, also for a SWAN 1200Z linear. Total reproduction cost honoured up to \$40.00. Clem Beauregard VE2BIA, 286 Helen, Otterburn Park, Quebec J3C 1R6. (514) 464-6911.

FOR SALE: SB200- Good Condx. New Tubes last Nov. \$500. B.O. Hammerlund rcvr - HQ110A, works good, \$50. Transformer 2800 VDC, 1 amp 6-4-125 tubes and 4 sockets plus fil. trans. - VAC variable. Other parts - make offer. Jack Spall, 101 Daphne, Barrie, 705-726-4008.

WANTED: Yaesu FT-107 Antenna Tuner (matching tuner to Yaesu FT107M Transceiver). Larry Nason VE1CX, 581 Chestnut St., Fredericton. N.B. E3B 3W1, 506-454-4589.

FOR SALE: Hallicrafter Transceiver Model TR-9 including removable moisture proof cover and case. This transceiver is designed to operate in the 2 to 12 MHz frequency range, and operates from a 12 volt DC source with optional power sources. In great shape, this is almost a collectors item. Offers?? Call Dean (416) 480-1644.

FOR SALE: Ham IV Rotor - \$200. Delhi HD self-supporting 48 foot tower (includes thrust bearing) - \$400. Explorer 14 tribander - \$300. Hygain 14 element 2 metre YAGI - \$50. All in excellent condition. John Benson VE3JH, 234 Third St. N., Kenora, Ont. P9N 2L7. (Prices are F.O.B. Kenora.)

FOR SALE: Heathkit HF Transceiver Package. Includes SB102 SSB/CW 80-10 transceiver, low pass filter, AC power supply HP23B, 12 VDC Mobile Power Supply HWA7-1, microphone, SB600 speaker, all manuals, all cables, spare tube set, excellent condition. Operates perfectly. \$375 complete. Pickup/delivery Metro Toronto/Barrie or \$60 UPS extra. Monty Hart VE3TA, 55 Highland Ave., Barrie, Ont. L4M 1N2. 705-737-2252.

Please send your 'Swap Shop' notices to the Canadian Amateur Swap Shop, Box 356, Kingston, Ont. K7L 4W2. Single insertion is \$1.00 minimum (10 words) and \$1.00 for each additional 10 words.

Good Progress on Restructuring

DOC, CARF and CRRL met in Ottawa on May 27 and, working together, made good progress on Restructuring. The basics of the new structure and the question banks got the most attention. Here are the important details.

There will be, subject to minor changes in the drafting process, only one wallet-sized certificate which may have up to four levels of qualification, namely: Basic Qualifications, Morse Code (5 wpm) Qualification, Morse Code (12 wpm) Qualification and Advanced Qualification. Every Amateur will have to have at least the Basic Qualification Exam to get a licence.

Those holding Advanced and Amateur Certificates will be deemed, under the new regulations, to have Basic, Morse Code (12 wpm) and Advanced Qualifications while those holding Amateur Digital Certificates will be deemed to have only Basic and Advanced Qualifications. Those with credit for theory or regulations will not be 'grandfathered in' while those with 5 or 12 wpm credit will have to pass the Basic Qualification Exam to get a Certificate.

An Amateur with a Basic Qualification Certificate will be allowed to operate on Amateur Bands above 30 MHz using all classes of emission and power up to 250 watts. One may build and operate all station equipment excepting non-kit home-built transmitters.

OLD CERTIFICATES TO BECOME VALID HEIRLOOMS

When the restructuring takes effect, there is every probability that new Amateur certificates will not be issued to existing Amateurs. DOC is anxious to save money. The validity of existing certificates will be recognized in the new Regulations and they will become heirlooms. Those who want their certificates to be endorsed for the sake of history should arrange with their nearest DOC office to do it soon. Endorsements will no longer be granted the moment the subbands are deregulated and Amateur privileges extended.

RF IN ISRAEL

DL9AH has sent to 4X1AT a sample of a device to test television sets and VCRs to see if they are of good design and will operate in an RF environment without being subject to interference. It's amazing to see that some first-line brands aren't up to snuff!

Those with the additional Morse Code (5 wpm) Qualification will be permitted to operate additionally on all modes below 4.0 MHz while those with Morse Code (12 wpm) Qualification will be able to operate additionally on all modes on all Amateur bands.

Those with Advanced Qualification will be permitted to operate additionally at 1 kW maximum power input, sponsor Repeater and Club Stations, and remotely control fixed stations and build, in addition to kits, home brewed transmitting equipment.

George Spencer VE3OZW (CRRL) and Earle Smith VE6NM (CARF) have made good progress on the Technical Question and Answer Banks while DOC is to prepare the Regulation Bank. The approval process for the Restructuring Regulations has just been started.

The important target dates are: Sept. 1, 1989 for CARF and CRRL to give DOC final changes to the Technical Question Banks; Nov. 1 for final approval of all Question and Answer Banks; Dec. 1 for the notice in the *Canada Gazette Part I* asking for public

comment; March 1, 1990 for publishing the approved Regulations in the *Canada Gazette Part II* and Sept. 1, 1990 for the Restructuring to take effect.

MORE ON BAND DEREGULATION

Progress on the Deregulation of the Bands has been stalled while DOC staff try to find a way to relax the Regulation proposed last February that no Amateur shall operate concurrently more than one station.

It is expected that these changes will be made to the table of maximum bandwidths: 10 MHz band— reduced to 1 kHz, 28 MHz— increased to 20 kHz, 430 and 902 MHz— increased to 12 MHz and 1240 MHz— changed to Not Specified.

MARITIME CALLSIGNS

CARF and CRRL are committed to making a final joint proposal, regarding separate callsigns for the Maritime provinces, in to the DOC by Aug. 1, 1989. Maritime Amateurs are asked to send their views to either CARF or CRRL well in advance of this date. ■

Interim Band Plans recommended for Canadians

Amateurs will recall that CARF has asked for input from Canadian Amateurs regarding the band plans they feel should be followed. See April *The Canadian Amateur*. Comments are being received. However, it now appears better to wait until after band deregulation takes effect and Canadian Amateurs have some experience before Canadian band plans are finally developed. In this way our plans will be more timely and certain to meet our needs under the new regulatory environment.

CARF's current recommendation is that, as an interim measure, Canadian Amateurs continue to observe the divisions of the bands between narrow and wide bandwidth emissions as they are set out by DOC in Schedule IX of the Radio Regulations published for Amateur use in Radio Information Circular 25.

Canadian Amateurs can then give the matter of replacement plans the serious consideration it deserves without the rush of trying to meet a date for the start of band deregulation that is unknown.

Obviously it would be unwise to accept the imposition of band plans which were formulated by an inter-

national organization in which the majority of Canadian Amateurs, country-wide, have not had the opportunity of prior input. Also these plans are not generally known in Canada and may not meet the unique needs of Canadian Amateurs. It is of greater importance for us to respect actual practice and usage patterns followed in Canada and worldwide in order not to cause undue interference.

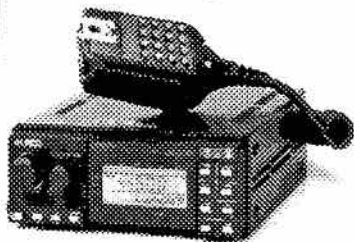
In taking its decision to deregulate the bands, it is quite obvious that the Department has every confidence in the ability of Canadian Amateurs to manage their spectrum, a view that it has expressed frequently over the past several years. Their opinion is well-justified when the performance of Canadian Amateurs is compared with that of the other users of radio across Canada.

The statement that "the Department has a clear responsibility for providing guidance" is being seen by Canadian Amateurs to be demeaning of their character and ability. That it is made by a Canadian Amateur organization at the request of an American Amateur organization makes the wound much deeper. ■

Save \$190!

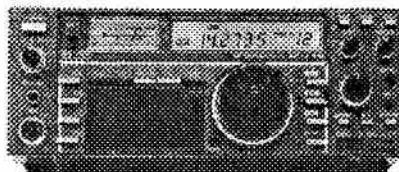
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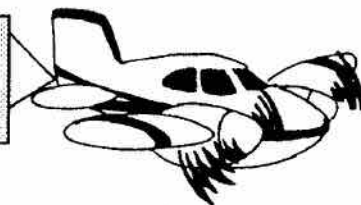
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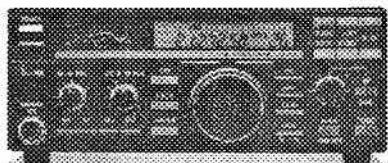
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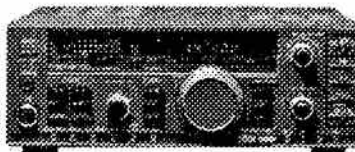
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Poor Man's Packet

By VEGARE

I am generally a cheap and sleazy operator, so when I heard that you could get on packet for as little as \$65 Canadian, including shipping and handling, I just had to get it.

WHAT YOU GET

You get a DIGICOM>64 version 2.03 kit and one 5¼" disk.

WHAT YOU NEED

You will need a Commodore 64 with a disk drive and monitor. (You can pick one up dirt cheap, used.)

The kit consists of an etched and drilled circuit board, a large handful of resistors and capacitors, a few ICs and one large IC. All the ICs have sockets to make connecting ICs to the circuit board easier on the heart. There is also a reed relay to isolate the PTT of your radio from the circuit. A single pole double throw switch is included so you can operate packet on either HF or VHF. Finally, included is a schematic diagram and component layout diagram. The board can be cut to plug directly into the tape recorder port on the C64 or located in an external box and wired to the C64.

BUILDING THE KIT

Dave VE6ALC and I sat side-by-side building the kits. Dave would find the capacitors for each location while I would read the resistor colour codes. I read all the colour codes right except for two. For those who do not remember the resistor rhyme, an ohm meter is a good last resort. As you can imagine we are by no means electronic whiz kids. Assembling the boards only took two hours (sharing one soldering iron).

BOARD CHECK OUT AND ADJUSTMENT

There is absolutely no alignment involved. Check your solder connections closely. Double check your component placing (in case you might have trusted someone to read the resistor colour codes). Make sure all the ICs are in the right way. It helps to put the IC sockets on the right way. There is a notch at one end. Install the IC, aligning the IC socket notch and IC notch. The only adjustment is a trimmer pot, used to set the correct deviation of your FM transceiver. They recommend a mid-point setting that in my case worked just fine. Once you go on the air, have someone check your signal and adjust the pot accordingly.

PREASSEMBLED KIT

If you would rather not worry about every solder joint, you can buy a

preassembled kit for \$79 (U.S.), shipping and handling extra.

DOCUMENTATION

FIRST COPY THE DISK! All documentation is contained in sequential files on the disk. Load the sequential file reader program then select the file to read. The file can be sent to the screen or the printer. I would recommend that you print a copy of each of the files. Start with the file 'read this first', a 'system overview'. Then continue with the four documentation files DIGICOM, DOC.1 to DIGICOM.DOC.iv. There are also files on HF tuning tips.

INSTALLATION

Connect the board to the microphone and speaker connections of your transceiver. Plug the DIGICOM board into the computer and disk drive, insert disk. Using the back-up disk that you copied before printing the files, load the program 'boot'. This will load the DIGICOM>64 V2.03 program. The program will take a couple minutes to load due to its size. Be patient.

SETTING THE PARAMETERS

Once loaded, the display will read: CLOCK. Enter the UTC time. Type in:MYCALL then your call sign. Change the clock to operate on 60 cycle by typing:CLKUSA and:NTSC ON. Unless you expect to receive a lot of German messages, turn German off by typing:GERMAN OFF. All commands must be preceded by a colon (:). There are many other parameters that can be set using the same method. Most parameters are set and forget.

SAVING PARAMETERS

After you have set the parameters, type:PERMO. This will save them to disk and will automatically load them on boot up. You can have different parameter sets for HF and VHF operation. Instead of typing PERMO you could save a different set by typing:PERM1.

LOADING PARAMETERS

When started, the DIGICOM program automatically loads the parameters in PERMO; if you want to load in a different set after the program is running, type:GET 1 to load the '1' parameters.

OPERATION

After the parameters are set and saved, you are ready to operate. Set the FM transceiver to the local digipeater frequency, or the frequency that most packeteers are monitoring. Select a

station you wish to talk with (connect to). Type:CVE6ALC (eg). The DIGICOM 64 will send out a message saying you want to connect to VE6ALC. If VE6ALC's packet station is running, it would be listening for a call. The station would then decipher the connect message and send back a message that you are connected to VE6ALC. All you have to do now is delete the colon and type away. Whatever you type will be sent to the other station. If the other station does not receive everything ok, it will ask your station to retransmit it, this is all done automatically. When you are finished you type:D for disconnect. My XYL, VE6MOM, who had never been on packet, was able to operate the system with only a couple of minutes instruction.

IN CONCLUSION

I find the DIGICOM>64 an excellent packet set up. It is very inexpensive, yet has many features that the more expensive TNCs don't have. The documentation is very good with most things explained at least two different ways. The kit is fairly simple to build, even for a novice kit builder. The operation is easy and works very well. The software DIGICOM>64 V2.00 was written by:DL2MDL,DL8MBT,DF3MH,DL3RDG. The English translation of the manual was done by DL1SBR and DG1BBQ. Version 2.03 software was written by DC4XC and W2UP. The kit or assembled modem is available from W2UP at 614-B Palmer Lane, Yardley, PA 19067 U.S.A. Or A&A Engineering. Thanks, fellows, for a great package!

DIGICOM>64 FEATURES

- Split screen operation. The top half of the screen displays what you are sending while the lower half displays what you are receiving.
- Adjustable division— you can decide how much of your screen will be used for transmit and receive display.
- Four ports with a separate screen for each port, so you may connect to up to four people at one time.
- Two screens to monitor 'read the mail' on the frequency.
- A screen which displays stations heard and the time heard.
- Ability to store all information received after connected. No longer run out of buffer because now the information is stored on disk.
- Automatic logging on disk when a station connects or disconnects.
- Complete remote control of your packet station if desired.
- Adjustable baud rate from 0-1200.
- Round table conferences. ■

BRIER '89

By Syl VESYK

The BRIER has come, the BRIER has gone, and with it fond memories of a job well done by the Amateurs and other volunteers who helped out with communications at the dispatch centre.

There were 18 Amateur Radio Operators and seven Non-Amateurs who volunteered their services for the dispatch centre to make this BRIER the best ever. Their help was greatly appreciated by the BRIER committee. The effort put into this event was evident by the smooth operation of the dispatch centre.

Dispatch centre was at Saskatchewan Place located above the Concourse level on a raised platform that overlooked the five sheets of ice. The view was excellent and everyone enjoyed watching the games before and after their shifts. Generally shifts were scheduled on a three, four and five hour shift, starting at 7 a.m. to 1:15-2 a.m. The radio equipment was supplied by Motorola and the frequency was on the UHF band around 406 MHz. A repeater was located on the Saskatoon Square downtown and did a good job of city wide coverage. Hand helds were used by the drivers and very few dead spots were encountered.

A training session was held with the drivers and the dispatchers to help out with radio procedures. This proved to be very valuable as many of the drivers had never operated a two-way radio before this time. By the end of the BRIER some of the drivers were operating their radios with expertise. Some of us could take lessons from them!!

Dispatching and coordinating 13 units involves a little more than just sitting at a mike and communicating. Some of us Amateurs found that out!! Although we talk a lot on the radio, we usually don't have to make quick decisions about a pick-up, a drop, a special trip, etc. This, as we all found out, was an interesting event to work with communications. As I stated before, it was the cooperation by all that made it possible.

Twenty-five drivers were in charge of 13 vans and cars to provide the transportation requirements. They transported VIP's, baggage, management, donuts, people, bank deposits, souvenirs, dispatchers, bulletins, and anything else that was required to make the operation a success.

The dispatch centre was in operation from Thursday, March 2, to Monday, March 13. Following are the Amateurs and others involved: Ed VE5GE, Bill

and Janet VESWC, Percy and Ethel VESRP, Bill VESDN, Rob VESOP, Ernie VESEH, Jim VESKQ, Don VESHQ, Mark VESZU, Syl VESYK and Ivadelle, Dave VESBEH, Keith VESVI, Chris VESBAR and Linda, Eric VESHG, Bruce VESRC and Bonnie, Tom VESUK, Monty VESMN, Alan VESPF, Brad and Linda Wiebe, and Bill VESWM, who was unable to take part due to illness.

A special thanks is in order to my XYL, Ivadelle, who was the backbone of the dispatch centre. All the details that were required to run the operation smoothly were looked after by her. Many VIP's had to be looked after and it was her job to see that they received prompt attention. It was greatly appreciated by all concerned.

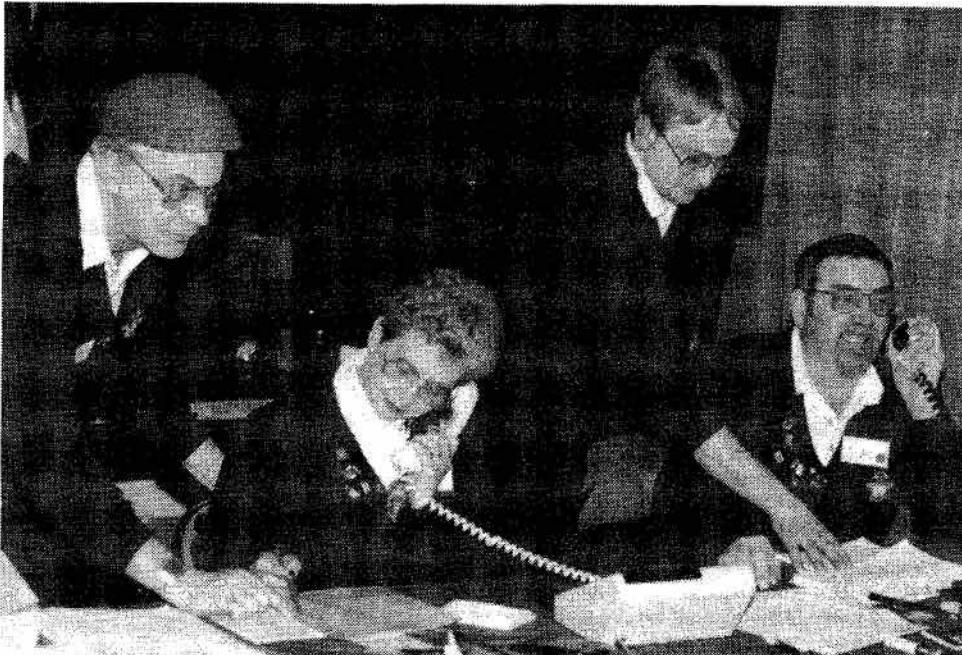
Next year's BRIER host (Sault Ste. Marie, Ont.) committee were very impressed with the overall operation of the dispatch and driver section. They have invited Ivadell and me to help them out at next year's BRIER. We may just do that!!

I would like to extend a special thanks to Dale Zoerb, the driver dispatch chairman, who gave us excellent support in this exercise. Thanks Dale.

To all of the volunteers who worked at the dispatch centre, thank you! There were a number of operators who worked extra shifts, and I thank you for that. You made it happen. You made it magic on ice! You also made it magic on the air!

During the BRIER some 564 man-hours of communications were involved.

Now, the Canada Summer Games! Let's do it! ■



Above, left to right: Tom Roynon VE5UK, Ivadelle Kulyk, Brad Brad Wiebe, Syl Kulyk VE5YK.

CREDIT WHERE CREDIT IS DUE

The article 'RFI = Nuisance' which was printed on page 11 of *The Canadian Amateur's* May 1989 issue, originally appeared in the Australian Magazine, *Amateur Radio*. Although we enjoy a reciprocal printing agreement with *Amateur Radio* the source must be identified. We neglected to do so. *The Canadian Amateur* apologizes and acknowledges, with thanks, the contribution from 'Down Under'.

LETTERS

Send Letters to the Editor to: the Editor, *The Canadian Amateur*, Box 356, Kingston, Ont. K7L 4W2.

Northern B.C. Winter Games

By Derrick Force VE7EBI

The Northern B.C. Winter Games were held in Prince Rupert this year from Feb. 2 to 5, with members of the Prince Rupert Amateur Radio Club actively involved. They provided traffic control for the numerous buses transporting the competitors to the games and handled all radio communications.

Plans for this year's winter games started two years ago, with involvement of the club coming in the summer of 1988. Dave Blackstone VE7ECT became one of the Host Committee members and was made responsible for communications. The rest of the club quickly became an informal advisory committee.

The required communication divided logically into three areas. The incoming bus traffic had to be controlled, and volunteers at the registration centre had to be warned of the imminent arrival of competitors from one of the regions. Results of the various competitions had to be called in to the games office so they could be posted, and finally the host group had to be in close communication with each other to keep things running smoothly.

Bill VE7EBI, Gunther VE7GKH and

Ron VE7EDZ took the job of traffic control; they set up a checkpoint about 8 km from town and held the buses there until they were scheduled to leave for the registration area. Sid VE7BIA relayed information from them to the registration centre, while Dave VE7ECT and Derrick VE7EDW passed the same information to the local radio station so billetors would know when to come and pick up their charges. All of this radio traffic took place over the local 146.28/88 repeater.

It was fortunate that almost all sites had telephone service, so most of the results were phoned in to the office. Those that could not be phoned in were sent via radio by one of the hostesses. Analee (Dave's XYL) spent many long hours as the head of the results recording team.

Portable VHF radios, generously loaned by the Department of Forestry, were given to the regional directors and the 15 hostesses. Two radios were also kept in the office to provide a central dispatch service. Almost all of the radio club members, including Donna VE7EHO, Lionel VE7DRE, Fred VE7OL and Pete VE7FQG took at least one shift on the dispatch radios as the office was open from 07:00 to 24:00 from Friday to

Sunday.

A new feature was added to the games communications this year: transmission of the event results to the competitors' home communities. The B.C. Northern Net frequency of 3.775 MHz was used, with results being listed at the usual net time every evening the games were on. Results were also listed each morning on 7.095 MHz.

The club participation in the games was both disappointing and very rewarding. Use of the HF bands to communicate results was a total disaster, as propagation that weekend was almost non-existent. There were lots of stations listening but the only thing heard was noise. Local radio communication, however, was excellent. It was interesting to see how quickly the hostesses, who were extremely busy all weekend with a wide variety of jobs, went from being 'mike-shy' to seasoned pros. They, with their radios and the Amateur operator at the dispatch radio, solved problems too numerous to mention. In all, the satisfaction of the club members and the many compliments they received indicate participation in the games was a worthwhile experience. ■

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We are now open Saturdays from 9 am to 5 pm. Weekdays, for the present, are restricted to appointments for any time between 5 am to 10 pm. We normally are not maintaining a regular schedule during the week and therefore an advance appointment is essential to ensure your visit is successful. Sundays and holidays we are closed.

We carry a vast assortment of items ranging from medical, laboratory, scientific, photographic, optical, antiques and other strange pieces for the experimenter and enthusiasts as well as schools, labs and electronic firms. If in the area when we are open, feel free to drop in and browse through two floors loaded with surplus.

We are always happy to answer queries by phone or mail. Don't hesitate to phone us any time at home or warehouse. If by mail, a postage stamp to defray the cost of a reply would be appreciated. Due to the nature of surplus very few items are stocked in depth and as a result it is impossible to prepare a catalogue or listing which would remain valid for even a short period of time.

Our listing for the month of July includes: (1) HP audio oscillators Model 204C @\$100, Model 204B @\$90. (2) HP Model 403B AC voltmeters covering 0.001 to 300V in 12 ranges and with built in rechargeable battery \$75.00. (3) Nelson Ross two tone audio generators Model TTG29. Consists of 2 independent audio generators frequency of each selected by 3 decade switches and x1, x10 and x100 multiplier. Solid state \$150.00. (4) WWII infrared monocular, large two handed unit operates on 3 "D" cells. Input mirror 3 1/2" dia. Complete with storage case. Navy Dept Type C1 made by RCA. Unique collectors item. \$125.00. (5) Temperature Test chamber heats (electrical) and cools (nitrogen) approx. 36 x 14 x 24 deep with chamber size of 20 x 12 x 13 deep. Statham Model SD10. \$140.00. (6) Large selection of Video Display terminals, with and without keyboards. \$10.00 each. (7) RCA receivers Model CR91 with cabinet @\$200. Rascal receivers Model RA17's with sideband adaptor Model RA98B @\$400 per set. (8) Marconi solid state FM/AM signal generators 10MHz to 520MHz Model TF2015. Compact 5 x 11 x 12. \$425. (9) Camera Robot Star II, 35mm with 30mm f3.5 lense, electric shutter release in fitted carrying box. Includes 3 film magazines, manual, etc. \$200. (10) Vertical milling/drilling machine Model "REM" (Asian??) with 3/4 HP motor, x-y table, morse taper arbour, like new \$825.00.

