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MARCH 1989

La Revue des Radio Amateurs Canadiens

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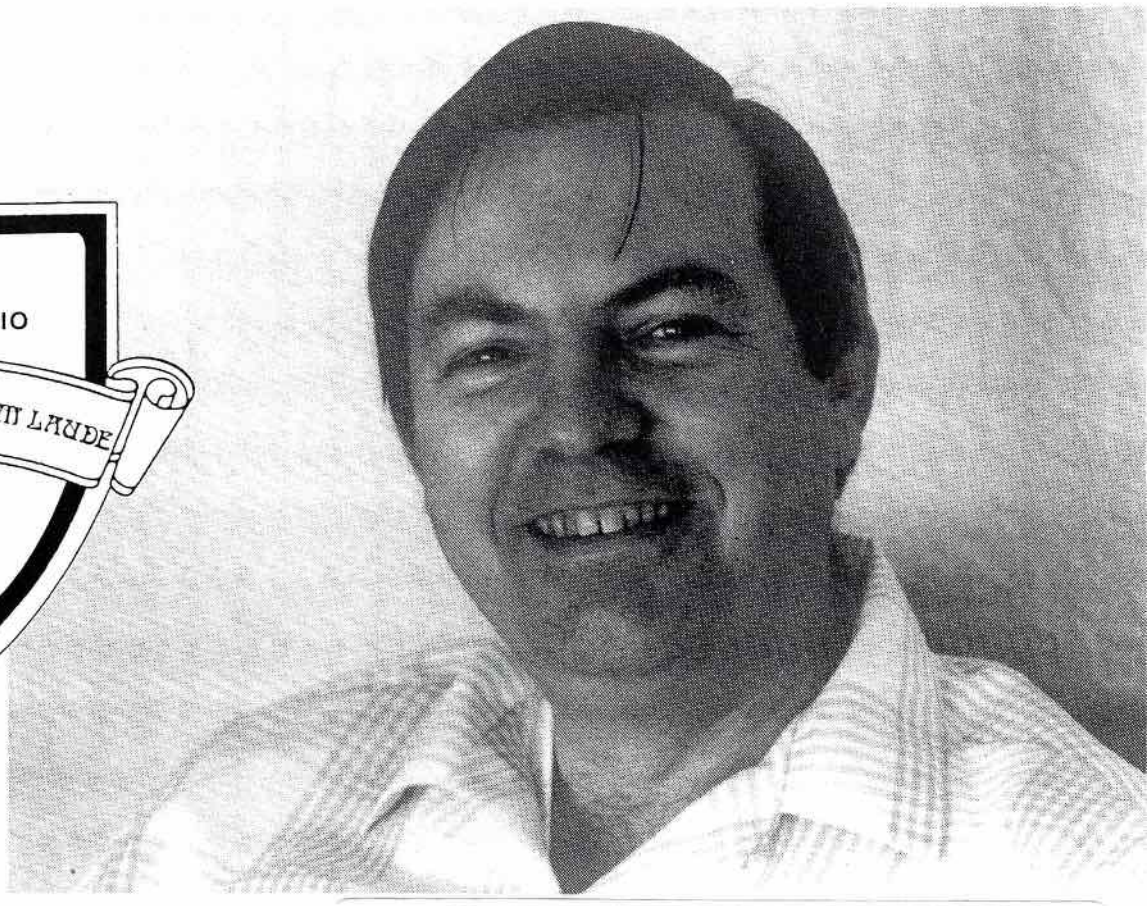

THE CANADIAN AMATEUR RADIO
CUM HONORE CUM LAUDE
HALL OF FAME

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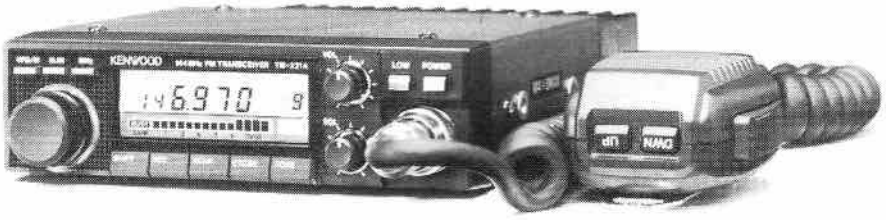

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Steve Campbell,
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CARF INC. EXECUTIVE

C.A.R.F. PRESIDENT
John Iliffe VE3CES, 387 Selby Crescent, Newmarket, Ontario L3Y 6E2
(416) 898-4875

PAST PRESIDENT
Ron Walsh VE3IDW, 869 Haverhill Dr., Kingston, Ont. K7M 4V1
(613) 389-3301

VICE-PRESIDENT
Earle Smith VE6NM, P.O. Box 412, Grande Prairie, Alta. T8V 2A2
(403) 532-4279

SENIOR VICE-PRESIDENT
Francis Salter VE3MGY, 14 Teresa St., London, Ont. N6C 3K8
(519) 439-7779

GENERAL MANAGER
Bernie Burdsall VE3NB, Box 356, Kingston, Ont. K7L 4W2

TREASURER
Ollie Schijns VE3LXO, 730 Dempster Dr., Gananoque, Ontario K7G 2E7
(613) 382-3867

SECRETARY
Eric Ilott VE3XE, RR3 Yarker, Ont. K0K 3N0 613-378-2590

HONORARY LEGAL COUNSEL
Timothy Ray VE3RBK, Hughes, Laishley, Barristers & Solicitors,
116 Lisgar St., Suite 600, Ottawa, Ont. K2P 0C2 (613) 236-7333

MID-WEST DIRECTOR
Norm Waltho VE6VW, Box 1890, Morinville, Alta. T0G 1P0
(403) 939-3514

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Pierre Mainville VE3LPM, 23 Chatsworth Dr., Brampton, Ont. L6X 2L8
Dan Holmes VE3EBI, 33 Crownhill St., Gloucester, Ont. K1J 7K5
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(604) 985-1267

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

1. To act as a coordinating body 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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Debbie Norman, Office Manager (613) 545-9100

EDITORIAL

Tomorrow won't wait— Our future is now!

By J.F. Hopwood VE7AHB

Canadian Amateur Radio will undergo dramatic changes in the 1990s. Entry to the hobby will be made easier. More people will become hams. Our ranks will grow rapidly. Some of our band assignments and privileges will be eroded by other services and users. The Government will give us more of their administrative work to do. We must become smarter and better organized to survive the pressures which are coming. Can we do it? I'm sure we will! It's going to take new knowledge, skill, resources and wise leadership to steer us through the 90s into the 21st Century. Let's look at just a few of the difficulties and challenges we face.

Easier entry to the hobby will encourage more people to become hams. A no-code and simpler theory test for the basic entry level will place many more stations on the VHF/UHF Amateur bands. Once the basic theory and regulations requirements are met, a 5 wpm pass on a morse code test will give newcomers limited HF privileges. A 12 wpm pass will give the newcomer almost all the privileges present-day hams enjoy with the exception of high RF power output and permission to design and build his own transmitter. Our bands will be deregulated and more crowded.

If we do not insist on traditional on-air courtesy and concern for others, adding new people to our ranks will make operating an unrewarding experience. We must imprint newcomers with our ethical behavioural values during the pre-licensing training course programs. We must make sure questions on good operating practices are included in the examination Question Banks. This will emphasize how important we consider this to be in granting radio operating privileges to newcomers. Our involvement with entry is extending even further.

The Government is divesting itself of some of its traditional management of the service. They continue to control and supervise, but recent policies to cut costs means more involvement and challenge for Amateurs. We are working very hard with ComCan to create a meaningful examination process through appropriate Question Bank content and administration. We are giving and supervising Morse Code exams. We will be overseeing and supervising the whole exam process.

The Government is also reducing its previous responsibility for band sub-segment management. It's politely called 'deregulation'. Will everyone accept a gentlemen's agreement to keep the CW and RTTY/Packet portions of the bands free of SSB/FM congestion and vice-versa? If not, there are going to be a lot of annoyed and angry operators suffering from other modes' QRM. Deregulation appears to be working on the 160, 30 and 12 metre bands where American proposed segments for CW and voice, etc., are followed. With WARC band deregulation a fact of life in the U.S.A., what happens if, and when, their traditional bands are changed also?

If the FCC deregulates the American band sub-assignments, we will be faced with a new set of challenges. Canadians and the rest of the world will not be able to retain their separate area of ham band turf. That will really be interesting! Distinct national nets and calling frequencies will be a thing of the past. Mexicans and Latin American hams won't be affected, judging by the proliferation of Spanish and Portuguese on the sub-bands already. Remember, I am not saying it will happen, I'm saying "IF".

Losing a band or a band segment to another service is nothing new to Amateur Radio. Witness the FCC's removal of 220-222 MHz from Amateur use in the States. We know ComCan is looking at the possibility of following the FCC. The assignment of doppler-radar smack in the middle of our existing 430-450 MHz repeater frequencies is evidence of the insensitivity of government toward our efforts. But, the demand for radio spectrum is fueled by many sources—industrial, medical, military, public/personal and even government itself. The demand is going to increase.

The U.S. Military is looking at new far-reaching multi-million dollar applications of HF networks because space satellites are vulnerable and easily knocked out in time of hostilities. Domestic and foreign broadcasting is ever increasing its share of spectrum—witness what was, and is, happening to the once-great expansive Amateur 40 metre band. Notice the extension of the AM broadcast band toward 160 metres. There are dozens of examples of new uses for radio services brought on by alert entrepreneurs. A new ITU/WARC in the 1990s will take a hard look at HF assignments and other serious problems caused by RFI/EMC.

Electromagnetic Compatability issues are complex and serious. RF gets into everything these days. There is more garbage QRM on the bands than ever before. It is going to take a lot of determined surveillance and policing to get it off the air. It will take real political influence and clout to keep it off.

Our future opportunity, growth and stability will depend on how well we manage our own affairs. Volunteers contributing through clubs and associations will continue to be our grass roots source of energy and accomplishment. We are indeed fortunate to have had talented volunteers serving us so well over the years. Luckily for us, their professional careers enable them to make major contributions to the management of our affairs. But they are few. We need more. There is much, much more to do!

Canadian Amateurs have reached a challenging period in the management of their national and international affairs. The time has come to look at streamlining the infrastructure of your national organization. Existing regional representation needs expanding. New committees and work teams need to be formed to augment existing ones and to focus more specialist attention on such areas as spectrum management, education and training, internal communications and deregulation co-ordination. We must respond to our expanding dialogue with like-minded organizations in other countries pressing for reforms in the government of international Amateur Radio affairs.

Your national organization is very excited about the pending changes to the restructuring of the service. CARF

Continued on next page ➤

LETTERS

AN OPEN LETTERS TO VE1s

We are writing to solicit your assistance in preparing a proposal for submission to Communications Canada. I'm sure that most of the members of your club, during HF contacts, have been asked repeatedly whether they were in New Brunswick, Nova Scotia or in P.E.I. For years now, we have listened to various groups of Amateurs beef about the Maritimes being the only area of Canada where call sign prefixes did not indicate the province of origin. An individual prefix for each province would be the answer.

Therefore, here comes the premise behind the proposal:

"A funny thing happened on the road to Confederation. Somewhere, three provinces of Canada lost their individuality insofar as Communications Canada was concerned. All provinces in Canada, as well as the two territories, Labrador and Sable/St. Paul Islands were issued individual distinctive prefixes. DX stations could pinpoint the province/territory of a station by the prefix of the call sign.

What happened to New Brunswick, Nova Scotia and little P.E.I.? Were we not all equal provinces under Confederation? Did the cultural and economic differences which make each province an identity unto itself make no difference? No! We were lumped together as VE1.

No, we can't have individual prefixes, we are told. We don't have a large enough Amateur population. What about VY1, VE8, and VO2? Latest figures show that we have a larger Amateur population than these districts, even here on little P.E.I., let alone the Amateur population of New Brunswick and Nova Scotia. But, we have to have reasons for an individual allocation. How about #1, clarity of communication. As mentioned before, the province of origin can be obtained from the prefix for all but the Maritime provinces. How about provincial self-esteem? How nice it would be to know that the Government of this fine country of ours recognizes the individual provincial status of each Maritime province. Certainly there are many even more important reasons.

What about extending the VO series of prefixes in Canada to include VO3, and VO4 to include P.E.I. and Nova Scotia, and allowing New Brunswick to remain, as now, VE1. This would tie in with a possible VY1, 2, and 3 to cover the Yukon and a possible split of N.W.T. into two independent political regions. Thus the east coast would have the VO series, with Northern Canada having the VY series. Another suggestion is to use VB1, VC1 and VE1, the second letter corresponding to the first letter of each province's postal code. All provinces would display their Atlantic regional integrity, yet still maintain their political individuality.

At the January meeting of the Charlottetown Amateur Radio Club, the membership endorsed this proposal 100%. We would like to hear your comments on such a proposal in order to draft a common proposal suitable to all in our Maritime region. We feel that it may be necessary to develop a petition of Maritime Amateurs to lend weight to this proposal with ComCan. Any ideas for improvement, and suggestions on how this should be handled would be greatly appreciated. Please feel free to correspond with us as frequently as you deem necessary in order to bring this proposal to reality.

We realize that the idea of separate prefixes has been broached before, however, it is now time to take a strong, united stand on the issue. Unfortunately on any matter of this sort, together we stand, divided we fall.

Please address all correspondence to VE1CIT c/o the Club, P.O. Box 2056, Charlottetown, P.E.I. C1A 7N7 or Call Book address.

David B. Hunter VE1CIT
President, CARC

SILENT KEY

VE3LIH/GM0EGU— Jack McIntosh, age 58, in Crieff, Scotland, Jan. 20, 1989. Formerly of Orillia, Ont.

VE3LC— Dr. Maurice Haycock, age 88, died in Ottawa on Dec. 23. A Maritimer and a graduate of Acadia and Princeton in Geology, Dr. Haycock was an active radio Amateur, painter, lecturer and researcher. He spent much of his time on geological exploration in Canada's Arctic. Always resourceful, on one occasion his skills as an Amateur enabled him to rehabilitate some aircraft radio equipment and call for emergency help to rescue a research team when an aircraft sent to the Arctic to bring them home was damaged and unable to take off. Among other things, he was noted for his exploration and research regarding Beechey Island and Sir John Franklin's ill-fated expedition in search of the Northwest passage.

TRANSMITTERS IN THE A CLASS

Yes! Yes! Yes!— Push! Push! Push!— Please! Please! Please!... for transmitters in the 'A' Class.

I remember very well the day when I received that important piece of paper in the mail— 'my licence'! And making a 'B-line' for the basement to throw the power 'on' for an old military receiver and a very small CW transmitter (one frequency) and making a contact with a weatherman in Fort Smith. No amount of money could buy such a thrill. I was newly married and had no money... Transmitters in the 'A' class— YES!!

Yves Remillard VE4DY

MORE MERGER

What has happened to the proposed merger between CARF and CRRL?

My viewpoint is that a merger would be the best thing for all Canadian Amateurs. A new organization could speak as one voice for all Amateurs when dealing with ComCan and the FCC. This is exceptionally important at this time with the business sector wanting some of our frequencies. The combined resources and revenues of a new organization would make us stronger and more cohesive. Our energies could be focused on what is

Continued on next page ►

► EDITORIAL *(cont'd)*

helped to define many of the forward looking proposals adopted by ComCan. We are proud of the many 'firsts' CARF has pioneered for Canada. The impact of CARF's dedicated and talented volunteers has been amazing, to say the least. We know the new blood joining our ranks in the years to come will add fresh new ideas and vigour to an already solid organizational base. Our 'mature Canadian approach' in the conduct of our affairs is respected both at home and abroad.

We welcome positive and constructive comments and ideas. We look for good will and help. Let us know if you are willing to serve in any particular capacity in which you feel your talents could be effectively utilized to meet the challenges mentioned above. We ask our members to write to us and let us know what they think and how they believe we should be approaching these issues and others we may have overlooked. Pass along your comments or make phone calls to your CARF representative before the Annual General Meeting of the members and the Board of Directors in June. Invite him to address your club to listen to club members' ideas and concerns. The CARF Executive and Board will then have time to respond and address the issues you raise in a better informed and more effective manner.

Remember, **tomorrow won't wait— our future is now!** We need and welcome your support. ■

best for Canadian Amateurs as a group. Let us get on with the merger.

An election of all offices could resolve any executive problems. Without a merger we Amateurs may be the losers.

Percy A. Crosthwaite VE5RP

ABOU BEN ADHEM— MOE'S REPLY!

You may not have any more room for the Abou ben Adhem argument, but it seems everyone except VE7BS has missed the point. Certainly when you listen to SSB on any band, each station is the only one on the air. None of the spectrum is to be shared, judging by speech processors, overcrowding and CQs on top of low power stations.

Enclosed is the full poem as received from Archie VE7AXH whose wife managed to find it in a book and send it to VE7AXW.

Abou ben Adhem

Abou ben Adhem, (may his tribe increase!)
Awoke one night from a deep dream of peace,
And saw, within the moonlight of his room,
Making it rich, and like a lily in bloom,
An Angel writing in a book of gold!
Exceeding peace had made ben Adhem Bold,
And to the presence in the room he said,
"What writest thou?"— The Vision raised its head,
And with a look made of all sweet accord,
Answered, "The names of those who love the Lord."
"And is mine one?" said Abou. "Nay, not so",
Replied the Angel. Abou spoke more low,
But Cheerly still, and said, "I pray thee, then
Write me as one who loves his fellow men."
The Angel wrote, and vanished.
The next night it came again, with a great wakening light.
And showed the names whom love of God had blessed,
And Lo! ben Adhem's name led all the rest!

— Leigh Hunt (1838)

Leigh Hunt (1784-1859) was born in London, England, and was educated at Christ's Hospital, a school also attended, years earlier, by Lamb and Coleridge. He became Editor of the *Examiner*, and was fined and imprisoned for reflections on the Prince Regent. Byron and Lamb visited him in gaol (Jail). Later he brought about the meeting of Keats and Shelley. All the world knows his lyric, 'Jenny kiss me', and the poem 'Abou ben Adhem'.

Moe Lynn VE6BLY

JRSD DONATIONS

I have written a number of computer programs, many related to ham radio. One I worked over was a code training program. Someone suggested I should offer it to Amateurs.

I did this and had an article published in *The Canadian Amateur*. I had 23 replies, 14 from my article and nine from the review by Moe Lynn VE6BLY. The price was not published in the first article, and I had requests for the price of the disc. Instead of just sending the price, I mailed a disc and asked $5 for the disk and $5 for the JRSD fund. I received my share from all the discs, and 12 included the donations to the fund.

Donations received through me are from: Dr. Roger Porter, Antigonish, Nova Scotia VE1VCE; Oscar Doucett (Sister), Moncton, N.B. VE1YI; Wilfred Meunier, Linayue, Que. 65 yrs. learning; Robert Janes, St. Johns, Nfld.; Leslie Nelson, Guelph, Ont.; Stan Cameron, Grand Prairie, VE6AMB; Nate Penney, Shoal Harbour, Nfld. VE7DHF; Alex Beaton, Regina, Sask. VE5OI; Bill Berg, Rexdale, Ont.; John French, Scarborough, Ont. VE3OB (His father's); Mort Patterson, Winnipeg, VE4ADU.

I am sure this will all go to a good cause.

G. Elmer Lodmell VE6BLO

FROM EAST KOOTENAY ARC

I would like to see the implementation of the proposed Restructuring of the Amateur Radio Service.

There seems to have been more than adequate input and dialogue on the subject and I feel that further delay in the Bill being placed on the order papers of the Canadian Parliament will be detrimental to the Amateur Service in general and will deny many Canadian Citizens the opportunity of becoming part of the Ham Radio fraternity. We need this new blood to help revitalize our service.

P.J. Meldrum VE7ADI
East Kootenay ARC

PATIENCE AND PONTIFICATION FROM VE3X

It seems eons ago now, but in reality it was sometime in May of '88 when a buddy of mine decided to go for his Ham Licence. Being a follower by nature, I thought, "Quid Non" and gaily threw myself into the vortex of confusion required before one is entitled to fail the ComCan exam. Now, it's obvious to all that I am a very new Ham and, as such, have no entitlement to any opinion when so many of my newfound associates have been Hams for ten, 20 and, as in some instances, 'Pre-Bell' years; but you say you want input, so here it is.

My comments are perhaps reactionary since they reflect my thoughts in retrospect to what I had expected. My instructor certainly knew his Ohm's Law, and in the process of proving it against those who had 'some' or 'none' in terms of knowledge, he left me confused with 'none'. I realize I mustn't complain; let's face it, I didn't know what he was talking about most of the time and that had to be my fault. After all, there were those 'Years of Experience' I kept hearing about from the Hams I had begun to know. *Be patient* they said!

Finally, with my patience at the same level as my knowledge, I went home, propped up the books and memorized the nearly 400 possible questions I might be asked... not an easy task, I can assure you... but to my amazement it got me through the Theory and Regs, although I must admit, as far as understanding what I had memorized, as you can guess, I might well have stayed in class.

The next step was the ComCan Morse test. Imagine my horror— as I was waiting in line to 'have a go' I discovered that the man in front of me had sat it twice before and failed, not receiving, but sending!. In he went and failed it again! I invited him home and found, I am happy to report, that with one hour of basic instruction, he passed 'sending' the following week at his club. I should tell you that I also passed, but in retrospect, since there had been no sending instruction to speak of in our class, had it not been for some distant war experience (was it really 45 years ago?) I also would have failed.

Please don't misunderstand me: I am a new Ham and have no right to criticize such an august self-regulating body. (I am without doubt wrong and my instructor was right, but out of nearly 30 people who started the course, only three passed.) One ex-Dewline op, one ex-Military op and one very brilliant lad whose name I can't remember. I must say, there were many uncomplimentary references to ComCan during the course but in retrospect, how could ComCan be blamed? They only marked the results of our efforts!

That period was soon overshadowed by the six-month 'Morse or Qualifying Period' so that I might qualify for the phone. I am glad we are a self-regulating body. I'm a new Ham and have no right to criticize, but I would love to regulate some of these 'Pre-Bell' anachronisms who pontificated to me for hours on end and then when I did QSO them (is that the right one?) found them loading on the working frequency... getting impatient with a net and 'twiddling' with the key. I think you call it Jamming. I don't want to sound impatient, but who passed some of their sending? Certainly not D.O.C.

Continued on next page

LETTERS *(cont'd)*

As to content of communication, I wish I could tell everyone that I was 83 and had been a ham for 90 years. Some of this information left me stuttering with fright at my obvious inability to 'Twiddle' Jam etc., but I am learning. I just hope that what I have learned from my elders is the right thing... if you know what I mean. Should I be more patient? In all seriousness, because there might be some truth in what I have told you, I write with 'tongue in cheek'. I got my endorsement with over a thousand log entries, 83% with stations outside Canada and the U.S.A., and felt reasonably happy with my 50 plus different nations contacted.

Why do I bother in my attempts to bore you? It's just that now that I have phone facility, I am finding it even worse. I question how long we will be allowed to continue as a self-regulating body if we don't start 'regulating'. I also felt that there must be a host of New Hams out there who, like myself, are struggling to get to the surface, struggling through the mass and heave of pontification to find out, not what they hear and see, but what it was supposed to be.

I can give consolation here. Like the old woman who consoled her young niece's sex drive by saying, "I understand dear, I have been in the furnace of desire, I know the heat thereof...", likewise to all you up and coming, newly arrived, and to some departing Hams, I can now give advice... "BE PATIENT!"

By the way, don't try to trace VE3X... he's not afraid of the possible violence, only the suffocating pontification!

Charles VE3CFL

OOPS! You've got me... 73 73 QTI. QTI. (is that the right one?) ■

THE ORIGIN OF '73'

The term '73' to most of us means 'Best regards', or words to that effect. Louise Moreau, one time YL columnist for *QST*, did some research on its origin and came up with this:

The first authentic use of '73' was in the *National Telegraph Review and Operator's Guide* published in 1857. At that time '73' meant 'my love to you.' But it soon began to change. In 1859 the Western Union Co. set up the standard '92' code, and the meaning '73' was changed to 'accept my compliments', in keeping with the flowery language of the time. By 1908 it was being shown as 'Best regards'.

An item in the Scarborough Amateur Radio Club Bulletin says Amateurs use '73' more in the manner that James Reid intended, as 'a friendly word between Amateurs'.

Canadian Amateur Radio Hall of Fame

The Canadian Amateur Radio Hall of Fame is pleased to announce that Douglas MacDonald Lockhart VE7APU is its premier choice for the position of Member, the highest category of membership.