XO2CSS: A Great Adventure

By Rene Biron VE2AHC
& Normand Boisvert VE2FQX

In November, 1988, Andre Simard VE2DME invited us to a special event at Science-Expo 1989. Science-Expo is an exhibition where young people present their scientific projects to the public. We accepted with great pleasure.

In December DOC issued the special call sign prefix XO2 for Sherbrooke and the surrounding area. It was decided at that time that XO2 CSS would be on the air the March 31, 1 and 2 of April for three reasons: Science-Expo 1989, the 100 anniversary of Don Bosco, and finally, the 25th Anniversary of Seminaire Salesien School.

A beautiful QSL card was designed by Andre VE2DME and 800 were printed.

D' DAY

On March 30, we met at the Seminaire Salesien School, the site of Science-Expo. Our first task was to erect our antenna system. A 10 metre tower, a TH3-JRS, and a Cushcraft Vertical R4 would allow us to make future radio contacts.


The big challenge was to put the 10 metre tower in the middle of the ice rink with nylon guys and half metre steel wires at the base, all in the middle of snow and freezing rain. After a three hour effort by a team of seven people, the antenna was erected and ready to send the XO2 CSS signal.

At 10:30 p.m. the booth was presentable; two test QSOs were made with Brazil and Colombia. We were 'on the air' but the official opening was not until Friday, March 31 at 10 a.m.

After a good night's sleep, all was in place to receive the large number of visitors expected over the three days of the exhibition.

Visitors were able to appreciate the technical advancement in the world of radio communication by the display of radios dating from the turn of the century to today. A model of the satellite Oscar 10 ensured the interest of a certain portion of our visitors.


The operating station used during the 27 hours of activity was an Icom IC-745 (100 watts). A complete Yaesu FT-77 was used to demonstrate and explain to the public. Also used was a display of QSL cards, a map of the world and numerous pamphlets, showing the physical location of the operators Normand VE2FQX and Rene VE2AHC.




SÉMINAIRE SALÉSIEEN
135, Don Bosco N. Sherbrooke, QC Canada J1L 1E5

XO2CSS

EXPO SCIENCES 89



100^e



25^e

POSTE RADIO-AMATEUR <hr/>	DATE an mois jour HEURE <input type="checkbox"/> Z <input type="checkbox"/> HNE <input type="checkbox"/> HAE	FRÉQUENCE MHz MODE	R <input type="checkbox"/> GRM S <input type="checkbox"/> GRN T <input type="checkbox"/> QSB <input type="checkbox"/> SVP QSL MCI <input type="checkbox"/>
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After 27 hours of operation on the HF bands (10-15-20 metres), 8,000 visitors, 382 QSOs, and 50 country contacts in 16 CQ zones and four continents, the time had come to pack up.

It was with great joy that we all said: "Mission accomplished." We shook hands before leaving, content that our hobby had been furthered and that all had been enriched by the experience.

We would like to thank Andre Simard VE2DME and the Club VE2CSS for their aid and for having invited us to that special event. Thanks also to those who provided their equipment, making possible the demonstration of old and new radios.

To all who await a QSL card from XO2CSS following our radio contact, all the QSL cards have been sent via the excellent service of the CARF QSL Bureau. '73' until the next event. ■

XO2 CSS: UNE BELLE AVANTURE

En Novembre 1988 André Simard VE2DME nous contactait pour nous inviter à une opération spéciale lors de l'EXPO-SCIENCES 1989. L'EXPO-SCIENCES est une exposition où des jeunes viennent présenter à la population des projets scientifiques qu'ils ont confectionnés.

Sans aucune hésitation de notre part, c'est avec grand plaisir que nous acceptions.

En Décembre le ministère des communications allouait des lettres d'appel spéciales XO2 pour Sherbrooke

et les environs. A partir de ce moment là, il était définitif que les 31 Mars, 1er et 2 Avril 1989 XO2CSS serait en onde pour trois raisons: l'expo-sciences 1989, le 100^{ème} anniversaire de Don Bosco et enfin le 25^{ème} anniversaire de l'école Séminaire Salésien.

Une magnifique carte QSL fut confectionnée par André VE2DME et imprimée au nombre de 800 exemplaires.

LE JOUR J

En effet jeudi le 30 Mars 1989 après une bonne journée de travail, un rendezvous avait été fixé au Séminaire Salésien sur le site de l'expo-sciences 89. La première tâche consistait/ériger ce qui devait devenir notre système d'antenne. Une tour de 10 mètres, un beam TH3-JRS, une vertical R4 de Cushcraft devenaient donc notre lien avec les futurs contacts radio convoités.

Le grand défi consistait à faire tenir la tour de 10 mètres au centre d'une patinoire avec des haubans de nylon et des tiges d'acier d'un demi mètre, disposé au bas de la tour, le tout sous un mélange de neige et de pluie verglassante. Après 3 heures d'effort d'une équipe de 7 personnes, les antennes étaient érigées et prêtes à propager le signal de XO2SS.

A 22H30 le kiosque était présentable au grand public, deux QSOs d'essais avaient été effectués au Brésil et en Colombie. Nous étions maintenant "on the air" mais l'ouverture officielle n'était que le Vendredi 31 Mars à 10H00.

Après une bonne nuit de sommeil, tout était en place pour accueillir le grand nombre de visiteurs défilant pendant les trois jours de l'exposition. Ils ont pu apprécier l'évolution technologique du monde des radio-communications par le vaste éventail de radios datant du début du siècle à aujourd'hui. D'ailleurs une réplique fidèle du satellite radio amateur oscar 120 déclencha un intérêt certain de la part des visiteurs.

Du côté opération radio, la station employée durant les 27 heures d'activité fut le ICOM IC-745 (100 watts). Un Yaesu FT-77 complet fut utilisé comme démonstrateur pour fournir des explications aux gens. De plus, un tableau expliquant la carte QSL, une carte du monde et de nombreux dépliants, définissent bien le lieu physique des opérateurs Normand VE2FQX et René VE2AHC.

Après 27 heures d'opération sur bande HF (10-15-20 mètres), 8,000 visiteurs, 382 QSO's, 50 pays contactés dans 16 CQ zones et 4 continents, le temps était venue de replier bagage. C'est avec beaucoup de joie qu'ensemble nous avons dit: mission accomplie. Le temps de se serrer la main avant de partir et de se dire que l'on avait livré la marchandise tout en appréciant cette nouvelle expérience enrichissante.

Nous tenons à remercier André Simard VE2DME et le club VE2CSS pour leurs aides et surtout pour nous avoir invités à cette opération spéciale. Merci également à ceux qui ont fournis leurs équipements, rendant possible la démonstration d'ancien et de nouveau radio.

À tous ceux qui espèrent une carte QSL de X02CSS suite à notre contact radio, sachez que toutes les cartes ont été expédiées via l'excellent service du QSL Bureau de FRAC. '73' et à la prochaine activité... ■



Norman VE2FQX et André VE2DME vérifiant la solidité des installations.

René VE2AHC devant quelque radio en démonstration.



DOC WATCHING FCC PLAN TO ALLOW UNLICENSED USERS TO SHARE SPECTRUM WITH AMATEURS

DOC is following closely an FCC plan to allow all kinds of low-powered unlicensed radio operations under Part 15 Rules to operate in six bands, four of which are now allocated to Amateurs. This will be done in an effort to expand the benefits to manufacturers and users of unlicensed devices of all kinds and simplify FCC Rules.

The first band is that at 902-928 MHz presently allocated Amateur, Mobile except aeronautical mobile, and Radiolocation all secondary status as well as

Fixed primary status in ITU Region 2.

Other Part 15 operations will be allowed in bands at 2300-2450 MHz now allocated Amateur secondary, Fixed, Mobile and Radiolocation primary worldwide and 5725-5850 MHz now allocated Amateur secondary and Radiolocation primary in Regions 2 and 3. Part of the Amateur band immediately above 5850 MHz may also be involved. The fourth that will probably be hurt the most in the future is the 24.00-24.25 GHz band presently allocated exclusively to Amateur and Amateur-Satellite on a worldwide basis.

While U.S. Amateurs may be the first to

feel the pinch especially at 902-928 MHz, Canadian Amateurs will be a close second. Recall the DOC proposal to allow wireless office communications in the 902-928 MHz band. While CARF filed a brief on that proposal, DOC has made no policy decision as yet. The FCC action just raises the pressure favouring that operation since it would also be permitted in the States under the new Part 15.

Amateurs around the world will eventually feel the effects as the pressure grows in the other countries to use these bands too for similar unlicensed operations. ■

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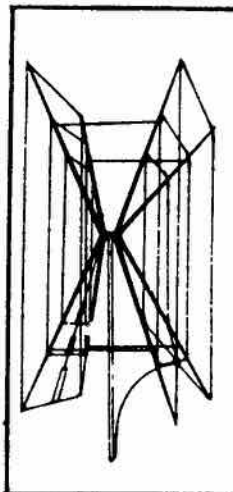


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Canada's Amateur Radio Magazine

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ATTENTION PAST MEMBERS OF



This edition of THE CANADIAN AMATEUR has been mailed to you in the hope that you will find it interesting and steadily improving.

We, the Management of CARF, are always concerned when members do not renew. Perhaps we failed to remind you, maybe your interests have changed, but we hope that eleven issues a year of THE CANADIAN AMATEUR plus our excellent National Outgoing QSL Bureau service will tempt you to return as a subscriber.

Each and every member adds strength to our ability to work with Government and other organizations to further the cause of Amateur Radio for Canadians.

The price of membership is reasonable. Won't you please consider re-joining us.

A subscription form can be found at the back of this issue of the magazine. Please return the address label from this magazine with your application. Thanks.

Social Events

OKANAGAN VALLEY HAM-FAIR '89

Okanagan Valley Hamfair 89 will be held at the Illahie Beach RV Park, Hwy 97 north, Summerland, British Columbia (Okanagan Valley), just 150 mi NW of Spokane, Wash. Saturday July 29 from 8 a.m. to July 30 Sunday at 3 p.m.

Events to include: Giant Flea Market and Auction, Uncle Phil's Pancake Breakfast, Seminars and lectures, New and used equipment, Refreshments and food available, Excellent beach and boat facilities, Raffle and Prize draws.

Admission \$5, Talk-in on 146.92 or 146.94 repeaters. Contact VE7BEE or VE7EFA or write to Okanagan Ham Fair Society, Box 477, Penticton, B.C. V2A 6K6.

THE 1ST ANNUAL MONTREAL SHORTWAVE RADIO FESTIVAL

The Canadian International DX Club, Canada's national radio monitoring club is pleased to present the 1st Annual Montreal Shortwave Radio Festival to be held July 22, 1989, from 9 a.m. to 2 p.m. at the Royal Canadian Legion Branch 94, 205 Empire Street, at the corner of Churchill Blvd. in Greenfield Park, Quebec. The festival is open to all radio hobbyists, as well as to the general public.

SASKATCHEWAN HAMFEST

The Regina Amateur Radio Association would like to invite Amateurs and friends to the Saskatchewan Hamfest, August 11, 12 and 13, 1989, in Regina. The program includes a variety of items for Amateurs and non-Amateurs and a flea market. Watch for further details and listen to the Saskatchewan Phone Net at 0100Z nightly on 3753 kHz.

BRANTFORD ARC FLEA MARKET

This event will be held at Woodman Park Community Centre on Saturday August 12, 1989 from 8 a.m. to 1 p.m.

Admission \$3, kids under 12 free; Doorprizes, refreshments, auction sale. Call Marvin VE3MWF or write P.O. Box 1661, Brantford, Ont. (519) 442 6298.

TALK IN— 146.520 Simplex, 147.150 o/p/VE3 TCR, 147.750 i/p, 443.025 o/p, 448.025 i/p.

VE3RCMP

The Royal Canadian Mounted Police ARC will operate VE3RCMP from June 12 to Aug. 23 from the Canadian Police College in Ottawa. Operation commemorates the official 50th Anniversary of RCMP Telecommuni-

cations. The origins of radio-communication in the RCMP are traceable to Amateur station nc5GO at Pond Inlet, Baffin Island in 1927. February 1927 QST carries an interesting story about nc5GO.

Daily operation will be on all bands and modes or by sked. The station will be active on Field Day and the Canada Day Contest. Operating schedules and frequencies will be disseminated by packet networks on or about June 23. For a special QSL send SAE to: VE3RCMP, RCMP Headquarters, 1200 Vanier Parkway, Ottawa, Ont. K1A 0R2.

CHARLOTTETOWN ARC

The Charlottetown Amateur Radio Club invites interested Amateurs and non-Amateurs to its Flea Market to be held July 22, 1989. The Flea Market will be located at the Cornwall Civic Centre, Nr. Charlottetown P.E.I.

VE3CNE & AMATEUR RADIO

Again in 1989 VE3CNE will be in operation. It is the Official Amateur Radio Communications for The Canadian National Exhibition.

This year it will again be in the Arts Crafts and Hobbies building but in a new location at the West wall near the South end.

The station is operated by and for the Amateur Radio community. All Amateurs are invited to participate.

It provides the general public with a look at our hobby and gives them some direction about how to enter it. It gives licenced 'hams' an opportunity to use 'state of the art' equipment; and to try the latest Amateur techniques.

Again through the courtesy of Atlantic Ham Radio and ICOM, the station will have the most modern radio equipment. While the role of Packet has not yet been finalized, it is expected that the computer equipment will once more be provided by Commodore Business Machines.

This year we will be looking for a greater volume of traffic for our 'Send a Message Home' feature. In this regard, we hope to have some incentive for clubs to originate traffic.

Of course there will be RTTY and other 'goodies' for the operators and other features to entertain the public. We will continue to offer them the opportunity to find classes in their home district.

Although there will not be an Opening Parade, the Warrior's Day Parade will still have its communications provided by Amateurs, mostly with some ex-service experience. For this parade we are looking for YL operators with some service, including cadet, experience.

Don't forget, all hams are welcome, so start thinking about VE3CNE NOW! Come on-n-n-n-n in. ■

KA4SBE Report and Other Stuff

KA4SBE @ KA4SBE
with help from Glenn WB7DOW @
KB7CFD

AX25L2V2 - R2D2's Ham Call
Baud Rate - Cost of Obscene
phonecalls
BBS - Ammo for an air rifle
CALIBRA - Malibu Beach Scenery
CANLINE - Six-Pack Assembly Plant
CANPAC - Several required for
Super Bowl Party
CMDTIME - Command Time
(Required for Military Hams)
CONPERM - Special at the Walla
Walla Prison Beauty Salon
DWAIT - What's on D end of D
barbells
MAXFRAME - What MAX's Picture
is in
MicroPower - Less than a Kilowatt
MON - Jamaican for MAN
NEWMODE - The lawn after you're
finished with the mower
RS-232 - No. of trips required to

Radio Shack for parts to get your
station up on packet.

RETRY - What a loser does in a
single's bar

Terminal - What you are after you
buy one

TheNet - Formal attire for crazy
packeteers

Tiny2 - Twigg

TXDELAY - Waiting for the IRS to
send you a cheque

TXFLOW - Wallet to Washington

USERS - Noncoping hams who turn
to recreational chemicals

X-OFF - What you'd like to say to
'LID' on the air

XON - Station where you can get
FULLDUP

ICOM - I Can't Operate Mine

Yaesu - River in Florida

Kenwood - Petrified Kenneth

DRAKE - Darn Radio Almost Killed
Everyone

UNIDEN - Radio for United Cub
Scouts

•CQ DX•CQ DX•

Paul Cooper VE3JLP, RR 2 Metcalfe, Ontario K0A 2P0
613-821-2167



ZONE 2 NEWS

We DXers tend to be a solitary bunch spending a great deal of our spare time alone in the shack searching for the rare ones, so it was particularly pleasant last month to be invited to join a select group of Ottawa DXers gathered at the home of Dave Goodwin VE2ZP, our contest editor, to greet Kent Chown VE2LJ. Kent's particular claim to fame is that he is one of a very few stations keeping Zone 2 alive and well for DXers worldwide. (The December 1987 issue of *The Canadian Amateur* featured a couple of photographs of Kent's shack and QTH). Our group that evening included John Connor VE3RMM, TCA's ex-contest columnist; John Brummell VE3JDO, who has been Kent's QSL manager for several years now and Norm Morgan VE1BLG, who very shortly will be posted to DU land where he plans to be very active on all the HF bands.

During a long conversation with Kent he asked me to pass on the following information to readers. He hopes to be operating from Zone 2 for at least one more year and anyone looking for QSLs should use John VE3JDO. Kent's statistics for his operation from Harrington Harbour, P.Q., are impressive. He has now racked up 14,000 QSOs with stations in all 40 Zones and 187 DXCC countries.

The great majority of these contacts have been made on CW, his favourite mode. He now has two HF rigs, IC740 and IC735, and when necessary uses a linear amplifier. Kent will work anyone, of course, but he is particularly looking for Japanese Prefectures and Cities, Soviet Oblasts and Swiss Cantons. If you are looking for him he favours the bottom 10 kHz of all bands 10 through 80 metres.

DX AT DAYTON

Every year, long before April rolls around, I start to check with ham friends in the Ottawa area to see who is interested in going down to the Dayton Hamvention. This year saw our usual group reduced to three hams and a girlfriend, however, enjoying the weekend down there does not depend on being a member of a large group as most of the time I find I'm wandering around on my own. The choice of what to look at or listen to is so broad that it's hard to find a companion who duplicates your tastes exactly.

Having picked up my 'Press' pages, I was able to check out the exhibits in the arena hours before the general public

SIERRA LEONE
FREETOWN

9L1GG

ALSO - KD3F & ZP5XGG

RADIO	DATE	GMT	RST	MHZ	2-WAY
VE3JLP	27 MAR 87	2312	599	14.0	CW

THANKS QSO
PLEASE QSL VIA N4DW 73
11434 REX BAXTER
EL PASO, TX 79936

GREG GLEVANIK
FREETOWN
SIERRA LEONE

Dave

An interesting example of a completely computer generated QSL card. We shall be seeing more of these in our mail in the future.

was allowed in on Friday. This was a big plus for this year's visit! Saturday is the big day for the various Forums with contests in the morning and DX in the afternoon. I arrived early for the afternoon session and stayed for the first two presentations.

We started with a report from the DXCC desk, Don Search W3AZD gave his usual comprehensive coverage of this busy section of the ARRL.

He opened with a brief rundown of the current workload of the DXAC, the Advisory Committee that makes recommendations for the addition of new countries to the DXCC list. This year, with the revised DXCC rules in effect, there has been an unprecedented number of applications. As of April the Committee was considering no fewer than six different applications which I'll list below since many of these are likely to end up approved.

1. Frederick Reef (VK9). Sometimes known as Observatory Cay, this small patch of rock is some 240 miles from the Australian Mainland. Its approval may well hinge on whether Swain Reefs, which is closer to the mainland, can be considered to be 'dry land'.

2. Austral Islands (FO). These are 324 miles from the nearest point in French Polynesia.

3. Marquesas Islands (FO) These islands lie some 268 miles from French Polynesia.

4. Conway Reef (3D2) 281 Miles

southwest of Fiji and 658 miles from Rotuma. (The European DX Foundation put the reef on the air in April with the call 3D2CR.)

5. Banaba (Ocean) Islands (T33). 260 miles west of Kiribati. These were once known as the Ocean Islands with a call sign of VR1. (Note that Jim VK9NS and Bob KN6J were operating from here in May with the call signs T33JS and T33RA.)

6. Basilica Del Santo (HV). This is a Vatican enclave, separated from Vatican City by some 300 miles. (It was activated for several hours by I1BRJ on Feb. 4, 1989. The call sign used was I1BRJ/3/HVA.)

Decisions on five of these applications are likely to be announced in July. The exception is the last one which is not well-documented.

It was inevitable that the vexed question of the recent operation from North Yemen, 4WOPA, would come up. Don Search and another of his colleagues from ARRL both spoke quite frankly about the rumours that are currently circulating as to why Hans was suddenly expelled from the country. There seems little doubt now that the immediate reason for the expulsion was a tape recording of 4WOPA allegedly working a 4X4. This recording was played to Hans on his recent return from South Yemen and he was then told to pack and leave the country immediately. (Most readers will

be aware of the fact that many of the Arab countries consider themselves to be technically at war with the state of Israel, so all communications with that country are forbidden.)

Things start to get muddy when we ask who sent the tape to the North Yemen authorities. Don Search freely admitted that an OE6 and a JY are rumoured to have been conducting a campaign to discredit Hans' operation, because they had previously been denied permission to operate from North Yemen! It seems almost unbelievable that some of our fellow DXers could stoop so low. Don refused to give full call signs saying that so far all he heard would have to be classed as rumours. He and his ARRL colleague both stressed that the whole affair could reflect very badly on the worldwide Amateur community, especially with a WARC coming up fairly soon.

"We don't need this thing, it could come back to bite us," they said, asking for patience until more of the facts were in. In the question period that followed, someone asked whether or not the OE and JY stations could not be dropped from the Honour Roll for 'ungentlemanly behaviour'. Don repeated that, until the rumours are confirmed, nothing will be done.

Turning to less contentious matters, Don, in reply to questions from the floor, said that the DXCC status of Warvis Bay could indeed be affected by the recent developments in Namibia. It had been turned down in the past, for separate country status, but it is a new situation there now, so who knows what a future ruling might be.

For those who were still in doubt, Don confirmed that contacts with Iran, EP2, are not accepted by the DXCC desk. The ARRL has letters on file from both the Iranian Government and a leading Amateur Radio Club there both confirming that Amateur Radio is illegal in Iran.

The second presentation I heard was on the recent 3D2XX operation from Rotuma Island. Toni Zimmer KN3T and Eric Scaca K3NA gave an excellent talk and slide show on this DXpedition. Over the years I've heard quite a few of these presentations at Dayton and they are not always of general interest, sometimes with indifferent slides and poorly organized talks.

The Rotuma show was a textbook example of how to make one of these presentations interesting, with a careful mix of travelogue and Amateur radio material so you came away feeling you not only understood about the DXpedition but also had learned something about a very remote island, and its people, deep in the Pacific.

NEW DX MAGAZINE

One of the more interesting items I picked up this year at Dayton was a

copy of *The DX Magazine*, the monthly magazine for DXers. The Dayton issue was number 5 and was a special to introduce the magazine to visitors to the Hamvention. Monthly magazines for DXers are not all that common, in fact the only other ones I can think of are *Radiosport*, which is Yuri Blonovich's publication, and *Long Skip*, the journal of the Canadian DX Association. *The DX Magazine* is produced by Chod Harris VP2ML who has successfully published for many years *The DX Bulletin* which is a weekly DX newsletter. Perhaps the easiest way to give you a thumbnail sketch of this new magazine is to quote from its own publicity blurb:

"*The DX Magazine* is the only English-language, slick, monthly publication covering all aspects of the world of DX. In every issue, the DXer will find DXpedition reports, DX club news and program ideas, up-to-the-minute award information, top-notch contest column by John Attaway K4IIF, QSL managers, QSLs received, Russian QSL address, QSL help, Propagation information and

the highly acclaimed Propagation Primer, reviews of equipment, antennas, and computer software for the DXer, new products for the DXer, 6 metre news and much, much more."

Allowing for a bit of advertising hype, that describes the magazine quite well. At the moment the subscription is \$15 (U.S.) a year but *The Canadian Amateur's* own Tony Salvadori VE3NXQ has already spoken to Chod about a special deal for Canadian subscribers through CARF! It's too early to say whether this plan will get off the ground, but Chod's response to the idea was quite positive, so watch this space for further developments.

BITS AND PIECES

SWL Cards— Fergus VE3NQL has a bright idea on what to do with some, at least, of those SWL cards that keep pouring in from the Bureau. Why not get these cards accepted as confirmation of your contact with the DX station you

Continued on next page

Band Reports

Thanks to Fergie VE3NQL and Jack VE3BTQ for these extracts from their logs.

CALL	FREQ (MHz)	UTC	DATE
N7NR/NH6	28.506	2031	Mar 25th
W7LE/WH6	28.498	2040	Mar 25th
XF4L	14.140	0711	Apr 13th
XF4L	21.195	1942	Apr 14th
VR6MW	28.???	????	Feb 4th
Meralda, Box 27 Pitcairn or NZ9E.			
HZ1AB	14.210	1448	Feb 6th
JT1BR	14.015	1520	Feb 9th
9X5AA	21.355	1938	Feb 9th
YI0VP	28.590	1445	Feb 11th
5H3RB	28.552	1952	Feb 11th
VU7JX	21.195	1930	Mar 17th
9J2KF	14.004	2350	Mar 17th
TRBCJ	21.335	2055	Apr 10th
JY9SR	21.016	2215	Apr 10th
A41KJ	14.170	1355	Apr 15th
FW0BX	21.028	0248	Apr 11th
3D2CR	14.029	0407	Apr 22nd

International Amateur Radio Network

Glenn Baxter K1MAN, Long Point Lodge, Belgrade Lakes, Maine, U.S.A. 04918

As a result of our written agreements with the Soviets, we have already implemented several active projects. The Young Communist League (YCL) in Moscow asked IARN on Feb. 27, 1989 to track down tall ship *Pogoria* since Soviet parents hadn't heard from them lately and were concerned. We made contact quickly and began to handle messages between the ship and Moscow and the United States. Thus IARN got involved about half way into this project.

This voyage is one of international goodwill sponsored by the Polish Maritime League, private U.S. citizens in Alabama and Tennessee, and the Young Communist League. There are 10 American boys, 12 Soviet boys, and 10 Polish boys on the trip which began in Poland Dec. 14. Also two each of instructors from the U.S. the U.S.S.R., and Poland. On board they study five hours per day and speak Russian and English. The theme of the trip is, "Let's learn to live and work together." They have sailed through two hurricanes and had to go around Cape Horn.

The trip has included Argentina (where they met the Vice President), Peru, Panama and Cuba (where they met the Soviet, Polish and American Ambassadors). Then Miami, Jacksonville and a bus trip to Washington, D.C. After that, back to Jacksonville, Disneyworld, etc. Finally, a sail to Leningrad, visit to Moscow to see Mr. Gorbachev and ending in Poland May 19, 1989.

All peaches and cream right? Well,

not quite. The ship's Captain is a ham, SP5ATV, and thus the use of ham radio. He is also a dyed in the wool sailor with his own set of priorities. While this trip of international goodwill was teaching those on board to live and work together, those of us who were supposed to be inspired by all this high-minded cooperation between different cultures were discovering that it isn't quite that simple. The organizers of the trip had hoped for a visit by the boys with the President of the United States. This was hard to arrange and instead we got the sincere interest of Senate Majority Leader George Mitchell to meet with and be photographed with the boys at the U.S. Capitol.

A very tight schedule was set with little allowance for unavoidable delays. Coming into Miami from communist Cuba caused some problems. Miami is a hotbed of anti-communist sentiment and the *Pogoria* was asked to take down the Soviet flag for their own safety. Nobody asked that the U.S. flag be taken down while the group was in Cuba. How would you have felt if you were one of the Soviet boys? Two Soviet reporters from Cuba were on board to capture this embarrassing episode for sending back to Moscow. With the trip behind schedule now, the trip to Washington and meeting with Senator Mitchell was scrubbed, not Disney World or something else seemingly less important than the Washington visit.

The Senate Majority Leader is the third most important official in the U.S. Government. The Captain never could

understand why the U.S. State Department wouldn't sponsor the U.S. share of the trip. On the other hand, the U.S. has nothing like the Young Communist League. Is it any wonder that our societies don't get along? We don't understand each other. While we deeply offend each other in our mutual ignorance, the purpose of the trip is nevertheless and unwittingly accomplished... we are forced to get off our bottoms and begin to do some homework about how the other side really lives and thinks. It goes far beyond "See Disney World, isn't America great?" Well, we all have our strong points and weak points on both sides. This is the bitter yet needed lesson of the *Pogoria* trip.

We can use this story and example time and time again in our quest to truly improve international goodwill. Amateur radio and the historic agreements between the U.S.S.R. and IARN will continue to play a part in this worthwhile process. And all you hams out there can help. When you are chatting with radio Amateurs on the other side of the globe, dig for deeper understanding and don't get fooled by the superficial stuff which the experience of the *Pogoria* has highlighted so well.

Take another step. Join IARN and even start your own local Chapter. For details write us at IARN, Belgrade Lakes, Maine 04918. Telephone 207-495-2215 FAX 207-495-2069. ■

DX (cont'd)

were working! As he says "...it would sure burn the coax of some DX stations who will not QSL with you until you send green stamps about three times."

The Colvins Again—Iris and Lloyd are off again, this time testing glasnost by attempting to operate from every Soviet republic! QZ reports them operating from a club station with the call UR1RWW/W6KG on 14.008 at 1415 UTC. I worked them on May 19 when they were using the call RT0U/W6KG. They were on 21.007 MHz at 1725 UTC. As usual, QSLs should be sent to the YASME foundation.

F89 France—In celebration of the bicentennial of the French Revolution stations in France and her overseas departments (France doesn't have any colonies!), the figure 89 may be used in call signs. Examples are as follows:

France F89AJA may sign F89/F89AJA
Corsica TK5IU may sign TK89IU
Guadeloupe FG4AA may sign FG89AA
XF4 Revilla Gigedo—The figures are in for the 8-day DXpedition in April to Socorro Island in the Revilla Gigedo. A total of 47,943 QSOs were made, 40% on CW and 60% on SSB. In addition, 525 satellite contacts were made, 405 QSOs on RTTY and 160 on 6 metres. The DXpedition has left a complete station with the island's military commander who will shortly become the first ever permanent Amateur radio operator on XF4.

Thanks are due to the following sources for some of the material appearing in this column: VE2LJ, VE3NXQ, VE3NQL, VE3BTQ and QZ DX. ■

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THE AD HOC APPROACH

There are still some hams who are satisfied with an ad hoc approach to emergency communications. They are scornful of training, of formal message handling, of emergency planning and of telephone trees. They feel that each emergency situation is so different that it is useless to plan ahead. They see the use of a standard message format as a waste of time. In the words of one Amateur, "You use what you have and get the job underway. By the time I get the telephone tree started, I could have handled the traffic with the people available. During an emergency, time is of the essence. We spend more time fiddling with protocol than passing the message. The best way to use the message form is to turn it over and have the sender print the message and sign it."

We, as ARES members, can applaud some elements of this approach, but disagree strongly with others. Certainly, in an emergency, time is of the essence. However, much of the immediate local communications following an earthquake, tornado, etc. will be handled by established emergency response agencies like the police and fire departments, who have their own effective local communications networks. Metro Toronto ARES anticipate needing up to six hours to get their nets operational, but once operational, they will be the only ones capable of handling emergency traffic in volume to points beyond the limited range of the police, fire and ambulance nets.

As regards the standard radiogram format, it has been developed over a great many years to assure that the message will reach its destination speedily and correctly. Those of us who are old enough to remember sending telegrams or cablegrams will remember that these too were standardized and complete with the word count. How else could they and we assure accuracy, establish responsibility and authenticity, and ensure that replies are correctly directed? If the message is to be handled by the National Traffic System, it must be in the approved form. Otherwise NTS will refuse to handle it.

Training is the only means by which we can assure effective performance of emergency operators. This training should include formal message handling and net control. It should also prepare the operators to understand their role in an emergency net. It should make them aware of the modus operandi of the agencies they will serve,

so they can interface efficiently with them. These agencies include not only the police, fire and ambulance services, but also the Red Cross, municipal emergency control groups, hospitals, etc.

Being prepared includes having an emergency kit ready to go—time being of the essence, none of it should be wasted in rounding up the equipment and supplies that the operator will need while he is on emergency duty.

The case for an organized, well-planned and well-trained group is a strong one indeed—we need not only to be efficient—we must look efficient and we must convince the authorities that we are efficient, if they are to include us in their emergency plans and give us the opportunity to contribute our skills in a disaster.

In the words of Gord Fraser VE3HSF, EC for Metro Toronto, "Gone are the days when during an emergency a group of Amateurs gets together and deals with the crisis, flying by the seat of their pants, making ad hoc plans to deal with each problem as it arises. In Metro Toronto only properly trained, accredited, and indoctrinated Amateurs will be of value during an emergency or exercise. Without your ID you cannot go anywhere, without the training you cannot know what is required of you and without indoctrination you cannot understand what is going on. Other Amateurs offering their services will be turned away because they have no ID, training or indoctrination."

RESEAU D'URGENCE RAQI/VE2RUA

Jacques Roussin VE2AZA has provided an excellent writeup of the Quebec Emergency Net which he founded 11 years ago. The net comprises a headquarters station located in the "Bureau de la protection civile du Quebec" (VE2RUA) and nine stations located in the various regions of the province. All operate on HF and VHF. These stations have the call letters VE2RUB, VE2RUC, etc. There are also three portable stations comprising HF, VHF and VHF repeater equipment, which are stored near the Quebec City airport. The net can be activated very quickly indeed in case of disaster.

The current coordinator of this net is Jacques Pamerleau VE2AB, who has been in charge since 1983.

PRINCIPLES OF EMERGENCY COMMUNICATION

Pierre Mainville VE3LPM, EC of the Halton ARC recently provided in the

club bulletin the following 'Principles of Emergency Communication':

1. Keep the QRM level down.
2. Monitor the established emergency frequency.
3. Avoid spreading rumors.
4. Authenticate all messages.
5. Strive for efficiency.
6. Select the mode and band to suit the need.

He also provided the following 'Principles of Repeater Operation':

1. Use minimum power. If your rig has a low and high power position, use the lowest power possible to maintain good communications.

2. Use simplex operation when possible. On two metres it's a good idea to have at least two simplex channels available to be used when you are within a few miles of your contact.

3. Observe the 'pause' procedure between exchanges. When it becomes your turn to transmit, count to two or three before you start to transmit.

4. Be alert for emergency and public service opportunities. A high percentage of Amateurs have two metre FM rigs in their cars, and highway assistance is commonplace. This is especially important in accidents which have just happened. In such cases, feel free to break into any conversation taking place on any repeater.

5. Listen much, transmit little. Always use your call to announce your presence on the repeater.

6. Keep your mobile FM rig on standby (squelch) on a repeater or a simplex channel when on the road.

7. Think before you talk, especially in an emergency situation. Anyone with an inexpensive scanner can monitor you. Stick to facts, control your emotions, watch your language. During an emergency is the time when you are most apt to act and speak rashly.

8. Articulate, don't slur. Speak close to your mike but talk across it, not into it. Keep your voice down. In an emergency situation one often gets excited, and tends to shout. Talk slowly and calmly, this is the mark of a pro. We are not pros, but the more we sound like them, the better the impression we will leave.

It is hoped that this column, which is being submitted to both The Canadian Amateur and to QST Canada, can become an ongoing source of news and information for members of both organizations on ARES activities across Canada. ARES members and particularly ECs are invited to send along information on what they are doing and on any developments they would like to share with other ARES groups.

CONTINUED FROM PAGE 26

OBL	C/S	REPUBLIC / OBLAST NAME	OBL	C/S	REPUBLIC / OBLAST NAME	OBL	C/S	REPUBLIC / OBLAST NAME						
082	B-Y	Chernovitsk (***1988***)												
069	B-Z	Nikolayevsk												
187	T-J	Sevastopol City	036	M-M	subord rayons	039	O-O	MOLDAVIA (O)						
186	T-U	Kiev City	034	M-N	Dshsk	038	P-B	LITHUANIA (P)						
		BYELDRUSSIA (C)	---	M-P	(made part of 033 1988)	037	Q-G	LATVIA (Q)						
188	C-A	Minsk City	033	M-Q	Issyk-Kulsk	083	R-R	ESTONIA (R)						
009	C-C	Minskaya	---	M-T	(made part of 036 1988)			-end-						
008	C-I	Grodnensk												
005	C-L	Brestsk												
007	C-O	Gomelsk												
010	C-S	Mogilevsk												
006	C-W	Vitebsk												
		AZERBAIJAN (D)												
001	D-D	subord rayons												
003	D-K	Nagorno-Karabakhsk												
002	D-N	Nakhichevsk												
		GEORGIA (F)												
012	F-F	subord rayons	169	1A	140	9F	015	F-O	082	B-Y	050	I-O	123	3U
015	F-D	Yugo-Osetinsk	136	1C	141	9G	016	L-B	083	R-R	185	I-Q	124	0S
014	F-Q	Adzharsk	088	1N	158	9H	017	L-I	084	9W	052	I-T	125	2F
013	F-V	Abkhazsk	113	10	162	9J	018	L-Q	085	0D	055	I-U	126	3I
		ARMENIA (G)	114	1P	163	9K	019	L-J	086	6W	181	I-V	127	3X
004	G-G	subord rayons	120	1Q	161	9L	020	L-O	087	6X	056	I-Z	128	0Z
		TURKMENIA (H)	144	1T	146	9M	021	L-T	088	1N	040	J-J	129	0X
191	H-A	Ashkhabad City	149	1W	145	9O	022	L-M	089	6I	192	J-K	131	4N
180	H-B	Krasnovodsk	143	1Z	134	9Q	023	L-P	090	9X	042	J-R	132	3N
044	H-E	Maryysk	125	2F	167	9S	024	L-K	091	4S	041	J-S	133	4H
043	H-H	Ashkhabadsk	170	3A	130	9U	025	L-E	092	4U	---	J-X	134	9Q
045	H-W	Tashauzsk	142	3D	084	9W	026	L-L	093	6J	---	L-A	135	3W
046	H-Y	Chardzhousk	147	3E	090	9X	027	L-F	094	4P	016	L-B	136	1C
		UZBEKISTAN (I)	137	3G	099	9Y	028	L-C	095	4W	028	L-C	137	3G
189	I-A	Tashkent City	126	3I	100	9Z	029	L-D	096	6P	029	L-D	138	0I
053	I-B	Tashkentsk obl	155	3L	103	0A	030	L-V	097	4Y	025	L-E	139	0K
049	I-C	Kashkadarinsk	168	3M	105	0B	031	L-N	098	0Q	027	L-F	140	9F
173	I-D	Syrdarinsk	132	3N	110	0C	032	M-Q	099	9Y	190	L-G	141	9E
047	I-F	Andizhansk	160	3P	111	0D	033	M-N	077	B-L	017	L-I	142	3D
054	I-G	Fergansk	121	3Q	153	0F	034	M-M	059	B-M	019	L-J	143	1Z
051	I-I	Samarqandsk	157	3R	106	0H	035	M-M	057	B-N	024	L-K	144	1T
048	I-L	Bukharsk	151	3S	138	0I	036	M-M	058	B-P	026	L-L	145	9D
050	I-O	Namangansk	122	3T	112	0J	037	Q-G	064	B-Q	022	L-M	146	9M
185	I-Q	Navoiysk	123	3U	139	0K	038	P-B	081	B-R	031	L-N	147	3E
052	I-T	Surkhandarinsk	119	3V	107	0L	039	O-O	074	B-S	020	L-O	148	4F
055	I-U	Khorezmsk	135	3W	085	0D	040	J-J	079	B-T	023	L-P	149	1W
181	I-V	Dzhizaksk	127	3X	098	0G	041	J-S	065	B-U	018	L-Q	150	6L
056	I-Z	Karakalpaks	118	3Y	124	0S	042	J-R	066	B-V	178	L-R	151	3S
		TADZHIKISTAN (J)	117	3Z	166	0U	043	H-H	068	B-W	021	L-T	152	4C
040	J-J	subord rayons	156	4A	104	0W	044	H-E	062	B-X	030	L-V	052	I-T
192	J-K	Khatlonsk (***formed 1988***)	152	4C	129	0X	045	H-W	047	I-F	---	L-Y	153	0F
042	J-R	Gorno-Badakhshansk	148	4F	159	0Y	046	H-Y	048	I-L	069	B-Z	036	M-M
041	J-S	Leninabadsk	133	4H	128	0Z	047	I-F	049	I-C	187	T-J	034	M-N
---	J-X	(***dissolved 1988***)	164	4L	075	B-A	050	I-O	050	I-O	186	T-U	---	M-P
		KAZAKHSTAN (L)	131	4N	076	B-B	051	I-I	051	I-I	188	C-A	033	M-Q
016	L-B	Tselinogradsk	094	4P	080	B-C	052	I-G	052	I-G	009	C-C	---	M-T
028	L-C	Severo-Kazakstansk	091	4S	063	B-D	053	I-B	053	I-B	008	C-I	039	Q-O
029	L-D	Semipalatinsk	092	4U	060	B-E	054	I-G	054	I-G	005	C-L	038	P-B
025	L-E	Kokchetavsk	095	4W	070	B-F	055	I-U	055	I-U	007	C-D	037	Q-G
027	L-F	Pavlodarsk	097	4Y	078	B-G	056	I-Z	056	I-Z	010	C-S	083	R-R
190	L-G	Alma-Ata City	101	6A	071	B-H	057	B-N	057	B-N	006	C-W	083	R-R
017	L-I	Aktjubinsk	109	6E	073	B-I	058	B-P	058	B-P	001	D-D	100	9Z
019	L-J	Vostochno-Kazak	108	6H	067	B-J	059	B-M	059	B-M	003	D-K	101	6A
024	L-K	Kzyl-Ordinsk	089	6I	067	B-J	060	B-E	060	B-E	002	D-N	102	6Y
026	L-L	Kustanaysk	093	6J	072	B-K	061	B-X	061	B-X	012	F-F	103	0A
022	L-M	Uralsk	150	6L	---	J-X	062	B-Y	062	B-Y	015	F-O	104	0W
031	L-N	Chimkentsk	096	6P	---	L-A	063	B-D	063	B-D	014	F-Q	105	0B
020	L-O	Guryevsk	115	6U	---	L-Y	064	B-Q	064	B-Q	013	F-V	106	0H
023	L-P	Karagandinsk	086	6W	---	M-P	065	B-U	065	B-U	004	G-G	107	0L
018	L-Q	Alma-Atinsk obl	087	6X	---	M-T	066	B-V	066	B-V	191	H-A	108	6H
178	L-R	Dzhezkazgansk	102	6Y	001	D-D	067	B-J	067	B-J	180	H-B	109	6E
021	L-T	Dzhambulsk	174	8T	002	D-N	068	B-W	068	B-W	044	H-E	110	0C
030	L-V	Taldy-Kurgansk	175	8V	003	D-K	069	B-Z	069	B-Z	043	H-H	111	0D
---	L-Y	(made part of 026 1988)	165	9A	004	G-G	070	B-F	070	B-F	045	H-W	112	0J
			154	9C	005	C-L	071	B-H	071	B-H	046	H-Y	113	10
					006	C-W	072	B-K	072	B-K	189	I-A	114	1P
					007	C-O	073	B-I	073	B-I	053	I-B	115	6U
					008	C-I	074	B-S	074	B-S	049	I-C	117	3Z
					009	C-C	075	B-A	075	B-A	173	I-D	118	3Y
					010	C-S	076	B-B	076	B-B	047	I-F	119	3V
					012	F-F	077	B-L	077	B-L	054	I-G	120	1Q
					013	F-V	078	B-G	078	B-G	051	I-I	121	3Q
					014	F-Q	079	B-T	079	B-T	048	I-L	122	3T
							080	B-C	080	B-C				
							081	B-R	081	B-R				

Oblast numbers not now in use are 011, 032, 061, 116, 171, 172, 176, 177, 179, 182, 183 and 184. Identifiers recently withdrawn are J-X, L-A, L-Y, M-P and M-T.

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You get a giant two core balun wound with tellon wire for balanced lines and a 6-position antenna switch with extra heavy switch contacts.

Its compact 10 1/2 x 4 1/2 x 1 1/2 inch cabinet fits right into your station.

You get a 50 ohm 300 watt dummy load for tuning your exciter, a tilt stand for easy viewing and a 3-digit turns counter plus a spinner knob for exact inductance control.

2-knob Differential-T™ Tuner



MFJ-986
\$ 399

The new MFJ-986 Differential-T™ 3 KW PEP 2-knob Tuner has a differential capacitor to make tuning foolproof and easier than ever. It ends constant retuning with broadband coverage and gives you minimum SWR at only one best setting. Covers 1.8-30 MHz.

The roller inductor lets you tune your SWR down to absolute minimum. A 3-digits turns counter lets you quickly return to your favorite frequency.

You get MFJ's new peak and average reading Cross-Needle SWR/Wattmeter with a new directional coupler for more accurate readings over a wider frequency range. It reads forward/reflected power in 200/50 and 2000/500 watt ranges. Meter lamp is front panel switched and requires MFJ-1312.

A new current balun for balanced lines reduces feedline radiation and forces equal currents into antenna halves that are not perfectly balanced for a more concentrated, stronger signal.

MFJ's Fastest Selling Tuner



MFJ-941D
\$ 179

The MFJ-941D is MFJ's fastest selling 300 watt PEP antenna tuner. Why? Because it has more features than tuners costing much more and it matches everything continuously from 1.8-30 MHz.

It matches dipoles, vees, verticals, mobile whips, random wires, balanced and coax lines.

SWR/Wattmeter reads forward/reflected power in 30 and 300 watt ranges. Antenna switch selects 2 coax lines, direct or through tuner, random wire, balanced line or tuner bypass. Efficient airwound inductor gives lower losses and more watts out. Has 4:1 balun, 1000 V capacitors, 10x3x7 inches.

MFJ's Random Wire Tuner

MFJ-16010 \$ 79



You can operate all bands anywhere with any transceiver when you let the MFJ-16010 turn any random wire into a transmitting antenna. Great for apartment, motel, camping operation. Install a wire anywhere! Tunes 1.8-30 MHz, 200 watts PEP. Ultra small 2x3x4 in.

VAESU

Closeouts

WHAT - A - DEAL !!

CHOOSE EITHER OR BOTH ONLY \$299.99 EACH !!!

FT-23R 2M 140-164MHz
FT-73R 440-450MHz
2.5W Output 10 Mem.
with FNB-10 Nicad.

FT-23R/73R

MFJ's Best 300 Watt Tuner



MFJ-949C
\$ 249

The MFJ-949C gives you more precise matches than any tuner that uses two tapped inductors. Why? Because you get two continuously variable capacitors that give you infinitely more positions than the limited number on switched coils.

This gives you the precise control you need to get your SWR down to a minimum. After all, isn't that why you need a tuner? Covers 1.8-30 MHz.

You also get MFJ's lighted 2-color Cross-Needle SWR/Wattmeter, 6-position antenna switch, 50 ohm 300 watt dummy load and a built-in balun - all in a compact 10x3x7 inch cabinet that fits right into your station. Meter light requires MFJ-1312.

With MFJ's best 300 watt PEP tuner you get an MFJ tuner that has earned a reputation for being able to match just about anything - one that is highly perfected and has years of proven reliability.

MFJ's Mobile Tuner



MFJ-945C
\$ 149

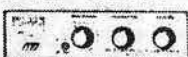
Don't leave home without this mobile tuner! Have an uninterrupted trip as the MFJ-945C extends your antenna bandwidth and eliminates the need to stop, go out and adjust your mobile whip.

You can operate anywhere in a band and get low SWR. You'll get maximum power out of your solid state or tube rig and it'll run cooler and last longer.

Small 8x2x6 inches uses little room. SWR/Wattmeter and convenient placement of controls make tuning fast and easy while in motion. 300 watts PEP output, efficient airwound inductor, 1000 volt capacitors. Mobile mount, MFJ-20.

144/220 MHz VHF Tuners

MFJ-921 \$ 129



MFJ's new VHF tuners cover both 2 Meters and the 220 MHz bands. They handle 300 watts PEP and match a wide range of impedances for coax fed antennas. SWR/Wattmeter, 8x2 1/2 x 3 in.

MFJ-920, \$ 95 No meter, 4 1/2 x 2 1/2 x 3 inches.

MFJ's Artificial RF Ground

\$ 149

You can create an artificial RF ground and eliminate RF "bites", feedback, TVI and RFI when you let the MFJ-931 resonate a random length of wire and turn it into a tuned counterpoise. The MFJ-931 also lets you electrically place a far away RF ground directly at your rig - no matter how far away it is - by tuning out the reactance of your ground connection wire.

Barefoot 1.5 KW Linear Tuner



MFJ-962C
\$ 349

For a few extra dollars, the MFJ-962C lets you use your barefoot rig now and have the capacity to add a 1.5 KW PEP linear amplifier later. Covers 1.8-30 MHz.

You get two husky continuously variable capacitor for maximum power and minimum SWR. And lots of inductance gives you a wide matching range.

You get MFJ's new peak and average reading Cross-Needle SWR/Wattmeter with a new directional coupler for more accurate readings over a wider frequency range. It reads forward/reflected power in 200/50 and 2000/500 watt ranges. Meter lamp is front panel switched and requires MFJ-1312.

Has 6-position antenna switch and a tellon wound balun with ceramic feedthru insulators for balanced lines. 10 1/2 x 4 1/2 x 1 1/2 inches.

MFJ's smallest Versa Tuner

MFJ-901B
\$ 109



The MFJ-901B is our smallest 5x2x6 inches - (and most affordable) 200 watt PEP tuner - when both space and your budget is limited. Good for matching solid state rigs to linears.

It matches whips, dipoles, vees, random wires, verticals, beams, balanced and coax lines from 1.8-30 MHz. Efficient airwound inductor. 4:1 balun.