Doug is being honoured for his outstanding contribution to the development of Amateur Packet Radio Communications. Without his vision, technical ability and perseverance, Amateur Packet Radio might never have developed to its present form. His pioneering work has certainly earned him the title of 'Father of Amateur Packet Radio'. As Canadians, we recognize this outstanding achievement.

Doug was first licensed as a radio Amateur in January 1957. Living in Vancouver, he was interested in many aspects of Amateur Radio, and soon joined the Vancouver Amateur Radio Club. He shortly served not only on its Technical Committee, but as its Treasurer, Secretary and President as well.

Much of his time was spent on the BCEN CW net in those days, and, during the late 70s, DX work and Radio Teletype. Because of his work with computers, Doug could see the possibilities inherent in high speed data communications by Amateur Radio, especially with built-in addressing and error correction.

After some encouragement by the Department of Communications in 1978, Doug formed the Vancouver Amateur Digital Communications Group in January, 1979 to begin experimenting with a new mode of Amateur communications called Packet Radio.

By the fall of 1979, the VADCG had developed and produced what they called a 'Terminal Node Controller' board (TNC) using bit-oriented protocols (HDLC/SDLC) using AFSK modulation on 144 MHz for testing protocols. They had also developed a Station Node and Station Node Controller (SNC) using CSMA CD protocol and dynamic addressing establishing virtual connections through the station node (packet switch).

After the TNC was developed, some Amateurs in the Hamilton area wished to use it, but they did not have a station node (SNC) or the money to put one on the air. They asked Doug to write them a program to enable them to communicate directly from one TNC to another instead of through a station node, so they could test the operation of the TNCs before they built the station node. In early 1980, Doug wrote a simple but efficient link level protocol that would temporarily let them do this testing. This protocol became known as the 'Vancouver Protocol' and is now known as V-1.

During this time, Doug became a packet 'missionary' and spent a great deal of time and money visiting and talking, demonstrating and writing letters to groups and individuals all over the United States and Canada. The encouragement and example Doug and other Canadians gave to some U.S. Amateurs resulted in changes in the U.S. Amateur regulations to permit packet experimentation there. The Canadian work served as a catalyst which won U.S. Amateurs the right to use the ASCII code and packet radio in their country and now in many other countries as well.

It is, in fact, very likely there would be no U.S. packet radio without the efforts of pioneering Canadians like Doug Lockhart. It is basically a copy of the 'temporary' system the VADCG was using in early 1980 which is now being mass-marketed. The original concept and development of a dedicated board for Amateur packet radio (TNC), the use of bit-oriented protocols as opposed to start-stop protocols, the use of 1200 baud Bell-202 AFSK on 144 MHz were all originally developed for packet radio by the VADCG under Doug's leadership.

All during the 1980s Doug has contributed towards further improvements in packet radio. This has included improved TNCs which provide more flexibility for development and a more efficient modem (the VADCG TNC+) as well as software development— multiple linking capability for the TNC, new level 2 (Datalink), level 3 (Network) and level 6 (Presentation) protocols.

Doug continues to work actively in the Packet Radio field. A member of the ARRL Ad Hoc Digital Committee, he is currently working on software to increase the baud rate sent on packet from a PC (Using a HAPN board, up to 84 Kilobaud on an AT).

Doug's contribution was also recognized by the CRRL, who named him Amateur of the Year in 1984.

CARF salutes VE7APU. ■

Radio Advisory Board of Canada

Annual Meeting and EMI Subcommittee Meeting

By Ralph Cameron VE3BBM

A meeting of the EMI sub committee of the RABC was held in Ottawa on Nov. 30, 1988, at Telecom Canada.

BIOMEDICAL CONCERNS

A presentation was given by Derek Uttley, Director of Biomedical Engineering at the Children's Hospital, Ottawa. Mr. Uttley discussed electromagnetic compatability problems in the hospital environment. As one can imagine, all sorts of spectrum management problems exist.

It didn't take hospital architects long to realize that some of the more sensitive nuclear magnetic resonance equipment needed to be kept from the electro cautery units. The latter generate as much as 600 watts of slicing, arcing spark. (Ye Gads! I can almost feel it.)

Another gem of information learned was that the ultrasound equipment uses frequencies from 1 MHz to 5 MHz and, depending on the depth of penetration needed, could be used to receive your favorite ham band. One such sensor consists of a handheld sensor/transducer which is resonant at 3.5 MHz. Imagine the look on the expectant mother's face when she views the ultrasound display just as Joe Ham, next door, sends a string of dots prior to firing up on the low end of 80M!

NEW DIGITAL EMISSION STANDARDS

Next, a Regulatory update was given which referred to the new Digital Emission Standards coming into effect on Jan. 31, 1989. Apparently, there were many calls to Communications Canada wanting to know how they intended to enforce the regulations and what the fines would be, etc. I guess those who purvey some of this substandard electronics equipment have adequate reason to be concerned that they won't be able to 'dump' it here.

MOTOR VEHICLE EMI

A case of EMI to the electronic governor in a commercial vehicle was the subject of one delegate's report. A better report of this incident will be made when the documentation becomes available. It is somewhat frightening because the very similar circumstances of installation are in use by thousands of Amateur rigs in motor vehicles.

HIGH VOLTAGE SYSTEMS

New regulations governing emissions from high voltage power lines will soon be issued and come into effect. Emissions to 30 MHz only will be covered because the scientific community has yet to want to go higher (after all, what could be up there?). As Amateurs, we all know how severe some of the VHF powerline noise really is. I wonder if anyone has told those who are 'technically in the know' that it becomes easier to find sources of power line leakage the higher the frequency of troubleshooting. This means that by using the highest possible detection frequency we can start closer to, and be more accurate in, aiming the antenna at possible trouble spots on HV transmission lines. These regulations should be issued within four months.

RF LIGHTING

RF Lighting, making use of a gas-filled bulb which is excited by RF (up to 5 MHz) is a very efficient form of lighting. It can reduce industrial electrical costs by 40%. It is also quite intolerant of other spectrum users because of its inability to reduce harmonics to any degree. The FCC has currently suspended use of this type of lighting until the electromagnetic compatibility problems have been resolved.

In Canada, we can expect that RF lighting emission standards will prevent objectionable interference to broadcast reception. I doubt if they will go beyond that. The actual noise components generated by the lighting may vary widely and may even be suppressed by some of those techniques we've discussed previously. Time will tell, but hopefully the harmonics will fall out of band.

CISPR

CISPR, which stands for the name of an international standardization committee (Comité international de systemes perturbations radio-éléctriques), has recently agreed on certain standards of worldwide radio receiver definitions and measurements. It has taken probably 15-20 years to reach this stage! In the meantime, the techniques have changed so much that some of the agreement may have been in vain.

Committees such as these are prone to vanity; in fact, the European Economic Community has decidedly more members on CISPR committees than any other nation. The result is that the decisions of the committees are weighed in favour of what Europeans want, and not what may be technically pertinent to us.

This fact, now coming to light, is another reason why Canada should have pursued its leadership role in regulating EMI and designing its own standards for the use of Canadians. Our problems have a uniqueness which differs from European problems. What this will mean is that when 'worldwide' standards for appliance immunity are developed, they will more nearly reflect European input than North American.

There are always benefits to be gained by large economic sectors lobbying for technical change. When all the Eastern Asiatic countries get the message that some of their appliances will, by law, have to meet certain technical criteria for electromagnetic immunity, the sooner the Canadian consumer will reap the benefits, not to mention the protection afforded the other users of the spectrum. Without such regulation, Amateur radio as we know it will surely perish.

Another outcome of the last CISPR conference was that there is disagreement over the use of what is called 'Quasi-Peak' measurements. Such measurements use a weighting system so that characteristic noise emitted by digital circuits can be measured with repeatable results. The problem in making quasi-peak measurements is that, up to this point, not everyone makes the quasi-peak network.

In addition, some newer semiconductor devices have a different emission characteristic which differs from that defined by CISPR. It is quite feasible to make peak voltage (noise) measurements and know that as long as the peak was known, the quasi-peak which applied an averaging function always had to be less. In the case of using a spectrum analyzer, one can assume quasi-peak conditions are satisfied as long as the peak exceeded the quasi-peak. This will cause lengthy discussion in order to resolve, unless the peak value is accepted.

EMI STATISTICS

A detailed report for EMI statistics from Communications Canada was not presented for the reason that, "reporting procedures have changed"

and "it is intended to present three years of data at one time *to be of value*" (italics mine).

BROCKVILLE FM STATION

Recently there have been many reports of appliance susceptibility in proximity to the start up of a new FM station in the Brockville, Ontario area. Communications Canada has received many reports; the station has considered moving and presently is running reduced power. Reports have been sketchy. A letter was sent by the author to the Editor of the *Brockville Record and Times* which outlined the Barrhaven problem and stated facts about EMI which Brockville residents should be made aware. Who will tell these disturbed taxpayers the real nature of their problem? Again, the same old merry-go-round lack of responsibility, mandate and awareness. (Approval had been granted by Communications Canada, incidentally).

ANNUAL MEETING HIGHLIGHTS

Concerns:

- Future use of the 220 MHz band
- High Definition TV, where to put it
- Use of TV Channels 14-20 (replace with another service?)
- Spectrum for wireless office products - where?
- EMI/EMC concerns persist
- Possibility of another Spectrum 20/20 forum, latter half of 1989

Members:

- Canadian Association of Broadcasters/Central Canada Broadcast Association discussed computer programs that were available to municipalities for Urban Planning. The program lists all known radio stations in Canada so that Urban Planners of new subdivisions can determine whether proximity will cause problems to new homeowners. It is also recommending that new transmitter sites be located 10 km from the nearest subdivision. Report prepared by Wayne Stacey, Broadcast Consultant and Amateur.
- Royal Canadian Mounted Police report that EMI is the single greatest threat to their continued operation. A most serious problem, it is growing at an alarming rate. Recommended by RCMP delegate that discussion be held between the Association of Municipalities, EEMAC and CC to help resolve these issues.
- CRRL representative gave an impassioned plea for formal CC adoption of the recommendations of the EMI subcommittee, i.e. Repair, Replace or Refund policy. After one year from the submission of the report nothing has been forthcoming.
- Mr. Liddell, Chairman of the RABC EMC subcommittee, suggested that CC take a leading role in the EMI/EMC issue by reissuing an information pamphlet for public use and understanding. No acceptance of a technical point of reference could be found in industry because it was felt CC was better equipped to handle regional complaints.

SPECTRUM ORBIT POLICY

In 1989 the following issues are planned:

- Issue proposals for 30-890 MHz (Feb 15/89)
- Discussion paper on work station office products
- Policy and procedures for limited spectrum applications

BROADCAST COMMITTEE

Topics to be addressed include:

- Extension of the A.M. broadcast band to 1700 kHz
- High Definition TV

TELECOM POLICY

- ISDN Task Force (Report April 1)
- Local microwave licensing policy
- Message Toll Service competition
- Transborder Earth station licensing

ENERGY PROGRAMS

- Cellular systems - second generation- revise specs.
- Digital Cellular
- 900 MHz paging
- 902-928 MHz Spread Spectrum systems coverage enhancers. (Shared with Amateur)

REVIEW 1989-1990

- 216-225 MHz SPECTRUM SHARING
- Land mobile - TV spectrum sharing
- New technology/bands above 16 GHz for mobile services
- 1 GHz, next generation of cordless phones- Telepoint system
- Personal telephones
- In-building communication systems
- Future Public Land Mobile (3rd generation)

EMC COMMITTEE

- Electromagnetic Compatibility Bulletin (EMCAB 1) Issue 3... 3rd Q 1989
- Immunity program... 2nd Q 1989
- Spectrum Quality Indicator- rating determined by demand/area

RADIO REGULATIONS

- Simplification of antenna clearance approvals.
- Fee Initiatives: GRS, Mobile Radio Service
- Access to licence information - statutory requirement- spectrum is a public resource fully open and exposed to public - Spectrum management resources - Classified information will not be given - Radiocommunication Bill 151 died on Order table but could be re-introduced depending on Government priority. Currently does not have much. Could be introduced in six months and could be passed in six months. The Bill as introduced could be changed, however it does define interference-causing equipment and radiosensitive equipment.

OTHER TOPICS

- TV Receiver measurement program
- Land Mobile to ch7 interference
- AM, FM, TV RF immunity and Broadcasting siting in high signal contours
- Development of a predictive method of calculating levels of non ionizing radiation near AM/TV stations. ■

Examiners for Amateur Radio Exams

Some years ago, before the U.S. decision to allow Amateurs to conduct their own licence tests (VEC program), the Department of Communications investigated the possibility of accrediting Canadian Amateurs to supervise, and even to set, the examinations. Unfortunately this proposal was defeated.

Things have changed. Since 1987, the CW test for both Amateur and Advanced Amateur may be given by any three Advanced Amateurs. Most club Code and Theory Classes now conduct their own code tests and many people studying the course independently have their tests conducted by neighbourhood Advanced Amateurs.

During 1987 and 1988, the Department of Communications conducted extensive experimenting, in both Quebec and Ontario, as to the feasibility of having a program similar to the U.S. VEC program in Canada. In Montreal, CARF's Quebec Director, Mike Massella VE2AM, was one of the participants.

The Department of Communications' results of these tests have been very positive. The Department of Communications plans to replace the existing RIC-1 and the CW test accreditation forms and rules, with a new RIC wich will include both CW and other parts of the examinations.

CARF strongly recommends that if your Club has an active training program for new Amateurs, it should prepare to apply to have at least one member certified when the new RIC is released. You may find an increased passing percentage when the stress of the Department of Communications' 'examination hall' is removed from the candidate. ■

1988 Canada Day Contest

The results are final! The winners are here! Collect your reward and prepare for next year's contest!

A total of 90 Amateurs took part in this year's contest, down nine from last year. Although there were slightly fewer entrants, more categories saw activity. Both 10M and 15M were active but there was no activity on 160M, most likely a reflection of the current sunspot cycle.

Thanks to all of the trophy sponsors: C.M. Peterson Ltd., Hobbytronique Ltd., Glenwood Trading Ltd., Atlantic Ham Radio Ltd., ComWest Ltd., CARF and VE1CCM for their continued support of Canadian contest activities.

Congratulations to all of this year's winners. Keep communicating and contesting. Don't forget to send your entries for the Canada Winter Contest to J. Parsons VE6CB, Acton Corners Road, Oxford Mills, Ont. K0G 1S0.

SOAPBOX

"First contest. We learned a lot about setting up the station for this event."— VE3PHN

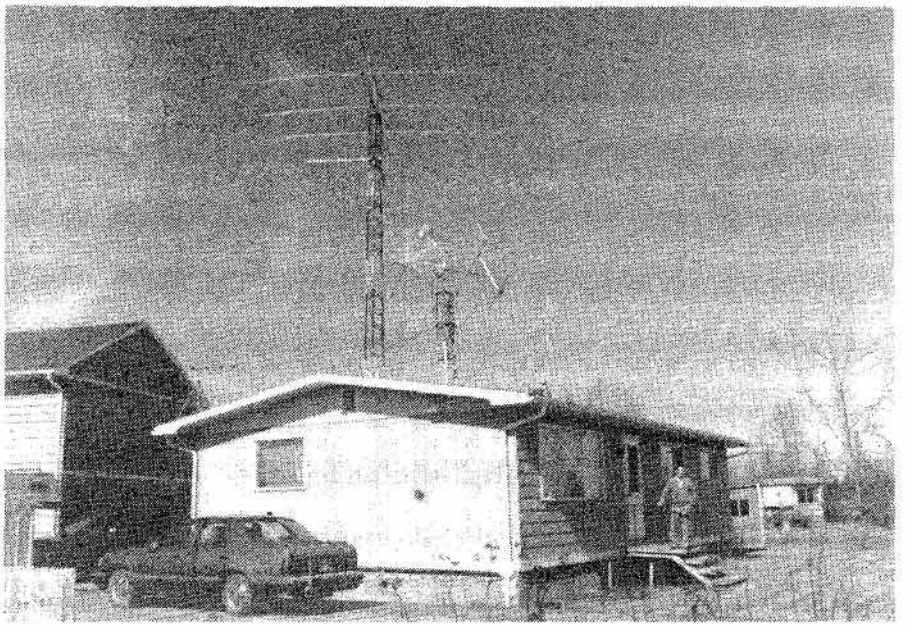
"The band held up its best, although it did crash on us a few times."— VE8RCS

"We had very poor condx this year, no contacts on any band but 20M...wish DA2CF in Lahr could be worth more QSO points for the Canada Day Contests."— DD2MR/DA2CF

"It was good fun as usual but I am afraid I was dogged by bad luck... the bands were just awful especially on 10M, 15M and 80M."— VE3NXQ

"Condx were not good, but I was able to beat last year's score. I did my logging on a Commodore computer which is very helpful to me..."— K4LTA

"Bands not fantastic, but a good contest. My first attempt and it was fun."— VE3BSA



Top: VE5OTK at the mike for the Canada Day Contest.
Middle: QTH of Stew Munro VE8CM, Hay River, N.W.T. TH3MK3 HyGain beam on 50' Delhi tower. Tower shunt fed for 160M and a sloper in neighbour's yard. 80M dipole, 80M sloper east and 80M west. 40M sloper, 30M sloper. Satt. 70 cm KLM, 2M KLM C.P. Ant. with beam-mounted preamps. Note dish for C mode but no equipment yet!
Right: VE6APY and VE6KC operating club station VE6NOV on Canada Day 1988.

"...fun contest. Much less frantic, more relaxed than most others I have tried in the past."— VE3PY

"Pretty much a 20M contest, nice to hear so many stations giving out reports.."— VE7HAM

"I have seen poor condx before but never as bad as this 1st July"— VE3KK

"Tried all bands CW, enjoyed it, so will be competing again next year. Will try to stay up all night..."— VE6GUS

"I thought I had it made this year to win the trophy for single band operation... but tribeam would not turn, line errors in logging program, brother and sister-in-law came over and XYL turned alarm clock off... Can I get credit for 1000 QSOs in-laws and XYL screwed up? (hi hi)."— VE5OTK

"Noticed much more competition from outside Canada... would be nice to hear more Canadian stations take part."— VE1AEQ/QRP

"Did a little better than 1987, but VE1(PEI) and VE1(NS) were not active. Barely heard one PEI."— AA4XM

"Just for the fun of it. This is a fun contest, not brutal, easy to participate. Keep it coming."— VE3PTQ ■

Results— Canada Day Contest 1988

SINGLE OPERATOR/SINGLE BAND— 10 METRES

CALL	VE QSO	DX QSO	MULT	SCORE
K4XS	15	218	2	2044

SINGLE OPERATOR/SINGLE BAND— 15 METRES

CALL	VE QSO	DX QSO	MULT	SCORE
VE3AAT	5	16	3	342

SINGLE OPERATOR/SINGLE BAND— 20 METRES

CALL	VE QSO	DX QSO	MULT	SCORE
VE1BXI(NS)	199	100	15	37350
VE4SP	119	230	15	32850
VE2PJ	140	103	17	32504
VE3NOS	113	39	22	30932
VE3NHZ	149	103	14	28308
VO8AC	80	134	18	24768
VE5OTK	151	11	13	20722
WE8Z	65	35	17	14450
VE4SF	68	14	16	13376
VE1AEQ/QRP(PEI)	57	42	16	12128
4X6UL	29	120	10	7700
V47NXX	35	124	8	6608
VE5VP	40	121	6	5424
VE1BUN(PEI)	23	18	7	2254
VE6RI	17	5	10	2100
PY3HLM	18	5	8	2080
AA4XM	16	1	7	1288
VE7XO	1	1	7	1218
VE3PTQ	12	4	6	1056
AA6EE	9	10	8	1040
W9IAL	9	0	7	770
VE0DX	16	0	6	960
VE6APY	9	2	6	708
EA5D1T	11	0	5	650
F6BVB	10	14	4	624
YU7FT	6	13	4	608
F1HWB	4	1	3	132
YU7KM	1	2	1	18
OH7SM	1	1	1	14
ON8WN	1	0	1	10

SINGLE OPERATOR/SINGLE BAND— 40 METRES

CALL	VE QSO	DX QSO	MULT	SCORE
VE1CBF(NS)	53	39	14	10164
WG8N	39	46	9	5526

SINGLE OPERATOR/SINGLE BAND— 80 METRES

CALL	VE QSO	DX QSO	MULT	SCORE
VE2LAW	37	4	5	2130
WD8MYN	24	6	3	852

SINGLE OPERATOR/ALL BAND— SSB

CALL	VE QSO	DX QSO	MULT	SCORE
VE7HAM	91	91	19	26486
VE3OXX	64	38	18	16416
VE3CGV	52	18	16	11392
VE2AMN	29	12	14	6132
VE3TJL	22	5	9	2448
WK4F	19	4	8	1808

SINGLE OPERATOR/ALL BAND— CW

CALL	VE QSO	DX QSO	MULT	SCORE
VE6GUS	69	105	16	19040
VE6BMX	53	37	19	15162
NT9T	64	1	15	10860
VE2MBO	44	29	16	9856
VE3FWD	39	13	12	8534
VE2LRB	32	23	14	6888
NOFFZ	37	0	10	4300
NOFMR	30	12	11	4268
VE2RO/3	26	26	10	4040
KB1VL	19	3	4	2662
VE3KK	17	12	9	2322
VE4ORP	12	2	7	896
YU7SF	2	4	2	72

SINGLE OPERATOR/ALL BAND— MIXED

CALL	VE QSO	DX QSO	MULT	SCORE
VE3NXQ	231	236	52	174408
K4LTA	275	326	36	152424
WD9INF	182	110	44	103840
VE3BSA	119	66	31	50034
VE6CM	99	37	37	42846
VE6DZ	129	71	23	40342
VE1APG(NB)	83	43	33	37026
WO1ZV	96	2	27	31536
VE7HDX	65	91	27	28998
VE7AHB	103	71	21	28434
VE3TCA	70	73	28	27776
VE7EWW	71	8	25	20550
VE3OMU	49	22	24	16752
WA2LBT	49	29	22	15532
W3ARK	51	14	20	13320
VE1AGZ(NS)	67	53	12	11304
G4LQI	39	5	15	6750
W8YGR	38	0	13	5720
VE7ECT	58	55	5	4500
VE3PY	24	10	13	4420
VE4FP	36	1	25	4240
VE1VCM(NS)	25	13	12	4104
VE3TPB	16	8	10	2120

MULTI OP/MULTI TX— ALL BAND

CALL	VE QSO	DX QSO	MULT	SCORE
VE7ZZZ	480	296	86	536296

MULTI OP/SINGLE TX— ALL BAND

CALL	VE QSO	DX QSO	MULT	SCORE
VE3PHH	331	355	15	72750
VE1CFB(PEI)	191	274	10	30860
VE8RCS	103	126	18	29052
DA2CF	128	71	10	16040
VE3DEQ	40	38	18	11376
VE6NOV	44	30	15	8400
JA9YBA	25	44	10	4906
JA8YBY	1	8	1	42

CLASS A— TCA/VCA

CALL	VE QSO	DX QSO	MULT	SCORE
VE3TCA	143	70	28	27776

The Right Idea

By Claude Dupuis VE3CPD

Last year, the Sudbury ARC organized a two-part publicity campaign among the student population in the area. Phase 1 consisted of a Communications Week at a local primary school, where children from Grades 2 to 8 were introduced to communications equipment used by various organizations such as the police, firemen and, of course, Amateur Radio operators.

Individuals from the Sudbury Amateur Radio Club loaned keys, oscillators and communications receivers to the school so that students, in their free time, could practice Morse Code and listen to overseas shortwave broadcasts. Teachers incorporated these broadcasts into their geography lessons. The week ended with a CW contest for the entire school and certificates of appreciation were given to each child.

The purpose of this exercise was publicity and, even though none of these students went on to become Hams, it worked! Now every student and all of their parents are aware that Amateur Radio exists and have a contact (the school) should they wish further information.

Phase 2 was implemented by making a presentation to members of the 'Gifted Students Progamme' at the local High School. Twenty-five students attended the briefing, eight started the follow-up course and five are still enrolled.

This brings to mind a few points of interest. All Ontario High Schools have a 'Gifted Students' programme and I assume all other provinces and territories do as well. Since it is hard to find dedicated, mature students who are willing to spend long hours studying for a ham ticket, perhaps this is where we should be looking. Once things get rolling, a 'High School Net' could be set up. A publicity package and equipment could be developed and loaned out to the schools offering this programme to their students.

This year I have been asked to repeat 'Communications Week' at the elementary school, however, I need at least 15 keys and oscillators to give the 60 or so students a fair amount of operating time. Can you help? Do you have any unused keys, etc. gathering dust in your attic? If so, and if you would be willing to part with them, I will ensure that they are put to good use and donate them to a National Library for the benefit of all school children.