MFJ Packet Radio



MFJ-1274
\$ 229

MFJ-1270B
\$ 189

MFJ-1270B super clone of TAPR's TNC-2 give you more features than any other packet controller

You can double your fun by operating both VHF and HF packet because you get high performance switchable VHF/HF modems.

You get the Easy Mail™ Personal Mailbox with soft-partitioned memory so you and your ham buddies can leave

messages for each other 24 hours a day.

In MFJ's new WeFAX mode you can print full fledged weather maps to screen or printer and save to disk using an IBM compatible or Macintosh computer with an MFJ Starter Pack.

A new KISS interface lets you run TCP/IP. They also come NET ROM compatible - no modification needed!

You also get 32K RAM, a one-year unconditional guarantee and you can use 12 VDC or the included 110 VAC power supply.

For dependable HF packet tuning, the MFJ-1274 gives you a high resolution tuning indicator that's accurate to within 10 Hz

While others offer you using 3 year old tech gives you all 9 digital bringing you state-of-



Only the MFJ-1278 multi-mode data controller lets you operate all 9 digital modes using the latest up-to-date technology. Plus you get high performance VHF and HF modems that let you move from casual VHF ragchews to hot HF DX.

And when you find out how easy it is to use, you'll wonder why you didn't join the crowd a long time ago.

You get 9 fun modes - Packet, AMTOR, RTTY, ASCII, CW, WeFAX, SSTV, Navtex and full featured Contest Memory Keyer.

Plus you get Easy Mail™, 20 LED Tuning Indicator, exclusive new packet collision prevention, one free eeprom upgrade, 32K RAM, KISS, dual radio ports, true DCD, random code generator, parallel printer port, lithium battery backup, AC power supply, one year unconditional guarantee and more.

All you need to join the fun is an MFJ-1278, your rig and any computer with an RS-232 or TTL serial port and terminal program.

Use an MFJ Starter Pack to get on the air instantly. It includes computer interfacing cable, terminal software and instructions... everything you need.

Order MFJ-1282 (disk)/MFJ-1283 (tape) for C-64/128/VIC-20; MFJ-1284 for IBM or compatible; MFJ-1287 for Macintosh, 39, 95 each.

New Easy Mail™ Personal Mailbox

You get MFJ's new Easy Mail™ Personal Mailbox with soft-partitioned memory so you and your ham buddies can leave messages for each other 24 hours a day.

20 LED Precision Tuning Indicator

An easy-to-use 20 LED tuning indicator lets you tune in signals fast in any mode. Just tune and center a single LED and you're precisely tuned in to within 10 Hz - and it shows you which way to tune!

One FREE Upgrade!

When you buy your MFJ-1278 today, you don't have to worry about missing new modes and features that come out tomorrow. Why? Because your new MFJ-1278 package comes with a coupon good for one free eeprom upgrade exchange. Use your coupon to take advantage of MFJ's rapidly emerging Multi-mode technology.

New technology prevents collisions, gets packet through faster

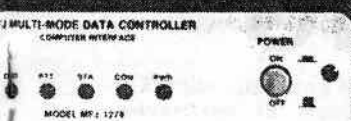
Now packets can get through much faster and more reliably with fewer retrys! MFJ's new Anti-Collision technology virtually eliminates retrys due to collisions.

This new technology prevents packet stations from transmitting at the same time - the cause of collisions - by producing random transmit delays automatically.

An MFJ exclusive: MFJ-1278 is the only multi-mode to have this new technology.

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ADD 8% SALES TAX AFTER ADDING SHIPPING. A
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requests. Special prices are based on cash
Card orders add 2% to discount prices only.

u some digital modes
nology, only MFJ
modes and keeps on
-the-art advances.



"Picture Perfect" Video Digitizer

Here's an actual print-out of Aimee from the MFJ Order Desk. She was digitized with the MFJ-1292 and the result was printed on a 9-pin Epson compatible printer. We reduced the size to fit the ad.



Create fascinating digitized snapshots of anything you can point your camcorder at!
The MFJ-1292 "Picture Perfect" Video digitizer connects your video camera to our IBM or compatible computer. It lets you capture digitized video snapshots on floppy or hard disk.

Your MFJ-1292 package includes a plug-in card for your computer, software and complete instructions

As an added bonus you get a handy Contrast and Brightness Control unit that you can conveniently place near your keyboard for fine tuning your pictures.

You'll quickly build an impressive collection of your very own digitized snapshots saved on disk.

Your friends will be amazed when you show your pictures off on your CGA or mono graphics monitor.

Or you can take a few moments to digitize your friend and print him a copy of his picture on your Epson or IBM graphics compatible printer.

Use your MFJ-1278 to send pictures to your ham buddies

Here's how to use your MFJ-1278 to send pictures to your ham buddies:

Use your MFJ-1278 and packet binary transfer feature in the MFJCOM program to transmit your picture files.

When your buddy receives them using the same software, he can view and print pictures using the MFJVU program.

The latest MFJ-1284 Starter Packet for MFJ compatibles \$39.95 gives you both MFJCOM program you need to transmit and receive binary picture files and the MFJVU program you need to view and print them.

If you have an earlier version of MFJ-1284 you can get an upgrade disk by sending proof of MFJ-1284 purchase and a upgrade fee, plus shipping/handling.

MFJ-1278

\$ 399

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TS-940 "DX-CELLENCE"

- All Band, All Mode Transceiver
- Direct Keyboard Entry
- Engineered for the DX-Minded and Contesting Ham
- Its Got It All!

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IC-765 NEW HF TRANSCEIVER

- Built-in Automatic Antenna Tuner and Power Supply
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- 160-10M/General Coverage Receiver
- Band Stacking Registers

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SCANNERS

- BC-100 XLT.....\$ 379
- BC-200 XLT..... 549
- BC-590 XLT..... 479
- BC-760 XLT..... 599
- BC-800 XLT..... 449
- HR-2600 (10 meters)... 559
- HR-2510 (10M)..... 449

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TS-140S AFFORDABLE DX-ing!

- HF Transceiver With General Coverage Receiver
- All HF Amateur Bands
- 100 W Output
- Compact, Lots of Features

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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

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ICOM NEW!



IC-725 NEW ULTRA COMPACT HF TRANSCEIVER

- 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

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YAESU



FT-4700RH DUAL BAND MOBILE

- 50W on 2 Meters
- 40W on 70 cm
- Receive 140-174 MHz
- 430-450 MHz

\$1269

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Call Now—Don't Delay

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TM-621A \$899 TM-721A DeLuxe FM DualBanders

- 144/220 MHz • 144/450 MHz
- 45 W on 2 Meter • 45 W on 2 Meter
- 25 W on 1 1/2 Meter • 35 W on 70 cm
- 30 Memories • 30 Memories

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FT-212 RH THE "ANSWERING MACHINE" 2 METER MOBILE

- 45 Watts Output • Multiple Scanning Routines
- 10 Memories • Hi/Lo Power Switch

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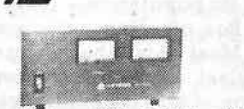
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IC-2GAT \$569 IC-4GAT \$609

- 2 Meter & 440 Handhelds
- IC-2GAT RX 138-174 MHz TX 140-150 MHz 7 Watts
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ASTRON



- RS7A ... 109 • RS35M ... 359
- RS12A ... 159 • VS35M ... 419
- RS20A ... 215 • RS50A ... 459
- RS20M ... 249 • RS 50M ... 519
- VS20M ... 299 • RS10A ... 149
- RS35A ... 319 • VS50M ... 579

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TH-75A 2M/70CM DUAL BAND HT

- Receive 141-163.995 & 438-449.995 MHz
- One Watt Power on Each Band
- Monitor Both Bands at Same Time
- CTCSS Encode/Decode Built-in

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FT-470 COMPACT DUAL BAND FM HANDHELD (2M/70CM)

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IC-32AT SUPER DUALBAND FM HANDHELD

- 5 Watt on Both Bands
- Receive 138-174 MHz 440-450 MHz
- Stores Standard and Odd Offsets

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True dual port - simultaneous HF/VHF packet operation

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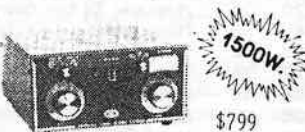
AEA PK 232

- Six digital modes
- including weather FAX



AEA PK 232 SOFTWARE

- PC-PAKRATT™/FAX \$75
- COM-PAKRATT™/FAX PK-232 Terminal programs \$125



MODEL VS1500A ANTENNA COUPLER

The Barker & Williamson VS1500A antenna coupler is designed to match virtually any receiver, transmitter or transceiver in the 160 to 10 meter range (1.8 to 30 MHz) with up to 1500 watts RF power to almost any antenna, including dipoles, inverted vees, verticals, mobile whips, beams, random wires and others, fed by coax cable, balanced lines or a single wire. A 1:4 balun is built in for connection to balanced lines.

FEATURES INCLUDE:

- Series parallel capacitor connection for greater harmonic attenuation.
- In-circuit wattmeter for continuous monitoring.
- Vernier tuning for easy adjustment.

Front panel switching allows rapid selection of antennas, or to an external dummy load, or permits bypassing the tuner.

Dimension (Approx): 11" wide x 13" deep x 6" high
Weight: 6 1/2 lbs.

1500W

\$799

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CARF Canadian Amateur Radio Operating Aid

SOVIET OPERATING

By W4KM and UW3AX

The U.S.S.R. is divided for administrative and territorial purposes into 179 oblast-level units (in addition to oblasts, these include krays, autonomous SSRs, autonomous oblasts, autonomous districts, and five of the smaller SSRs), numbered 001 through 192 (13 of the numbers are not now in use).

Any location in the U.S.S.R. lies within one or another of the 15 Soviet Socialist Republics and within one or another of the 179 oblast-level units. Changes occur from time to time, the most recent were announced in *Sovetskiy Patriot* of Oct. 23, 1988 (included in the lists sent with this).

The Russian Soviet Federated Socialist Republic (RSFSR) contains over 75% of the country's land mass and over 50% of its population— it spreads all the way from East to West.

Box 88 offers a diploma for working 100 oblasts.

Most oblast hunters are not interested in the name of the oblast, as Soviet stations normally send only the number (sometimes they call it 'region', but these days they recognize that western stations know what 'oblast' means). So the most useful list is the one that identifies each oblast number by the nature of the callsign, sorted into order of oblasts and alpha order of callsign elements.

Letters sk at the end of a name normally mean "...skaya" (district of).

In the days before 1984, the number in a callsign was higher as one moved East. With the new system this is not so, but where possible they leave it that way until they run out of assignable numbers.

SOVIET CALLSIGNS

This list identifies each oblast by certain parts of the callsign. In the RSFSR the letter before the number is A, V, W or Z and the oblast is identified by the number and the letter before and after the number.

It applies to 2 x 3 calls beginning with U or R; to 2 x 2 calls beginning with R; to new 2 x 2 calls (number not corresponding to the pre-1984 system) outside the RSFSR;

All 2 x 3 calls ending with WA to ZZ are collective stations.

Old 2 x 2 calls (number corresponding to the pre-1984 system— number increasing from West to East) do not always conform.

Oblast numbers not now in use are 011, 032, 061, 116, 171, 172, 176, 177, 179, 182, 183 and 184.

Identifiers recently withdrawn are J-X, L-A, L-Y, M-P and M-T.

OBL	C/S	REPUBLIC / OBLAST NAME	OBL	C/S	REPUBLIC / OBLAST NAME	OBL	C/S	REPUBLIC / OBLAST NAME
		RSFSR (A, V, W, Z before nr)						
169	1A	Leningrad City (maybe 1B too)	095	4W	Udmurtsk	138	0I	Magadansk
136	1C	Leningradsk (maybe 1F too)	097	4Y	Chuvashsk	112	0J	Amursk
088	1N	Karelsk	101	6A	Krasnodarsk	139	0K	Chukotsk
113	10	Arkhangelsk	109	6E	Karach-Cherkessk	107	0L	Primorsk
114	1P	Nenetsk	108	6H	Stavropol'sk	085	0D	Buryatsk
120	1Q	Vologodsk	089	6I	Kalmytsk	098	0Q	Yakutsk
144	1T	Novgorodsk	093	6J	Severo-Osetinsk	124	0S	Irkutsk
149	1W	Pskovsk	150	6L	Rostovsk	166	0U	Chitinsk
143	1Z	Murmansk	096	6P	Chech-Ingushsk	104	0W	Khakassk
125	2F	Kaliningradsk	115	6U	Astrakhansk	129	0X	Koryaksk
170	3A	Moscow City (maybe 1B too)	086	6W	Dagestansk	159	0Y	Tuvinsk
142	3D	Moskovsk (maybe 1F too)	087	6X	Kabard-Balkarsk	128	0Z	Kamchatsk
147	3E	Orlovsk	102	6Y	Adygeysk			
137	3G	Lipetsk	174	8T	Ust' Ordynsk Buryatsk			UKRAINE (B, T)
126	3I	Kalininsk	175	8V	Aginsk Buryatsk	075	B-A	Sumsk
155	3L	Smolensk	165	9A	Chelyabinsk	076	B-B	Ternopol'sk
168	3M	Yaroslavl'sk	154	9C	Sverdlovsk	080	B-C	Cherkassk
132	3N	Kostromsk	140	9F	Permsk	063	B-D	Zakarpatsk
160	3P	Tul'sk	141	9G	Komi-Permyatsk	060	B-E	Dnepropetrovsk
121	3Q	Voronezhsk	158	9H	Tomsk	070	B-F	Odessk
157	3R	Tambovsk	162	9J	Khanty-Mansiysk	078	B-G	Khersonsk
151	3S	Ryazansk	163	9K	Yamalo-Nenetsk	071	B-H	Poltavsk
122	3T	Gor'kovsk	161	9L	Tyumensk	073	B-I	Donetsk
123	3U	Ivanovsk	146	9M	Omskaya	067	B-J	Krymsk
119	3V	Vladimirsk	145	9O	Novosibirsk	072	B-K	Rovensk
135	3W	Kursk	134	9Q	Kurgansk	077	B-L	Kharkovsk
127	3X	Kaluzhsk	167	9S	Orenburgsk	059	B-M	Voroshilovgradsk
118	3Y	Bryansk	130	9U	Kemerovsk	057	B-N	Vinnitsk
117	3Z	Belgorodsk	084	9W	Bashkirsk	058	B-P	Volynsk
156	4A	Volgogradsk	090	9X	Komi ASSR	064	B-Q	Zaporozhsk
152	4C	Saratovsk	099	9Y	Altaysk	081	B-R	Chernigovsk
148	4F	Penzensk	100	9Z	Gorno-Altaysk	074	B-S	Ivano-Frankovsk
133	4H	Kuybyshevsk	103	0A	Krasnoyarsk	079	B-T	Khmel'nitsk
164	4L	Ul'yansovsk	105	0B	Taymyrsk	065	B-U	Kiyevsk
131	4N	Kirovsk	110	0C	Khabarovsk	066	B-V	Kirovogradsk
094	4P	Tatarsk	111	0D	Yevreysk (Jewish ASSR)	068	B-W	L'vovsk
091	4S	Mariysk	153	0F	Sakhalinsk	062	B-X	Zhitomirsk
092	4U	Mordovsk	106	0H	Evenkiysk			

QRP

Moe Lynn VE6BLY, 10644-146 St., Edmonton, Alberta T5N 3A7



For the upcoming Namao Hamfest as advertised in April *The Canadian Amateur* comes a box from Small Parts Centre, 6818 Meese Drive, Lansing, MI 48911 just in time. Chris included an assembled example of two kits he sells to give an idea of quality in parts and boards that one can expect.

Both kits are FR-4 Glass Epoxy, etched and drilled as supplied alone, partial kit or complete kit. A far cry from days gone by when the only boards available were those you made yourself. Chris sent along the assembled TWO-FER transmitter and the assembled NEOPHYTE receiver, both complete with instructions. It is hoped this display will spark some interest during our Hamfest toward a larger movement in QRP.

Also included in the shipment were quite a few copies of the Small Parts Centre catalogue issued in April 1989. He expects to have more kits available and even some improvement modifications to others already offered. His assembly instructions and drawings appear quite clear and leave little or nothing to the imagination, which will be especially attractive to a novice working with kits.

There are two addresses given for suppliers of Crystals recommended for use in the TWO-FER design. The catalogue is now 27 pages and lists all those hard to find QRP parts including the NE602 mixer/oscillator for \$2.70. If you have a circuit you want to build and are having trouble finding parts, just drop them a line. Where else can you buy a five watt dummy load for 50¢?

ARCI QRP

Once again the latest issue has arrived: Volume XXVII Number 2 dated April 1989 of *QRP Quarterly*, the Journal of the QRP Amateur Radio Club International. Their editor Paula WB9TBU is stepping down due to personal circumstances on her homefront, but says she has enjoyed the activity and will help her successor ensure a smooth transfer.

They have published an article for anyone with a TS-520SE (it uses 15 MHz for WWV) and the urge to tune in 30 metres. It uses Signetics NE602 IC and a 5 MHz crystal among other sundry parts to construct a 10.1 to 15.1 MHz converter. The whole is written up by A.F. Galindo, AC6F, 10941 Allen Drive, Garden Grove, CA 92640.

The presentation is such that you would have to be considerably experienced to duplicate the converter as there is no parts layout or printed

circuit board design or etching diagram. Someone might like to write AC6G, then build one before sending the results in to Bill Richardson our Technical Editor, for consideration toward publishing.

GLEANINGS

Only one request (Hubert VE7CBB) to continue the homebuilder experiments has been received, but if anyone has an idea to share just send it along to the Editor-in-Chief who will decide in what section of *The Canadian Amateur* to publish the article. Hubert also included his thanks and compliments on this QRP column. Anything that has been put together, whether it has a commercial PCB or not, will do just fine. We can get more people interested in our Amateur Radio Service as long as we employ the KISS theme (Keep It Simple Stupid). It then becomes a lot easier to sell and fits in with the QRP aspect which is putting some intrigue back in to our Amateur service activities.

Still on the subject of radio, a telephone enquiry from Phil VE7ADW, for computer interfaces and programmes brightened one day in May. It seems he was reading some back issues of *The Canadian Amateur* and saw the review on Electronic Computer Projects but was unable to locate a copy of the book. After sending him the VIC20 Interfacing Blue Book, he wrote to say it was exactly what he could use. Time is growing heavy on his hands since losing his 'helpmate' in December 1988.

Another disappointment on the packet scene one evening while listening to KA3NVP running 250 watts— which he said was all you need except on 14105 kHz. KOTKS was 30 dB over S9 on his meter at the time and was being congratulated for using only 100 watts. Then KA3NVP told KOTKS his signal was 40 dB over S9 since moving his beam around a little.

Have had no success on packet recently even while trying 100 watts, not to mention QRP which worked fine almost two years ago during experiments with my homebrew TNC and the VK disk program for Commodore C64. Must only conclude the QRO gang are also cluttering up packet now while throwing any pride to the wind that was once present, albeit to a small extent, on our bands. We need more 30 metre regulations.

A contest award arrived from ARCI QRP Club for First Place Alberta during the Fall 1988 QRP contest. Never let it be said they do not have a sense of

responsibility in the volunteer organization. My entry was long forgotten when suddenly this certificate arrives to jog my memory! Maybe everyone reads the Royal Bank newsletter for May/June 1989 which carried the title, 'The Scope of Responsibility', under which follows these words: "Are people less responsible today than they were in times past? It's debatable. But one thing is sure: responsibility is more vital than ever in this interdependent world..."

AMSAT information package arrived the other day which included a list of satellites, mode, uplink frequencies and downlink. You might say they sell computer programs judging from the three-page price list for members and non-members. Wonder if this is one bastion of ham radio where low power can still be used with some impunity? Maybe it is little different from what one hears on the band when an astronaut works back from space!

Bill VE8PA from Pelly Bay dropped a line about QRP and being in need of something compact while moving around the North.

Quarter Century Wireless Association have a Wild Rose Chapter in Alberta administered by C. Tyrrell VE6PV, 3016-6th Avenue S, Lethbridge, AB. T1J 1E8 for anyone interested.

The Canadian Association of Veterans in United Nations Peace-Keeping, P.O. Box 272 Station D, Scarborough, ON M1R 5B7 have issued their first nominal roll of association members. Apparently UN troops were recipients of the Nobel Peace Prize in 1988.

A letter just before my deadline arrived from Chris KM8X (Small Parts Centre) advising he has just finished revising the TWO-FER transmitter and companion receiver. Both boards are now in the same size 2 x 3" to facilitate stack mounting with receiver on the bottom. He has added a FET mute switch to the receiver and full QSK to the transmitter so that now they work together without the usual T/R switch. Sidetone can also be added to the receiver. A single band VFO for 80, 40 or 20 is on the drawing board utilizing the same size (2 x 3") PCBs. All this is scheduled to appear sometime in June, so you may want to send for his latest list of kits.

His development of a superhet receiver has now progressed to the prototype stage with the basic receiver

Continued on next page ►

PACKET RAP

Bernie Murphy VE3FWF, 3 Herrington Court, Nepean, Ont. K2H 6B9

THENET REVISITED

As mentioned in last month's Packet Rap column, this issue is now in the open. A very good overview of this whole situation is described in detail in an article entitled 'The Net/ROM-Nordlink Question' in the June 1989 issue of *73 Amateur Radio* magazine. If you are running a copy of TheNet in a TNC, I urge you to read this article. As Neil WB2KQI (the author of the article) states in the conclusion of his article: "Amateur radio is self-policing... it must be up to each individual ham to examine the evidence and to draw their own conclusions."

THE KA9Q NET NEWS

Be Aware of AX.25 Parameters

Some of you experimenting with the Net code might take note that latest versions of the code assume that the values for the AX.25 t1 and AX.25 t2 parameters are milliseconds and not in seconds as the current documentation states. Incorrectly setting these parameters with the older values will essentially mean that AX.25 will never retransmit a packet if an error occurs!

Requests for KA9Q Software

As mentioned in previous Packet Rap columns, I can provide you with free copy of the KA9Q software on IBM 5 $\frac{1}{4}$ " diskettes if you have no way of obtaining the software. Note that I do not have access to any other media types. Send 1 or 2 diskettes in an SASE diskette mailer. Send 2 diskettes if you want the source code as well. The source code is an excellent way to find out how the code actually works. You may wish to obtain a C compiler and make some modifications to the KA9Q code yourself. If you request a copy of the KA9Q software, I usually send out the diskette within a few days. If you have not received your copy within two weeks, chances are that your package has gone astray.

KA9Q Versions

There are versions of the KA9Q

► QRP (cont'd)

tuning 3.5 to 3.7 MHz designed to use a crystal converter to tune the other bands. Chris states it works very well but he still may make a few changes in the circuit yet keeping the kit price as low as possible.

Remember, the International QRP frequencies 1810, 3560, 7030/40, 10106, 14060, 18106, 21060, 24906, 28060 all 24 hours daily. 14060 on Sundays at 1900 UTC for VE QRP gathering, then ARCI TCN at 2300Z on or about 14060. Drop in and say hello or pick up NCS for a call or two. ■

software for the MacIntosh, the Atari, the Amiga, the IBM PC (or clone) and various UNIX machines. I am only familiar with the IBM PC version. If you are having problems obtaining a copy for your particular machine, please drop me a line and I'll see if I can point you in the right direction.

PACKET RADIO NEWS

Prince George, B.C.

Stan VE7SS of Prince George, B.C. writes to say that there is a packet radio gateway in Prince George linking 80 metres and 2 metres. A 2 metre packet BBS is in operation. Stan also mentions that there are plans to install a mountaintop 2 metre radio equipped with a TNC near Quesnel with is about 70 miles south of Prince George.

The Prince George group is hoping that another packet group will install one more mountaintop radio and TNC so that they will be able to have a 2 metre packet radio path into the south of B.C. Currently, Prince George hams post their traffic on the local 2 metre BBS and have to depend on 80 metre propagation to forward the traffic via the 80 metre gateway.

Vancouver, B.C.

Rob VE7TT sends the following information on packet activities in the greater Vancouver area:

The VE7LAN repeater is a high profile Duplex Repeater. This repeater is accessible by virtually all packet stations in the Lower Mainland and Southern Vancouver Island. VE7LAN operates like a Duplex Audio Repeater, with input on 145.67 and output on 14.07. With this mode of operation, there is no store and forward delay like that associated with a traditional AX.25 digipeater. This method gives an increase of two times that of conventional digipeating and greatly reduces the 'hidden transmitter' problem.

VE7KIT Mailbox

VE7KIT serves as Vancouver's main mailbox system on 145.67/07. This BBS runs the most current WA7MBL software. Services provided by VE7KIT include bulletins, personal mail, NTS traffic, and a variety of files that can be downloaded and read.

Summary of Use By Frequency

144.97

VE7SPR-8 Net/ROM node, Salspring Island Victoria and surrounding area; VE7VBB BBS/Mailbox; VE7DIE Mailbox, gateway to 80M traffic. Local QSOs VE7DQC-1 Mailbox for Comox Valley, Upper Vancouver Island and BC Sunshine coast. VE7CTJ Mailbox in Squamish, NTS traffic.

145.01

Kantronics personal mailboxes, VE7UBC Mailbox, Local QSOs; Some TCP/IP activity; No additional high profile digipeaters or network nodes are recommended.

145.05

VE7PKT, VADCG 1200 bps digital repeater on Burnaby Mtn. Vancouver Amateur Digital Communications Group V-2, V-3 and AX.25 QSOs; TCP/IP activity.

VE7JOB-8 TheNet Network Node.

145.07

VE7LAN Duplex repeater located on Mt. Seymour.

VE7LAN-4 Net/Rom node; VE7KIT Mailbox;

VE7TOM, VE7CFL 2 metre to 20 metre HF gateways Personal mailboxes; local QSOs; some TCP/IP activity

145.57

+600 kHz pair of VE7SPR

145.65

+600 kHz pair of VE7PKT. VADCG 4800 bps repeater. V-2, V-3, AX-25 QSOs.

145.67

+600 kHz pair ov. VE7LAN. Duplex input for VE7LAN.

Southern Ontario

The Southern Ontario Packet Radio Association (SOPRA) is a very active group. At the time this was written (May, 1989) SOPRA had 4 nodes in operation. These are TORONT (145.01), HALTON (145.57), OSHAWA (145.59) and PETERB (145.49). The OSHAWA, TORONT and HALTON nodes are dual ported Net/Rom nodes and are interconnected via 9600 bps links using 200 MHz radio modems. The SOPRA group also has plans to provide a Conference Bridge on 220 MHz and possibly a multi-connect bulletin board.

FEEDBACK REQUESTED

You may have noticed that the column is a little 'skinny' this month. I need reader feedback to find out what people want to learn about. If there is some topic that you would like me to expand upon, please drop me a line via Canada Post or send me a packet message. My packet address is VE3FWF @ VE3JF. ■

HELP WANTED

The CARF Office needs the current addresses of the following Amateurs, listed by name and last known address. Let Debbie know at P.O. Box 356, Kingston, Ont. K7L 4W2.

George N. Muscat VE3GNM, 2766 Folkway Dr., Mississauga, Ont.

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REPEATERS AND AUTOPATCHES FOR THE COMPLETE BEGINNER—PART ONE

Since I write this column for all kinds of Amateurs— from beginners to retired engineers who practically invented the spark gap, this column is dedicated to trying to make some sense out of using FM repeaters and autopatches for the beginner, whether a new ham, or an experienced one with a new two metre rig.

While most of the Amateur classes I have observed teach aspiring hams a great deal about the HF bands, (aka the 'DC' frequencies or below 30 MHz) not breaking the regs, using CW and HF propagation, very little usually gets taught about using the VHF frequencies. Without dwelling on the reasons for this sad state of affairs (HF is 'real' ham radio, don't tell 'em about two metres— they'll never upgrade... etc. ad nauseum), I propose to rectify it.

First, let's define what an FM repeater is, and describe how it works. The FM part is easy. It uses frequency modulation in both receive and transmit. The repeater part is also easy. You stick a receiver up in a really good location, where it can hear really well. This might be on a tall building, the top of a hill, or a mountain peak near the location of the users of the repeater. We'll get our receiver to listen to 145.34 MHz.

Next, we install a transmitter at the same location as the receiver, and set it to transmit on 146.94 Hz. Now we build a switch that will turn on the transmitter whenever the receiver hears a signal on the input or receive frequency. Let's call this switch the COR (Carrier Operated Relay, of course!).

Now suppose Joe Ham wants to talk to his buddy, Tom. Joe is in an office building downtown, and Tom is 20 miles (32 clicks) away in the 'burbs. Joe is using a handheld with a short 'rubber ducky' antenna and Tom is sitting in his car trying to get off/on the freeway. There are several tall hills in between them, and they cannot communicate directly.

But Joe is gonna use the repeater. He sets his radio to receive on 146.94 MHz and to transmit on 146.34 MHz. So does Tom. Now Joe calls Tom. The radio signal leaves Joe's rig on 146.34 MHz. The repeater receiver (let's call the repeater RPT) hears Joe's signal, because the receiver is sensitive and is in a very good location. As soon as the receiver at RPT hears Joe's signal, the COR switch turns on the RPT transmitter on 146.94 MHz. The RPT

transmitter 'repeats' or retransmits the signal that the RPT receiver heard coming from Joe's handheld. Because this all happens very quickly, there are only a few milliseconds between the time Joe started to transmit and the time RPT began to 'repeat' Joe's transmission.

Tom however, still stuck in the traffic jam, has not been listening to the frequency Joe transmitted on. He has been listening to the frequency that the repeater transmitter at RPT transmits on. As far as Tom is concerned, then, all he hears is the signal coming from RPT's transmitter. Since the RPT transmitter 'repeats' the signal that the RPT receiver hears, Tom will hear Joe's signal 'repeated' over the RPT repeater. And since the RPT repeater is located several thousand feet higher than either Joe or Tom, the signals will go right over any hills and obstacles between them. By using the repeater, Joe and Tom will be able to carry on their QSO.

REPEATER FREQUENCIES

Now that we understand how the basic repeater functions, let's talk briefly about how to use the repeater so that you don't feel silly and the dreaded 'repeater cops' don't descend on you with both feet (in their mouths usually).

First, find out what frequencies are available in your local area. Ask other hams, use your repeater directory or ask at the local ham 'toy store'. The repeater frequencies may be listed with only the repeater transmit frequency, with the transmit and receive frequencies, or with the repeater transmit frequency and the 'offset'. The 'offset' is the difference in kHz between the repeater's receive and transmit frequencies.

For example, a repeater transmitting on 146.940 MHz and receiving on 146.340 MHz might be listed as

a) 146.34/.94— Often expressed as three four nine four, the first 146.34 refers to the repeater's receive frequency.

b) 146.94 -600— 146.94 is the repeater's transmit frequency. The -600 means that the repeater listens for signals 600 kHz lower in frequency than its transmitter.

c) 146.94— 146.94 is the repeater's transmit frequency. You are supposed to know that the repeater's input or receive frequency is 600 kHz lower.

A newcomer might well groan, "and how the %&*%! am I supposed to know that?" On two metres, repeaters with transmit frequencies between 145.11-145.49 and 146.60 and 147.00



usually (but not always) have their input or receive frequencies 600 kHz below their output or transmit frequencies. Repeaters with outputs between 147.00 and 147.40 have inputs 600 kHz higher than the output.

To operate on the repeater, therefore, we need to tune our handheld's (or whatever's) receiver to the repeater's transmit frequency and set the offset on our radio so that it will transmit on the repeater's receive frequency. (Of course, if you're still using a radio with crystals in it, you've got to figure out the frequencies, order up the rocks and fine tune them).

CTCS— AKA TONE CODED SQUELCH, PL, ETC.

"All right, OM! I've programmed the repeater transmit frequency into my handheld's memory, and set the offset correctly. Now I just talk, right?"

Well, almost. In many areas of the country you can do just that. In some of the busier areas, though you also need to program in a CTCS tone code into your radio. "A what? What's that? Can I use my tone-pad?"

A CTCS tone encoder. It's not a DTMF pad (also known as Touch-Tone); that's used for other signalling purposes, like autopatches. In order to keep interference and spurious signals resulting from misadjusted radios or image frequencies from turning on the repeater's COR switch, many repeater operators have installed some kind of tone access system on the input to their repeaters. While the repeater's receiver will still hear everything on its frequency, the COR switch will only turn on the repeater's transmitter when the proper access tone is transmitted by the user's radio. Both the 'garbage' and Amateur transmissions not accompanied by the proper tone will not be repeated.

KINDS OF TONE ACCESS

There are a number of versions of tone access systems. They include Continuous Tone Coded Squelch (CTCS), Digital CTCS, Tone-Burst, Dual-Tone, Touch-Tone, and even 'Whistle-Up'. Many European repeaters use a tone burst, typically 1750 Hz, to activate the repeater, after which it

functions like a basic carrier operated system. This is not often used in North America, although there are examples of repeaters that require a DTMF (Dual Frequency Multi Frequency or Touch-Tone) or a long carrier to 'wake up' the repeater. When some form of tone-access is used, CTCSS is the most likely form.

"You mean I've gotta buy another piece of stuff just to use the radio? Are 'they' just trying to keep me off the air?"

No, they are not trying to keep you off the air. Tone access was developed to permit more efficient channel sharing between users. Chances are, if you've got a relatively new radio, it either came as standard equipment or an optional accessory. And tone encoders are available for about 45 bucks, though you could build one for about ten.

CTCS continuously superimposes a low frequency signalling tone (between 65 and 250 Hz) onto the user's transmitted signal. A receiver equipped with a CTCSS decoder will only allow audio through to a speaker (or the repeater's transmitter) when it hears its specific tone. Because the usual communications receiver's recovered audio does not have the high fidelity necessary to reproduce audio below 300 Hz (in fact, it's deliberately filtered out) properly installed CTCSS is almost completely impossible to hear.

Because CTCSS is also used extensively in the commercial land mobile world, there are a number of standard frequencies that are known by their frequency, like 100.0 Hz; or their code like 1A (which is 103.5 Hz) If your radio has CTCSS as an installed option, read your manual carefully to determine how to program in the

correct tone on transmit. Don't program your radio to respond only to CTCSS tones when receiving unless the repeater in question re-transmits the CTCSS tone— many don't.

AUTOPATCHES

Denizens of the lower frequencies—like 20 or 80 metres, are all familiar with the telephone patch. It connects the HF radio in your shack to the local telephone landline so that you can allow someone in Antarctica or some other godforsaken place, like Toronto, to talk to someone in your area without contributing to Ma Bell's profit and loss statement.

The 'Autopatch' is an automatic telephone patch that will allow you to connect directly to the telephone system and make a call within the local calling area of the repeater. An 'Open' Autopatch is generally available for use by any Amateur, and the access codes are usually freely given out. A 'Closed' autopatch generally has a secret access code given out only to members of the repeater club or other group that maintain the autopatch and repeater.

Please don't begrudge the decision of some Amateurs to close their repeater autopatches to non-members. What works for Amateurs in one area doesn't necessarily work in another. It costs a great deal of time and money to equip, maintain, insure and operate a top quality autopatch. Most clubs with closed autopatches will gladly bring up the patch for visitors from out of town, or in emergencies. Some clubs even have an open autopatch for information and

assistance as well as a closed autopatch for members only.

In any case, the normal procedure is to identify yourself and call the autopatch station. Send the access code. Send the telephone number. Carry on a telephone conversation. When you're finished, send the disconnect code, identify, and declare that you're finished. Of course, the exact process will vary from repeater to repeater.

One thing that most repeater operators will not tolerate (nor should they) is any form of 'commercial' traffic on the autopatch. 'Commercial' traffic can be loosely defined as an autopatch call where one or both of the parties in the conversation is engaging in a business activity. Calling the pizza parlour for their 15' special, or your office to see if any new calls have come in is a no-no. On the other hand, no-one will likely complain if you call a tow truck because your car has broken down on the freeway in rush hour. This is a genuine emergency situation.

Robert Smits VE7EMD
Mail: 13894 94A Ave.,
Surrey, B.C. V3V 1N2
CompuServe: 71370, 2032
Packet: VE7EMD @ VE7KIT
UseNet: uunet!van-bc!ve7apulsmits
or ubc-csl!van-bc!ve7apulsmits

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were able to say it
succinctly.

- Piet Hein

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Is it off?

Phil Ashcraft N5DD, one of ham radio's best ambassadors and finest operators, died recently as the result of a high voltage shock he received while working on one of his amplifiers.

Ashcraft did not get started in ham radio until he was 62 but when he got hit by the bug, he went all out. A successful and now retired businessman— he had the wherewithal to do it right, too. A picture in *QST* some years ago showed him lowering antennas by helicopter to a 185 foot tower. A 2-metre repeater was on an 800-foot tower he owned.

One afternoon, Phil was installing resistors on the input of his two linear amplifiers, he was adjusting the driver and somehow had left the high voltage power supply on. He got hit with 4,500 volts at 2 amps (it takes about 8 microamps to stop your heart... Ed.) when he reached into the amplifier.

The results were the worst imaginable. The voltage ripped through his body and out of his chest and hands, burning off an ear. His hand

was nearly severed, his fingers were welded together and his watch seared into his skin. The room was filled with the smoke of burning flesh. Despite the severity of his injuries, Ashcraft was able to call his office for help.

The doctors gave the ham operator a 25% chance of living, but only if they amputated both arms. There would, he was told, be a long, painful rehabilitation period. Ashcraft refused medical assistance, saying his time had come. That evening he was able to talk with friends and relatives. By morning he was gone.

We decided to tell you about N5DD not, frankly, because we knew him. We decided to tell you about Phil Ashcraft because of the graphic account of his death and the warning it might provide to other radio hobbyists. If Phil Ashcraft was anything like his friends make him out to be, he'd have wanted us to tell you his story. The next time you're poking around your radio, remember it. ■

- Monitoring Times
via Hi-Q

Listening To The World

Sheldon Harvey, 79 Kipps St., Greenfield Park, Quebec J4V 3B1



I hope you're enjoying a wonderful summer in your part of the country. Summer usually leads to outdoor activities and we find ourselves getting away from the radio dials somewhat, but the summer period always yields a new selection of countries and stations to tune in. Unfortunately, we are sometimes at the mercy of high static levels due to tropical storm activities throughout the world, plus our own local thunder and lightning storms which create lots of noise on the bands.

For the FM and TVDXer, we enter one of the busiest times of the year, with July and August usually being the prime time for E-skip activity leading to quite amazing openings on the FM bands as well as television. More on this later.

COUNTRY OF THE MONTH

Our armchair voyage around the world via shortwave returns home this month for a summer break. I thought that, as July 1 is the birthday of our own Canada, why not take a look at our own voice on shortwave, Radio Canada International (RCI). Throughout the world of shortwave broadcasting, one of the most popular and most respected international broadcasters is our own Radio Canada International. Unfortunately, this popularity exists mainly outside of our own borders. The average person on the street in Canada has probably never even heard of Radio Canada International. What a shame!

Throughout various surveys taken by independent sources and by the various SWL-DX clubs around the world, Radio Canada International continuously places in the top five stations in popularity. RCI broadcasts about 160 hours of programming per week. From the close to 50,000 letters received per year by RCI, they estimate 10 million listeners per week worldwide. In fact, the Gallup Institute surveys show that nearly a million Americans listen to RCI on shortwave at least once a week.

RCI's studios and production centre is located in Montreal. The transmitting site is located in Sackville, New Brunswick, where eight transmitters are operated; three 100 kW and five 250 kW transmitters. Two lower powered transmitters are used for domestic programming for the Northern Quebec service on shortwave. Programs are sent from Montreal to Sackville by microwave.

RCI broadcasts around the world in 11 languages: English, French, German, Portuguese, Spanish,

Czech/Slovak, Hungarian, Polish, Russian, Ukrainian and Japanese. There are plans to introduce a Chinese and Arabic service in the future.

The objectives of RCI state that they exist to provide a program service designed to attract an international audience with the purpose of further developing international awareness of Canada and the Canadian identity through programs which reflect the realities and quality of Canadian life and culture, Canada's national interests and policies and the spectrum of Canadian viewpoints on national and international affairs.

RCI employs about 200 in Montreal. Unfortunately, due to numerous budget cuts which RCI and the CBC have faced over the years, the motto of RCI is definitely 'More with Less' but they continue to produce some of the highest quality programming audible on the shortwave bands. A wide selection of news, current affairs, music, science and cultural programs can be heard weekly. Two of the most popular programs are the SWL Digest and the Listener's Corner, both produced and hosted by Ian McFarland, one of the most popular personalities on shortwave.

Radio Canada, in an attempt to improve its coverage around the world, has a number of relay transmitter agreements with numerous countries. RCI programming is relayed over transmitters in England, Portugal, Montserrat, Japan, Hong Kong, Germany and St. Vincent. Recent agreements with the People's Republic of China and Austria have allowed RCI to get better signals into additional parts of the world. You can tune in best to the signal destined for the United States heard daily in French and English from 2200 UTC on 5960 and 9755 kHz. Morning broadcasts can be heard from 1200 to 1300 UTC on 9635, 11855 and 17820 kHz.

For a free, complete schedule of RCI broadcasts, simply write to Radio Canada International, P.O. Box 6000, Montreal, Quebec H3C 3A8. You will automatically be put on the mailing list for updated schedules. Radio Canada appreciates receiving comments on their programming. Love it or hate it, let them know. Like most shortwave broadcasters, mail is the only measure of performance for the staff. In particular, with the most recent federal budget, rumours continue to surface of the demise of Radio Canada International. It is most important that fans of RCI

voice their support for the service. It would be a terrible thing to lose such a highly respected broadcaster as RCI, and to see Canada disappear from the shortwave bands.

CONVENTIONS & FESTIVALS

As many hams know, summer is the time for hamfests, conventions and flea markets. Well, the shortwave listening community is active come summer as well. Here are some highlights of some upcoming events taking place this summer which you might consider attending. The largest annual event is the Association of North American Radio Clubs' ANARCON convention. This year's event takes place July 14-16 in St. Petersburg Beach, Florida. The focus of this year's gathering is transborder broadcasting in the Caribbean region and Central America. ANARCON 89 also marks the 25th Anniversary of ANARC's founding. For full details of the event, write to ANARC-89, P.O. Box 272301, Tampa, Florida 33688.

A little closer to home, the Canadian International DX Club will be presenting two special events, both on July 22. In Montreal, we will be hosting the 1st Annual Montreal Shortwave Radio Festival to be held Saturday, July 22, 1989 from 9 a.m. to 2 p.m. at the Royal Canadian Legion Branch No. 94, 205 Empire Street, at the corner of Churchill Blvd. in Greenfield Park, Quebec.

The festival is open to all radio hobbyists, as well as to the general public. The latest in shortwave radio equipment will be on display. There will also be CIDX representatives present with a selection of free literature prepared to introduce you to the world of international shortwave radio monitoring. Our representatives will be available to demonstrate the equipment, plus to answer your questions regarding all aspects of shortwave radio monitoring.

Guest speakers from the world of shortwave broadcasting will be in attendance with the various lectures being conducted throughout the day on different aspects of the radio monitoring world. A selection of frequency lists, programme schedules and promotional material from the international shortwave broadcasters will also be available, while they last. Various radio books and publications will be on sale as well.

So plan to arrive early and spend the

day learning about the exciting world of international radio monitoring. Admission to the festival is free of charge. Coffee, doughnuts and soft drinks will be available. Raffle tickets will be available at the door for a selection of prizes to be awarded throughout the day.

A similar event will take place on the same day, put together by our Edmonton, Alberta branch. For further information about either of these events, please get in touch with me directly. Also, on July 29 the Ontario DX Association will hold its annual convention at the Skyline Triumph Hotel in Toronto. This event is open to members and non-members of ODXA alike.

This will be a full day of educational seminars, equipment, displays, short-wave literature and opportunities to meet other hobbyists. For further details on this event, write to ODXA, P.O. Box 161, Station A, Willowdale, Ont. M2N 5S8. I hope to see many of you in attendance at one or all of these events.

FM & TV DXING

As I mentioned earlier, summer is the season for this specialized type of DXing. During the summer period, we often experience high levels of sporadic

E-skip conditions which allow the FM-TV DXer the ability to hear (or see) FM and television signals from 800 to 2000 km away.

E-skip usually begins to show up on the low-end VHF television stations from channel 2 to 6. When horizontal black lines begin to appear on these stations, this is usually the indicator of E-skip activity. I personally have been able to see television signals here in Montreal from Jacksonville, Florida, St. Louis, Missouri, Little Rock, Arkansas and Winnipeg, Manitoba to give you some examples. All of this TV DXing was accomplished with an inexpensive, portable black and white set with only the built-in whip antenna. As the E-skip strengthens the effect will creep up into the FM band on radio, with stations within the same distances coming in with clear audio, even stereo signals. Most FX DX will take place on the lower end of the FM band, but dependent on the severity of the E-skip, the effects will appear higher up the band.

One good tip for a time to look for this type of activity is during the hot, humid dog days of summer which we often experience in many parts of Canada. The path of reception is usually to the south, but will occasionally occur on an east-west path. One tip for those

wanting to give TV DXing a try: if you have cable hooked up to your TV, then it won't work. You'll have to disconnect the cable, or use a separate portable for DXing purposes. If you would like an information sheet about FM and TV DXing, please drop me a self-addressed stamped envelope.

Also you can write to an ANARC member club which specializes in FM & TV DXing. They have a monthly bulletin on the subject and issue many publications about the subject. Write to the Worldwide TV-FM DX Association, P.O. Box 514, Buffalo, New York 14205. You can get a sample of their bulletin for \$1. Let them know you heard about them in this column. I hope some of you will give FM-TV DXing a try. Let me know how it works out.

Best wishes to all of you for the summer. If your travels bring you through Montreal this summer, please give me a call when you're in town. It's always nice to hear from you. Until September!

JRSD FUND

Donations to the JRSD Fund should be sent to Box 8873, Ottawa K1G 3J2.

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QUA

Musa Manarov, one of the cosmonauts in the 'MIR' space vehicle, started thinking nostalgically about radioelectronics during his spare time in space, and asked for some copies of the magazine *Radio*. The next visit of a transport vehicle brought several issues of the magazine, and after reading through them, Musa and his fellow cosmonaut Vladimir Titov asked for a transceiver, and up it came, donated by UA6HZ. Valery Polyakov joined them, and Titov became U1MIR, Manarov U2MIR and Polyakov U3MIR. They made their first QSO on Nov. 8, 1988 with UK3IKP and on Nov. 12 and 13 QSOs with the AMSAT symposium in Atlanta. The rest is well-known history.

UA1DZ set new records in the 1988 Shortwave Championships. In the phone competition he made 556 QSOs in 8 hours, and in telegraph 572. UA1ZCL has worked 346 stations via moonbounce, and a contact with WA4MVI gave him his 47th state by EME.

A New National Association?

There is a lot of discussion about the possibility of transferring responsibility for Amateur radio organization from the paramilitary DOSAAF to the Central Radio Club, and the possibility of some of the Republics assuming local responsibility. The winds of perestroika blow strongly everywhere, but the situation is complicated by the fact that 'Amateur Radio' covers hundreds of thousands, maybe millions of constructors as well as 'radio-sporting' Amateurs. A major conference called in April 1988 to discuss possible reorganization developed into a meeting of 'sportsmen' the most aggressive and dynamic participants, and the constructor's interests were hardly covered at all.

Some radio Amateurs involved with *Radio* magazine: Boris Stepanov UW3AX is deputy chairman of the editorial board of *Radio*; the editor of the 'sport equipment' and 'CO-U' columns is Alex Gusev UA3AYC; Gennadij Shul'gin UZ3AU (ex-UA3ACM) is head of the lab.

Rare Oblasts

A questionnaire was sent out to determine the rarest oblasts. They were identified as 042, 182, 174, 175, 129, 024, 045, 015, 141 and 002.

DXpeditions being organized by the U-DX-CLUB (contact UT5HP) for rare oblasts:

129 - UA0X 174 - UA8T

175 - UA8V 042 - UJ8R
024 - UL7K 192 - UJ8K
002 - UD6N 045 - UH8W
046 - UH8Y 014 - UF6O

USSR Information Bulletin

UK3A operates especially for the receipt of information for the monthly Amateur radio bulletin from 0600Z to 0800Z and from 1200Z to 1400Z on 7041 and 14116. (One hour later between October and March).

The QRQ (high speed code) Club of the U.S.S.R. meets on 14070 at 1100 Moscow time on Saturdays, and on 3565 at 2200 Moscow time on Wednesdays.

The first U-DX-CLUB convention was scheduled for April 15/16 in Leningrad. UA1POL operating from the Fedorov polar station at Vaygach until June 1st - QSL to UZ1OWA. The U-DX-CLUB Net meets on 3640 kHz at 0100Z and may QSY to 1853 kHz after the net (for info contact N. Lavreka RB5FF, P.O. Box 3, 272630 IZMAIL-CENTRE, Odesskaya).

— U.S.S.R. news
courtesy W4KM

RYOYF, TUVA

VE7BS saw a program on PBS Television featuring Richard Feynman, the theoretical physicist and mathematician. Feynman and a colleague made a fun project of deciphering the language of Tuva (at one time the independent country of Tannu Tuva in northwestern Mongolia) and trying to get permission to travel there, writing a letter composed of phrases from a guidebook (they were fascinated by the name of the capital city, Kyzyl, said to be the geographical centre of Asia.)