Please send any donations to Claude Dupuis VE3CPD, Box 271, Azilda, Ont. P0M 1B0. ■

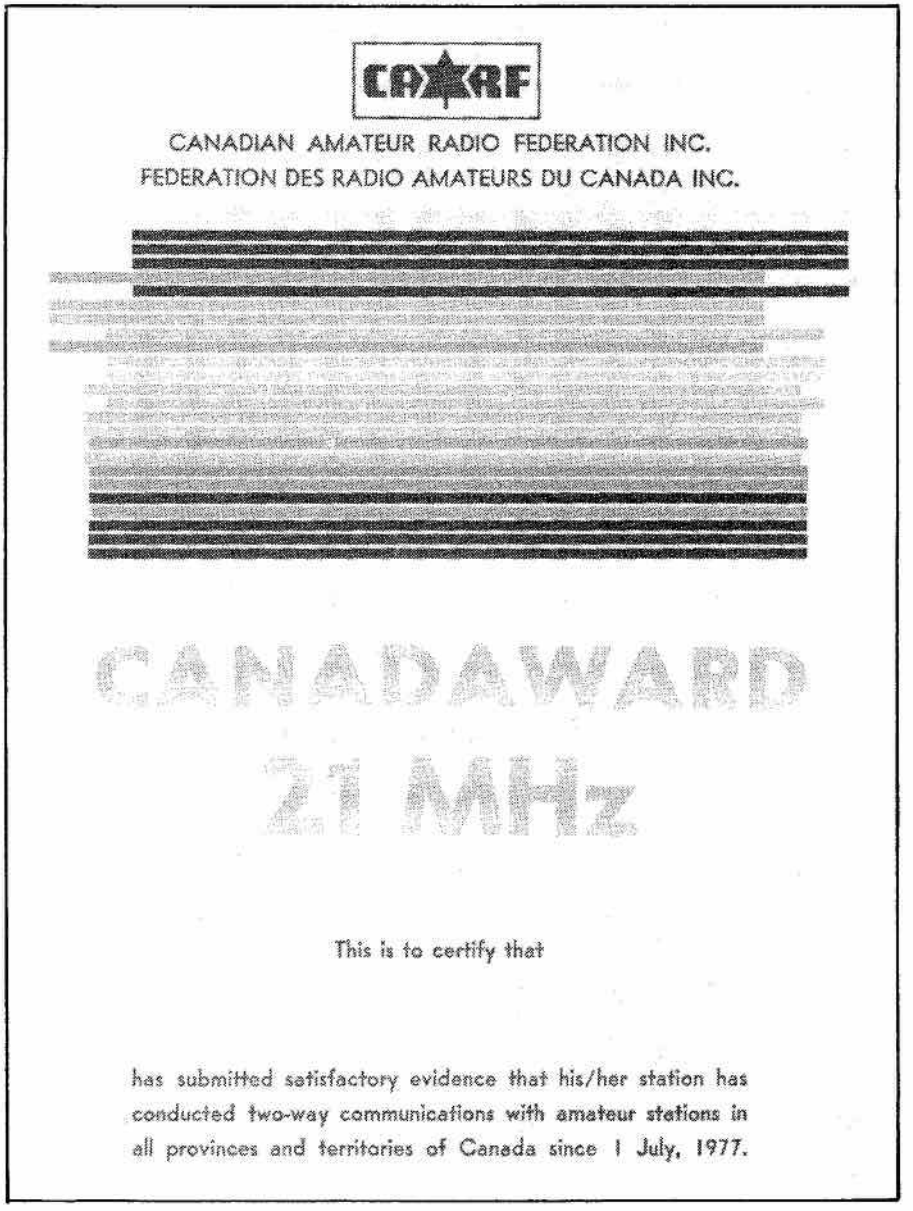
A Beautiful Canadian Award

By J.F. Hopwood VE7AHB

The October '88 issue of *Worldradio* magazine lamented the loss of what it called "...a beautiful Canadian award for working all Canadian call areas. Many on 6M earned it." When I read this I thought, "Yes! What has happened to the CANADAWARD? It hasn't been highlighted in *The Canadian Amateur* for several years. Time to warm up the old word processor and say a few words in favour of this most colourful and important offering in the Canadian repertoire of award achievements.

First, it's basically a single band mixed mode award in the sense that you must work all Provinces and Territories on one band. A Mode endorsement is available if all QSOs are made in the same mode (CW, SSB, RTTY, SSTV). When you clean up on a total of five Bands from 160 to 6 metres, which can include Satellite modes A, B, or J, you can receive a special handsome plaque for the shack from the Canadian Amateur Radio Federation.

To get started, send for the CANADAWARD information and forms to CANADAWARD, c/o CARF, P.O. Box 356, Kingston, Ontario, Canada K7L 4W2 (include a business size SASE). Once you send the confirming 12 QSL cards (or 60 for the 5-BAND CANADAWARD) and the appropriate fee, our Awards Manager will register and verify your application and send you the BEAUTIFUL coloured and numbered certificate with your name and call sign affixed as the record of your achievement. ■



CANADAWARD Application

CANADIAN AMATEUR RADIO FEDERATION INC.
FEDERATION DES RADIO AMATEURS CANADIEN, INC.

NAME _____

CALL _____

ADDRESS _____

_____ POSTAL CODE _____

PROVINCE/TERRITORY	STATION WORKED
VO1/VO2 Newfoundland	
VE1 Nova Scotia	
VE1 New Brunswick	
VE1 Prince Edward Island	
VE2 Quebec	
VE3 Ontario	
VE4 Manitoba	
VE5 Saskatchewan	
VE6 Alberta	
VE7 British Columbia	
VE8 Northwest Territories	
VY1 Yukon Territory	
Date of First QSO	
Date of Last QSO	

AWARD CLASSIFICATION
Check one band and one mode

BAND
Mixed Band not allowed
- ☐ 1.8 MHz
- ☐ 3.5 MHz
- ☐ 7 MHz
- ☐ 14 MHz
- ☐ 21 MHz
- ☐ 28 MHz
- ☐ 50 MHz
- ☐ Satellite mode A
- ☐ Satellite mode B
- ☐ Satellite mode J
- ☐ Other

MODE
- ☐ Mixed
- ☐ CW
- ☐ SSB
- ☐ RTTY
- ☐ SSTV
- ☐ Other

FOR AWARDS COMMITTEE ONLY

AWARD NUMBER _____

ENDORSEMENT _____

CARF MEMBERSHIP # _____

MONEY ENCLOSED _____

DATE APPLICATION RECEIVED _____

DATE CERTIFICATE SENT _____

Radio Interception ignored prior to attack on Pearl Harbour

The U.S. tabloid *Cryptolog* states that a broadcast from Radio Japan which was being monitored by a U.S. Navy intercept station on Corregidor (Phillipines) heard the anticipated message which was to signal the commencement of the operation to raid Pearl Harbour. It has only now been revealed that the actual interception took place, but was ignored.

The U.S. Navy had previous knowledge of the code words which would be used by the Japanese government to signal the beginning of hostilities against America, specifically the attack at Pearl Harbour on Dec. 7, 1941. The intercepted message actually became known in 1962 at a reunion of colleagues responsible for collecting such transmissions from shortwave listening posts across the Pacific.

The expected message was referred to as the 'WINDS' message. Many of us will remember during the last war, the term, 'kami kaze' which meant 'heavenly wind'. The expression referred to a group of dedicated Japanese airmen who gave their lives by directly guiding their aircraft in suicidal attacks against U.S. ships. These suicide flights, as they became known, were relatively successful but many failed to accomplish their mission because of effective use of gunfire.

The WINDS message reads, "Hagashi no kaze ame" which translated means 'East wind rain'. It was expected that this grammatical form would appear to signal the start of the bombing.

The Corregidor intercept station picked up a voice broadcast destined to diplomatic and consular users and had no reason to expect that the WINDS signal had to be sent by this method. Most general information broadcasts of news and consular interest was transmitted by use of Japanese telegraph code and was intended to be independent of foreign communications sytems in an emergency. Each Japanese embassy had its own short wave facility as well as trained operators. The U.S. had the same operational capability.

The actual message was intercepted by a Lt. James Mackie, a linguist who had received training as a Naval Attaché in Tokyo, before the hostilities. It was his familiarity with the language which prompted his success.

Mackie reported that he had received the proscribed execute message but in a form that was unexpected. It was in the form, 'TOO(H) FUU U.' A grammatically contracted form of the WINDS signal.

Since Mackie was the Junior officer at this station, it was decided that his intercept would serve no useful purpose and would not be sent to higher authority. Mackie objected but was overruled.

After the Japanese attack, Mackie was summoned before the same senior officers and told again that it would serve no useful purpose to ever bring up the matter of the intercept. He was forced to swear never to reveal that it had been received.

The significance of the WINDS intercept cannot be underrated. The U.S. Navy had been preparing for war with Japan since it established 'receiving stations' in 1924. The temptation to use the WINDS message must have been one of those dilemmas faced in later years when the truth becomes known. Even Admiral Nimitz stated that it was a blessing the U.S. fleet did not know it was going to be attacked at Pearl Harbour. If they had known otherwise and had gone to sea to meet the Nagumo force, all men and ships would have been lost at sea. In his opinion it would have been a far worse disaster should this have happened. ■

— VE3BBM

SWAP SHOP

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WANTED: My son Ronnie VE7GRS, age 11, urgently requires a 10-80 metre transceiver (No Tubes Please), Tuner and Power Supply to get on the air. Must be reasonably priced. Write to: Gary Anderson VE7GJA, Box 681, Ucluelet, B.C. V0R 3A0.

WANTED: Kenwood Digital VFO-230. Contact Roy Bennett, 416-493-5526 or 27 Clansman Blvd., Willowdale, Ont. M2H 1X5.

FOR SALE: Commodore 128 Technical Repair package. Included are 5 books. Commodore 128 Technical Service Manual, Sam's 128 Computer Facts, Sam's Troubleshooting and Repair 128, Margolis Troubleshooting and Repair 128, Commodore 128 Programmer's Reference Guide. And 3 transistors, 4 diodes and 20 ICs. Save price first defect. $125 complete plus UPS. Monty Hart, 55 Highland Ave., Barrie, Ont. L4M 1N2. 705-737-2252.

HELP!: Restoring old telephone company equipment and need parts for Audio equipment, Tubes, Western Electric 274 A or B, 300 A or B, 350 A or B and #50 #45. I pay Cash! Steven Bernier N1BMD, R.F.D.#1, Box 5210, Norridgewock Rd., Fairfield Center, Maine 04937. 207-453-7292.

FOR SALE: Antique (circa 1930) Westinghouse Batteryless radio— table model with separate speaker, wooden cabinets, working in very good condition $250.00. Radio Shack Co-Co 2 computer with Dot Matrix printer no. 105, cartridges for word processing and two games, Joy Stick, manuals $300.00. Sears Electric 'Corrector' typewriter and carrying case, excellent condition $150.00. All FOB Dunvegan. Ian McAuley VE3MYO, RR 1 Dunvegan, Ont. K0C 1J0 (613) 525-1770.

Please send your 'Swap Shop' notices to the 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. To renew, send copy and payment again. Please TYPE OR PRINT CLEARLY! and put your membership number and call (not counted) at the end of your ad. Include your full address with postal code; if using a phone number, include the area code. The Canadian Amateur accepts no responsibility for content or matters arising from ads. This feature is for the use of members wishing to trade, buy or sell personal radio gear. It is not open to commercial advertising.

CONTEST SCENE

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

CONTEST CALENDAR
Mar. 4-5 ARRL DX SSB Contest
Mar. 11-12 QCWA SSB QSO Party
Mar. 12 M-QRP-C Classic Sprint
Mar. 18 YLRL East Meets West Party
Mar. 18-19 Bermuda Contest
Mar. 18-19 YL-ISSB SSB QSO Party
Mar. 18-20 BARTG Spring RTTY Contest
Mar. 19-20 Wisconsin QSO Party
Mar. 25-26 CQ WW WPX SSB Contest
Apr. 12-14 YLRL DX-YL to NA-YL CW
Apr. 15-16 IBM QSO Party
Apr. 19-21 YLRL DX-YL to NA-YL SSB
Apr. 29-30 Swiss Helvetia Contest
-Courtesy Frank Anzalone W1WY & CQ Magazine

MARCA CONTESTS

This will be a busy month. Starting with the ARRL DX SSB the first weekend, RSGB's Commonwealth Contest the second, and the Big Event of the month, the CQ WPX SSB at month end. March has a lot to offer, and then you will have a whole month to rest up before the most gruelling contest of all: The Dayton Hamvention.

COMMONWEALTH

I have heard this one called a nice family contest. Well, that may be pushing it, but we Canadians are among a select crowd for this 14-hour contest. Only stations in the Commonwealth may participate, and some moderately rare countries show for this one. Pile-ups are small, competition is keen, and the whole atmosphere is very friendly. Explaining, however to an 'OK' what the Commonwealth is, and why you do not want to work him, can be a little trying.

The top scores invariably include Canadians, Australians and Brits, and our own VE6OU and VE7CC have been overall winners on more than a few occasions. The 'BERU', as it was once known, runs 24 hours starting Saturday, March 11, which is an ideal time frame for those of us from Ontario east. You get a good night's sleep Friday, you don't have to get up too early Saturday, and you can unwind Sunday.

CQ WPX SSB

The biggest events of the spring are *CQ's* WPX contests. The Canadian records for the SSB test appear elsewhere in this column. They have not been updated by 1988's results but, given last year's poor conditions, it's unlikely to have changed. The results appear in March *CQ*, and will be repeated here.

Barring another magnetic storm, conditions should be the best in several years, and if there are any soft records in the table, they are probably on 10 and 160 metres. If John decides to do it, he could probably update his single-op all band record, but otherwise the current records are all superb scores.

WPX is one contest where Canadians do well. The precise reasons are unclear, as the intensity of effort is similar to that expended in the CQ WWs. Some speculate that our proximity to the U.S. that great eldorado of prefix multipliers, gives us a real leg up. The QSO points on the low bands, being double that earned on the high bands, also helps a lot, as you have to work a lot more Europeans or Japanese to make the same score you earn by working a few hundred four-point Americans.

The real equalizer may be the mandatory off-time for single operators. Having to schedule 18 hours off for a Canadian may put him or her on a more level propagation pegging with a more tropical competitor. The truth may be a combination of the three, but in any case, it is a great contest, and it's great to see Canadians among the world-beaters.

ON-SITE CONTESTING

In the pages of *NCJ* there has been much discussion of a variation on contesting to equalize the differences in propagation suffered by people in different parts of a country. The idea is to have a more classical sort of Radio Olympics, where all the competitors are at the same location, with identical equipment, and go to it to see who is the best operator. The idea has been current in the U.S.S.R. for some years now, and they normally make these 'on site' affairs coincident with a major domestic contest.

At present, K7SS and a number of others are plotting and planning to have such an event added to the 'Friendship Games', a sort of East European variant of the Commonwealth games.

I must admit the idea is interesting. It will never replace contesting as we know it, but it is a welcome variant, and may help gain some additional exposure for the hobby.

RADIOSPORTING

Radiosporting is back! Blanarovicz VE3BMV began publishing a magazine devoted to contesting back in 1984. The first issues of *Radiosporting* were excellent, covering a wide variety of contest-related topics. Yuri ran into some problems getting things going after a move to the U.S., and after a couple of false starts, he appears to be back on the rails with Issue #30 for January 1989. If you're interested in a sample copy, write to Yuri at P.O. Box 290, Pine Brook, NJ, U.S.A.

Between *Radiosporting*, *NCJ* and the contest columns of various general interest ham magazines, there's no shortage of contest-related reading material these days.

In closing, how do you know when you've spent too much time contesting?

When the telephone rings and you say, "QRZ?". Good Luck. ■

CANADIAN RECORDS— CQ WPX SSB

	Score	QSO	Px	
A VE6OU	5,253,399	3175	591	1982
28 VE3BMV	2,796,255	2120	495	1980
21 VE3BMV	3,690,450	2283	590	1982
14 VE1NG	3,916,965	2223	589,	1986
7 XL7SV	3,454,864	1770	436	1986
3.5 VE3BMV	1,928,720	1239	388	1986
1.8 CG3MFA	319,140	522	162	1985
MS VE1DXA	8,272,704	4235	704	1982
MM CK7WJ	16,545,370	10468	590	1979

CALLING ALL CARS!

Dragnet and *Highway Patrol* never had it so good as the Ottawa Police Force. They are the first law enforcement agency in North America to use a new geographic resource allocation software system (GRASS).

GRASS is a real-time thematic mapping package, meaning that it displays maps with selected subject matter in only seconds. It identifies criminal hot spots and provides a direct link into existing police records for immediate analysis. GRASS also displays full-colour graphics of search results which may then be overlayed on the monitor's map of the crime area. Officers can zoom in on zones or back off for global views and can even call up data of past crimes in a specific location for comparison.

By using GRASS, the force in Ottawa can now more easily see relationships between reports of suspicious persons and incidents of breaking and entering in an area. The officers can also more easily analyze the history of when and where thefts have taken place in a specific location. Feel safer?

line of sight

Robert Smits VE7EMD, 13894 94A Ave., Surrey, B.C. V3V 1N2

Many Amateurs have the mistaken impression that the use of VHF frequencies is a relatively recent, and certainly post-WWII phenomenon. After all, we didn't really start to use the VHF and UHF spectrum before we invented FM repeaters did we? And besides, old man, VHF is OK for two metres 'n autopatches 'n stuff, but real ham radio is 'aich eff', ain't it? VHF is only good for line of sight transmission anyway.

Well, OM, VHF transmissions go back a little further than that. Only 40 years after Faraday first suggested the possibility of 'ether waves' and 22 years after Maxwell first theorized the existence of electromagnetic waves, Heinrich Hertz developed the world's first radio transmitter and receiver. It only had a range of about 20 feet, it operated at about 100 MHz, and it was built in 1884. Gee.

Actually, many early experimenters worked with extremely high frequencies. Frequencies as high as 3000 MHz were tried at the turn of the century, and Bhose, in India, not only worked with microwaves but actually used primitive waveguides in some experiments. Marconi was probably the first in the world on two metres when he experimented with directional two metre antennas and equipment for the Italian Navy in 1916. And Amateurs over the years have thoroughly disproved the myth that VHF radio waves are restricted to line of sight.

This is the first column in a series. I'm calling it 'Line of Sight' partly because it's my viewpoint, and partly because there's more to VHF/UHF than meets the eye. Together we're going to explore what's happening on the VHF/UHF bands, look at future plans for those bands, possibilities, etc. I will be commenting on not just repeaters, but bandplanning, frequency co-ordination, Amateur television, SSB/CW, Amateur satellites and more.

So, stay tuned. I promise to tell you what I think (*The Canadian Amateur* makes a great soapbox), to try to explore issues in some depth, and to tell you when I (or somebody else) screws up.

THE THREAT TO VHF/UHF SPECTRUM

Today's Amateur has access to more spectrum on any one of the bands between 50 and 1200 MHz than he has on all the HF spectrum below 30 MHz. That's right! All the ham bands below 30 MHz added up together— 160, 80, 40, 30, 18, 15, 12 and 10 metres add up to just 3.75 MHz of radio space.

Adding up all the spectrum available *today* to Amateurs between 50 and 1200 MHz alone comes to 119 MHz. That's right... almost 32 times the available spectrum on HF. Ham radio wouldn't be ham radio without VHF and UHF. Yet most hams don't operate on any VHF/UHF band except two metres.

About now, you're saying to yourself, "Jeez, that's great. So why are you telling me all this stuff?" I'm telling you because our use of this spectrum is seriously threatened. Not all of it, certainly. Not immediately, probably. But our use of it *is* threatened nonetheless.

"OK, so it's threatened," I can hear you muttering. "I don't use anything except two metres anyway." Can I ask you what frequency your two metre autopatch link works on? What band is used to link your two metre repeater to the one up the valley? How many of you want to access the OSCAR satellite? Who is using packet radio with high-speed backbone links on other bands? Who is using 430-450 MHz for Amateur Television? You are. And losing some or part of it will affect all of us as Amateurs, even if we only operate on 80 metre phone and a two metre rig in the car.

Here are the four main threats to Amateur use of the spectrum:

1. Pressure from commercial and government interests to reallocate spectrum presently assigned to Amateurs to a non-Amateur (i.e. money making) use. This pressure comes from any group which may profit— other potential users of the spectrum, potential system suppliers who want new markets to sell equipment to, politicians who want to gain 'brownie points' with potential campaign donors, etc.

2. Pressure from commercial and government interests to share spectrum presently assigned to Amateurs on a shared or secondary basis. The most obvious case in point is, of course, the use by the Atmospheric Environmental Service of frequencies in the 430-450 MHz band. Only 50-54, 144-148 and 220-225 MHz are Amateur exclusive in Canada today.

3. Insufficient use of various bands by Amateurs. (Use it or lose it!) While part of this reason lies with Canada's immense area and small population, I suspect a good deal of the reason is that the Amateur service has stopped growing. And at least one reason it has stopped growing is the complaining from those Amateurs opposed to any change who have held up Amateur licence restructuring for years.

4. Increasing inability of Amateurs to provide either meaningful public service during a major disaster (exceptions noted) or major league political presence in Ottawa (or even allies who can). This results from the lack of growth of the Amateur service, and from the increasing percentage of elderly, retired, and physically inactive hams in our midst. (A 65-year-old retired ham is unlikely to be a good candidate to clamber over rubble in an earthquake to give damage assessments for 14 hours at a stretch. And young guys are conspicuously absent from our ranks. Again, exceptions noted!)

Next month, I'm going to discuss some of the pressures on our bands, and some opportunities to ease some of that pressure. To end this column, I want to get some ideas and facts from you. I'd like as many of you as possible to fill out the doggone questionnaire on page 41, and to mail, e-mail or packet it to me. And remember this... Agnes McPhail, our first female Member of Parliament, was right. "The way to get things out of a government," she said, "is to back them to the wall, put your hands to their throats, and you will get all that they have." ■

FOR ROBERT SMITS QUESTIONNAIRE, SEE PAGE 41 OF THIS ISSUE

TAXI! TAXI!

Dial-a-Cab, London's leading black cab company, is busy installing the largest computerized taxi dispatch system in the world. The six million dollar deal involves 1420 cabs outfitted with Mobile Data's taxi terminal. The computer acts as the dispatcher; the call-taker puts in the information as soon as the customer requests are received. The call is then dispatched to the closest available cab via digital dispatch over radio frequencies. The dispatch magically appears on the display of the mobile computer terminal mounted in the cab, and the driver accepts the fare by touching the accept key on his or her terminal, informing the computer that the cab is en route. All in a matter of seconds.

— *Canadian Electronics Engineering*

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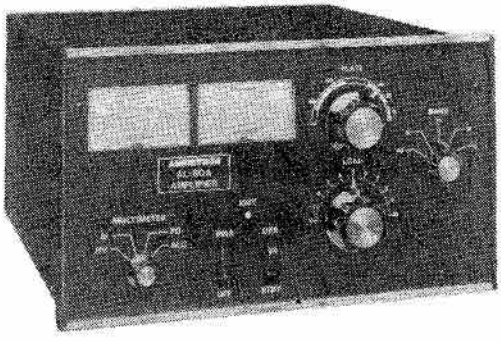

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AL-80A with 3-500Z tube - 1000 watts PEP output.
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AL-1500 with 8877 tube - full legal output with 65 watts drive.

SPECIFICATIONS ON REQUEST

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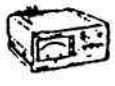

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MFJ-1278 Multimode ..... SPECIAL $449.00
MFJ-962 1.5 KW Tuner ..... SPECIAL $349.00
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PACKET RAP

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

RS-232

As promised in last month's column, I will attempt to clear up some confusion about this specification. As mentioned, the signal levels between your TNC (Terminal Node Controller) and your terminal or computer follow a certain standard called RS-232C. This specification was originally designed to allow telephone modems to interface to computer equipment. The end of the cable which plugs into the modem is called the Data Communications Equipment or DCE. The opposite end of the cable connects to a device called Data Terminal Equipment or DTE. Normally, your terminal or computer is a DTE and your modem or TNC is a DCE.

A problem occurs when you wish to connect two DTE devices together. Such a situation occurs when one wishes to connect a printer to a computer. The computer and printer are both DTEs so a device called a Null Modem is used to swap the appropriate transmit and receive signals at one end of a cable.

Okay, I hope I haven't lost you yet. Now we're going into some 'nitty gritty' stuff, so hold on... I am going to explain RS-232C from a Data Flow point of view. If you understand the following, you should be well on your way to solving any RS-232C problem. We will use the DTE and DCE model and pretend a person is placing a telephone call using a modem connected to a computer such as an IBM PC or clone running a BBS or Bulletin Board System program.

The following discussion will describe what occurs at the BBS end of the connection. Each figure will indicate a state change. In Fig. 1, initial signals begin with the power just turned on in both the modem and the computer. Having received power, the modem or DCE asserts DSR or Data Set Ready (a data set is another name for a modem). Thus we have DSR asserted. In the following figures the arrows indicate the direction of the signal and the pin numbers are the actual pin numbers used on the 25 pin RS-232C connector.

Now we will pretend that someone is calling the DCE with another modem using a standard telephone line. The ringing signal, RI is presented on pine 22 of the modem as shown in Fig. 2.

Having discovered that the RI pin is toggling on and off, the communication program in the computer or DTE asserts pin 20 true as shown in Fig. 3 and the modem now causes the phone line to answer.

Once the phone is answered, the two modems send tones to each other. The details of the tones are not important for this discussion. Once the modems are synchronized properly, the modems assert the DCD or Data Carrier Detect pin which is pin 8.

Now, assume the computer or DTE wishes to send a message to the user who just called in. The communications program in the computer or DTE asserts pin 4 or request to send to true. The state is shown in Figure 5.

The modem confirms that it is okay to send and now asserts the clear to send or CTS signal which is pin 5. The state of the connection is shown in Figure 6.

If you have made it this far, you are wondering why everything is so complicated! One more figure to go and we will have this worked out. When the

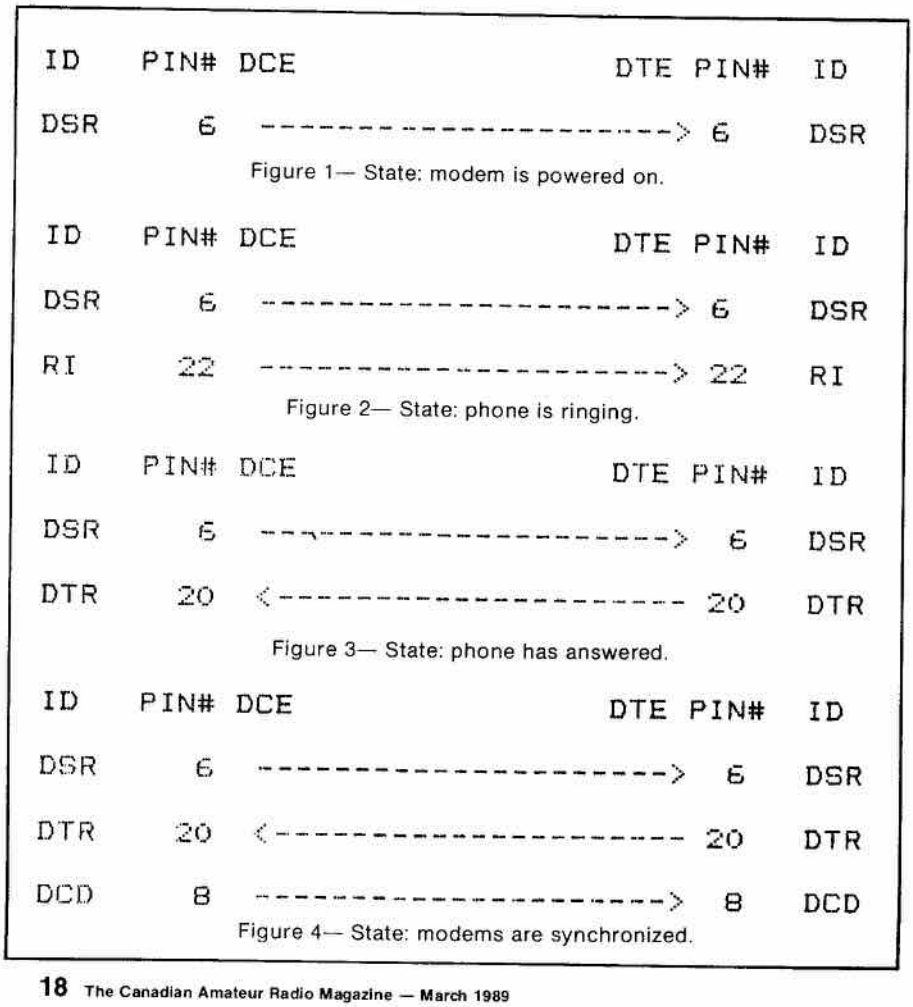


Figure 1— State: modem is powered on.

Figure 2— State: phone is ringing.

Figure 3— State: phone has answered.

Figure 4— State: modems are synchronized.

FUTURE USE OF FREQUENCIES

A policy on expanded use of radio frequencies, previously available only to telephone companies for providing mobile radiotelephone service to the public, was recently announced by Communications Canada.

With the introduction and popularity of cellular radio, the VHF and UHF frequencies formerly used for mobile service have become available for other uses in some areas of Canada.

The main elements of the policy:

- allow entrepreneurs to provide a type of radiotelephone service to unserved or underserved areas similar to that formerly available on these UHF and VHF frequencies.
- permit alternative uses of these previously reserved frequencies in certain large urban areas,
- allow use of radio links on these frequencies to provide basic exchange telephone service in rural and remote areas.

Copies of this utilization policy can be obtained from Information Services, Communications Canada, 300 Slater Street, Ottawa, Ont. K1A 0C8 or from the department's regional offices in Moncton, Montreal, Toronto, Winnipeg and Vancouver.

CTS signal is true, the program controlling the DTE (the BBS Program in our example) can now send the actual data. The data is sent on pin 2 of the DTE to the remote device which, in our example, is a terminal.

In Figure 7, we indicate that data transfer is occurring.

For packet radio use, many of the RS-232C signals are not required. The signals required are transmit data or TD, receive data or RD and signal ground which is pin 7. Pin 1 is protective ground and may be used. Figure 8 indicates the minimal wiring required to get a TNC to work with a computer or terminal. Note that the TNC is the DCE (alias modem) and the terminal or computer is the DTE.

Sometimes the terminal or computer requires other signals present. If you look at last month's column, you should now understand why the RS-232C cable may have to have pins 4 and 5 tied together as well as pins 6, 8 and 20.

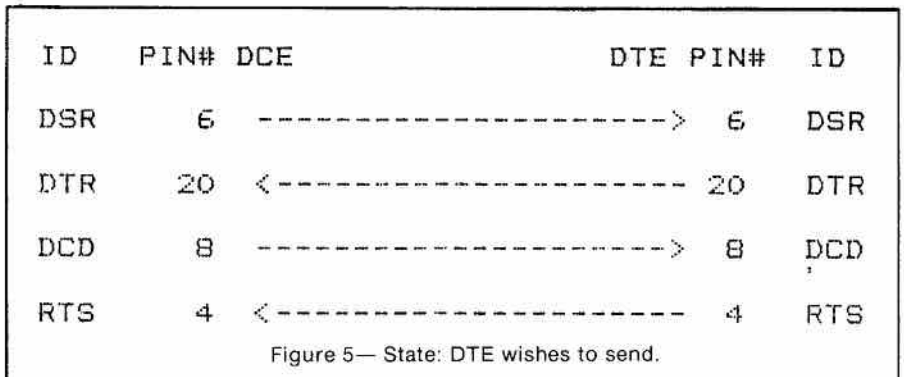


Figure 5— State: DTE wishes to send.

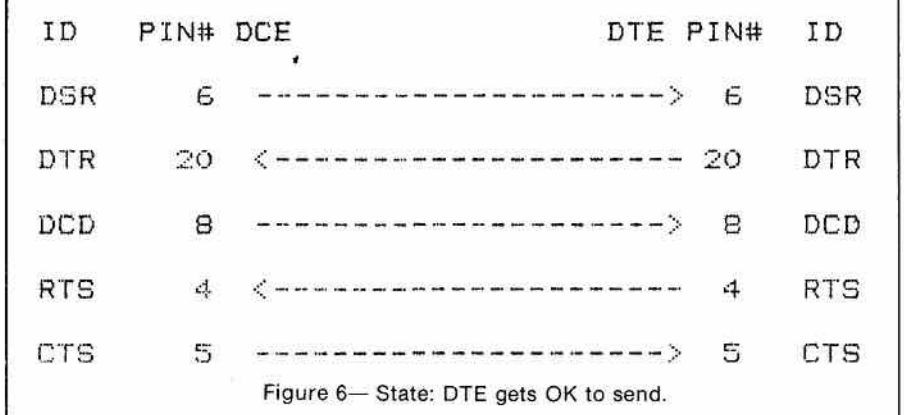


Figure 6— State: DTE gets OK to send.

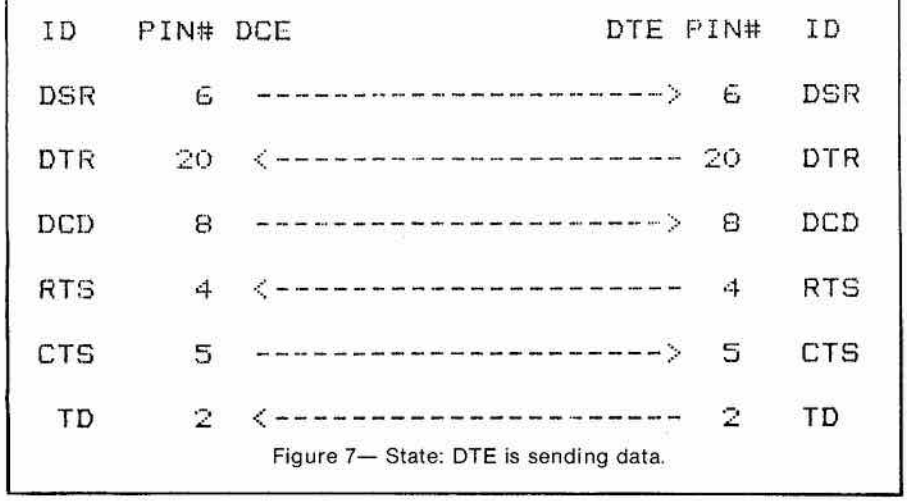


Figure 7— State: DTE is sending data.

TIDBITS

I have almost used up my allotted space for the column but I thought that you might find the following information useful. If you are connected to a NETROM node, try issuing the nodes * command. You might find out some interesting 'phantom' nodes. The 145.01 to 145.07 NETROM crosslink is now operational in the Ottawa area. This means that Ottawa and Calgary can now communicate via the main 145.01 packet frequency. Some cross-Canada packet DX should now be possible.

FEEDBACK REQUESTED

I can be reached via Canada Post or send packet mail to VE3FWF@VE3JF. Next month, we will look at ASCII codes used by the TNC to communicate with your computer as well as bring you up to date on new happenings. Please let me know what is happening packet-wise in your area of the country. If you have any suggestions for topics which you would like to have discussed, please let me know. ■

A VERY SHORT STORY

This is a story about four people named Everybody, Anybody, Somebody and Nobody. There was an important job to be done and Everybody was sure that Somebody would do it. Anybody could have done it. Nobody did it. Somebody got angry about that because it was Everybody's job. Everybody thought Anybody could do it, but Nobody realized that Everybody wouldn't do it. It ended up that Everybody blamed Somebody when Nobody did what Anybody could have done.

— Anonymous

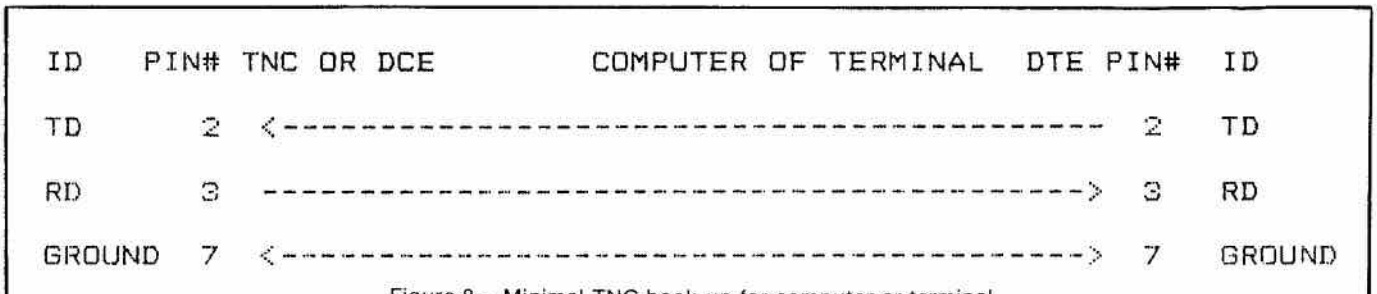


Figure 8— Minimal TNC hook-up for computer or terminal.

QRP

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

Gene KA5NLY has come up with a good bit of research that everyone can use for building their own equipment or putting together the design found in various magazines.

TRANSISTORS

Table 1 was compiled using back issues of *ARCI QRP Quarterly, QRP Notebook* and *Solid State Design for the Radio Amateur*. The latter contains many projects and dates from 1977 which are included in the TOTAL column. The QRP column then shows those used in the other two publications and are reflected in Table 2. What we need now is for someone to establish a cross-reference table drawn from foreign publications like *SPRAT, Australian Amateur Radio* and *Lo-Key News Bulletin* from Tasmania.

STORAGE

Gene went one further and used a multi-drawer parts cabinet to sort and store his newfound gold mine of components. The cabinets also contain resistors, capacitors, LEDs and other miniature items used most often in homebrewing.

The latest catalogue arrived from Small Parts Centre, a much improved version over the original and more pages. This naturally means more items being carried, including some new kits. Satisfaction 100% guaranteed is hard to find anywhere these days. Drop Chris and Deb a line with your green stamp and ask for their latest catalogue. Chris is working on a new transceiver kit he hopes to have out very soon, so get cracking! The address is 6818 Meese Drive, Lansing, MI. 48911 and tell them you saw it here.

GLEANINGS

Nick VE7NJP writes from Port McNeill, as one just new to Amateur radio, with an avid interest in QRP activity. He was recently elected President of North Island ARC and hopes to gain a foothold among 15 or so others on the northern tip of Vancouver

Continued on next page

IMPORTING GEAR?

If you are importing Ham Radio gear into Canada from the U.S. and have difficulty with customs officials regarding duty status of the gear, have them look up waiver No. 8525.20.10.00.

-Charlottetown ARC

Bring a blind Amateur with you to your next club meeting.

Table 1
FREQUENCY OF USE

TYPE	TOTAL	QRP	TYPE	TOTAL	QRP
2N2222/A	61	30	2N5179	10	0
2N3904	47	20	2N4416	8	3
MPF102	30	7	2N3866	7	7
2N3565	26	2	2N3553	5	0
40673	17	4	2N5189	4	0
2N3906	15	5	2N4036	3	3
2N3053	10	3	2N5109	3	3
2N5321	3	0	2N3645	2	2
2N3819	2	2	2N5459	2	2
MRF475	2	2			

Note: About 20 other types appeared only once in the schematics reviewed and are not shown above.

Table 2
QRP TRANSISTOR STOCK LIST

DEVICE	GE PART #	ECG PART #[3]	RCA PART #	RADIO SHACK #[2]
The BIG SIX: (arranged by frequency of use)				
2N2222/A	GE20	123A	SK3444	276-2009/276-1617[2]
2N3904	GE123AP	123AP	SK3854	276-2009
MPF102	GE312	451	SK9164	276-2062
2N3866	GE91	311	SK3195	
2N3906	GE82	159	SK3466	276-2023/276-1604[2]
40673	GE-FET-5[1]	222	SK3065	276-2045
The OTHERS: (arranged in alpha-numeric order)				
2N3053	GE243	128	SK3024	276-2030
2N3565	GE20	123A	SK3444	276-2009/276-1617[2]
2N3645	GE244	129	SK3025	276-2008
2N3819	GE312	312	SK9157	276-2035/276-2062[3]
2N4036	GE244	129	SK3025	276-2025
2N4416	GE312	452	SK9072	
2N5109	GE261	278	SK3218	
2N5459	GE-FET-1[1]	459	SK9149	276-2035/276-2062[4]
MRF475	GE215	235	SK3197	

NOTES:

[1]Dashes are important.

[2]The Radio Shack catalogue numbers marked with a * are packages of 15 transistors (same type as the single unit shown to the left of the "/" mark),
Some of the Radio Shack parts, such as 276-2008 & 276-2045 are discontinued but may be available as "old stock" in some stores.

[3]The ECG numbers are commonly used by several sources such as Phillips, Elmira, NTE, Sylvania, etc. and are usually appended to RCA part numbers as well (e.g. ECG-123A, ELM-123A, NTE-123A, SK3444/123A).

[4]Both of these two types are basically the same except that the leads are in different positions (supposedly the source and drain leads are interchangeable anyway. . .do I believe that??).

Island. We should hear of their QRP exploits one of these days and they may be the first to form a Club fostering some Quaint Relaxing Pleasure. They anticipated a community demonstration would take place in February and hopefully those results will be forthcoming.

Nick not only made enquiries but also offered some suggestions, one of which was that we should list the QRP enthusiasts by City and Province. This has been tried in my column under the heading of Gleanings, but not enough letters are received from one place to categorize them. Starting a National QRP Club was another suggestion, but I would like to convert this column for airing local progress and use CARF as the main headquarters. This way any extra energy needed for a local club could be channelled toward increasing our main membership on an international scope.

An enthusiastic QRPer wrote another long letter, dated Christmas Eve, from a lonely Coast Guard Station on Vancouver Island. Rick VE7FOU not only restores and collects telegraph keys but also does the same with QRP rigs. Seems he has been doing something like this for years and his latest prize is a Ten Tec PM2B transceiver which was the model that started Ten Tec in the Amateur business. Rick likes the rig for its simplicity and recommends that anyone starting out in QRP either buy or resurrect one from a flea market or retired Amateur station. Another project he highly recommends is improving a Heathkit HW7 or HW8 for which you may require some instructions. These are available in *The Hot Water Handbook* published by QRP Amateur Radio Club International and available from Michael Bryce QB8VGE, 2225 Mayflower NW, Massillon, OH 44646.

A copy of the *SPARC Gap* column by Jim VE3KQN was received. He writes about his personal experiences with QRP involving a Heathkit HW8 about 10 years ago. He closes with a list of QRP nets (reproduced here) which are highly recommended for anyone just starting out. ■

QRP NETS

QRP NET	ORG	QNN	DAY	UTC
TCN	14060	W5LXS	Sunday	2300
SEN	7030	K3TKS	Wednesday	0000
GSN	3560	W5LXS	Thursday	0100
GLN	3560	K2JT	Thursday	0100
WSN-80	3558	NM7M	Saturday	0300
NEN	7040	W1FMR	Saturday	1200
MQRP	3535	K8JPO	Wednesday	0200
WSN-SSB	7285	NJ7M	Wednesday	2000
VE-QRP	14060	VE6BLY	Sunday	1900

YL News & Views

Cathy Hrischenko VE3GJH, 2 Dalmeny Road, Thornhill, Ontario L3T 1L9

Sadly, we report that Dot VE3QEH is now a Silent Key. Almost every Amateur has heard about Dot VE3QEH. She never let her health problems get the better of her. When she became interested in Amateur Radio, it opened the doors of the world; it was a dream come true.

Dot spent most of her 80 years in a hospital. In 1916, she was placed in what is now called Bloorview Hospital. When she turned 17 in 1926, she was transferred to Queen Elizabeth Hospital.

1971 was a special year for Dot. She took an Amateur radio course and received her licence on March 17, 1971. This was also the year that she became more mobile, as someone gave her an electric wheelchair equipped with the extras needed for her disability.

Over the years, Dot received many awards and presentations. She became a member of the Queen Elizabeth ARC, TOTs and CLARA. She became a Silent Key on Dec. 17, 1988.

NEW CLARA EXECUTIVE

President: Margaret McKinley VE3EQE, Vice-President: Jeanne Gordon VE2JZ, Treasurer: Muriel Foisey VE7LQH, Secretary: Gail Murray VE3GSQ, Editor: Pauline Burt VE3LQA, Supplies & Jewellery: Marjorie Karl VE6LC, Certificate Custodian: Diane Ernst VE1CYT, Friendship: Muriel Foisey VE7LQH, Ballot Editor: Barbara Goodier VE3KKY, Tapes for CLARA for CNIB YL Members: Vin Taylor VE3HGA, Libby Stevens VE3IOT, Net Manager: Jeanne Gordon VE2JZ, DX YL Editor & DX YL Sponsorship: Elizabeth Anderson VE7YL, Guides On The Air Co-ordinator: Cathy Hrischenko VE3GJH.

Area Representatives: VO Susan Harvey VO1OI, VE1 Jeannine Côté VE1BWP, VE2 Jeanne Gordon VE2JZ, VE3 Thelma Tuttle VE3ARG, VE4 Bubbles Timlick VE4ST, VE5 Betty Haubrick VE5FI, VE6 Villa Jean Tyrrell VE6VJ, VE7 Janis Cameron VE7AAP.

I am sure many of you remember Noreen Nimmons VE3GOL, a person very much involved in Traffic. I thoroughly enjoyed her (and Phil's) Christmas letter. An excerpt: "This brings you special greetings and reports on our Health (good), Activities (busy) and Family (pretty wild)." Noreen hasn't had much time for Amateur Radio because of another interest. She's had a very productive time at Oxford University during Trinity Term last April to June. She enjoyed touring England, Wales, Ireland and Scotland with OM Phil, before returning to Canada. Noreen is currently finishing the last of her PhD course work and will be going back to Oxford to deliver a paper at the International Symposium. Her research 'work life' at York University was made an 'Official Centre of Excellence in Research' and given the name 'The Centre for Refugee Studies'. Noreen is the Research Co-ordinator. Her OM Phil, not a Ham, but well-known orchestrally, has been very active too. This couple deserves the recognition they are now receiving after their many years of hard work.

Keep the letters and YL Info coming. We appreciate your input and the many calls, suggestions and on-the-air comments about this 'YL News'. YOU are this column. Thanks for all feedback.

Be sure to pass along all the GOTA 1989 info to me. 73/33/88 as the case may be. ■

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.

West Kootenay ARC, RR 1 Goddard Rd., Nelson, B.C.

A. Williams VE3NTR, 2727 Victoria Pl. Ave., Agincourt, Ont.

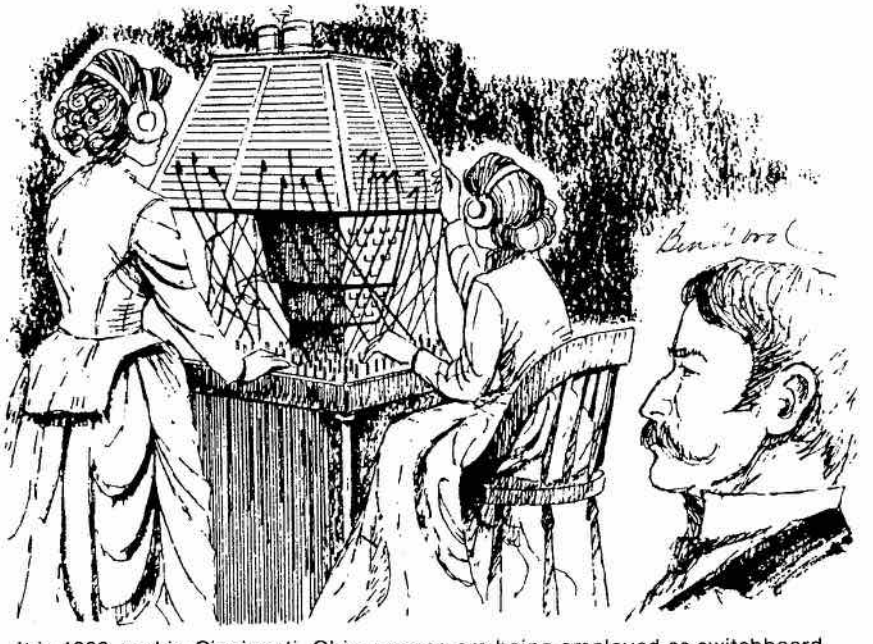
Roger Rowley VE3YM, 155 Delaney Dr., Ajax, Ont.

R. Blanchard VE7BRJ, 1429-D Meadowbrook Dr., Castlegar, B.C.

Glenn Hallihan VE1BWO, 240 Parkside Dr., Fredericton, N.B.

MOVING?

If you're moving, please let Debbie know your new address. Write her at P.O. Box 356, Kingston, Ont. K7L 4W2.



It is 1882, and in Cincinnati, Ohio, women are being employed as switchboard operators at this 'beehive' board. Mr. Eckert of Cincinnati's phone company claims: "Female operators are steadier, do not drink beer and are always on hand."