Eventually a letter arrived from the Soviet Academy of Sciences saying they had obtained permission and would be happy to pay the expenses of the trip, but the letter came too late. Feynman had died.

Soon after seeing the program, Bob heard a station on 21 MHz giving his QTH as Kyzyl. Bob called him and asked which oblast Kyzyl is in. RVOYF replied with his oblast number, zone, latitude and longitude, P.O. Box number and Soviet postal code. Bob wrote a letter to go with his QSL for the contact, and received in reply Vlad's QSL (individually printed— none of that rubber-stamp-on-standard-card stuff) a photo of a nicely equipped station, and a letter in beautiful English. Kyzyl is not at all remote from the civilized world! Incidentally, RVOYF

News and Views from around the world

(formerly UA0YT) is in oblast 159, zone 23.

JAPAN

Amateur Radio is sure alive and well in Japan. There are more than 1,600,000, licensed operators (about half of them with individual stations—the others have an operator licence, like having an Amateur certificate but no station licence). The breakdown is as follows:

First Class	13,000
Second (100W)	50,000
Third (10W telegraph)	90,000
Fourth (10W phone)	1,500,000

The *First Class* licence requires a high level of technical knowledge, regulations, 12 wpm International Morse, 10 wpm Japanese morse. The holder can operate all bands, any mode, with no power limit.

The *Second Class* requires High School Physics level technical knowledge regulations, 9 wpm International Morse., 100W output is permitted on all bands, all modes.

The *Third Class* requires radio knowledge at Junior High School physics level, regulations, 5 wpm International Morse. 10W output on all bands except 10 MHz and 14 MHz, all modes.

The *Fourth Class* requirements are similar, except there is no code test and CW operation is not permitted.

The vast majority of Japanese Amateurs operate on the VHF and UHF bands (144-146, 430-440 and 1260-1300 MHz). They have no bands at 220 or 902 MHz.

The largest age bracket in the ham population is between 15 and 20 years old, and the next is between 40 and 50. Japan probably has more technicians, engineers and scientists per capita than any other country. There are many active ham radio and school radio clubs. The monthly magazine *Ham Radio* runs 500 pages, about half of them advertising. The articles are of high technical level. ■

JRSD FUND

The Jack Ravenscroft Susceptibility Defence Fund (JRSD) is still looking for donations. According to Ralph Cameron VE3BBM, the Fund is still \$1500 short of being able to pay all expenses connected with the Ravenscroft case. Your donation would be much appreciated. Send to: JRSD Fund, Box 8873, Ottawa, Ontario K1G 3J2.

CLUB CORNER

J.P. LeBlanc VO1SK/VP9LA, Box 356, Kingston, Ont. K7L 4W2

Keep those club newsletters coming in. I've received for the first time the *VO News* from the Society of Newfoundland Radio Amateurs (SONRA) in St. John's; *VE6 Magazine* from the Amateur Radio League of Alberta; *Ragchew* from the North Okanagan Radio Amateur Club, The Northern Net *Newsletter* from VE7 land; and *Groundwaves* from the Windsor ARC. If you're not doing so, send me a copy of your club newsletter. (Mail to the CARF office.)

CLUB ACTIVITIES

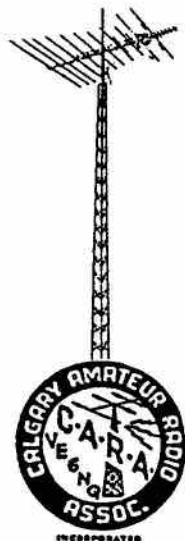
At the time of writing, I am reading about activities which took place in February and March. Three main activities kept most clubs across Canada busy.

The Girl Guides on the Air was a huge success, due mainly to the time and effort of community-minded Amateurs. Some of the Clubs and Amateurs taking part were: The Loyalist City Radio Club in Saint John, NB (Andy VE1ASJ, Art VE1XG and Ed VE1EPW); and the Niagara Peninsula ARC in St. Catharines, VE3TRH, VE3OZT and VE3NCD.

The second activity has been Amateur radio classes. Remember those classes which began in the fall? Well, all that time and dedication is paying off as students are now being issued their new calls after writing the DOC exams. The following is a list of some of these recent additions to the Amateur radio ranks: Charlotte Ward VE1XYL, Darren MacLaren VE1ABD, Dr. Kamil Kazzi (callsign not received yet), Bob Richards VE3RDR, Don Morris VE3RCD and Percy Walpole VE3SAA. According to Rick VE7ASR the Kelowna area should have some new Amateurs soon, too. A class of 18 successfully passed their theory exams.

The third activity has been the preparation for the annual Field Day activities on the 24th of June weekend. I hope all the hard work pays off.

Not only has the Calgary Amateur Radio Association (CARA) been busy giving awards, they have also been busy receiving them. Congratulations to Renne VE6RK on being selected as the CARA 1988 Ham of the Year. CARA received a framed certificate of appreciation from the Calgary Sports Car Club in recognition of the club's continuing communications support for their rallies. CARA also received a certificate of appreciation from 1 CBG HQ & Sig Sqn of CFB Calgary for support given to them during their U.N. Peacekeeping duties in Iran/Iraq last year.



Here's a good suggestion from CARA. At their meeting they carried a motion by Don VE6EY and seconded by Tony VE6MX that the club institute a free associate membership for one year to fully registered students of the code and theory class.

The Regina club was involved in the following events: the Klondike Hike, the annual event put on by the Boy Scouts, the annual Waskemo Triathlon which even with the cold weather, was well attended; and the Sweetheart Run. Credit goes to VE5AFQ, Jim VE5CS and Bruce VE5RC.

The Scarborough Club presented Elmer VE3PXY with the Silent Key Award for his diligent efforts in keeping abreast of his radio pursuits and his service to the club. The Amateur of the Year Award was presented to Drew VE3AAU for his service to the club throughout the year. Our sincerest congratulations to both Elmer and Drew in winning these awards.

The North Okanagan Radio ARC (NORAC) once again assisted with the annual Winter Carnival Parade. Braving the extremely cold weather for this worthwhile public service were Harvey VE7YH, Mike VE7MK, Blake VE7EFA, John VE7DLF, Mary VE7DOB, Muriel VE7EGB, Bob VE7BSL, Hans VE7BOD and Art VE7DKY on standby.

From the Charlottetown Club, we learned that Phil Bower VE1AAM was invested as a member of the Order of Canada in April. Phil has served with the CNIB for 41 years, including 31 years as administrator for P.E.I. He has been involved in disabled sports since 1975. He was one of the three members

of P.E.I.'s first national goalball team and in 1978 was named best male athlete at the Canada Games for the disabled. In addition, he has won gold medals in freestyle swimming and standing long jump and a bronze in track and field. Congratulations Phil; and continued success.

The Pioneer ARC of Ottawa have also been very busy in providing radio communications for several recent sporting events. Jan 22 Nakkertok ski race VE3PUE, VE3JBJ, VE3PAP, VE3JDF; Jan 27 Telecom Canada Giggle Hurts Trophy skate race VE3JDF, VE3OWE; Jan 29 Loppet ski race VE3PUE, VE3AVI, VE3PDS, VE3ANO, VE3JDF.

The Algoma ARC in Sault Ste. Marie helped the local Rotary Club in raising some \$27,000 during Snowarama 1989. Hams taking part were VE3BPS, CTF, CWE, EGC, EOW, FOD JIP, KOF, OTL, PHB and PHM.

The guest speaker at the York Region ARC Feb. 7 meeting was Jane Weber VE3JWE who offered insight into her preparations for the upcoming BOC Challenge, a single-handed 27,000 mile round the world yacht race. At the conclusion the Club presented Jane with a cheque for \$200, and a 5-year membership in the Club. Good luck Jane, and long may your big jib draw. ■

CARF/VE3VCA ON PACKET RADIO

The Canadian Amateur Radio Federation may now be reached by Packet Radio. This form of communication is to be used for non-commercial traffic, i.e. news items, short articles and general messages. It may NOT be used for renewal of memberships, ordering publications etc. Please understand that, although it would be handy, we cannot break these rules for anyone.

The Packet Address for CARF Kingston is VE3VCA@VE3IWJ or VE3LXA@VE3IWJ.

In addition, CARF is offering a Name and Address service on Packet Radio. Larry VE3FXQ has been appointed Official Callsign and Address Custodian. As such, Larry will provide names and addresses of Canadian Hams, as listed in the latest CARF/Communications Canada *Address and Callsign Book*. This service is offered 'on packet only' and on a 'one at a time' rate.

Please send your requests to VE3FXQ@VE3NUU.

CONTEST SCENE

Dave Goodwin VE2ZP, 15 Oval, Aylmer, Quebec J9H 1T9

CONTEST CALENDAR

July 1 CANADA DAY CONTEST
 July 1-2 Colorado 6 Metre Net
 July 1-2 Venezuela Phone Contest
 July 8-9 IARU HF World Champ.
 July 9 ARCI QRP CW Sprint
 July 15-16 CQ WW WPX VHF Contest
 July 15-16 AGCW-DL QRP CW Contest
 July 29-30 Florida QSO Party
 July 29-30 Venezuela CW Contest
 Aug 5 YLRL YL/OM SSB Sprint
 Aug 5-6 ARRL UHF Contest
 Aug 13 ARCI QRP SSB Sprint
 Aug 26-27 All Asian CW Contest
 Sept 6-8 YLRL "Howdy" Days
 Sept 23-24 CQ WW DX RTTY Contest
 Sept 23-24 Classic Homebrew Exchange
 Oct 7-8 Pennsylvania QSO Party
 Oct 28-29 CQ WW DX Phone Contest
 Nov 25-26 CQ WW DX CW Contest
 Dec 2-3 Telco Pioneer QSO Contest
 Dec 24 CANADA WINTER CONTEST

-Courtesy Frank Anzalone W1WY
 & CQ Magazine

RESULTS WPX CW 1988

The full results of this contest appeared in May CQ, and are reprinted here. No records were set, and only one Canadian, Gus VO7MP, made it into the box with his 9th place score on 14 MHz. Conditions were quite disturbed, and at time of writing, just before the 1989 event, it doesn't seem as if things will be much better this year. Congratulations go to Ken VE3KP who takes home the CARF-sponsored award for the top-scoring Canadian all-band entrant.

CANADA

VE3KP	A	1,465,344	1126	424
VE3AT	A	1,316,920	1195	410
VE7DLM	A	1,014,120	911	405
VE7HDX	A	544,852	649	308
VE6DZ	A	240,835	359	245
VE6BF	A	25,696	108	88
VE3INQ	A	660	22	22
VE2AEJ/3	28	10,790	72	65
VE3NXQ	21	124,620	244	186
VE3BZR	21	89,492	203	151
VO7MP	14	1,804,968	1416	473
(Op. VO1MP)				
VE2ZP	14	1,482,576	1176	461
VO8AC	14	911,070	911	382
(Op. VO2AC)				
VE2OEQ	7	85,644	159	122
VE6CB/3	3.5	42,084	112	84
VE7BS	1.8	1,248	17	16
VE7ZZZ	MS	1,764,944	1823	546

CONTEST SOFTWARE

A few months ago, I asked people for information on what they were using for dupe sheets. George VD7EIK wrote with the ultimate answer: the PC. George has been using the 'KT5X Contester', an IBM-compatible piece of software for some time now, and is very pleased.

He writes: "I used this program in the 1988 CQ WW (Phone) and it worked flawlessly. With 2000 QSOs on the log,

it takes about one second to find a dupe. Logging is very quick; all that needs to be entered for each QSO is the call of the station worked and the exchange received.

There is a really nifty idea incorporated into the program: when you enter a prefix and then tap the spacebar, it will display the beam heading from your QTH to the country that is associated with the prefix." George notes that you can choose whether to have the program keep track of points and multipliers, but with a thicker log, this can really slow down the machine. He prefers to run it as a simple logger.

George continues: "At the end of the contest, it will print dupe sheets and log sheets... The program is designed to work with the following contests: CQ WW DX, CQ WPX, ARRL DX, Sweepstakes, Sprint and many others."

"The program is available on 5 1/4" disk for \$35 U.S. or send formatted system disk, return address label, return postage and only \$25 U.S. to: Fred Maas KT5X, Rt. 9, Box 86-H, Santa Fe, NM, 87505." George is very pleased with the KT5X Contester and recommends it highly. A couple of the on-screen displays are shown here.

OTHER SOFTWARE

I received a letter and a couple of diskettes from W2GGE, who has produced some contest software for the CQ WW and ARRL DX contests. I have noticed his advertisements in NCJ and I have spoken with at least one contester in the U.S.A. who is very pleased with W2GGE's product. I hope to have a review of the contents in the next column.

PACKET

While on the subject of computers, anyone on packet might find it easier to get score rumours to me by that mode. In fact if you have any comments or contributions to make, packet is certainly an easy mode to send information, and often much easier than the post. I'm not on the mode myself, but a sympathetic friend and packet proseletyzer, Craig VE3KKU, has begun collecting mail for me. If you have anything you care to pass on, please sent it to VE2ZP @ VE3JF and it should get to me.

FLASH

High claimed scores from the 1989 CQ WW DX SSB were published in June CQ, and the Canadian records table has taken a severe beating. The list below shows call, class, claimed score, and worldwide ranking. * denotes a possible new record.

VB3XN	AB	5,373,693	15	*
CH2PJ	AB	2,190,536	80	
VE5DX	28	1,340,184	13	*
VO1SA	21	1,650,352	2	*
VE6WQ	21	1,212,772	7	
VE3CPA	21	909,658	15	
VE7EIK	21	804,531	18	
VE2ZP	14	1,254,282	3	*
VE3PN	1.8	22,008	3	
VE3DO	1.8	20,091	4	
VE6OU/3	MS	9,406,875	11	*
VE7ZZZ	MM	9,696,041	15	

VE6OU/3's MS score exceeds the existing MS record by a fantastic 50%! June CQ also had results to the 1988 CQ WW DX RTTY Contest. A run-down will appear in September, but in the meantime, congratulations to Jeff VE6CB/3 for being first place in Canada. ■

NR #	TIME	CALL	EXCHANGE received	BAND
5	03:51:45	VU2JU	59008	7
6	03:52:00	VE2DX	59009	7
7	03:52:13	KX6BU	59118	7
8	03:52:31	3W8DX	59432	7
9	04:07:14	9L		7 mhz

9L	72 degrees	SIERRA LEONE	8513 miles
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1. Above is screen-dump of logging screen. George had just entered KL7UE, and the bottom line has just responded that it was a dupe, and it gave him all the info on it.

NR #	TIME	CALL	EXCHANGE received	BAND
5	03:51:45	VU2JU	59008	7
6	03:52:00	VE2DX	59009	7
7	03:52:13	KX6BU	59118	7
8	03:52:31	3W8DX	59432	7
9	04:00:06	-		7 mhz

1	KL7UE	5901	03:49:33	7
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2. Below is logging screen displaying a requested beam heading from VE7EIK to 9L.

REVIEWS

SHORT WAVE DIRECTORY

Fifth Edition 1989, Grove Enterprises, Brasstown, N.C. 28902.

This book is published by Grove Enterprises. They also publish one of the best SWL magazines, *Monitoring Times*, are involved in building many listening accessories and, as far as I am concerned, the 'Cadillac' of general coverage receivers.

The book is an excellent guide for SWLs who want to monitor utility DX-stations. It covers a wide range of types. They range from the common, like Navy, Coastguard, etc. to the rare such as embassies and number stations. The book is well-indexed and has a very handy frequency cross-reference at the end. This is great for identifying the type of service you are listening to. They even printed this section on blue paper for quick access. You can then refer to the more detailed sections for more information.

Several people I know, such as Brian VE3KFU and Larry VE3LDM have commented on the accuracy of previous editions. This book carries on the tradition. It is well explained and covers the entire HF spectrum.

There has obviously been a lot of research put into this book. There are excellent U.S. listings, good foreign listings and a very good Canadian section. Even though the book is published in the U.S., it is very useful for Canadian SWLs. I have tried some of the listings with excellent results.

Grove has included many useful details beside the frequency of the station and its mode. Things such as ship names, base locations, bands and airline identifiers make the signals you hear much more interesting from the first time you listen. The glossary of terms is useful to the beginning and veteran SWL. I was very interested in the marine and space sections and am monitoring some of the frequencies listed.

The only negative point I could find was the International Broadcast section. It did give some frequencies for feeder stations but the actual section is not too useful because the broadcaster's frequency is listed but not the time of transmission. One can get much better detail on this type of station from *Monitoring Times*, *Popular Communications*, *World Radio-TV Handbook* or similar publications. This is however, a very small criticism of a very useful and well-organized book.

It is helpful for the SWL who wants to monitor the Utility segments of the band as well as the Amateur who has a general coverage receiver. You can

pick up a great deal of information in this matter.

If this is like the other material manufactured or published by Grove Enterprises, it will continue to improve in upcoming years. The book is a very useful resource and I, for one, will be awaiting the 1990 version so I may find more new frequencies to monitor.

The cover features a picture of the CCGS Alexander Henry. This vessel is now permanently moored at the Marine Museum of the Great Lakes in Kingston, and will be the site of the 1989 Kingston ARC Field Day.

— Ron Walsh VE3IDW

SPILSBURY'S COAST

Pioneer Years in the Wet West, by Howard White and Jim Spilsbury. Harbour Publishing Co. Ltd., P.O. Box 219, Madeira Park, B.C. V0N 2H0. 1987. ISBN 0-920080-57-X. Illustrated with paintings and photos, many by Spilsbury.

Though conceived in B.C., Ashton James Ward Spilsbury was born in Findern, Derbyshire, Oct. 8, 1905, by grandparental decree, as "the family in England decided no Spilsbury could be born in the colonies and commanded Mother and Dad to come home."

He was named by grandparental decree, too, after the ancestor who founded the Spilsbury family fortune by digging canals throughout England in the time before railways. When Spilsbury came along, the family was apparently sinking into genteel poverty and they kept harping on the success of the namesake in the hopes that lightning would strike twice. It did, but it took awhile.

From the book jacket: "Spilsbury's coast is that part of the Inside Passage between the Fraser River and the top end of Vancouver Island, one of the biggest, most intricate inland seas on the globe. It is a place of small boats and countless islands and whole towns on floats at the edge of the world."

It is also the story of VE7BR, one of the founders of what is now Spilsbury Communications, originally Spilsbury & Hepburn Ltd., founded in 1941 with Jim Hepburn, then VESHP.

Between the World Wars, Spilsbury became one of a roving band of entrepreneurs who carried to the remote outposts of the Inside Passage all the latest goodies of the 20th Century, everything from religion to radios. The latter was Spilsbury's specialty and he became known up and down the coast as the Radio Man.

Starting about 1932 in a 32-foot codfish boat, the *Mary*, Spilsbury carried the latest in radio receivers to

eagerly waiting customers. In addition, he constructed communication sets for the far-flung logging camps and mines along the coast. The *Mary* lasted until 1936, when he acquired a vessel built by Bob Weld VE5BL which Spilsbury christened *Five B.R.*, after his own call.

"The *Five B.R.* became a fixture in the little camps, canneries, steamer stops and stumpranches from Pender Harbour to Seymour Inlet, although few people ever referred to it by name. There was something about the name being numbers and letters mixed together that people couldn't cope with. Because it also caused confusion with my ham call when I was giving it over the air, I often had occasion to think better of it. Most people simply called me the Radio Boat. I installed a police siren on it which I could blow coming into harbour and everybody ashore would say, "There's the Radio Boat."

Spilsbury became a licenced ham in 1926 and the book gives a good description of the hobby as it was then and is now, though it is not primarily about Ham Radio. There's enough to intrigue the uninitiated, but not too much to bore those who are already licenced.

Whether you are interested in the history of the west coast or in the early days of radio, this is a good book, easy to read and full of anecdotes about life as it was led on the 'wet' coast up to about 1947, when Spilsbury sold the *Five B.R.*

For example, there is a story of 'The Cannon that Flew over Lund', wherein it was decreed that "Every boat hasta have a cannon" by a friend, Frank Osborne. Osborne was a mechanic, machinist and jack of all trades and he made a small brass cannon for the *Five B.R.* After due testing, Osborne left Spilsbury to play with the cannon with frequent admonitions to be careful. The admonitions got to Spilsbury, who decided to play a trick in retaliation. The trick involved setting off a charge of dynamite, hiding the cannon barrel ashore in a schoolground on the other side of town. Good clean fun and worth the price of the book.

I believe the easy style is attributable to Howard White, something of a legend on the coast himself. Founder of *Raincoast Chronicles* in 1972, and *Harbour Publishing* in 1974, White has been searching out the stories of the coast and presenting them to avid readers for almost 20 years.

Of course, no book is perfect. I found a certain inconsistency in presentation of detail. For example, while a detailed

Continued on next page

description of the operation of a spar tree is given, complete with drawings, there is a reference to regenerative receivers that assumes full knowledge on the part of the reader. Most general readers likely wouldn't know anything about regens— maybe not even newer hams— and I think a little more information should have been included.

That's a minor quibble though, and I thoroughly enjoyed the book and have no qualms about recommending it to anyone.

There is a sequel, *The Accidental Airline*, about the founding and operation of Queen Charlotte Airlines, which Spilsbury ran from 1943 until its acquisition by Pacific Western Airlines in 1955. I haven't read this yet, but it includes more ham radio anecdotes and lots of information about early flying days and so should be equally enjoyable.

— Dave Bennett VE7YJ

APARTMENT BLUES

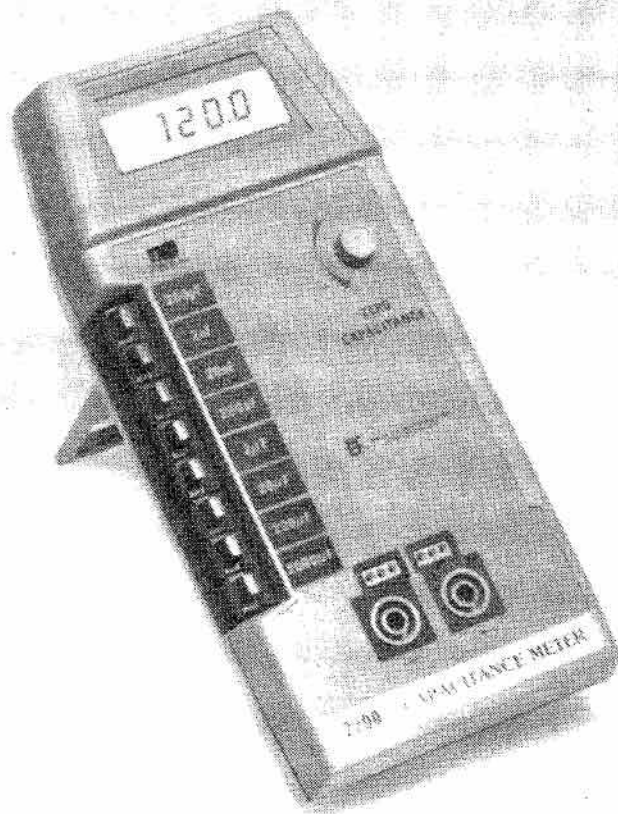
WHAT AN ANSWER—BARKER & WILLIAMSON — A/P 10...

I recently obtained my Amateur licence, then discovered I couldn't put up a permanent antenna (dipole, beam, etc.)

Boy, I was lost. To work 'CW', I had to go out to my friends' shacks and use their rigs. Very frustrating sending QSL cards. Each with a different rig and antenna, etc. I tell you, I longed to work my own station.

Then I made a deal... purchased a Yaesu FT-101EE and a B & W A/P10. Home I went, a little leary about this little telescopic antenna and this box of loading coils.

First I attached the counterpoise, connected the antenna tuner, dummy load and tuned up 40 metres. Then I tried my luck. First off-California (did that with a beam), then Oregon and Washington... on to Arizona, Alberta and Vancouver, B.C. not bad! I was very happy, until I saw my buddies at the Burnaby Amateur Radio Club getting further east, west, south and north.



Then a friend suggested 15 metres. Well, come Saturday I tuned in... hold on to your hat... New York, Maine, Pittsburgh, PA., Louisiana; Tennessee; the Virginias. That little antenna stood mighty tall in my book.

Last summer vacation, I took my rig A/P10 along. Just ten minutes to set up and I'm on air.

Last month I called a fellow in the Grand Caymen Islands. Just as he returned my call, that portion of the band dropped. Feeling dejected at having missed the contact, I almost missed the VE3 calling me. After that contact, I worked a fellow in Florida and then someone in Japan.

So, any fellow hams out there stuck in apartments, without the use of a dipole, beam, etc., take my advice, try the 'B&W'

A/P10. In my log it's one mighty big antenna, for a portable. P.S. I've worked 40 of the 50 states.