— Thanks to Frank VE3DQB

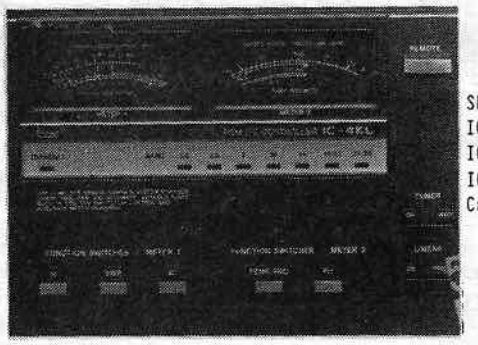
DXCC COUNTRIES LIST

PREFIX	CONT	ZONE	COUNTRY
A2	AF	38	Botswana
A3	OC	32	Tonga
A4	AS	21	Oman
A5	AS	22	Bhutan
A6	AS	21	United Arab Emirates
A7	AS	21	Qatar
A9	AS	21	Bahrain
AP	AS	21	Pakistan
BV	AS	24	Formosa
BY	AS	23,24	China
C2	OC	31	Nauru
C3	EU	14	Andorra
C5	AF	35	Gambia
C6	NA	8	Bahamas
C9	AF	37	Mozambique
CE	SA	12	Chile
CEϕA	SA	12	Easter Island
CEϕX	SA	12	San Felix Island
CEϕZ	SA	12	Juan Fernandez Is.
CM,CO	NA	8	Cuba
CN	AF	33	Morocco
CP	SA	10	Bolivia
CT	EU	14	Portugal
CT3	AF	33	Madeira Island
CU2	EU	14	Azores Islands
CX	SA	13	Uruguay
CYϕSa	NA	5	Sable Island
CYϕS,P	NA	5	St. Paul Island
D2	AF	36	Angola
D4	AF	35	Cape Verde
D6	AF	39	Comoros
DJ	EU	14	West Germany
DU	OC	27	Philippines
EA	EU	14	Spain
EA6	EU	14	Balearic Islands
EA8	AF	33	Canary Islands
EA9	AF	33	Ceuta and Melilla
EI	EU	14	Ireland
EL	AF	35	Liberia
EP	AS	21	Iran
ET	AF	37	Ethiopia
F	EU	14	France
FG	NA	8	Guadeloupe
FH	AF	39	Mayotte
FK	OC	32	New Caledonia
FM	NA	8	Martinique
FO	OC	32	French Polynesia
FOϕX	NA	7	Clipperton Island
FP	NA	5	St-Pierre and Miquelon
FR	AF	39	Reunion
FR/G	AF	39	Glorioso Island
FR/J,E	AF	39	Juan de Nova, Europa
FR/T	AF	39	Tromelin Island
FS	NA	8	Saint Martin
FT8W	AF	39	Crozet Island

PREFIX	CONT	ZONE	COUNTRY
FT8X	AF	39	Kergueler Island
FT8Z	AF	39	Amsterdam and St. Paul
FW	OC	32	Wallis and Futuna Is.
FY	SA	9	French Guiana
G	EU	14	England
GD	EU	14	Isle of Man
GI	EU	14	Northern Ireland
GJ	EU	14	Jersey
GM	EU	14	Scotland
GU	EU	14	Guernsey
GW	EU	14	Wales
H4	OC	28	Solomon Islands
HA	EU	15	Hungary
HB	EU	14	Switzerland
HBϕ	EU	14	Liechtenstein
HC	SA	10	Ecuador
HC8	SA	10	Galapagos Islands
HH	NA	8	Haiti
HI	NA	8	Dominican Rep.
HK	SA	9	Colombia
HKϕ	NA	7	San Andres Island
HKϕ	SA	9	Malpelo Island
HL	AS	25	Korea
HP	NA	7	Panama
HR	NA	7	Honduras
HS	AS	26	Thailand
HV	EU	15	Vatican
HZ	AS	21	Saudi Arabia
I	EU	15,33	Italy
IS	EU	15	Sardinia
J2	AF	37	Djibouti
J2/A	AS	21	Abu Ail Island
J3	NA	8	Grenada
J5	AF	35	Guinea-Bissau
J6	NA	8	St. Lucia
J7	NA	8	Dominica
J8	NA	8	St. Vincent
JA-JS	AS	25	Japan
JD1	AS	27	Ogasawara Islands
JD1	OC	27	Minami Tori-shima
JT	AS	23	Mongolia
JW	EU	40	Svalbard
JX	EU	40	Jan Mayen
JY	AS	20	Jordan
K,N,W	NA	3,4,5	U.S.A.
KC6	OC	27	East Caloline Is.
KC6	OC	27	West Caloline Is.
KG4	NA	8	Guantanamo Bay
KH1	OC	31	Baker and Howland Is.
KH2	OC	27	Guam
KH3	OC	31	Johnston Island
KH4	OC	31	Midway Island
KH5	OC	31	Palmyra and Jarvis Is.
KH5K	OC	31	Kingman Reef
KH6	OC	31	Hawaii

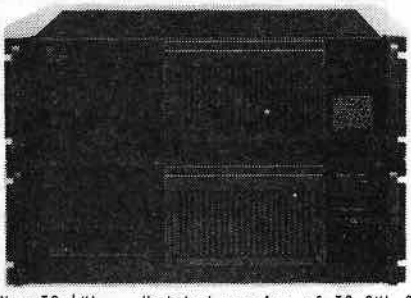
PREFIX	CONT	ZONE	COUNTRY
KH7	OC	31	Kure Island
KH8	OC	32	American Samoa
KH9	OC	31	Wake Island
KHϕ	OC	27	Northern Marianas
KL7	NA	1	Alaska
KP1	NA	8	Navassa Island
KP2	NA	8	Virgin Islands
KP4	NA	8	Puerto Rico
KP5	NA	8	Desecheo Island
KX6	OC	31	Marshall Islands
LA	EU	14	Norway
LU	SA	13	Argentina
LX	EU	14	Luxembourg
LZ	EU	20	Bulgaria
OA	SA	10	Peru
OD	AS	20	Lebanon
OE	EU	15	Austria
OH	EU	15	Finland
OHϕ	EU	15	Aland Islands
OJϕ	EU	15	Market Reef
OK	EU	15	Czechoslovakia
ON	EU	14	Belgium
OX	NA	40	Greenland
OY	EU	14	Faroe Islands
OZ	EU	14	Denmark
P2	OC	28	Papua New Guinea
PA	EU	14	Netherlands
PJ	SA	9	Netherlands Antilles
PJ5-8	NA	8	St. Maarten
PY	SA	11	Brazil
PYϕ	SA	11	Fernando de Noronha
PYϕ	SA	11	St. Peter's Rocks
PYϕ	SA	11	Trindade Island
PZ	SA	9	Surinam
S2	AS	22	Bangladesh
S7	AF	39	Seychelles
S9	AF	36	Sao Tome and Principe
SM	EU	14	Sweden
SP	EU	15	Poland
ST	AF	34	Sudan
STϕ	AF	34	Southern Sudan
SU	AF	34	Egypt
SV	EU	20	Greece
SV5	EU	20	Dodecanese
SV9	EU	20	Crete
SV/A	EU	20	Mount Athos
T2	OC	31	Tuvalu
T3ϕ	OC	31	Western Kiribati
T31	OC	31	Central Kiribati
T32	OC	31	Eastern Kiribati
T5	AF	37	Somalia
T7	EU	15	San Marino
TA	EU AS	20	Turkey
TF	EU	40	Iceland

New Products Report

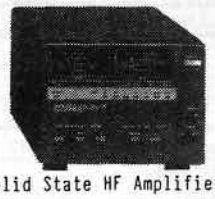


ICOM

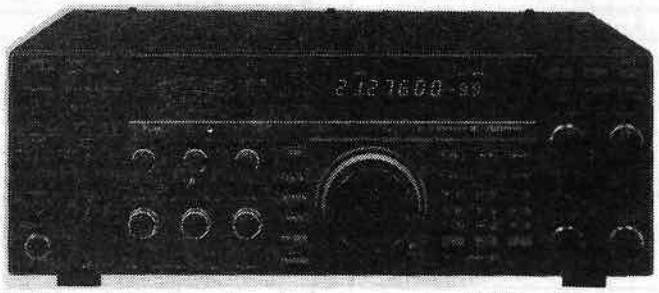
SPECIAL PRICES ON: IC761
IC-2KL IC-u2AT IC-u4AT IC-2AT
IC-4AT IC-03AT IC-04AT
IC-3200 IC-471H
Call Now !



IC-2S
New Micro Handy,
A real small one,
Shown without Nicad.

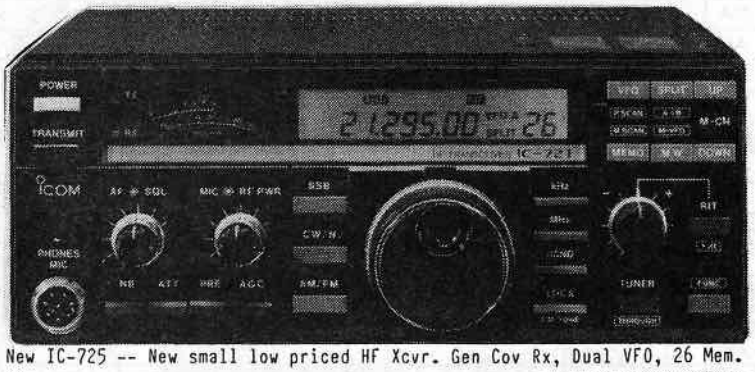


New IC-4KL -- Updated version of IC-2KL Solid State HF Amplifier.

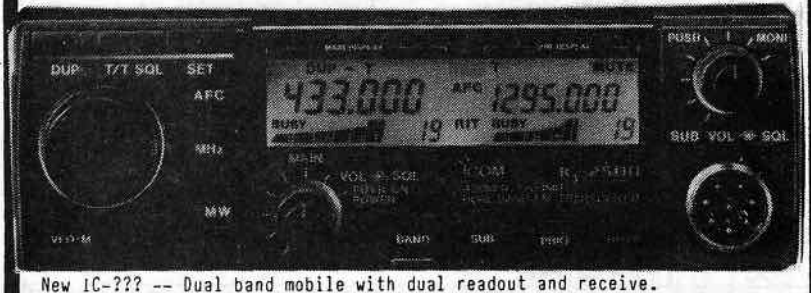


New IC-765 -- Updated version of the very popular IC-761. 10Hz Readout, 99 Memories, CW pitch control, remembers last freq per band.

AGAIN ATLANTIC HAM RADIO BRINGS IT TO YOU FIRST !!



New IC-725 -- New small low priced HF Xcvr. Gen Cov Rx, Dual VFO, 26 Mem.



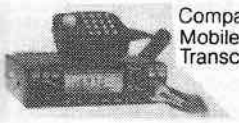
New IC-??? -- Dual band mobile with dual readout and receive.

KENWOOD
TH-25AT/45AT/55AT
2m 70cm 1200 MHz

First Pocket Sized Handheld Transceivers
Extended Receive Capability

GREAT PRICE!

KENWOOD
TM-221A/321A/421A
2 MTR 220 MHz 70cm



Compact FM Mobile Transceivers

LOW PRICE!

KENWOOD
TH-215A
2 MTR
TH-315A
220 MHz
TH-415A
440 MHz

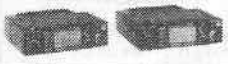
Wide Receiver Freq. Range 10 Memories

YAESU
MINI HAND-HELD

HAND-HELD SALE

FT-23R 2 METER $349.95
FTT-4 TTPad + $59
FT-73R 440 MHz $349.95

YAESU
FT-212RH/712RH
Computer Aided FM Transceiver



YAESU
FT-747GX
Computer Aided HF All Mode Transceiver

100 WATTS, DUAL VFO's
Receives 100 KHz to 30 MHz
BUILT-IN CW FILTER

ANNUAL CLEAROUT
AND DISCONTINUED

MFJ TUNERS

Invest in the finest 3 KW roller inductor tuner money can buy with dummy load, new *peak* reading Meter and more...

The MFJ-989C is a compact 3 KW roller inductor tuner with a new **peak** reading Cross-Needle SWR/Wattmeter. The roller inductor lets you get your SWR down to absolute minimum.

With **three continuously** variable components -- two massive 6 KV capacitors and a high inductance roller inductor -- you get precise control over SWR **and** the widest matching range possible from 1.8-30 MHz.

You get a **new** lighted **peak** and average reading Cross-Needle SWR/Wattmeter with a **new** more accurate directional coupler.

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

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.

Its compact 10¾x4½x15 inch cabinet slides right into your station.

The MFJ-989C is not for everyone. **However,** if you do make the investment, you'll get the finest 3 KW tuner money can buy -- one that will give you a lifetime of use, one that takes the fear out of high power operation and one that lets you get your SWR down to absolute minimum.

MFJ-989C $ 649

MFJ's *Best* VERSA TUNER II

MFJ-949C $ 259

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.

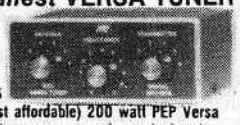
This gives you the precise control you need to get your SWR down to a minimum. After all, isn't that why you need a tuner.

You also get a dual range lighted Cross-Needle SWR/Wattmeter, 6-position antenna switch, 50 ohm 300 watt dummy load, balun for balanced lines and continuous 1.8-30 MHz coverage -- all in a compact 10x3x7 inch cabinet that fits right into your station.

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

MFJ's *smallest* VERSA TUNER

MFJ-901B $ 109



The MFJ-901B is our smallest -- 5x2x6 inches -- and most affordable) 200 watt PEP Versa tuner -- when both your space **and** your budget is limited. Matches dipoles, vees, random wires, verticals, mobile whips, beams, balanced and coax lines continuously 1.8-30 MHz. Excellent for matching solid state rigs to linears. Efficient airwound inductor. 4:1 balun for balanced lines

MFJ's *Fastest Selling* TUNER

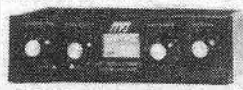
MFJ-941D $ 185

The MFJ-941D is MFJ's fastest selling 300 W 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 *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 outside and readjust 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. $3.00.

MFJ's *1.5 KW* VERSA TUNER III

MFJ-962C $ 369

For a **few** extra dollars, the MFJ-962C lets you use your barefoot rig now and have the capacity to add a 1500 watt PEP linear amplifer later.

Two **continuously** variable 6 KV capacitors give you **precise** control for getting your SWR down to a minimum. And **lots of inductance** gives you the widest matching range possible.

You can read both **peak** and average power with the lighted 2-color Cross-Needle SWR/Wattmeter. A **new** directional coupler gives you more accurate readings over a wider frequency range.

Has 6-position **ceramic** antenna switch and a teflon wound two-core balun with ceramic feedthru insulators for balanced lines. 10¾x4½x14 7/8 in.

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. Tunes 1.8-30 MHz. Handles 200 watts. Ultra compact 2x3x4 in.

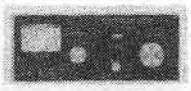
MFJ *artificial* RF ground

$ 149 MFJ-931

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.

Packet Controllers & Misc.

MFJ-1278 $469;	MFJ-1274 $249;	MFJ-1270B $225
MFJ-486 $289;	MFJ-484C $259;	MFJ-482B $185
MFJ-422B $259;	MFJ-408 $139;	MFJ-407B $129
MFJ-202B $109;	MFJ-204B $149;	MFJ-1621 $149
MFJ-959B $169;	MFJ-1024 $239;	MFJ-1020A $149
MFJ-107 $ 20;	MFJ-108 $ 40;	MFJ-1704 $119



NEW Model MFJ-986 3KW Tuner

New MFJ-986 $439 with Roller Inductor

PK-232 Packet Controller.....
144 MHz Isopole.....
440 MHz Isopole.....
Other AEA products also in stock call!!!!

Kantronics

KAM All Mode Terminal Unit.....
KPC II Packet Controller.....
KPC 4 Node Controller.....

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DXCC COUNTRIES LIST

PREFIX	CONT	ZONE	COUNTRY
TG	NA	7	Guatemala
TI	NA	7	Costa Rica
TI9	NA	7	Cocos Island
TJ	AF	36	Cameroon
TK	EU	15	Corsica
TL	AF	36	Central Africa
TN	AF	36	Congo
TR	AF	36	Gabon
TT	AF	36	Chad
TU	AF	35	Ivory Coast
TY	AF	35	Benin
TZ	AF	35	Mali
UA1-6	EU	16	Eu R.S.F.S.R.
UA1	EU	40	Franz Josef Land
UA2	EU	15	Kaliningradsk
UA9-ϕ			As. R.S.F.S.R.
UB	EU	16	Ukraine
UC	EU	16	White R.S.S.R.
UD	AS	21	Azerbaijan
UF	AS	21	Georgia
UG	AS	21	Armenia
UH	AS	17	Turkoman
UI	AS	17	Uzbek
UJ	AS	17	Tadzhik
UL	AS	17	Kazakh
UM	AS	17	Kirghiz
UO	EU	16	Moldavia
UP	EU	15	Lithuania
UQ	EU	15	Latvia
UR	EU	15	Estonia
V2	NA	8	Antigua and Barbuda
V3	NA	7	Belize
V4	NA	8	St. Christopher
V8	OC	28	Brunei
VE	NA	1,2, 3,4,5	Canada
VK	OC	29,30	Australia
VK9L	OC	30	Lord Howe Island
VK9M	OC	30	Mellish Reef
VK9N	OC	32	Norfolk Island
VK9W	OC	30	Willis Islands
VK9X	OC	29	Christmas Island
VK9Y	OC	29	Cocos Island
VKϕ	AF	39	Heard Island
VKϕ	OC	30	Macquarie Island
VP2E	NA	8	Anguilla
VP2M	NA	8	Montserrat
VP2V	NA	8	British Virgin Islands
VP5	NA	8	Turks and Caicos Is.
VP8	SA	13	Falkland Islands
VP8	SA	13	South Georgia Is.
VP8	SA	13	South Orkney Is.
VP8	SA	13	South Sandwich Is.
VP8	SA	13	South Shetland Is.
VP9	NA	5	Bermuda

PREFIX	CONT	ZONE	COUNTRY
VQ9	AF	39	Chagos Island
VR6	OC	32	Pitcairn Island
VS6	AS	24	Hong Kong
VU	AS	22	India
VU7	AS	26	Andaman And Nicobar
VU7	AS	22	Laccadive Islands
XE	NA	6	Mexico
XF4	NA	6	Revilla Gigedo Is.
XT	AF	35	Burkina Faso
XU	AS	26	Kampuchea
XV	AS	26	Vietnam
XW	AS	26	Laos
XX9	AS	24	Macao
XZ	AS	26	Burma
Y2-9	EU	14	East Germany
YA	AS	21	Afghanistan
YB	OC	28	Indonesia
YI	AS	21	Iraq
YJ	OC	32	Vanuatu
YK	AS	20	Syria
YN	NA	7	Nicaragua
YO	EU	20	Romania
YS	NA	7	El Salvador
YU	EU	15	Yugoslavia
YV	SA	9	Venezuela
YVϕ	NA	8	Aves Island
Z2	AF	38	Zimbabwe
ZA	EU	15	Albania
ZB2	EU	14	Gibraltar
ZC4	AS	20	British Cyprus
ZD7	AF	36	St. Helena
ZD8	AF	36	Ascension
ZD9	AF	38	Gough Island
ZF	NA	8	Cayman Islands
ZK1	OC	32	Southern Cook Is.
ZK1	OC	32	Northern Cook Is.
ZK2	OC	32	Niue
ZK3	OC	31	Tokelau Islands
ZL	OC	32	New Zealand
ZL7	OC	32	Chatham Island
ZL8	OC	32	Kermadec Islands
ZL9	OC	32	Campbell Island
ZP	SA	11	Paraguay
ZS	AF	38	South Africa
ZS2M	AF	38	Marion Island
ZS3	AF	38	Namibia
1AϕKM	EU	15	Sov. Mil. Order of Malta
1S	AS	26	Spratly Island
3A	EU	14	Monaco
3B6-7	AF	39	Agalega, St. Brandon
3B8	AF	39	Mauritius
3B9	AF	39	Rodriguez Island
3C	AF	36	Equatorial Guinea
3Cϕ	AF	36	Pagalu Island
3D2	OC	32	Fiji

PREFIX	CONT	ZONE	COUNTRY
3D6	AF	38	Swaziland
3V	AF	33	Tunisia
3X	AF	35	Guinea
3Y	AF	38	Bouvet Island
3Y	SA	12	Peter I Island
4S	AS	22	Sri Lanka
4U1ITU	EU	14	I.T.U., Geneva
4U1UN	NA	5	U.N., New York
4W	AS	21	Yemen
4X,4Z	AS	20	Israel
5A	AF	34	Libya
5B	AS	20	Cyprus
5H	AF	37	Tanzania
5N	AF	35	Nigeria
5R	AF	39	Madagascar
5T	AF	35	Mauritania
5U	AF	35	Niger
5V	AF	35	Togo
5W	OC	32	Western Samoa
5X	AF	37	Uganda
5Z	AF	37	Kenya
6W	AF	35	Senegal
6Y	NA	8	Jamaica
7O	AS	21,37	South Yemen
7P	AF	38	Lesotho
7Q	AF	37	Malawi
7X	AF	33	Algeria
8P	NA	8	Barbados
8Q	AS. AF	22. 39	Maldives
8R	SA	9	Guyana
9G	AF	35	Ghana
9H	EU	15	Malta
9J	AF	36	Zambia
9K	AS	21	Kuwait
9L	AF	35	Sierra Leone
9M2	AS	28	West Malaysia
9M6-8	OC	28	East Malaysia
9N	AS	22	Nepal
9Q	AF	36	Zaire
9U	AF	36	Burundi
9V	AS	28	Singapore
9X	AF	36	Rwanda
9Y	SA	9	Trinidad and Tobago
			Antarctica

·CQ DX·CQ DX·

Paul Cooper VE3JLP, RR 2 Metcalfe, Ontario K0A 2P0

MELLISH REEF

The big DX news this week, as I type this column in early January, has been the Mellish Reef DXpedition, VK9ZM. This desolate spot is some 600 miles east of Townsville, Queensland, and consists of numerous sand bars and cays and an elongated reef that encloses a shallow lagoon. It is almost totally submerged when the sea is above the half-tide point.

At high tide the only part remaining above water is a tiny sand cay, Herald's Beacon Islet, which is about 60 by 300 metres in size and only two metres above sea level. There is no foliage or natural shelter there and the only life on the islet is the nocturnal crab. Remembering that this is high summer in the southern hemisphere, one can imagine the difficult conditions under which the DXpedition is operating.

Mellish Reef is counted pretty rare, as there has not been an operation from the reef since 1984. Here in Eastern Ontario, I found the DXpedition difficult to spot. Early in their stay I found them on 10 metre phone, a very weak signal working a massive pile-up of mostly U.S. stations. I tried for half an hour but couldn't get through. *QRZ DX* had published the frequencies they were planning to use, so, day after day, I checked these each time the propagation reports in *CQ Magazine* showed an opening to Australia.

For once I was pretty well-organized; I even got up in the middle of the night three or four times to find the bands full of ZLs and VKs working Europe, but no sign of the elusive VK9ZM. I'd almost given up hope when a phone call from Ron VE3VN on Jan. 14 tipped me off that they were on 28.020 at that very moment and Ron had just worked them. I rushed up to the shack and five minutes later they were in the log. It was mostly good luck as there was quite a pile-up spread over 10 or 15 kHz and I couldn't find the last station worked. I just chose a frequency to call on and hoped for the best.

My spies tell me the group will shortly activate Willis Island VK9ZW, not quite such a rare one, so I shall be checking those frequencies again in the hope of snagging another new one.

QSL routes for those of you who worked them: VK9ZM via NM2L; VK9ZW via VE3CPU.

TOP BAND POSTSCRIPT

After writing a column on Top Band in the December issue of *The Canadian Amateur*, I wasn't too surprised to get a long letter from a West Coast Amateur who I know spends most of his time, with considerable success, on 160 metres. I'm talking of Bob Eldridge VE7BS, who has written to me several times since I started this column. His letters are always interesting; one of his other enthusiasms is using a computer in the ham shack. He has sent me several fine programs. Bob raises a number of interesting points which I thought I should pass on to readers.

He challenges my comments on Beveridge receiving antennas. I suggested that the longer they were, the better. He points out that since the signal travelling along the antenna wire is moving slower than the signal in free space, there is a length of Beveridge, for a particular frequency, where the signals cancel out at the antenna feed point! My limited research on the Beveridge confirms this problem, however it seems to me that if one goes beyond this point in length, the signals should start to combine and one might then also be getting an enhanced pattern and perhaps even higher gain as the length increased. (This is certainly true of a simple long wire antenna.)

The *ARRL Antenna Handbook*, my edition anyway, does not devote much space to the subject but does say, "It need be only one wavelength long to be effective..." The diagram they include of a typical antenna shows the length to be "one or more wavelengths long". To all this I add my limited personal experience as a Radio Mechanic in Royal Signals. I clearly remember building a Beveridge antenna in an extreme hurry so that our operators could continue to monitor a distant station which normally lost propagation to our site early in the evening. It would have been operating somewhere in the HF band between perhaps 4 and 20 MHz and we built an antenna that was at least 2000 feet long! It worked very well, by the way, so we didn't lose any more traffic from that one.

Bob's own Beveridge is 250 feet long aimed at VK and he has logged about 200(!) different VKs on it on 160 metres. He mentions that it works beautifully on 80 metres where it is about one wavelength long. He adds that he lives in the country and most of his antennas are hung from trees.

On the transmitting side, Bob has a number of examples of extremely modest antennas. I'll quote from his letter:

"Some of the VKs worked were using transmitter antennas 10 feet off the ground, 21-foot vertical Butternuts, one was mobile and one was using a nine-foot whip mounted on the garden fence. One was using 10 watts and I talked with him on SSB using 25 watts at my end. Most of these VKs were worked during our summer, usually from half an hour before sunrise to 20 minutes after sunrise. The best summer in recent

Continued on next page ►

No longer a rarity, a card from mainland China is still DX in my book!

years was 1985, when there were only about six days between May and September when there was not a VE7-VK path."

A MEDAL FOR MEMORY?

Now and then one gets a little shock from something the other man sends at the beginning of a QSO. I'm thinking of my brief contact with Dov 4Z4DX on 20 metre CW a few days ago. He was working a small pile-up and was just sending signal reports and his name so I gave him a call. Back he came with "VE3JLP DE 4Z4DX GE PAUL UR RST 579 NAME DOV BK." He did exactly the same with the next station he worked, W9MYG, also addressing him by name on his first transmission!

I thought either this man is clairvoyant or he has a really effective computerized logging program that spits out names as soon as he enters the call sign... always assuming he has worked the station before. We should all be so well-equipped!

COOPER'S BEEFS

Those of us who spend a lot of time operating CW have some unique crosses to bear. The ones I'm thinking of today are not catastrophes but rather nuisances that slow things down a bit when we are trying to decide who is out there and if we want to work them. If you are like me, you spend a lot of time cruising up and down the band checking each transmission to see if it is something interesting.

The easiest transmission to check is the fellow who is sending CQ properly, in other words he is sending his call sign at least as many times as he sends the two letters 'CQ'. Also, he goes back and forth, three CQs then his call sign three or four times then three CQs again and so on. This is one of the more obvious ways to send CQ, isn't it?

I shouldn't need to belabour the point. However, there seems to be hardly a day when I don't hear some long-winded person who sends the letters 'CQ' again and again and again, sometimes for 30 seconds or more, before he finally sends his call sign. It can't be said too often that a call sign sent more than twice is an almost sure tip-off that the station is calling CQ.

Most of the other transmissions we tune across are stations in the middle of a QSO and here we usually have to wait until they hand over to the other station to find out who is working who. There are several problems here, but the one I want to highlight is the station who finally sends his call *without* sticking the usual 'de' in front of it. Now I know we can usually work out what the call sign is but, for my money, this is sloppy operating. It just makes things that little bit more difficult for those of us checking who is out there. Sad to say, often many of the culprits here are our friends south of the border. Another annoying habit which started only a couple of years ago is that once the QSO has begun they never send the other station's call sign when handing over. Quite legal, I believe, but another minor irritant to those of us looking for DX.

The last minor beef I want to mention is the fellow sending CQ who runs his call sign together, no word gap between repetitions. This is not a problem if you tune across his transmission and catch the beginning of a 'de ##########...' sequence, but how about the time you find him in the middle of sending his call three or four times, all of it run together, and then perhaps he is sending just a bit faster than you can comfortably copy! Confusion City, as one of my daughters is wont to say!

BITS AND PIECES

Rotuma— The ARRL has just announced that Rotuma, an island some 285 statute miles North-Northwest of Fiji, satisfies the requirements of the new DXCC rules, point 2(a) and hence will be counted as a new DXCC country. The recent 3D2XX operation will be accepted for DXCC credit but you are asked not to send any cards until ARRL announces it is ready. This ruling now opens the door to further applications for separate country status for other island groups. The Marquesas and Tubia Groups in French Polynesia are likely candidates.

UA1, Franz Joseph Land— Activity from this separate DXCC 'country' seems to be on the increase. I worked UA0BEZ/UA10 on Dec. 21 on 14.002 at 2213. QSLs via RA3YA. *QRZ DX* also reports the following stations active:
UA1OT QSL via UB5KW
UA1OIL QSL via UA9MA
UA0BDU/UA1O QSL via UA4HCU

Also reported as being very active on 21.300 and 21.011 MHz at 2000-2130 is UW3CC/UA1P. This call sign has also been logged as UV3CC/UA1P (somebody's code needs polishing!). No known QSL route yet.

4W, Yemen— The Lynx DX group is trying again to activate 4W0EA. They warn that they will only be able to give a short notice of the operation if they are successful in getting permission. *QRZ DX*, quoting *DXPRESS*, talks of another DXpedition, this time mounted by a Dutch Amateur, which they feel is quite likely to come off. There are not many details except that he will be operating only on 20 metres, CW and SSB. If you come across a massive 20 metre pile-up on someone signing 4W, it could very well be genuine.

Thanks are due to the following sources for some of the material appearing in this column: 'Amateur Radio Action', *QRZ DX*, VE3VN, VE7AHB (for an Envoypost Message on VK9ZM, tnx Hoppy!), *DXPRESS*, VE3NQI and VE7BS. ■

BAND REPORTS

Thanks again to Fergus VE3NQI for these log extracts.

CALL	FREQ(MHz)	UTC	DATE	NAME	QSL via
3DA0AH	28.508	1500	11/5/88	Jeff	LA2TO
ZK2AA	28.562	1900	11/6/88	Vili	OH2BAZ
P29SR	21.298	0115	11/12/88	Randy	WB6IOQ
JY7DL	28.543	1512	11/13/88	Samir	
4K0D	14.032	0151	11/14/88	Vic	VE3CDZX
5V7WD	14.181	0631	11/15/88		WB4LFM
TA3D	28.535	1510	11/16/88	Yasar	Box 384
CN2AQ	28.533	1100	11/17/88	Sjoerd	Buro or Dir
9H1FBS	28.575	1325	11/18/88	Charles	N5APW
4S7TP	14.003	0144	11/19/88	Pel	Buro or Dir
KC6TO	28.030	2211	11/22/88	(E. Carolines)	KX6DS
XF1C	28.025	1458	12/1/88	Ben	WB6JMS
9J2KF	14.008	2303	12/4/88		JE2CXR
C53GS	14.013	0011	12/5/88	Ern	Bag 274, Serekunda, GAMBIA.
XT9T*	21.004	2145	12/6/88		RA9YD

* *QRZ DX* reports that this may have been a bogus operation! However, the operator, thought to be UN4NCL, may be meeting RA9YD on his return to the U.S.S.R., so there is a slim chance the operation took place. Fingers crossed for those who worked this station in Burkina Faso.

CROSSWAVES

Ralph Cameron VE3BBM, 30 St. Remy Drive, Nepean, Ontario K2J 1A3

Remarkable new radio receivers

MOTION DETECTORS

It was just a matter of time before the latest electronic gadget was nominated for the next edition of susceptible appliances in EMCAB 1, Issue 3. In fact, this Crosswaves can nominate three such devices this month. I wonder what will be next?

VE3BAD reports operation of his exterior motion sensor by VHF. He says that HF operation has no effect on it but as soon as he fired up his 25 watt 2M rig the infrared sensor diode burned out. The 2M rig was nothing special and the antenna used consisted of a simple ¼-wave whip mounted on his roof. The sensor/alarm system, Model EMS-220, is sold by Zellers, made in Korea and distributed by Carlon-Thyrocon of Telford, Pa. Owners of this sensor should notify CARF of any malfunction of this and similar infrared sensors related to operation of any Amateur transmitter.

The subject of diode sensors has arisen before with regard to fibre optic communications. It is well-established that fibre optic systems have much to commend them, but they used to suffer from shielding difficulties.

In one case in the Ottawa area, an infrared intrusion detector located in a neighbour's living room responded quite favourably to 20 SSB transmissions. The Amateur's station was located about 100 feet from the house. Inspection of the house alarm system wiring revealed long bundles of unshielded wires running throughout the house. There must have been 30 separate conductors all converging to a sealed steel box in the basement.

The offending motion detector was replaced by the alarm company and was of a type that had a smaller visible detection range. The alarm company appeared to know what radio energy would cause the sensor to react. The concern by law enforcement agencies about the frequency of faulty alarms may have some basis in the proximity of passing mobile transmitters.

MOTOR VEHICLES

A Ham friend of mine recently purchased a new Ford Tempo. On page 125 of the Owners Manual is the following caution:

"RADIOS— CAUTION— Use only properly installed FCC approved radio transmitting equipment. Use of other transmitting equipment may interfere with your vehicle's electrical system and may cause the engine to malfunction or stall."

Now all this is fine if you live in the U.S., but what about Canada? What will we do? In fact what will Hams do? None of our equipment is type-approved at the present time. From the standpoint of digital emissions coming from the vehicle itself, it will have to meet the recently-approved standard CSA108.8 which applies to all microprocessor controlled equipment.

MUNICIPAL HYDRO COMMISSION

A reported malfunction by a local hydro utility may add more cannon fodder to the plea for tighter mandatory controls over co-location of transmitters and motor vehicle controls.

In this instance a VHF antenna was moved (mag mount) to a different spot on the truck roof. Lo and behold, the electronic motor governor was stimulated to great activity— so much so that the highly revved engine soon overheated, melted the carburetor and caused about $7,000 engine damage. At least the malfunction was covered by warranty, but can you dream of the possible consequences in other situations? A full report of this incident will soon appear on these pages.

MEDICAL EQUIPMENT

It was not long ago that these Crosswaves alerted readers to potential problems with using VHF transmitters in hospitals. The particular incident(s) involved the malfunction of intravenous pumps. I am sorry to say that the authorities have never been able to duplicate the malfunction, which occurred on at least 20 occasions by one Amateur alone.

In the Barrhaven area, an area famous for its proximity to the National Capital Commission green pasture land and other well-nurtured RF fields we've noticed a new effect. A newly constructed medical clinic about ¾ km from the CHU transmitters began to notice what are called 'artifacts' or faulty graphic patterns on their ultrasound display. Ultrasound is a newer medical tool used in the investigation of what is happening beneath the surface of the skin. It makes use of piezoelectric crystal arrays, shaped into one or more manageable forms so that an operator may move the sensor over the surface of the body freely and so detect when the sensor energy emitted is reflected and detected. The detected signal is displayed on a CRT in a sector type or linear display.

The ultrasound principle utilizes the effect that greater resolution is obtained by higher frequencies. The units on the market today typically cover from 1 MHz to 5 MHz.

This particular clinic noticed that their ultrasound malfunctioned by displaying false information that interfered with the interpretation of the display. Some simple tests with Communications Canada present, and also not present, did help determine the cause of the malfunction.

The first test involved using a portable spectrum analyzer and receiver with built-in generator to confirm the frequency suspected. It was CHU on 3.333 MHz. The malfunction appeared as radial lines on the sector display, about 1/32 inch spacing. Much of the wanted display was viewable, but every time a time-tick occurred the radial display would appear. Quite disconcerting to the ultrasound operator who stated that this had been the best of FIVE other machines tried. One or more was absolutely useless.

Since the clinic was located below ground level, one could scarcely attribute the problem to direct radiation. In fact, at this distance there was a fair amount of RF ground current flowing. (NRC estimates it to be quite high within a 1 km radius.)

A toroid tried on the power cord did help somewhat, but it soon became obvious that the real culprit was the handheld transducer. Unknown to me, this transducer resonated at 3.5 MHz. All ultrasound transducers resonate somewhere between 1 and 5 MHz. Imagine a medical ultrasound unit next door to an Amateur using 75/80M.

Lest you think it would be a simple matter to place the ultrasound unit in an X-Ray shielded room, forget it. Lead doesn't make a very good shield for RF in this case. Our clinic brings in the X-Ray power supply via a cable placed against the baseboard of the shielded room. It only takes five seconds to

Continued on next page ➤

confirm that RF currents circulating in this cable totally wipe the ultrasound display when brought near the cable. A very good line filter used on the ultrasound in this location had very little effect on the displayed artifacts.

It was noted that the transducer cable was double shielded, whereas the plastic moulding for holding the sensor appeared very sensitive, especially when grasped in the hand. When suspending the sensor by its cable, the artifacts almost went away.

It is clear that the plastic moulding needs the improvement of better shiedling. Because of the medical and safety considerations, any modifications of this type equipment is best left to the manufacturer, who will be faced with having approval for safe operation verified by those competent to do so.

In this case it will probably be necessary to not only shield the transducer much better, but arrange the examination table so that RF potential between patient and machine is practically zero. It may be quite difficult to achieve full sensitivity of the ultrasound machine under such circumstances. This is a case of reradiation from electrical cables which effectively carry the energy to all electrical outlets. A difficult problem to fully suppress the equipment.

EMSIM-EMI SOFTWARE

Not too long ago mention was made of a new tool being used by Bell Northern Research in designing printed circuit boards for higher immunity and conversely lower emissions.

Bell Northern Research is using a software program called EMSIM for electromagnetic simulators. This promising software has been integrated into a computer-aided design package so that engineers can now see the effects of densely populated PCBs. EMSIM assists the circuit designer in predicting and optimizing acceptable levels of radiation from a new board design.

The graphic display of program output on a colour monitor is quite dramatic because it enables the circuit designer to immediately spot the board areas that have the highest density of emission. According to the developer, Bell Northern Research Product Development, intervals are reduced and quality of product is much improved.

The development of EMSIM is symptomatic of statements made previously in this column, that is, the problems of EMI will never be addressed properly by a regulatory body until the emitting devices cause themselves to malfunction or a technically susceptible environment is created for this to occur. It is only then that savings from designs such as those created by an EMSIM approach accrue to those technically 'smart'. We need more such approaches, especially in the household. ■

HANDY HINTS AND IMMUTABLE LAWS FOR ANTENNA BUILDERS

Never climb a tree you can't get down if the ladder vanishes.

Never assume an RF path is cold unless you have checked it— with someone else's finger.

No matter how much wire appears to be on the spool, it is always at least 3" too short.

No matter how many trees you have, they are not in the right places... or, if they are in the right places, they won't be big enough for another 50 years.

Anything will work as an antenna to some extent, but nothing works as well as it should.

You can change ionospheric propagation paths— if you build a V-Beam or Rhombic for a particular path, the path will move at least 20° by the time you fire up.

— *Amateur Radio Australia*

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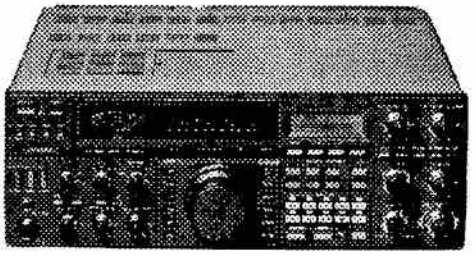

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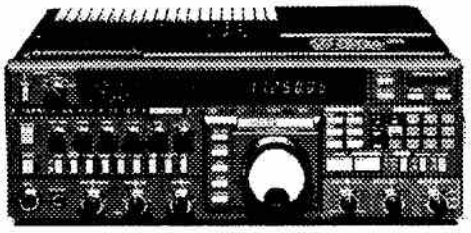

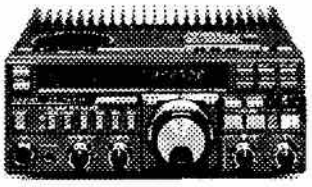

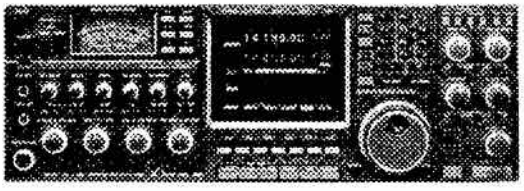

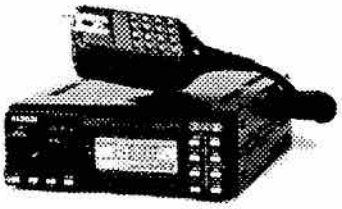

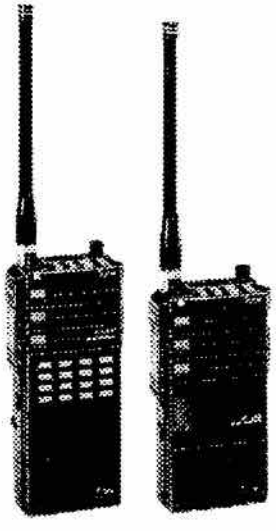

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Listening To The World

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

It appears that the solar gods have looked favourably on the radio monitor in 1989. Reception conditions have been improving greatly in the new year, opening up reception to countries and stations around the world on shortwave which have been 'missing in action' for the past few years. In particular, at least here in Eastern Canada, reception has been very good from the sub-continent and the Far East, with many stations being heard from exotic places like Thailand, Bangladesh, Vietnam, Kampuchea and Korea. I hope that you are also able to log these rare catches while conditions are good.

COUNTRY OF THE MONTH

I'd like to focus on the land down under this month, Australia, and their international service, Radio Australia. Unfortunately, due to budget cuts, Radio Australia does not have a service beamed directly to North America, but that certainly doesn't stop us from listening to their broadcasts. In fact, Radio Australia has been one of the more reliable signals on the shortwave bands here in North America over the last few years.

First, here is a little background into the station. Radio Australia has been a successful international broadcaster putting forth its programming in a rather informal style, easy going but informative, much like the Aussies themselves. The programming features news of the Far East and the Pacific. They also have a number of features on sports including cricket, field hockey and tennis. They also air one of the more popular DX programs on the air today, *Communicator*. More on that program in my feature on DX programs later in this column.

Radio Australia's Overseas Service operates 24-hours-a-day in English. They also broadcast in eight other foreign languages around the clock, including French, Japanese and Chinese. Radio Australia began as 'Australia Calling' in 1939 as a joint operation of the Australia Broadcasting Commission and the Department of Information.

Radio Australia as it is today came into being after World War II when it was taken over by the Australian Broadcasting Corporation. New studios were constructed in Melbourne in 1982. The station employs over 170 people.

Who listens to Radio Australia? Well, they estimate over 30 million listeners in Indonesia alone! They also have large audiences throughout the Pacific region where powerful stations with reliable sources of news and information are scarce. Also Japan and China make up a large part of the Radio Australia listening audience.

Radio Australia covers the world with transmitters in Shepparton, Carnarvon and Darwin. Fortunately, North America has been able to eavesdrop on transmissions of Radio Australia directed to the Pacific and Papua New Guinea for years now. Every morning for close to seven straight hours, the sounds of *Waltzing Matilda* and the Kookabura bird, the signature tunes of Radio Australia, can be heard with usually remarkable regularity on one frequency in particular 9580 kHz in the 31 metre band. You can try tuning in from 0800 UTC straight through to 1500 UTC in some areas, that is 3 a.m. to 10 a.m. Local Eastern Time in North America.

Radio Australia enjoys hearing from their listeners, particularly in North America. You can write to the station with your comments and reception reports at: Radio Australia, P.O. Box 428G, G.P.O. Melbourne, 3001, Australia.

PROGRAMS FOR THE RADIO HOBBYIST

With the wide variety of programming available to the radio monitor on shortwave, one type of program remains one of the most popular with listeners... that is the DX or SWL program. These programs are aimed at the hobbyists in the audience, supplying the listeners with information on DX news, receiver reviews, club activities and general news of communications around the world. Many stations carry these programs at various times throughout their schedules. I would like to pass along the names of a few of the more popular programs on the air. I hope you will tune them in. I am sure you will find them to be interesting and informative.

WORLD OF RADIO

This weekly ½-hour program is aired on WRNO Worldwide, New Orleans. The program is produced and presented by world-renowned DXer Glenn Hauser. In my opinion, this is one of the most informative programs about our hobby anywhere on the air. Glenn packs more material into a half-hour broadcast than *Entertainment Tonight!* This program is a must for the radio hobbyist who wants to be on top of what's happening in radio. The program is aired several times a week on WRNO. Check Fridays at 0000 UTC on 7355 kHz; Fridays at 0130 UTC on 7355 kHz; Saturdays at 0400 UTC on 6185 kHz; Sundays at 0030 UTC on 7355 kHz; and Sundays at 2130 UTC on 13760 kHz.

SWL DIGEST

This weekly ½-hour broadcast is one of the most listened to programs around the world originating from our own Radio Canada International. The program is produced and hosted by Ian McFarland, one of the most popular broadcasters in the world today. The program features weekly reports from various experts in different fields of the radio world, incorporating equipment reviews, listening tips, club and publication reviews, as well as weekly DX Tips from Glenn Hauser.

You can catch the *SWL Digest* on the following: Saturdays at 2137 UTC on 15150 and 17820 kHz; Saturdays and 2208 UTC on 9760 and 11945 kHz; Sundays at 0108 UTC on 5960 and 9755 kHz; Sundays at 0130 UTC on 9535, 118454 and 11940 kHz; Sundays at 2307 UTC on 9755 and 11730 kHz; and Tuesdays at 1330 UTC on 9635 and 11855 kHz.

COMMUNICATOR

Another weekly ½-hour broadcast... this one from Radio Australia. This is a look at communications around the world with an emphasis on the South Pacific. One of the most important features of this program is the weekly propagation forecasts from Mike Bird, helpful in planning out your listening for the week ahead. Tune in on Sundays at 0730 UTC on 9655 kHz and at 1230 UTC on 6060 and 9580 kHz.

DX PARTY LINE/ HAM RADIO TODAY

This program can be heard on the HCJB— The Voice of the Andes from Quito, Ecuador numerous times each week. This program alternates formats with special features for Amateurs as well as the SWL/DXers in the audience. The Tuesday/Wednesday time slots usually feature *Ham Radio Today*. Sundays, Tuesdays and Thursdays at 0230 UTC on 9720, 11775 and 15115 kHz and 0630 UTC on 6230, 9720 and 11775 kHz; Mondays, Wednesdays and Saturdays at 2130 UTC on 15270 and 17790, at 0800 UTC on 6130, 9745 kHz (Saturdays only add 9610 and 11835 kHz and 1030 UTC on 9745 kHz).

MEDIA NETWORK

This weekly program hosted by Jonathan Marks is aired over Radio Nederlands and is also in a communications magazine format. It keeps you

up-to-date on broadcasting around the world with particular emphasis on Europe. Tune in Thursdays at 1630 UTC on 6020 and 15180 kHz; or 1850 UTC on 17605, 21685 and 15180 kHz; again at 2050 UTC on 9715 kHz; Fridays at 0250 UTC on 6020, 9895, 6165 and 9590 kHz; and at 0550 on 6165 and 9715 kHz.

SWEDEN CALLING DXERS

Aired weekly on Radio Sweden, this program features a variety of information with many DX tips. This program also produces a DX bulletin of DX tips, station schedules and radio information. The bulletin can be obtained by listeners who send in media news to Radio Sweden. You are automatically placed on the mailing list for one year. Tips can be sent to program producer George Wood at Swedish Telex 11738, Telefax +46-8-667-6283, to CompuServe (Easyplex 70247,3516) through the FidoNet system to 2:501/297 or to SM0IIN on the packet radio BBS SK0TM.

The electronic edition of the bulletin is carried every week on the CompuServe HamNet Forum, the Pinelands BBS and other telephone-based and packet radio computer bulletin boards. You can catch the audio version of *Sweden Calling DXers* Tuesdays at 1414 UTC on 15390 and 15345 kHz, and Wednesdays at 0244 UTC on 9695 and 11705 kHz.

These are just a few of the more popular DX/SWL programs available to the listener on shortwave. There are many others including *Shortwave Panorama* from Radio Austria, *The DX Corner* from Radio Japan, *The Swiss Shortwave Merry-Go-Round* on Swiss Radio International, *Communications World* on the Voice of America and *Media Watch* on the BBS from England. If you would like a complete listing of times and frequencies of these DX program broadcasts, just drop me a self-addressed, stamped envelope and I'll get you off a copy.