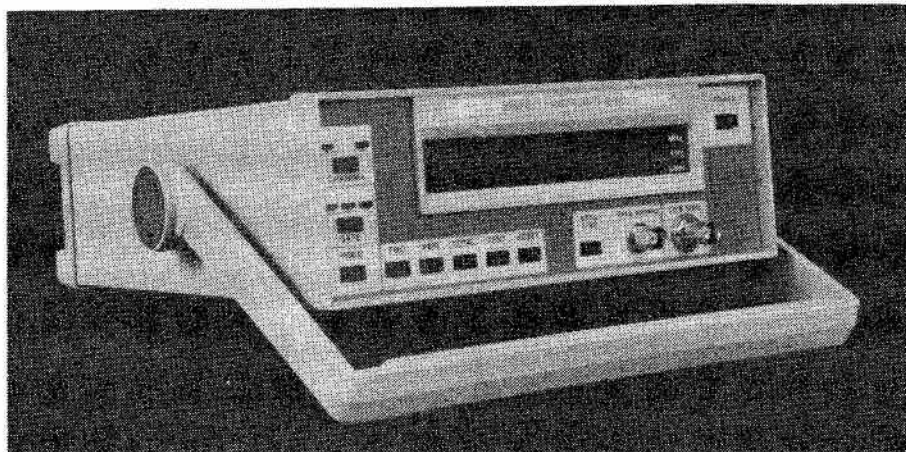
— Tim Tunker VE7JKJ

BRUNELLE COUNTER

The model 1000 multifunction counter, now available from Brunelle Instruments, features 8 digit seven segment LED Display, soft touch switches, seven functions, reset, self-test, hold, frequency, period, totalize and a 1/20 attenuation. The frequency range is 5 Hz to 1 GHz. The model 1000 is designed with a custom micro-processor, which has low power consumption. For further information, contact Brunelle Instruments, 73 6th Range S., St. Elie D'Orford, Quebec JOB 2S0.

DIGITAL CAPACITANCE METER

A new digital capacitance meter is now available from Brunelle Instruments. This unit features a 3½ digit LCD display with a reading rate of 0.5 seconds. The model 2200 has a 3.2 volts peak maximum '+' input terminal voltage is always higher than '-' input terminal. The meter is protected against damage from charged capacitors by 0.25A 250V fast flow type fuse. The zero capacitance adjustment is limited to plus or minus 20pf (approx.). A unique feature of this compact lightweight instrument is the display indication of 'LoBat' when about 20% of battery life remains. For additional information contact Brunelle Instruments. ■



LOOKING AROUND

Art Blick VE3AHU, P.O. Box 356, Kingston, Ontario K7L 4W2



In the next two columns we will discuss the 555 timer IC. The 555 chip is a highly stable controller capable of producing accurate time delays, or square wave oscillations, with terminals provided for triggering, or resetting, if desired. If the chip is used to produce time delays, the time is precisely set by one external resistor and capacitor; to produce oscillations, the free running frequency, and duty cycle of the square waves produced, are both accurately controlled with two external resistors and one capacitor. The circuit may be triggered, and reset, on negatively going waveforms, and the output amplifier can source, or sink, up to 200 mA, or drive TTL circuits. A block diagram of the circuits, contained in the chip, is given in Figure 1 that shows a threshold and trigger comparator, a flip-flop and an output amplifier. Supply voltage can range from 5 VDC to 18 VDC, with maximum power dissipation of 600 mW.

Figure 2 gives the circuit used for monostable (one shot) operation and this is the circuit used to generate time delays. A negative going trigger pulse on pin 2 sets the flip flop, which releases the short circuit across the external capacitor (C) and drives the output high. The voltage across C now increases exponentially (Time constant = $R_a \cdot C$) when the voltage across C equals two-thirds of the supply voltage

(Vcc), the threshold comparator resets the flip flop, which rapidly discharges the capacitor and drives the output voltage to its low state.

Once triggered by a negative going pulse, the output will remain high until the time set elapses, even if the circuit is again triggered during this period. The time that the output will remain high is given by:

$1.1 \times R_a \text{ (ohms)} \times C \text{ (farads)}$, or, $1.1 \times R_a \text{ (megohms)} \times c \text{ (uFds)}$, seconds.

As an example a one minute time delay can be obtained by using a value for R of 2.2 megohms and a 25 uFd capacitor. It is normal practice to use a variable potentiometer, either alone, or in series with another resistor for R_a —for a one minute delay, a 1 meg potentiometer with a 1.5 meg resistor.

Applying a negative going pulse to Reset (pin 4), during the timing cycle, will discharge the external capacitor and the cycle will start over again on the positive edge of the Reset pulse. If the Reset function is not in use, connect pin 4 to Vcc to avoid any possibility of false triggering. For precise, dependable time delays, it is necessary to use a high grade capacitor, especially when using an electrolytic type for long delays. Computer grade electrolytics, or other grades with very low leakage, are types

used and note that disk ceramic capacitors are not used for short time delays.

When the 555 IC is connected, as shown in Figure 3 (a stable operation) it will be self-triggered, free run as a multivibrator, and produce square wave oscillations. Capacitor C charges through R_a and R_b and discharges through R_b only, so duty cycle may be precisely set by the ratio of R_a to R_b . Capacitor C will charge, and discharge, between $1/3 V_{cc}$ and $2/3 V_{cc}$ with the charge, and discharge, time (frequency) independent of supply voltage. The frequency of oscillation is given by:

$$f = 1.46 / (R_a + 2R_b)C,$$

and duty cycle by:

$$D = R_b / (R_a + 2R_b).$$

The Reset (pin 4) can be used to trigger the oscillations On and Off with a High voltage producing oscillation and Low voltage shutting off the oscillation. The next column will outline various circuits that can be used to construct an excellent Code Practice Oscillator, a calibration oscillator, and an oscillator with a precise duty cycle. ■

SEE NEXT PAGE FOR FIGURES

SILENT KEY FOREST

Late March saw a field day and picnic at the Silent Key's Forest with 270 participants, 78 of them hams, coming in 72 cars, according to 4X4GF who specializes in ham statistics! Two HF stations were put on the air activating the 4X4SKF call, and a plaque was unveiled in memory of Ozzi 4X4CW to whom the third grove of one thousand trees was dedicated. Now we are working on the fourth grove!

— Hagal Int'l,
Israel Ham News

LETTERS TO THE EDITOR

All signed letters to the Editor are eligible to be printed, space permitting. The Editorial staff reserves the right to omit libelous and slanderous material and make spelling and grammatical corrections. Please make an effort to type, print or write very neatly. Thank you... Editor.

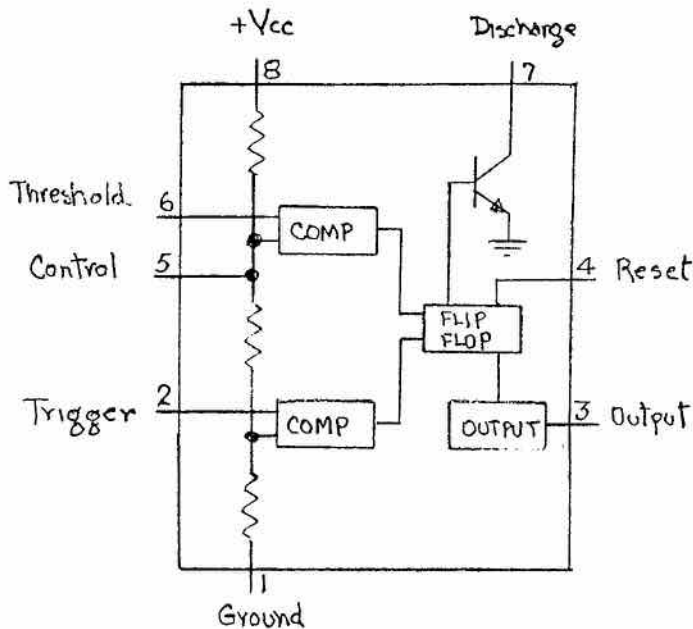


Fig. 1— Block Diagram 555 timer

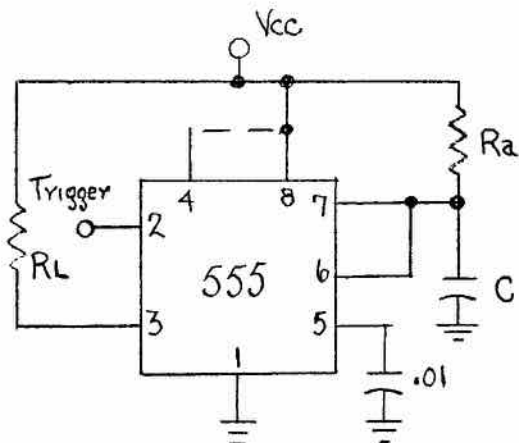


Fig. 2— Monostable Operation

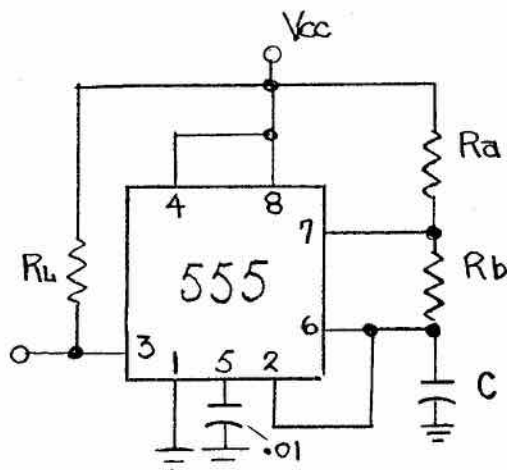


Fig. 3— Astable operation

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ANTENNA'S

THE GAIN GAME by GERRY KING VE3GK



BAND PASS CAVITY FOR 2 METRES

Ideas for the experimenter:

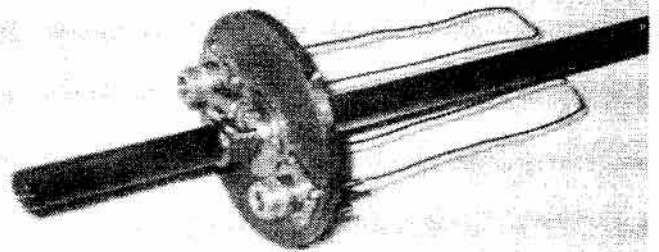
This article introduces the Radio Amateur to a bandpass cavity for the 2 metres of simple design. It was the answer to the 'intermod alley' problem that had plagued my 2-metre operation for years. Hopefully it will provide sufficient background for experimentation and a fun construction project.

Amateur Radio operators have had to contend with the steadily increasing problem of interference ever since the advent of pagers. The inability of present technology rigs to reject unwanted signals seems to be a severe problem. New designs and inventions have been steadily introduced to reduce or eliminate the various types of interference that have appeared. It

SEE NEXT

PAGE FOR

FIGURES



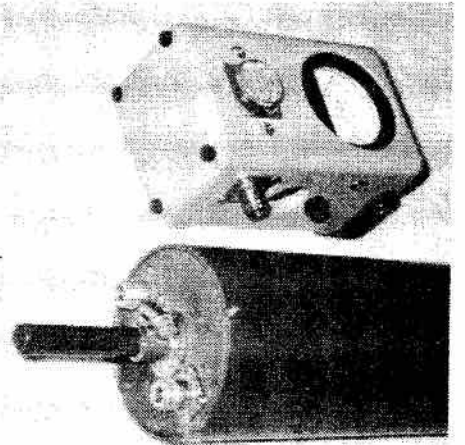
seems that intermod and desensitization are still problems.

COUNTERMEASURES

The majority of transmitting and receiving antennas used in UHF-VHF are broadbanded. Although resonant at one frequency or band of frequencies, the antenna will receive signals far removed in frequency and feed them through the coax line to the receiver front end. The solution is to use a highly selective bandpass filter. Not much can be done to keep unwanted in-band signals out because the signals are really there. At VHF or UHF, to obtain the high Q necessary for effective bandpass filtering, conventional lumped-constant components, such as coils and capacitors leave a lot to be desired. A way to partially solve this problem is to resort to cavity resonant circuits.

To that end, I have included a description of a simple bandpass filter made from copper water pipe that I constructed several years ago. Care must be taken in the construction so that all the specs are followed. If they are, it should work like gangbusters.

The cavity has a narrow bandpass so you must tune it to the repeater output frequency and you will have to tolerate a little reflected power on your transmit signal. The bandpass varies with respect to the position of the wire links to the centre $\frac{1}{2}$ " conductor. Care must be taken to keep the sleeve and slide hole well polished and very tight because it is a high current point. I use a hose clamp on the sleeve to make mine secure. If one uses an amplifier it should be inserted after the cavity. An added bonus is that you can use the output power meter of your amp or ammeter in power supply to indicate cavity resonance.



CONSTRUCTION

Materials Required

- A. 2 ft of 4" dia. copper plumbing pipe
- B. 4" square $\frac{1}{4}$ " thick copper plate
- C. 2 ft. of $\frac{1}{2}$ " dia. copper plumbing pipe
- D. $\frac{1}{2}$ " sleeve coupling
- E. 2, VHF or UHF connectors
- F. 3 ft. of no. 12 solid wire

Note: The 4" square plate in (B) has to be machined to fit securely into the end of the 4" diameter pipe. Drill small holes to accept appropriate screws for a snug secure fit. The centre guide coupler could be then soldered in line 90° to the plate. The coupler should be split with a hacksaw so that a hose clamp can be used to secure the coupler to the $\frac{1}{2}$ " centre element for a tight fit.

TUNING

The tuning is simple; just slide the $\frac{1}{2}$ " copper pipe up or down for minimum reflected power. The 2 metre band requires movement of about 1' for full coverage. It really does the job for me and I wish you luck. ■

CANADA-WIDE PAGING SERVICES

Addressing the Canadian Radio Common Carriers Association, at their convention, Communications Minister Marcel Masse opened the door to new Canada-wide paging services. Radio-paging is a one-way alerting signal to individuals or groups. With the growing need for keeping in touch, applications are now being invited to provide services using a new common block of Canada-wide channels.

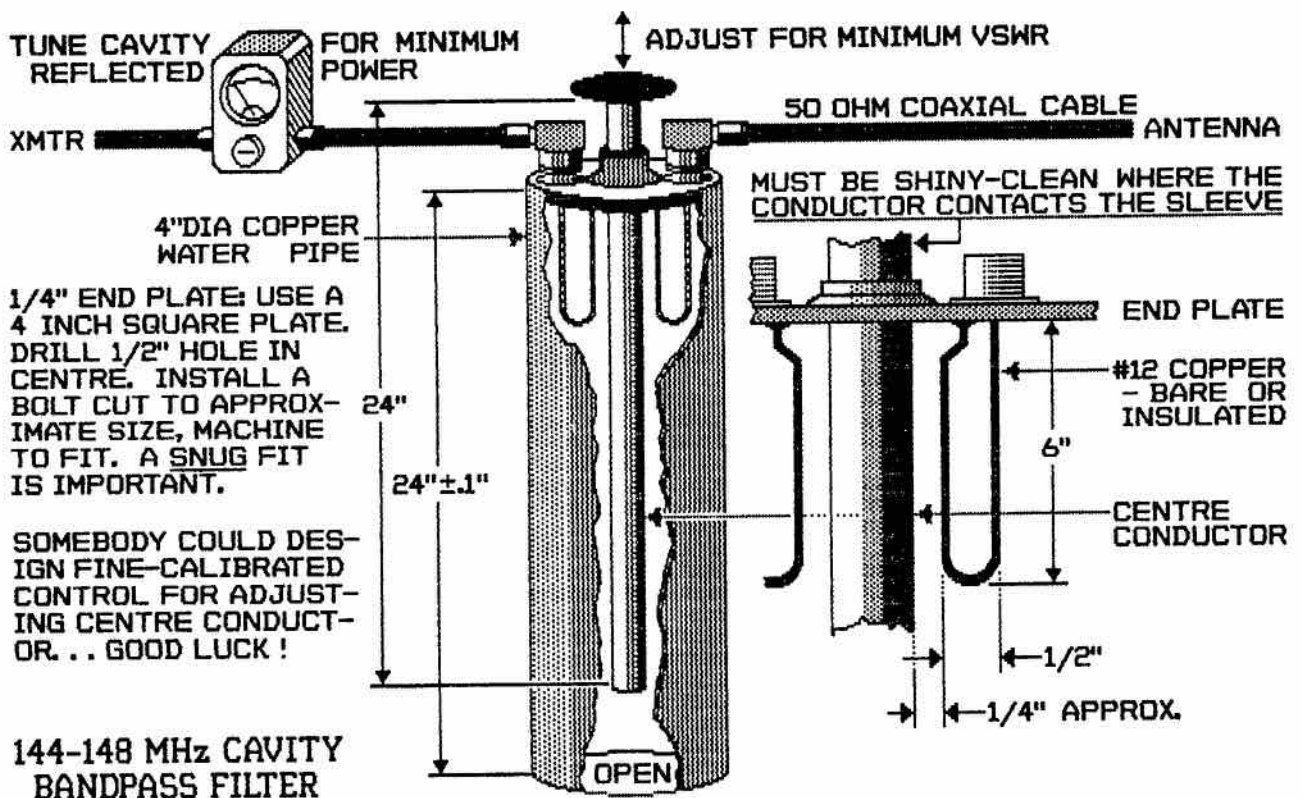
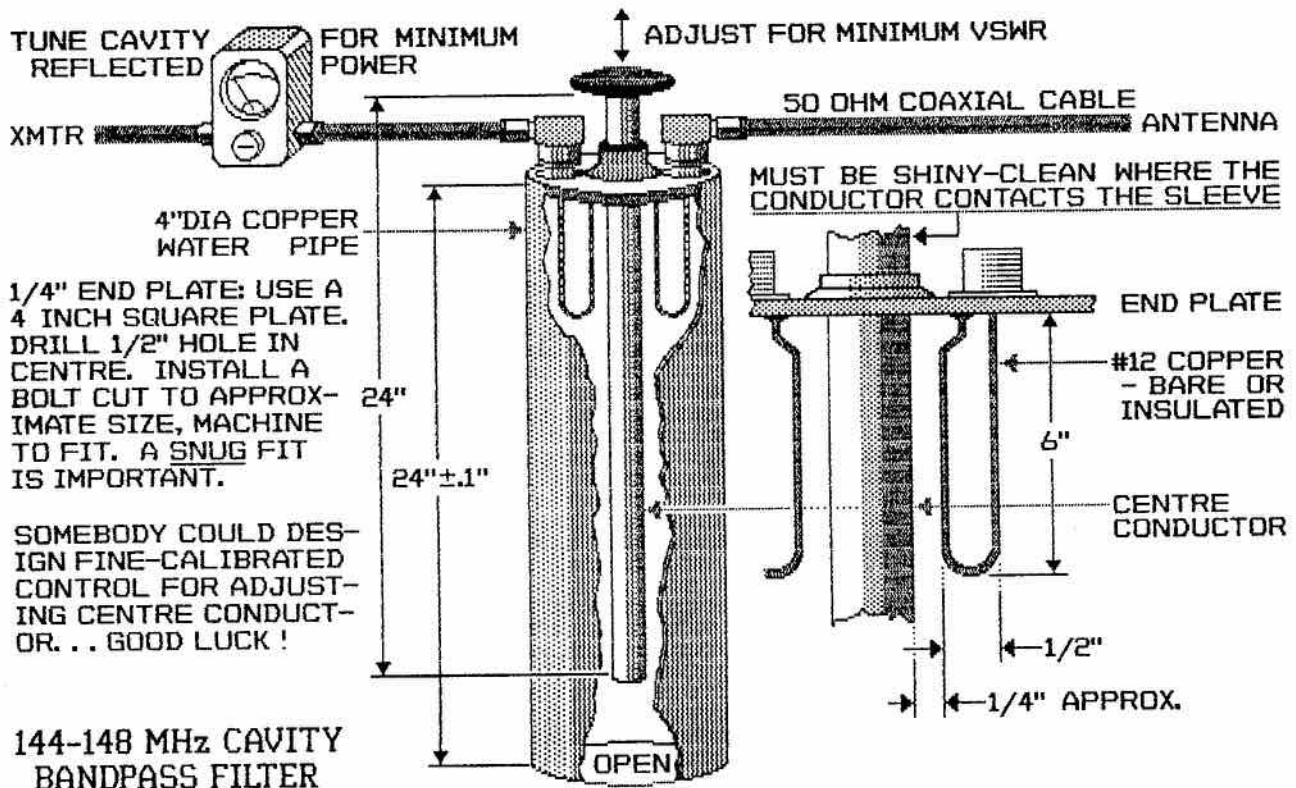
These radio paging systems, operating on the newly designated 900 MHz frequencies— some of which are common to the United States and Canada— will eventually allow an individual to be paged in most centres in North America.

When fully developed, Canada-wide paging services will allow members of the business community and others to be better informed and to keep in touch with their clients.

These paging services will also have the capacity to provide other enhanced services. "Instant dissemination of information, such as stock-market quotes, airline schedules or sports scores, will become possible," Mr. Masse said.

TECHNICAL ARTICLES

The Canadian Amateur welcomes technical articles. Please send them to the Technical Editor, Bill Richardson VY1CW, 36 Range Rd., Whitehorse, Yukon Y1A 3V1.



TECHNICAL SECTION

Bill Richardson VY1CW, 36 Range Road, Whitehorse, Yukon Y1A 3V1

MR13

Local Oscillator for 13 cm

(Also usable for 23 cm, 6 cm, even higher...)

By Michel Rousselet FD1FLN

Following the publication in the *Radio-REF* issues of June and July 1987 of articles covering the ME13 mixer and the low power amplifier EM13, a number of readers requested the description of a local oscillator to complete that series. Here it is, the MR13...

What should be the main features of a local oscillator?

First: easy construction and use of readily available components, with a price/quality ratio consonant with the average ham budget.

Technically: Stability— crystal controlled and regulated power supply; sufficient output to permit diode mixing. In this instance, the MR13 delivers from 20 to 30 mW. Reduction to a minimum of -30dBc or less of the spurious products (harmonious or mixing products) requiring filtering of the gate.

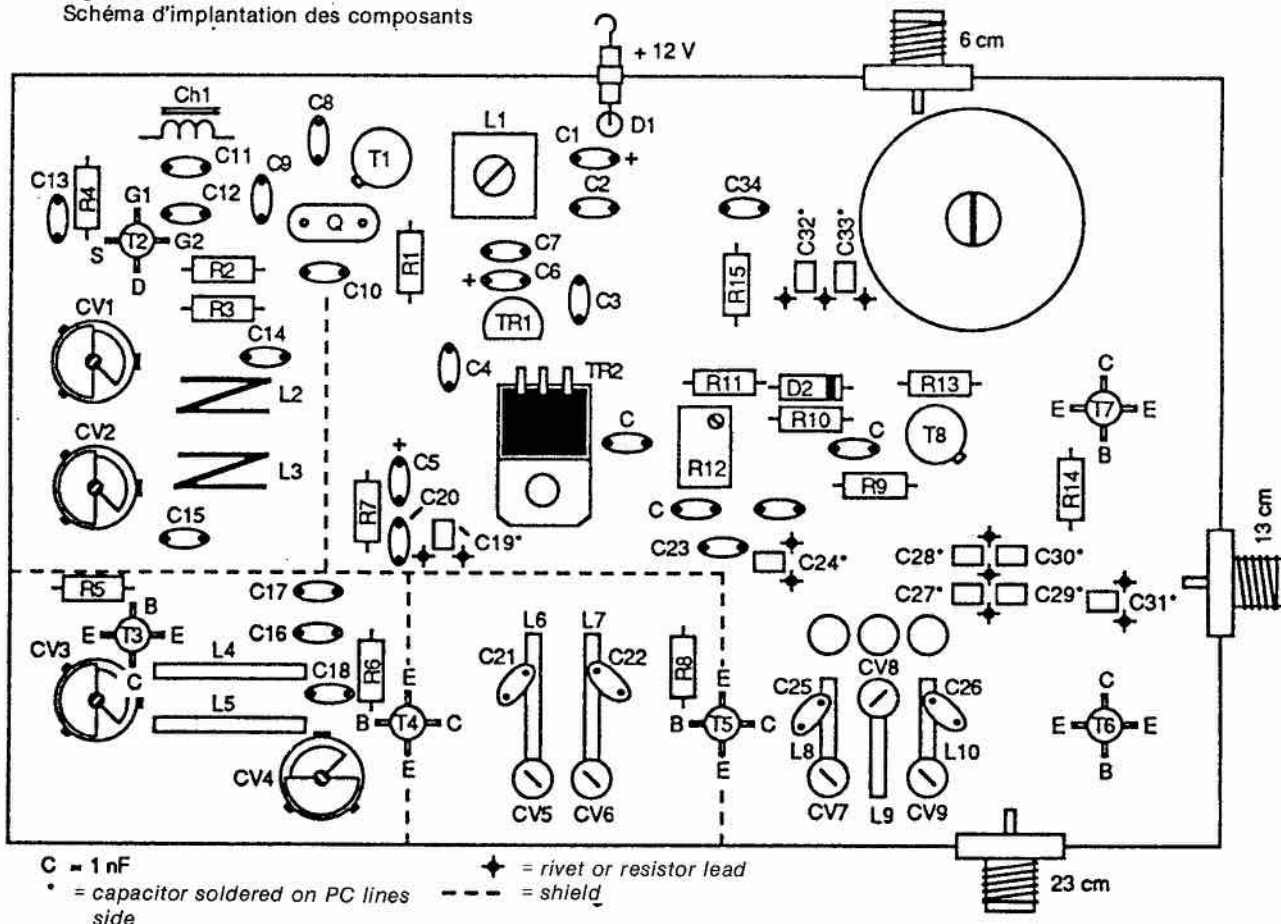
This local oscillator (LO) of which the schematic appears on Fig. 1, was designed to offer some flexibility of use, its primary purpose being the 2.3/2.4 GHz range, but it could as well be put to use for 1.3 GHz or 5.7 GHz with appropriately cut crystals. Table 1 lists

some of the Xtal frequencies for various Amateur bands or any other application such as Meteosat.