These programs, in my opinion, are some of the best ways to stay on top of the ever-changing world of shortwave radio monitoring. Tune them in, I'm sure you'll become a regular listener to many of them. I'd like to hear from more of you with your comments on this column. The relationship between the Amateur and the SWL is growing, but I need to know what interests you. If you would like me to focus on a particular station or country, or discuss a particular area of the monitoring hobby, please let me know.

I would be interested in knowing your experiences with shortwave monitoring: how you got involved, what you listen to and what equipment you are using. Also, don't forget you can receive an information package for $2 about shortwave monitoring and the Canadian International DX Club by writing to me. Good listening and 73's until next time. ■

HANDY HINTS AND IMMUTABLE LAWS FOR ANTENNA BUILDERS

The impedance of any new antenna is always outside the range of your tuning unit.

Breaking strain of a wire is easily determined; it is always 10 kg less than the minumum required to get up in the air.

By reference to handbooks you can always prove that no useful antenna can be made from the material you have on hand.

—Amateur Radio Australia

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.

ARES AMATEUR RADIO EMERGENCY SERVICE

Bob Boyd VE3SV, P.O. Box 356, Kingston, Ontario K7L 4W2

This month we'll describe some of the organizations and their facilities which exist in the province of Alberta. This province is no stranger to major disasters, one of the most recent of which was the savage tornado that caused so much death and destruction in Edmonton on July 31, 1988.

Alberta Public Safety Services has the responsibility for emergency planning in the province. It is a gung-ho organization, so Alberta is well-equipped to deal with disasters. APSS is well aware of the contribution that Amateurs can make, and they paid a fine tribute to the Alberta Amateur Radio Emergency Service in the Summer 1988 issue of their Disaster Services News and Notes. The issue also has an excellent photo of Bill Gillespie VE6ABC at the controls of emergency stations VE6ACD/VE6GOC, at their headquarters in Edmonton. (We'll provide some details on this station and on VE3GOC in Ottawa, in a later column).

The close collaboration between APSS and ARES was formalized in a 'Memorandum of Understanding' between the two organizations. It was signed on behalf of the Amateur Group in September, 1983 by Bill VE6ABC, who was in the forefront of the negotiations. Are there any other provinces with a similar documented and executed understanding?

CALGARY

In Calgary and surroundings, the ARES group of the Calgary Amateur Radio Association has some 60 registered members. They work closely with APSS and are now helping to create a complete Provincial Emergency Plan which, when finalized, will supplement the Memorandum of Understanding. Ken Oelke VE6AFO, the Alberta SEC and Calgary Area EC, reports they have the following facilities available for instant use in an emergency: two portable crank-up towers on trailers, six 1000 watt portable and one 3500 watt trailer mounted generators, two portable and two fixed VHF repeaters equipped with battery power. They also have access to the Calgary ARA's packet facilities.

The Calgary ARES net is held every Thursday evening on repeater VE6RYC with an average of 15 to 20 check-ins.

CAMROSE

George McIver VE6AMM is EC for Camrose, Alberta and surrounding area. His 15-man group works closely with the City of Camrose Emergency Group and is included in the city's Emergency Plan. The group has an emergency net every Wednesday evening with around eight check-ins. It also participates in the Alberta ARES net which meets every Sunday morning with 30 to 40 check-ins. George is the NCS for the net. This winter their club, the Rose City ARC, is setting up a station with emergency power supply in one of the city buildings, for emergency use.

RED DEER

Garry Jacobs VE6CIA is EC for Red Deer and surroundings in central Alberta. His 25-member group works closely with the APSS and the RCMP. The group has a net each Monday evening on repeater VE6QE, with an average of 14 check-ins.

In a joint project, the APSS, the County of Red Deer and the Central Alberta Radio League have created an excellent mobile command and communications facility known as Unit 901. We asked Garry about it and he replied:

"Unit 901 began life as a city transit bus. It contains a large operating area behind the driver's seat with seating for about ten people. Behind the console are four bunk beds and a propane furnace across from the beds. A countertop extends from there to the rear, where a complete kitchen and bathroom occupy the area to the back door which opens wide enough to allow a stretcher to enter. Mounted on the back is a 40-foot crank-up tower which folds over and nests on the roof until needed. Also at the rear is the 4 kW AC power plant, so we have power at any location.

"Radios are powered by 112 AH shelf storage cells, separate from the engine batteries. Radios consist of a Kenwood TR-7625 2 Metre transceiver, a TAD M8 VHF all-band transceiver, and a Yaesu FT-757GX, complete with antenna tuner and power supply. The 30 A regulated power supply is used to float the batteries.

"Up top here is an Omni VHF base station antenna, wide-band VHF dipoles and two 5/8 wave mobile antennas. HF is covered with an all-band trapped inverted V and a Hustler mobile vertical with several loading coils. In times of disaster, access to all modes of communication may be needed and we are therefore equipped for 11 Metres as well.

"Our unit is used for disaster exercises in Red Deer and nearby towns as well as for registration headquarters for our annual ham picnic and mall displays promoting Amateur radio. It was used as a main communications headquarters in Edmonon during the 1984 Papal visit. It is always ready to spring into action, although we always hope it will never have to."

NORTH WEST/PEACE AREA

The ARES group for the North West/Peace area of Alberta has some 25 members. Their EC is Mike Lett VE6XD, who is located in Wembley. Their emergency 2 Metre net meets every Tuesday with 10 to 20 check-ins. They have a long range repeater with battery backup, and a number of portable emergency generators dispersed around their area. They are just getting started with joint exercises with the Municipal Emergency Services, but have had considerable experience in providing communications for various community events.

We tip our hat to the VE6's who have taken their community responsibilities so seriously and responded so effectively. We wonder how many other provinces can match them. Remember, IT CAN HAPPEN HERE! ■

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. Yours truly will pull this together in future columns, all with the objective of increasing our collective ability to serve our community and our nation, should disaster strike.*

DATES TO REMEMBER

Jan. 10, 1987— While Easterners are digging out of yet another snowstorm, Calgarians were mowing their lawns, riding their bikes and sunning themselves in outdoor cafés. Calgary's temperature soared to 17° about 2° higher than at Las Vegas. Skiers— that is snow skiers— were lamenting the July weather.

Courtesy of the Canadian Weather Trivia Calendar. These calendars and the 'all-together weather' magazine, Weather Flashes *are available from your local Canadian Government Publishing Centre. Call CARF HQ for the closest address to you... Ed.*

LOOKING AROUND

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

Several years ago I became fed up with having to use two or more power supplies when playing around with linear and digital integrated circuits, so I designed and built a bench power box to provide the required, regulated DC voltages. Other features were added and the box now provides +12, -12, +5 VDC up to a maximum of 500 mAs total current; meters the 12 and 5 VDC output currents, with meter input capable of being switched to panel jacks; supplies 1.0V, pk-pk square waves, 1000 Hz, for scope calibration, etc., and is housed in a Hammond Utility Case, No. 1515C, 6"x5"x4".

The power supply, see Fig. 1, uses a Hammond filament transformer No. 166G50 rated at 50 VAC, centre-tapped, 500 mAs current, connected through a ½ amp fuse and Power On-Off switch to a short power lead ending in a U-ground AC plug. The centre tap of the transformer is grounded to the chassis with hot leads powering a 1 amp bridge rectifier.

The negative output from the bridge rectifier feeds a 1 amp, 3-terminal negative 12 VDC voltage regulator IC (type 7912) that, with associated capacitors and resistors, provides the -12 VDC output. Note that all voltage outputs are against the chassis (hydro) ground— they do not float.

The positive output feeds a 1 amp, 3-terminal, positive 12 VDC voltage regulator that provides the +12 VDC output. Also, from its output, and through an isolating 1 amp silicon rectifier diode (50V or higher rating), is fed a 1 amp, 3-terminal positive 5 VDC voltage regulator that provides the +5 VDC output and powers a pilot bulb and LED indicator.

The two plus voltages are fed to their respective panel jack outputs through a meter switching circuit (see Fig. 2) that employs a 250 mA panel meter for indication of current output. A 'times 2' shunt (0.3 ohms) can be switched across the meter terminals to give a maximum of 500 mA indication.

COURTING RULES FOR AMATEURS

If she wants a date- METER
If she's too fat- CONDENSER
If she's hungry- FEEDER
If she's an angel- TRANSFORMER
If she's cold- INSULATOR
If she's bored- EXCITER
If she wants to marry- RESISTOR
If she's a devil- CONVERTER
If you have two girls- ALTERNATOR
If she's tired- TAKE HER OHM

The front panel of the case contains the meter, the toggle 'times 2' and a 4-pole, 2-position, rotary switch meter terminals between the 12 and 5 VDC outputs. The top panel contains two 5-way binding posts that are connected to the meter terminals through a DPDT toggle switch, which switches the meter between the voltage outputs or the binding posts so the meter can be used to read current in an external circuit. It also includes the ON/OFF switch and the output terminal (single contact microphone jack) for the calibration oscillator.

The left hand panel contains the ON/OFF power switch, fuse holder and pilot ON indicator and right hand panel, the three 5-way binding posts for the +12, ground and -12 VDC outputs, the two 5-way binding posts for the +5 VDC and ground outputs and the LED indicator. Note that the pilot shows that the -12 VDC circuit and the LED, the +12 and +5 VDC circuits, are functioning.

The electronic circuitry of the power supply is mounted on a small piece of Vero Board mounted, on spacers, on the inside bottom of the case. Details of the calibration oscillator will be given in a future column. All components can be readily obtained through electronic suppliers with a suitable meter found at flea markets, or in your own, or a friend's, junk box.

Future columns will include a rundown on the design of power supplies, of voltage regulator circuits, and the use of 3-terminal regulators. ■

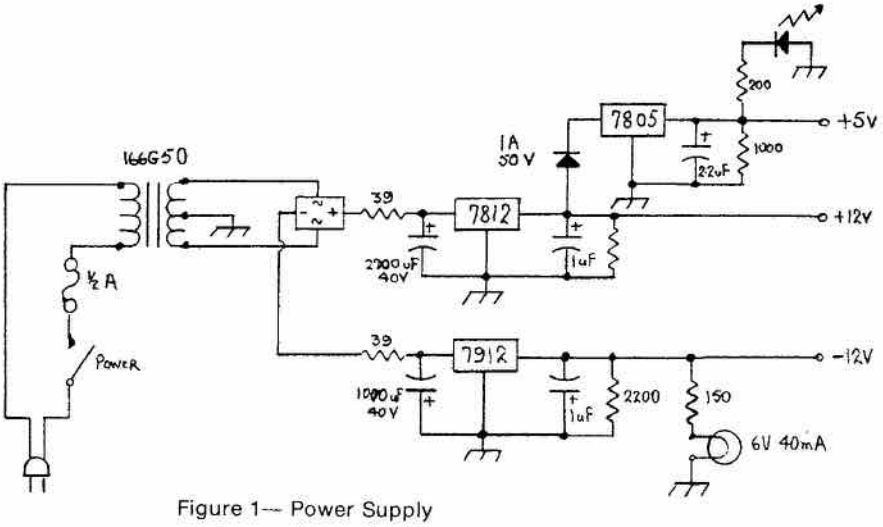


Figure 1— Power Supply

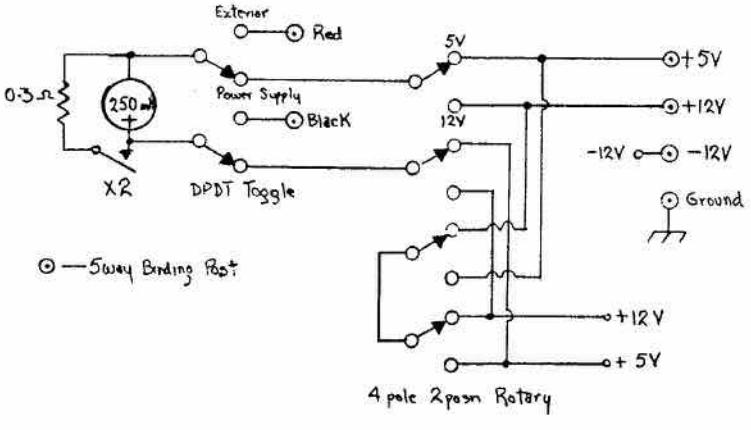


Figure 2— Meter Switching

VE3AHU

International Amateur Radio Network

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

GLASNOST VI AMATEUR RADIO PART II

Last month I reported the work we were doing with emergency traffic in Soviet Armenia. This work continues to the present writing and now there has been another earthquake in Tadzhikistan, 1600 km due east of Yerevan, the Capital of Soviet Armenia. The IARN is back in mode 2 or full activation around the clock with our daily broadcast moved to 14.265 MHz. All this while our own Chuck Sheffer KJ4TY is back in the Soviet Union, having arrived there on Jan. 20, 1989.

Did I say back in the Soviet Union? You read that correctly. To continue our exciting ham radio story of incredible international diplomacy, you will remember that both KJ4TY and W9ELR were sent home from Moscow a few days after they first went. The Soviets then had a change of heart and invited us back. There were quite a few apparent flip flops of position, but essentially we worked out an arrangement far exceeding our wildest expectations.

On Jan. 3, 1989 I appointed Victor Goncharsky UB5WE as IARN Soviet Director. He accepted right away and has been doing a great job, taking the bull by the horns. Equipment being held up in Moscow has been shipped to Yerevan, and Victor, armed with the authority he needed from both IARN and his own government, is bringing the feuding ham radio related factions in the Soviet Union together.

Chuck Sheffer took with him letters of introduction for himself and for Victor which spell out Victor's far-ranging authority as IARN Director and Chuck's role as an advisor to Victor and Ambassador representing IARN World Headquarters in the U.S.

Victor and Chuck met in Moscow on Jan. 21, and an initial meeting was held with Victor UB5WE, Leonid Labutin UA3CR (the Canadian Ski Trek co-ordinator), Andrey Federof RW3AH (official Government Amateur station EO1) and Alexander Revkin who is the high Young Communist League official in charge of this matter and also involved with the Canadian Ski Trek. Chuck did not attend this meeting.

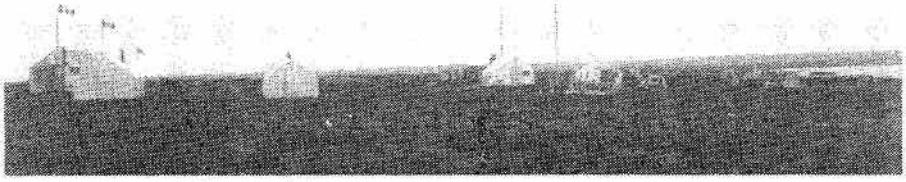
The next meeting was with Chuck KJ4TY, Victor UB5WE, Willy UZ9AYA and Karen UZ6GAT. After this meeting Victor flew to Yerevan at 1900 on Jan. 21 and Chuck followed at 1300 UTC on Jan. 22. In Yerevan, Chuck and Victor will meet with various hams and officials and supervise installation of IARN equipment there. Then back to Moscow to present a comprehensive plan to the Secretary of Konsomol Central Committee, one of the top Young Communist League officials. A written agreement will be drafted and submitted to IARN Headquarters for approval. The main items covered in this agreement will be:

- Co-operation between IARN and the Soviet Union during international communications emergency;
- Installation of permanent link between IARN and the Young Communist League;
- Full recognition of UB5WE as IARN Soviet Director;
- UB5WE to have position on Soviet emergency committee;
- Young Communist League to take responsibility for IARN equipment while in the Soviet Union;
- Soviet IARN to participate in deployment to any part of the world during future emergencies;
- IARN to take responsibility for assistance in training Soviet IARN according to world standards.

Chuck Sheffer also carried with him official charters to International Amateur Radio Clubs in Moscow, Lvov, Chelyabinsk and Ulianovsk. The Lvov Chapter will receive the Tandy 1000 HX computer and a AEA PK-232 and has proposed to establish a permanent link between Lvov and IARN Headquarters in Belgrade Lakes, Maine. This proposal has been approved and the link will be set up soon. The computer, which required a special export licence secured for IARN by Senate Majority Leader George Mitchell, is being shipped shortly.

All in all, the events taking place are extraordinary. Glasnost via Amateur radio to be sure, and ham radio at its very best. More next month, right here. ■

Shack of the Month



This month's 'Shack of the Month' belongs to Peter Wollenberg VE8PW. It shows his summer QTH (small tent with flag on left) at Pointer Lake in Zone 02, NWT at 98°W and 64°N, some 70 miles to the NW of Baker Lake in the Barren Lands.

The shack is an insulated 10x12 tent with a big oil stove inside. He is there for 4-5 months every year working in geophysical surveys.

Peter's rig is an ICOM IC-735 with an inverted-V, 50 ft. high, both work very well. A 3-element beam is in the works for next year. Peter passes on his best 73's and a big THANK YOU to many VE3s for arranging numerous phone patches into Toronto... Editor. ■

NYBLES AND BITS

Antonio Salvadori VE3NXQ, 17 Colborn St., Guelph, Ontario N1G 2M4

THE GEM DUP PROGRAM TO KEEP TRACK OF DUPLICATE CALLS

Very often radio Amateurs work a contest or take part in field day activities. This month's column will talk about a way of keeping track of the calls or 'keeping a dupe sheet' as we say.

The program as shown is very simple and does not keep track of band, reports, numbers, etc. If you want to keep track of these or whatever else you make like, you can enlarge the program by setting up additional DIM statements for all of the things you want to record. Note however, that the more items you add the fewer will be the QSOs that you can log as they will take up more room in main memory.

The program keeps the calls in main memory. This may not be a wise thing to do. You may suddenly lose power and with the loss of power your records will vanish. To make sure that this does not happen, a facility has been implemented to copy your data to a file on disk *(save)*. You should activate this every five to ten minutes especially on field day when anything can happen. If you take a break from operating you can terminate the program *(quit)* and resume where you left off when you return QRV.

No editing is done in the program. If you type in an incorrect call the program will accept it as gospel truth and will go merrily on its way. Those of you who feel energetic enough can go ahead and implement such an error detecting feature but for the time being you can use the *delete* facility to remove such unwanted calls.

The program will not allow you to enter duplicate calls.

The program also introduces three new programming concepts which we have not dealt with before in this column: *tables, files* and *subroutines*. A very brief description follows.

A *table* is an area of memory in which homogeneous data is kept. For example if you wanted to store five names you could set up a table with five entries (boxes) in it, i.e. Toni, Mary, Kevin, Marina and Diarmuid. Toni would be the first entry, Mary the second, Kevin the third, etc. In a program this is done by first setting up the table by means of the DIM statement, i.e. DIM TA$(5). This would reserve space (boxes) for five entries. By using the assignment statement, or other method, you can put the data into each of these boxes, e.g. TA$(1)="Toni", TA$(2) "Mary", etc. Tables are sometimes called arrays.

Continued on next page ►

THE PROGRAM

Lines	Explanation.
100-150	Introductory remarks about the program
170	The DIM statement to create a table in the main memory. This reserves 10,000 locations to keep track of the calls. Your computer may be much smaller than mine so you may have to lower this considerably. Make this number as large as you can.
190	This statement - the sending of character 147 to the screen - clears the screen.
210-220	This statement reminds the user to turn on the Caps Lock key - important for IBM users.
250	FI$ is the name of the file that you will be using on disk to store your data. The INPUT statement prompts you with the message between " and then accepts the item you type as the value for FI$.
290	This statement opens the command channel to the disk drive i.e. gets it ready.
300	We tell the computer that the file FI$ is coming from disk, it is a sequential file, and will only be read.
310	We try to get the file FI$ ready for input into the program. The file may or may not be present on your disk. If the file does not exist the error flag, ER, is set to true. (Forget about EM$, ET, ES for now.)
320	If the error flag has been raised then we assume that this is the first time you are using this file and the program closes the file channel and branches to 970. If you make a mistake in typing the name of the file better **break** and restart. (One could certainly improve the code here.)
970-1020	These statements are executed the first time you run the program on a particular file. Since it is a new file the number of calls worked is set at 0 and we resume the program on line 480.
340-430	The file FI$ does exist i.e. you created at some previous run of the program, so we copy its contents into the table TA$ by first reading the number of calls we already have entered, **N**. When the end of file has been reached i.e. we have read all the stored records, we CLOSE the file and resume the program at statement 480.
450-470	Explanatory statements.
490	Get the next call from the screen, **CA$**.
530	This statement is the statement that allows users to signal their intention to quit the program. When a user types QUIT for the value of CA$ in 490 the program will go to statement 790 and exit.
540	This statement lets one save the data during normal operation. When the user enters **SAVE** in 490 the program branches to the routine (**GOSUB**) starting at 1060 and when that routine is finished the program resumes at statement 480.
550	Similar to 540 for the DELETE to remove a call. We shall add more statements here next month.
1060-1110	This is a subroutine. All statements are executed in sequence until a **RETURN** statement is encountered, at which point execution returns to the statement after the one from which it was called i.e. the GOSUB statement. First of all we remove the file FI$ on the disk (1060.) Then a new file FI$ is opened for sequential output (1070), the number of records is written out (1080), the table itself, TA$, is written out to the file (1090) and finally the file channel is closed (1100.)
600-620	This set of statements searches the table to check if we have worked the call CA$ before. Computer hacks note that this is the most efficient way of searching a table: you place the item you are looking for in the zeroth position and work backwards.

NYBLES *(cont'd)*

A file is a collection of data which is kept on a disk or tape. The data in a file can be *any type of information.* Each file must have a name according to certain rules particular to the operating system (the program that controls the machine) that you are using on your machine. Normally the names are less than eight characters long. Sometimes file names have two parts: the first part is the name and the second part is a *suffix* which may have a certain meaning to the operating system. Both parts are separated by a period (.). For example, *MYPROG.BAS* is a file with the name MYPROG and the suffix BAS tells the operating system that it may be a BASIC program.

A subroutine (routine) is a section of code in a program that may be executed (called) from any point in a program. In BASIC this is done by means of the GOSUB statement. Once the subroutine statements are executed, program execution returns to the statement after the point from which the subroutine was called, i.e. the statement after the GOSUB statement.

In BASIC a subroutine ends with the RETURN statement. Unfortunately BASIC is a very primitive language and it does not allow you to pass parameters (values) to the subroutine but almost all other languages do.

The method employed in the program is called the *insert sort* method. A table (TA$) of the calls is kept in memory and each time a call (CA$) is entered, the program inserts it into the table at the correct alphabetical position. Duplicate calls are rejected automatically. If you enter a duplicate call, not only will it be rejected but a warning message appears on the screen and the buzzer (CHR$(7)) will be sounded on the computer.

The method gets slower and slower as you insert more and more calls into the table since more comparisons have to be done. However, the method is simple to understand and it serves its purpose in most cases. In some future article I will write about a faster method, but unfortunately faster methods are more complex and some gobble up chunks of memory. This is one of the golden rules of computing: *the faster the method or algorithm, the more memory is used up; the slower the method the less memory is used.* An inverse relationship— just like current and resistance in a circuit— holds. You might say it is the Ohm's Law of computing.

The program listing for the C-64 is in Figure 1. Figure 2 shows the changes that are required to run the program in GWBasic on an IBM compatible.

THE PROGRAM *(cont'd)*

660	If these conditions hold then a duplicate has been found and we go to statement 920.
920-930	The duplicate message is placed on the screen and we return to where we left off.
700	We have a new call and we must insert it into the table. Before doing this we have to move everything to where the call has to be placed so as to make room for it.
710	Since we have a new call better increase the counter.
750	The new call is entered into the table.
760	We go to statement 480 to get the next call to be added.
790-880	The closing statements. The table is written on the screen (820) and to disk (840.) Notice that to write it to disk we use the same routine (1060) as when we wanted to SAVE the data. This is a good use of routines when you want to do the same operations in two or more different parts of a program.
860	A message to warn you when the program has finished. Heed the warning or you may loose your data.
1150-1230	Routine to delete a call.
1160	Obtain the call to be deleted.
1170-1190	Search the table for the call.
1200	The call is not in the table. Display a message and resume execution.
1210	The call has been located so decrease the counter.
1220	Move the remaining calls to fill the gap of the removed call.

```
190 CLS : REM Clears the screen
290 ON ERROR GOTO 970
300 REM
310 REM
320 OPEN FI$ FOR INPUT AS #1
380 INPUT #1, N
400       INPUT #1, TA$(I)
430 CLOSE #1
790 CLS
840 GOSUB 1070
1060 REM
1070 OPEN FI$ FOR OUTPUT AS #1
1080 WRITE #1, N
1090 FOR I = 1 TO N : WRITE #1, TA$(I) : NEXT I
1100 CLOSE #1
```

Figure 2— The conversion for GWBasic on IBM

THE PROGRAM

This program is a little more complex than any of the ones that we have met so far. Be careful when you are typing it as the slightest typing error can give you headaches. Remember that all programs appearing in this column may be bought for a mailing and handling fee from CARF. Free distribution is encouraged as long as the CARF copyright remark is left on all copies. Please DO NOT send diskettes to me. My computer is a fully-loaded IBM clone with a 40 Mb hard disk. I run all programs using GWBasic and then convert them to C-64 Basic. They are then tested to be correct on VE3ISG's C-64 and sent to the CARF office in Kingston for distribution.