The unit includes the following stages:

- a field effect oscillator, using a J310 or a U310 (T1), a now standard design, known for its simplicity, its good stability and low noise figure. It is fed by a 10V voltage regulator;
- a tripler stage, using a dual gate transistor BF960 (T2), which insulates the oscillator from the tuned circuits;
- the following stages, T3 and T4 are tuned as doubler or tripler stages, using plastic casing, low cost transistors with

Figure 2
Schéma d'implantation des composants



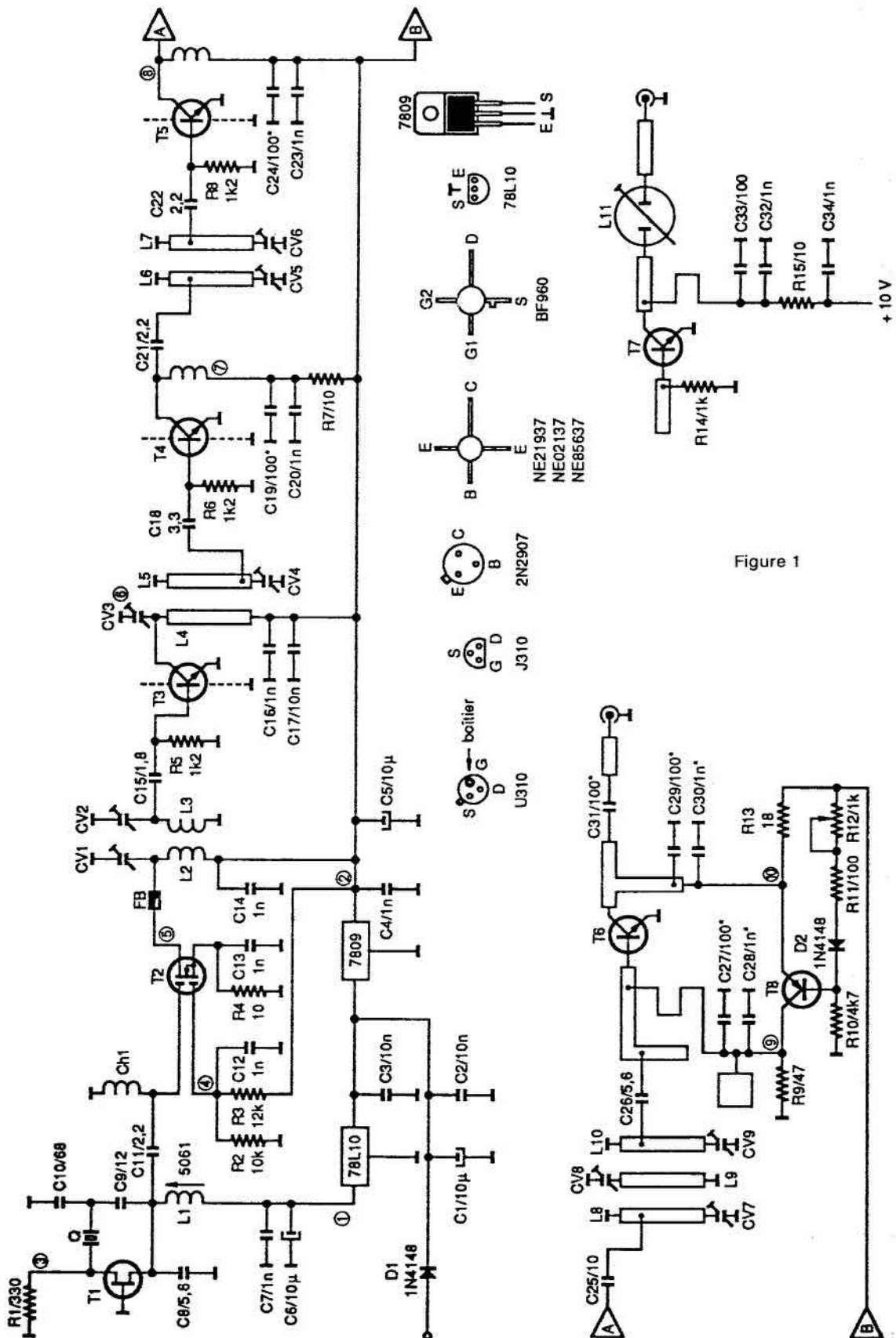


Figure 1

double emitter 'legs'. This is a classical common emitter circuit with a tuned circuit in its collector;

- the following T5 stage is specially designed to be used either a multiplier or as an amplifier, by selecting the appropriate circuit (as an amplifier on 1152 MHz, it is sufficient to bias the T6 transistor by the small wires);
- the stage T6 uses a UHF transistor bias for class A operation and works as an amplifier on 13 cm;
- the T7 stage, wired as a doubler, cavity tuned.

CONSTRUCTION

The C1 printed circuit is made of epoxy glass double face of 1.6 mm thick fitting a 'Suberl' cabinet of tinned metal 74x11x37 mm, easily available. Plotting the positioning of components with metal coated holes should be made according to Fig. 3, either with a rivet or with a lead depending on the use of chips or trapeze capacitors.



Figure 3

Good quality components should be selected. We recommend RTC ceramic capacitors REF C629 with 2,54 mm thread, adjustable caps are grey and yellow plastic or Stetner piston (Fig. 4). The use of variable caps is obviously preferable but more expensive.

One should use a good quality output connector (BNC or Subclie types not recommended above 2 GHz), a miniature coax cable might be employed if not too lossy, and should be rightly positioned according to use (see positioning on Fig. 2).

Component leads should be soldered as short as feasible.

Construction should start by soldering CI in the cabinet and the RF connector and power supply lead bypass.

Note that the transistors' emitters are soldered on the component side of the epoxy glass. Base and collector leads are bent to 90° before being soldered on the printed circuit lines (Fig. 5).

CAVITY

Since the mechanical construction of this cavity appears to be quite straightforward, no extensive details would be

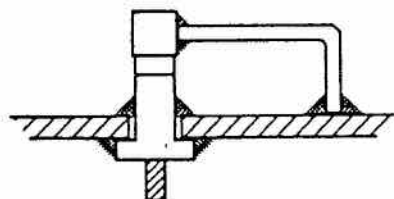


Figure 4

given here on this subject (see Fig. 8). You only need a piece of copper tubing, a small copper plate and a plunging core on a screw (or a metal tuning screw, sold by Tekelec, part No. 6927). The L11 cavity operation proved quite satisfactory: its bandpass is about 100 MHz with 1 to 2 dB attenuation.

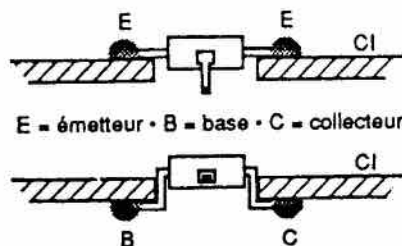


Figure 5

STARTING AND TUNING

It should be noted at this point that a higher output could be obtained by modifying the values of some coupling capacitors. However, such a move carries the risk of an uncontrollable increase of spurious harmonics unless a spectrum analyzer is available. It is therefore advisable to stick to the component values listed.

1) applying power

Start by checking voltages applied to the active components at the following points, referring to Fig. 1: (plus or minus 5%)

Point 1	10 V
- 2	9.0 V
- 3	1.44 V
- 4	4.13 V
- 5	9.0 V
- 6	9.0 V
- 7	8.8 V
- 8	9.0 V
- 9	0.69 V
- 10	8.0 V

2) preliminary adjustments

5061 coil core inside by 3 mm approx.

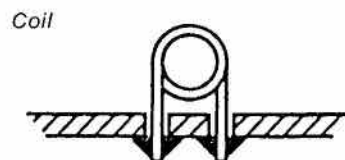
CV1	3/4 open
C2	1/2 to 3/4 open

C3 _____ 3/4 closed
 C4 _____ 1/2 open
 CV5 - CV6 - CV7 unscrewed by 5 mm
 CV8 - CV9 unscrewed by 8 mm
 3) tuning is achieved with a detector as described at Fig. 9 (HP2800, etc) or any other device capable of measuring power output such a milliwattmeter, spectrum analyzer, grid dip meter, etc.).

TUNING

With the U310, the oscillator should start readily. With crystals in the 89/96 MHz range, try checking the frequency of that stage. Proceed by tuning stage after stage, very carefully, as some tuning points are quite narrow. After

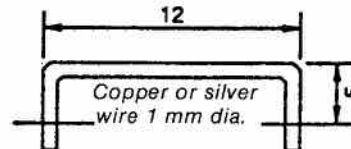
Coil, Line & Cavity



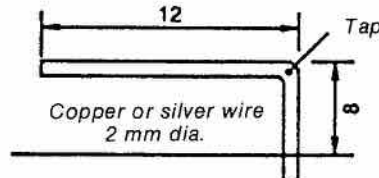
L1 = 5061 Néosid
 L2, L3 = 1 1/2 turn, wire 1.2 mm copper or silver self standing 8 mm dia.
 Figure 6

Line

For Local Osc. 23, 13 and 6 cm
 L4, L5



L6, L7



L8, L9, L10

- For 23 cm, similar to L5. L6
- For 13 cm

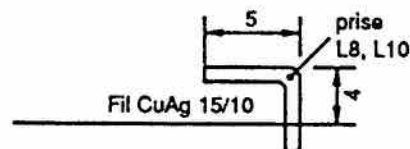


Figure 7

Table 1

Frequencies	LO	Incoming Signal	Multipliers	Crystals (MHz)
1296	1152	144	3x2x2=12	96.00000
2304	2160	144	3x2x2x2x2=26	90.00000
2320	2176	144	3x2x2x2=24	90.66667
5760	5328	432	3x2x3x3=54	98.66670
5760	4464	1296	3x2x2x2x2=48	93.00000

having pretuned the variable caps as indicated, fine tune them to obtain the maximum power output.

On the final amplifier, adjust the potentiometer (a multiturn model is an advantage) for maximum power output, about 400 mW for 2176 MHz, which is ample for the ME13.

Shielding permits a better rejection of spurious signals (-40dBc approx.). The use of coaxial cavities would permit better filtering and improve the figure by several tens of dB.

The top and bottom covers of the cabinet should be perforated by drilled holes to allow passage of the tuning wand since the top cabinet cover has a large influence on tuning.

CONCLUSION

This oscillator has been designed for use with a transverter for the 23, 13 and 6 cm Amateur bands but could also be used with the future satellite nets (the frequencies of which are still unknown to me). The compartment holding U310 and the crystal could be thermostated for improved stability.

We wish you success in the tuning process.

GENERAL INFO ON 2,3 GHz

The Tonna company, F9FT, has just marketed a new 25-element Yagi with a transition guide-coax as the radiating element. With this new antenna, I was able to QSO from the Bordeaux area in Southwestern France several PA0, DL and F stations, some of which used about 1 watt. The manufacturer claims an iso gain of 18.2 dBiso. This antenna can be stacked (see dealer). If the gain is

lower than a parabolic dish, it has the advantage, it has the advantage of a small size and less wind surface resistance.

Components are available in Bordeaux at Zener Franch, 1 Quai de Bacalan, who also carries the printed circuits ME13, EM13 and MR13 in teflon and epoxy. AsGA DXL1503 can also be found at OM prices.

BIBLIOGRAPHY

Dubus Info: DC0DA, DB6NT, DL1RQ, etc.

Radio-REF 87: F1FLN EM13

Training period report - IUT Cachan 1984 - Meteosat converter - Michel Rousselet.

Hurk Info.

Components list:

D1— 1N4007

D2— 1N4148

TR1— 78L10

T1— J310 or U310

T2— BF960

T3 to T7— NE21937 or NE85637

T8— 2N2907

Q— see Table

CV1— adjustable cap RTC yellow 1-10 pF

CV2— adjustable cap RTC grey 1-10 pF

CV3— adjustable cap RTC grey 0.5-5 pF

CV4— adjustable RTC grey 0.5-5 pF

CV5 to CV9— piston cap adjustable 0.3-3 pF Stetner

Ch1— 10 uF

C1— 10 pF 16V

C2— 2 nF

C3— 10 nF

C4— 1 nF

C5-C6— 10 pF 16V

C7— 1 nF

C8— 5.6 pF

C9— 12 pF

C10— 68 pF

C11— 2.2 pF

C12 to C14— 1 nF

C15— 1.8 pF

C16— 1 nF

C17— 10 nF

C18— 3.3 pF

C19— 100 pF*

C20— 1 nF*

C21— C22 2.2 pF

C23— 1 nF*

C24— 100 pF*

C25— 10 pF * 'chip' or trapeze cap.

C26— 5.6 pF

C27— 100 pF*

C28— 1 nF*

C29— 100 pF*

C30— 1 nF*

C31— 100 pF*

C32— 1 nF*

C33— 100 pF*

C34— 1 nF

R1— 330 ohms

R2— 10 k ohms

R3— 12 k ohms

R4— 10 ohms

R5, R6— 1.2 k ohms

All resistors 1/4 W

R7— 10 ohms

R8— 1.2 k ohms

R9— 47 ohms

R10— 4.7 k ohms

R11— 100 ohms

R12— 1 k ohms potentiometer multi turn

R13— 18 ohms

R14— 1 k ohms

R15— 10 ohms

FB— ferrite bead on the solder side

Configuration

For 1296 MHz

T1 x 1 LO

T2— tripler

T3— doubler

T4— doubler

T5— amplifier

For 2320 MHz

T1 x 1 LO

T2— tripler

T3— doubler

T4— doubler

T5— doubler

T6— amplifier

For 5760 MHz

T1 x LO

T2— tripler

T3— doubler

T4— doubler

T5— doubler

T6— amplifier

T7— doubler, tripler or more by changing output cavity as suitable for 10 GHz.

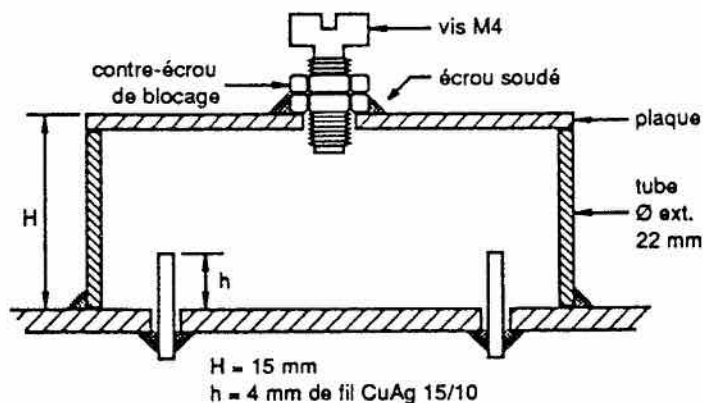


Figure 8

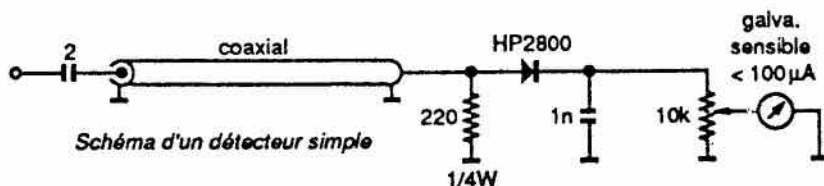


Figure 9

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Questions of a technical nature may be directed to the CARF TECHNICAL EDITOR. Please include SASE.

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CARF Log Sheets (25/pkg.) POST PAID
CARF Lapel Pins POST PAID

POSTAGE
ADD \$2.50
MAX. 4 ITEMS
\$16.95
\$15.00
\$ 6.00
\$13.95
\$ 5.00
\$ 5.00

VIDEO TAPES

- HAMMING IT UP 3/4 in. rental \$35.00
Refund when returned in 21 days \$30.00

INCLUDE \$2.50 SHIPPING FOR ALL TAPES

TOTAL

For Bulk Order Discounts and Postage, Contact CARF Office.

Subscription Rates

\$25.00 CDN/yr. Residents \$25.00 U.S./yr. Non-Residents
\$2.00/yr./Additional Family Member

\$375.00 LIFE MEMBERSHIP \$30.00 Additional Family LIFE Member

All members of CARF receive THE CANADIAN AMATEUR
Non-members may subscribe to THE CANADIAN AMATEUR

Form with fields for: TOTAL ENCLOSED (CHEQUE/MO/CARD), VISA/MASTERCARD EXP. DATE NUMBER, CALL, EXTRA FAMILY CALL, CARF NUMBER IF RENEWAL, NAME/NOM, ADDRESS /ADRESSE, CITY/VILLE PROV CODE, and CARF logo.

KENWOOD



TS-940, 440, 140



TM-721
TM-721A FM DUAL BANDER
TW-4100A DUAL BANDER



TH-215AT, 315A,
415A, TH-205AT



TH-25AT, 45AT

LEASE TO OWN

1. 48' TOWER, MAST BEARING, MAST; HAM IV ROTOR, ROTOR WIRE 100'; TH3JR. & BALUN, RG 213u 100'; 4 CONNECTORS; TS-140S, PS-430, DELIVERY TOTAL— \$3900.00

36 MONTH LEASE— \$142.58 per month
42 MONTH LEASE— \$127.76 per month

2. 48' FREE-STANDING TRYLON TOWER, MAST BEARING, MAST 12'2"; HYGAIN HAM IV ROTOR; EXPLORER 14 BEAM; 2 METRE ANTENNA; 300 RG 213u; 150' 8448 8 WIRE CONDUCTOR; 4 CONNECTORS; ICOM IC-761, ICOM IC-275H; DELIVERY TOTAL— \$8778.00

36 MONTH LEASE— \$311.71 per month
42 MONTH LEASE— \$278.00 per month

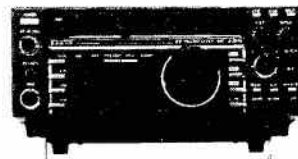
3. 48' TOWER, ROTOR, BEAM; ICOM IC-751A, ICOM PS-30, DELIVERY TOTAL— \$4900.00

36 MONTH LEASE— \$179.14 per month
42 MONTH LEASE— \$160.52 per month

4. 48' TOWER, MAST BEARING, MAST; HAM IV ROTOR & WIRE, TH3JR. & BALUN & WIRE; CONNECTORS; ICOM IC-735, ICOM PS-55, DELIVERY TOTAL— \$4200.00

36 MONTH LEASE— \$153.55 per month
42 MONTH LEASE— \$137.54 per month

ICOM



IC-735, 761, 751A, 781



IC-02AT, 03AT, 04AT, IC-μ2,



IC-28H, 38A, 48A

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- Meters



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- Radio Amateur Callbook
- World Radio TV Handbook
- Gordon West Radio School



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- **hy-gain**
- Hustler Mobile HF, Mobile VHF, etc.



ACCESSORIES



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Antenna Tuner
Plus Full Line
Of Accessories

AMERITRON
MIRAGE
VHF & UHF Amps
ALNCO

PACKET Kantronics

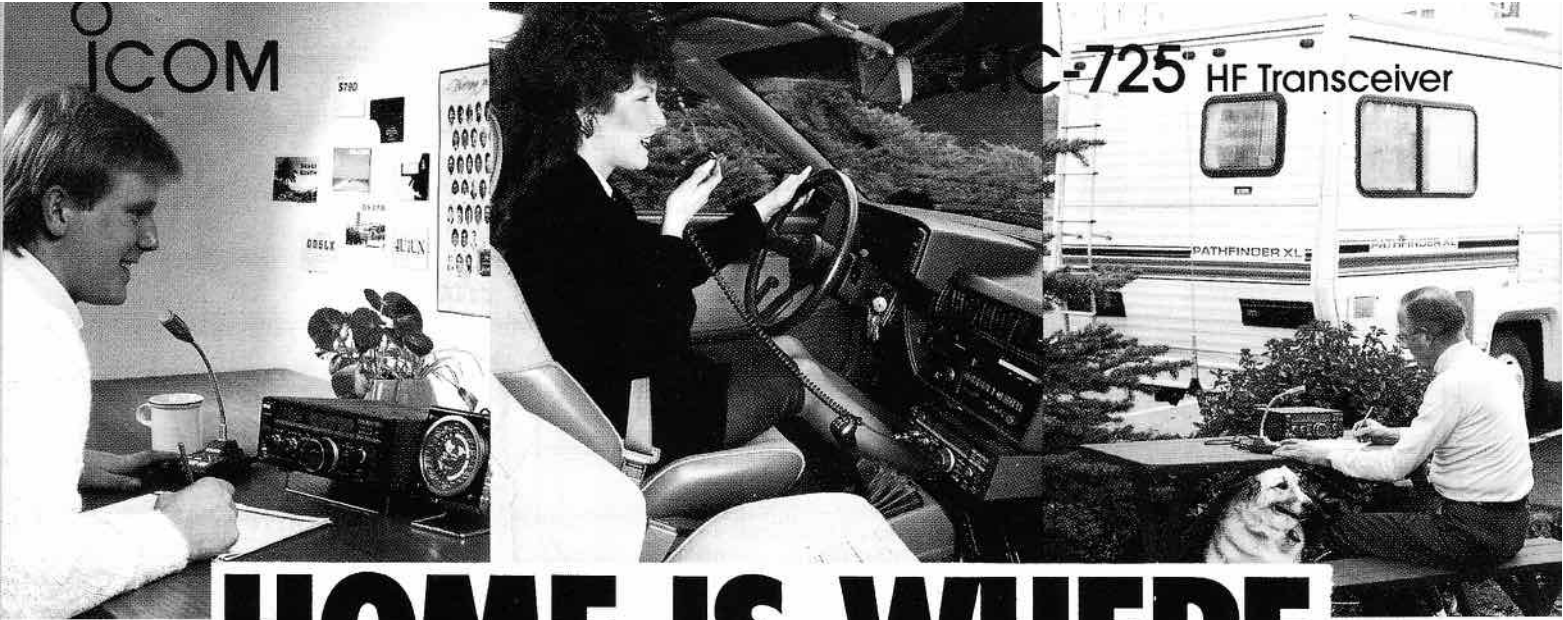
AEA PK-232, PK-87



1278
MFJ 1270B, 1274, 1278

ICOM

IC-725 HF Transceiver



HOME IS WHERE YOUR IC-725 IS

Fixed, mobile or portable, ICOM's new IC-725 delivers band-commanding performance. The easy-to-operate IC-725 reflects ICOM's world-renown excellence in circuit designs, versatility and dependability. Your enjoyment is also guaranteed with ICOM's one full year warranty!

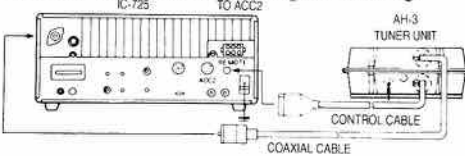
SMALL SIZE, BIG PERFORMANCE!

Extraordinary Performance! Includes: 160 through 10 meter operation • 100 watts output • Shortwave reception from 100kHz to 33MHz • SSB, CW and AM modes (FM optional) • Sensitive 105db dynamic range receiver • Low noise DDS switching • Panel-selectable RF preamp and attenuator • Dual VFO's • Selectable AGC • Rugged full duty cycle finals.

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Full Featured Operation! 26 tunable memories with Band Stacking Registers which enable you to store a frequency, switch bands, and return to the stored frequency • 10Hz digital frequency display • Three tuning rates • Three scan modes • Highly effective Noise Blanker • RIT • Semi-QSK CW • Optional narrow CW filter • Built-in AH-3 controller • IC-725 measures only 9.0 x 3.7 x 9.4 inches (H, W, D).

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directly into the IC-725. Wide impedance matching range. Mating whip unit (AH2-B) bolts to auto's frame, works 80-10 meters.

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