RUNNING THE PROGRAM

First of all, set your keyboard into the caps lock mode, i.e. only capital letters are sent to the computer, and start the program.

The program prompts you to enter the file name. What should this be? If you are running the CARF Winter Contest you can name your file CAWI88; if it was the summer contest you could name it CASP89; if it was field day you could used FIELD89; etc. If such a file already exists, it will be printed on the screen. If, on the other hand, it doesn't, then a new one will be created for you.

The program then prompts you for the call sign of the station you are working. Just type in the call followed by ⟨Enter⟩ and keep going like this. Every five or so minutes when it asks you for the call sign, type SAVE⟨Enter⟩ and your file will be saved. When you want to take a break or finish just enter QUIT⟨Enter⟩ at

Continued on next page

```
100 REM THE GEMDUP PROGRAM TO GENERATE A DUP SHEET
110 REM
120 REM written by Antonio Salvadori, VE3NXQ, Guelph
130 REM
140 REM (c) C.A.R.F., Kingston, Ontario.
150 REM ------------------------------------------------------------
160 REM Change the 10000 to the max size allowed on your computer
170 DIM TA$( 10000 )
180 REM ------------------------------------------------------------
190 PRINT CHR$(147) : REM Clears the screen
200 REM
210 PRINT CHR$(7) + "Make sure that you are in Caps Lock mode"
220 PRINT
230 REM -----  Read the old file if present  ----------------------
240 REM
250 INPUT "Please enter the dup sheet filename:"; FI$
260 PRINT
270 REM If the file is not present start new file
280 REM
290 OPEN 15, 8, 15
300 OPEN 1, 8, 0, "0:" + FI$ + ",S,R"
310 INPUT# 15, ER, EM$, ET, ES
320 IF ER THEN CLOSE 1 : GOTO 970
330 REM
340 PRINT
350 PRINT "THE CURRENT CALLS ARE:"
360 PRINT
370 REM Read old file into the table
380 INPUT# 1, N
390 FOR I = 1 TO N
400      INPUT# 1, TA$(I)
410      PRINT I, TA$(I)
420 NEXT I
430 CLOSE 1
440 PRINT
450 REM
460 REM -----  Get the new call sign  ----------------------------
470 REM
480 PRINT
490 INPUT "Enter new call --> "; CA$
500 REM
510 REM Check to see if you want to quit/save/delete the data
520 REM
530 IF CA$ = "QUIT"   THEN GOTO 790
540 IF CA$ = "SAVE"   THEN GOSUB 1070 : GOTO 480
550 IF CA$ = "DELETE" THEN GOSUB 1150 : GOTO 480
580 REM
590 REM See if call exists in the table
600 TA$(0) = CA$
610 J = N
620 IF CA$ < TA$(J) THEN J = J - 1 : GOTO 620
630 REM
640 REM Duplicate call case
650 REM
```

Figure 1— The GEMDUP program

```
660 IF ( J <> 0 ) AND ( CA$ = TA$(J) ) THEN GOTO 920
670 REM
680 REM Move the calls in the table to make room for new one
690 REM
700 FOR I = N TO J + 1 STEP - 1 : TA$(I + 1 ) = TA$( I ) : NEXT I
710 N = N + 1
720 REM
730 REM Place new call in proper position in the table
740 REM
750 TA$( J + 1 ) = CA$
760 GOTO 480 : REM Get the next call
770 REM
780 REM -----  Output the results  --------------------------------
790 PRINT CHR$(147)
800 PRINT "The Dup Sheet is:"
810 PRINT
820 FOR I = 1 TO N : PRINT I, TA$(I) + "<" : NEXT I
830 REM
840 GOSUB 1060
850 PRINT CHR$(7)
860 PRINT "End of Program : You may safely turn off the machine"
870 PRINT
880 END
890 REM
900 REM -----  Output for the duplicate case  ----------------------
910 REM
920 PRINT : PRINT CHR$(7)+"*** Duplicate call ***"
930 GOTO 480
940 REM
950 REM -----  Start up case  --------------------------------------
960 REM
970 PRINT "No calls have as yet been entered"
980 PRINT
990 PRINT "Starting a new file with the name " + FI$
1000 PRINT
1010 N = 0
1020 GOTO 480
1030 REM
1040 REM -----  Write the dup sheet to the file FI$  ----------------
1050 REM
1060 PRINT# 15, "S0:" + FI$ : REM Scratch old file
1070 OPEN 1, 8, 1, "0:" + FI$ + ",S,W"
1080 PRINT# 1, N
1090 FOR I = 1 TO N : PRINT# 1, TA$(I) : NEXT I
1100 CLOSE# 1
1110 RETURN
1120 REM
1130 REM -----  Delete a call  --------------------------------------
1140 REM
1150 PRINT
1160 INPUT "Enter call to be deleted --> "; CA$
1170 TA$(0) = CA$
1180 J = N
1190 IF CA$ <> TA$(J) THEN J = J - 1 : GOTO 1190
1200 IF J=0 THEN PRINT : PRINT "Call not in table" : PRINT : GOTO 480
1210 N = N - 1
1220 FOR I = J TO N : TA$(I) = TA$(I+1) : NEXT I
1230 RETURN
1240 REM ------------------------------------------------------------
```

Figure 1— The GEMDUP program (cont'd)

NYBLES *(cont'd)*

the call sign prompt and away you go. Make sure that the program has fully stopped before you turn off the machine or you will lose all of your data.

If for any reason you want to delete a call, just type in DELETE<Enter> instead of a call at the prompt. The program will ask you for the call you want to delete, and delete it if it is in the table, otherwise it will tell you that no such call is in the table.

When you want to resume in the same contest, just use the same file name as before and away you go! Finally if you hear me in any contest, do give me a shout. I normally work both the CARF winter and summer contests, all bands and all modes. Good Luck.

Next month we shall implement a few more functions to PRINT out the table or to see it properly on the SCREEN.

CORRESPONDENCE

Thanks to VE3OAO, VE3CUK, VO1HD, VE3DTR, VE4OK/VE3, VE3EDR for letters received. I really appreciate all the nice comments.

VE3CUK converted by GEMLOG program to a Tandy 2000. Great, Bill, glad to hear that you are enjoying the column.

VE3EDR thanks me for my hardware coverage, but finds my software coverage a little superficial. I will try to go into more depth as the column progresses, Brice. As regards the integer overflow problem (Nov.'88) you are not completely right. The answer is compiler dependent. In some compilers integers are stored between -32,768 and +32767 but in modern compilers, such as the ones from Borland— the so-called Turbo compilers— which I tend to use, full use is made of the 16-bit word if only positive numbers are used i.e. negative integers do not exist and the total 0 to 65,535 range is used by the positives. The intent of the column was to make you aware of the potential problems with the various compilers. In future columns, I will try to cover review articles on WordPerfect, WordStar 2000, Quattro, Lotus, etc.

HELP REQUIRED

Roger VO1HD would like to hear from anyone who may have RTTY/CW/Packet programs for a Tandy Coco 3.

VE3DTR writes: "I have a Commodore 64 with a disk drive... the interface is an MFJ-1224. The problem is that I cannot copy the W1AW bulletins on the printer at one time. When the printer, a Commodore MPS 802, is activated, it will receive 999 characters (looks like 1Kb internal buffer to me— Ed.), print that portion of the bulletin, then shut down and start up again. As a result of this procedure, I am only printing a portion of the bulletin at one time..." Any help for John? Please write to him directly or send me your solution and I will see that he gets it.

VE4OK/VE3 writes: "...what can I do when an article refers to 'connect your receiver to the computer'! For instance I would like to use my XT screen for resolving SSTV. I have a program to do this and in the README data it says to connect the receiver to the computer! Where and how?..."

These are very good and valid points, Peter. I am always baffled by manuals and articles which make statements like that. Normally a computer and a rig are connected via an *interfacing board*. This is quite a sophisticated piece of hardware, e.g. the MFJ-1224, PK-232, etc. These devices normally cost $200-$700 and are by no means simple. They require complex hardware and software programs to work properly and, as you can see from the above, they do not always work as they are supposed to. For example my PK-232 looks good in my shack but programming it is a nightmare— even with my 30 years experience in the field— and the manual is absolutely terrible. But more about this in a forthcoming review of the PK-232. Your software program is useless, Peter, without the interfacing hardware. I hope your program was cheap!

I would welcome an article on the interfacing problem between rigs and computers. Any experts out there willing to put the article together? ■

LINE OF SIGHT VHF/UHF QUESTIONNAIRE

(See Page 16 for details)

Send completed questionnaire to Robert Smits VE7EMD, 13894 94A Ave., Surrey, B.C. V3V 1N2 or: Compuserve- 71370, 2032; Packet- VE3EMD@VE7KIT; UseNet- Either uunet!van-bc!ve7apu!smits or ubc-cs!van-bc!ve7apu!smits

Licence— ☐ Advanced ☐ Amateur ☐ Digital

Province_____ Licensed since 19____ Age _____

VHF/UHF Equipment Operated

Please estimate % of your operating time on each Band & Mode - e.g. to indicate 20% of the time on 2M FM write 20 in the FM space on the 144-148 MHz line.

	CW	SSB	EME	FM	Packet	RTTY	ATV
50-54							
144-148							
220-225							
430-450							
902-928							
1.2-1.3G							

Types of articles you want to see (1-5)
(5 means you really, really want it):
Building how-to ☐ Equip tests ☐ Bandplanning ☐ Emergency comms ☐ Book Reviews ☐ Technical stuff ☐ Other _____

Types of articles you DON'T want to see
(5 means you really, really don't want it):
Building how-to ☐ Equip tests ☐ Bandplanning ☐ Emergency comms ☐ Book Reviews ☐ Technical stuff ☐ Other _____

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

MR13

Oscillateur Local pour 13 cm (23 cm, 6 cm, voire plus...)

PAR MICHEL ROUSSELET
FD1FLN

A la suite de la parution, dans Radio-REF de juin/juillet 1987, d'articles sur le mélangeur ME13 et sur l'amplificateur faible puissance EM13, de nombreux lecteurs m'ont demandé de décrire un oscillateur local pour compléter cette série. Voici donc le MR13...

Qu'elles sont les qualités principales d'un oscillateur local:

• Je dirai en premier lieu une simplicité de montage et l'utilisation de composants 'courants' avec un rapport qualité/prix adapté au budget OM.

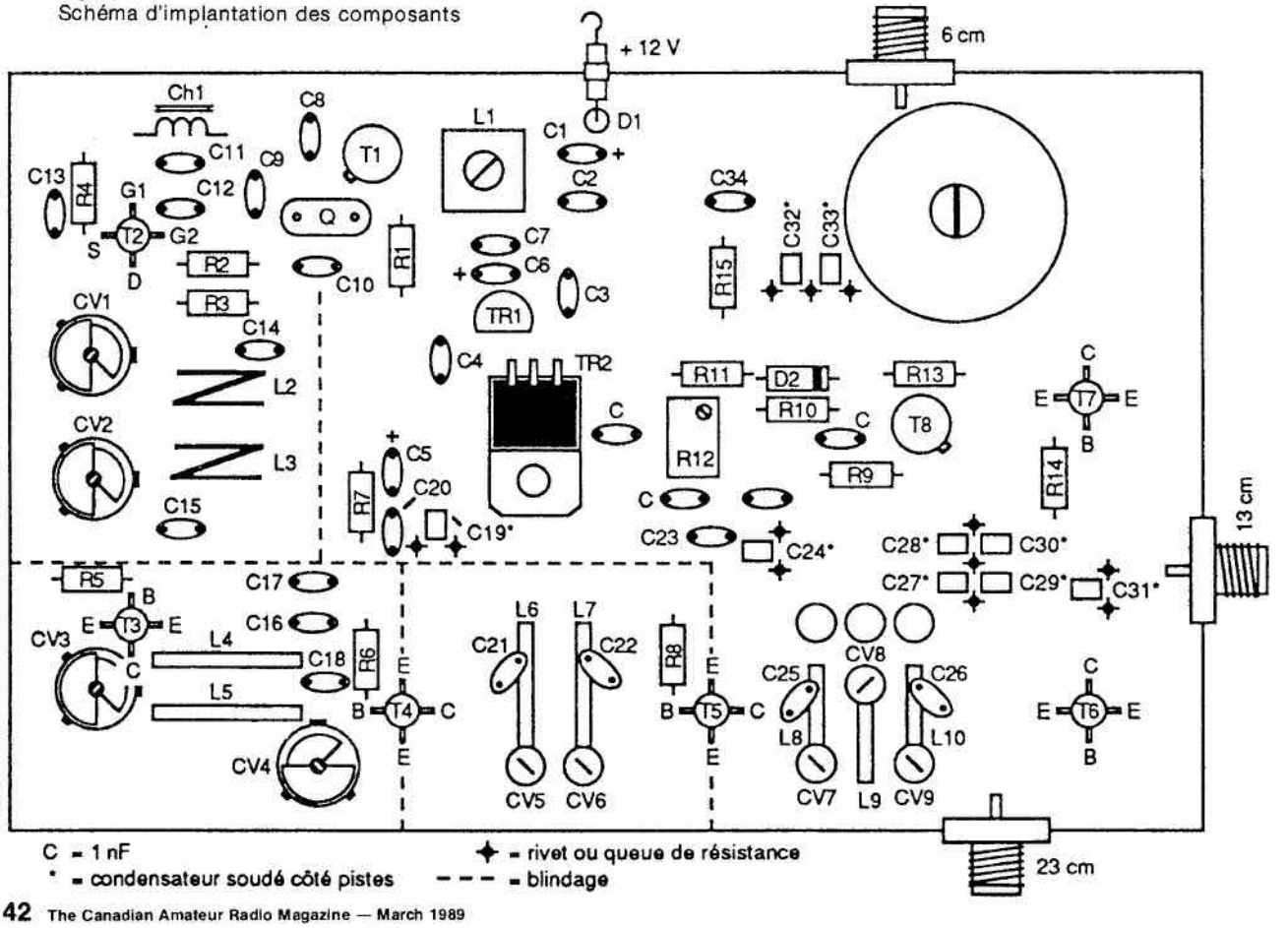
• Au point de vue technique:

- la stabilité, pilotage par quartz et régulation de l'alimentation;
- une puissance de sortie convenable pour permettre les mélanges dans les diodes (dans notre cas pour le ME13 à 20 à 30 mW).

• Que les produits indésirables (harmonique et de mélange), dûs aux multiplications, soient au minimum inférieurs à -30 dBc, ce qui nécessite du filtrage, donc de la porte.

Cet OL (oscillateur local), dont le schéma théorique est donné figure 1, a été conçu dans l'esprit d'une certaine souplesse d'utilisation, le but premier étant pour le 2,3 GHz, 2,4 GHz, mais aussi pour le 1,3 GHz ou le 5,7 GHz en utilisant des quartz adéquats. Le tableau 1 indique les valeurs de

Figure 2
Schéma d'implantation des composants



C = 1 nF
* = condensateur soudé côté pistes
✦ = rivet ou queue de résistance
– – – = blindage

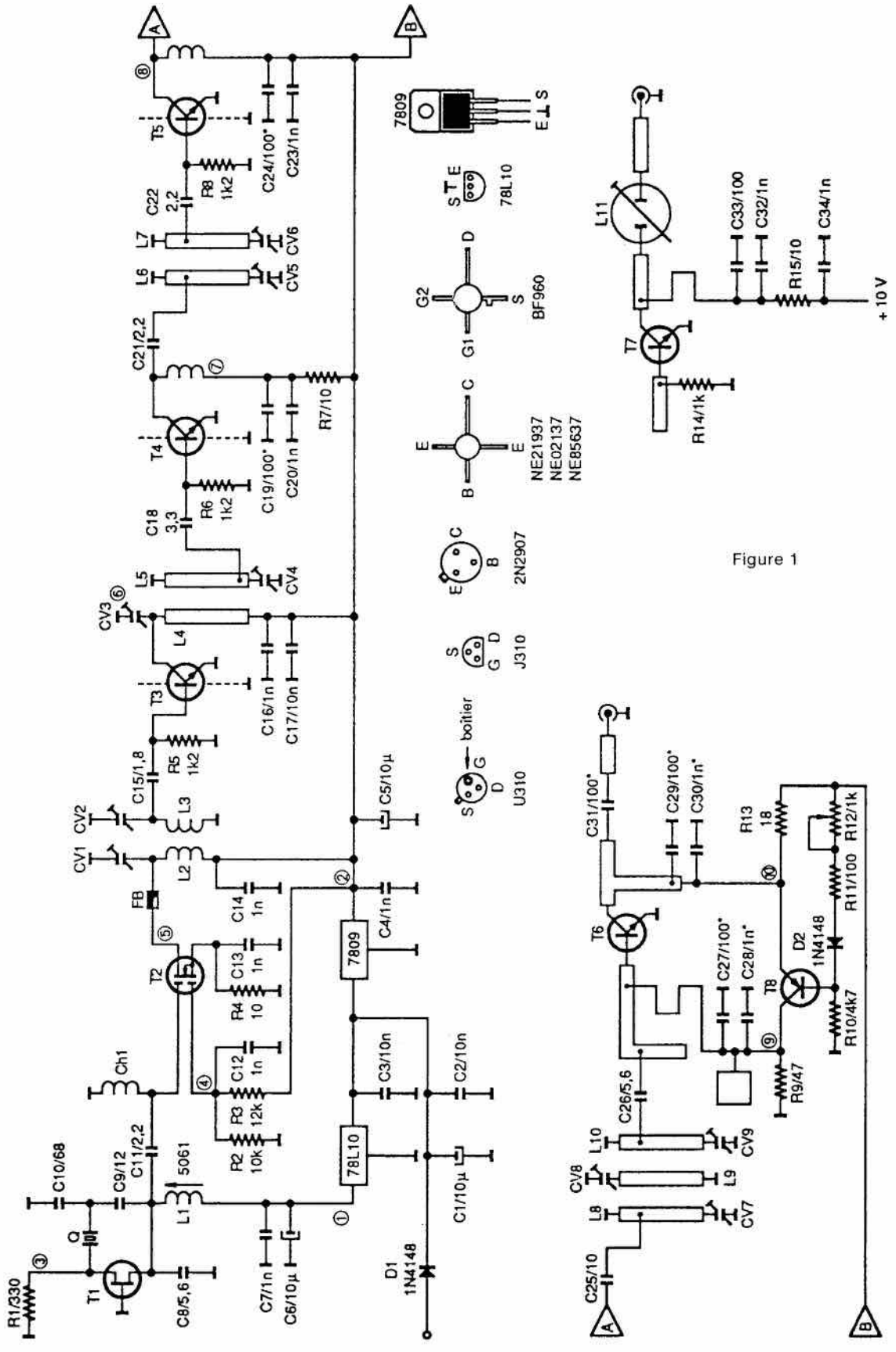

R1/330
T1
Q
C8/5,6
C10/68
C9/12
C11/2,2
L1
5061
Ch1
C7/1n
C6/10µ
R2 10k
R3 12k
C12 1n
R4 10
C13 1n
T2
FB
C14 1n
L2
CV1
CV2
L3
C15/1,8
R5 1k2
T3
L4
CV3
C16/1n
C17/10n
L5
CV4
C18 3,3
R6 1k2
T4
C19/100*
C20/1n
R7/10
C21/2,2
L6
CV5
L7
CV6
C22 2,2
R8 1k2
T5
C24/100*
C23/1n
C5/10µ
C4/1n
7809
C3/10n
C2/10n
78L10
C1/10µ
D1 1N4148
7809
E T S
S T E
78L10
G2 G1 D S
BF960
E B C E
NE21937
NE02137
NE85637
E B C
2N2907
S G D
J310
S G D boitier
U310
L11
C33/100
C32/1n
R15/10
C34/1n
+10 V
T7
R14/1k
C31/100*
C29/100*
C30/1n*
R13 18
R12/1k
R11/100
T6
C27/100*
C28/1n*
T8
D2 1N4148
R10/4k7
R9/47
C26/5,6
L10
CV9
CV8
L9
L8
CV7
C25/10

Figure 1

certains de ceux-ci pour les différentes bandes amateurs ou toute autre application, par exemple Météosat.

L'ensemble est constitué:

• d'un oscillateur à effet de champ (utilisant un J310 ou un U310 (T1)), désormais classique par sa simplification, sa bonne stabilité et son faible bruit. Il est alimenté par un régulateur 10V;

• de l'étage tripleur qui est constitué d'un transistor double porte (T2) BF960, celui-ci permettant une isolation entre l'oscillateur et les circuits accordés;

• des étages avec T3 et T4 qui sont utilisés soit en doubleur, soit en tripleur, ils emploient des transistors 'low cost' en boîtier plastique avec une double patte d'émetteur. Le montage est classique, émetteur commun avec un circuit accordé dans le collecteur;

• de l'étage avec T5 qui a la particularité de servir soit en multiplicateur, soit en amplificateur, en choisissant le circuit approprié (pour l'utilisation en amplificateur sur 1152 MHz, il suffit d'utiliser la polarisation du transistor T6 par des petits fils);

• de l'étage T6 utilisant un transistor SHF polarisé en classe A servant d'amplificateur pour le 13 cm;

• de l'étage T7, monté en doubleur; le circuit accordé est réalisé par une cavité.

Figure 3

REALISATION PRATIQUE

Le circuit imprimé (CI) est réalisé en verre époxy double face de 1,6 mm, il est prévu pour être installé dans un boîtier 'Subert' de 74x111x37 en fer blanc étamé (que l'on peut ce procurer facilement). Sur ce CI, il faut préparer les plans de masse avec des trous métallisés comme montré sur la figure 3, soit avec un rivet, soit avec une queue de résistance suivant l'utilisation de capacités chips ou de capacités trapèzes.

Les composants doivent être de bonne qualité, les capacités conseillées sont des RTC céramiques REF C629 pas 2,54, les ajustables sont des RTC jaunes et grises plastique et des capacités pistons Stetner (figure 4)(l'utilisation

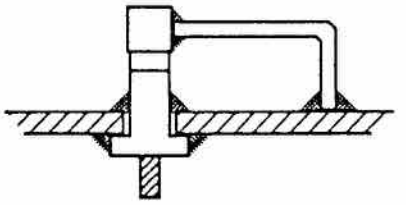


Figure 4

d'ajustables est bien sûr préférable mais plus chère).

Les composants actifs sont assez traditionnels.

Le connecteur de sortie doit être de bonne qualité (le type BNC et le type Subclic sont déconseillés au-dessus de 2 GHz), un câble coaxial miniature pouvant convenir, mais attention aux pertes; d'autre part, il doit être positionné au bon endroit suivant l'utilisation (voir schéma d'implantation - figure 2).

La soudure des queues des composants s'effectuera le plus court possible.

En premieur lieu, on procédera à la soudure du CI dans le boîtier ainsi qu'à celle des connecteurs RF et du by-pass d'alimentation.

Il est à noter que les émetteurs des transistors sont soudés du côté composants; la base et le collecteur seront pliés à 90° puis soudés sur les pistes (figure 5).

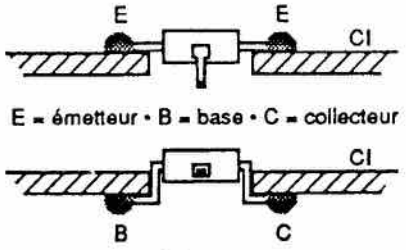


Figure 5

CAVITE

Je n'apporterai pas d'information précise sur la cavité L11 dans cet article, sinon que sa réalisation mécanique est fort simple (figure 8).

En effet, elle nécessite seulement un morceau de tube de cuivre standard, une petite plaque de cuivre, et un noyau plongeur avec une vis (ou avec une vis d'accord métallique de chez Tekelec, réf. 6927). Les performances RF sont tout à fait acceptables: bande passante 100 MHz environ, atténuation environ 1 à 2 dB.

PROCUREMENT DE REGLAGE

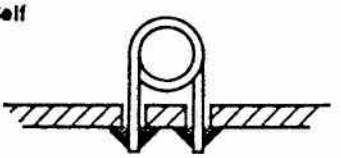
Il est bien à préciser que d'éventuelles modifications sur certaines capacités de liaison peuvent certes permettre de délivrer plus de puissance, mais néanmoins entraîner une remontée incontrôlable (sans analyseur de spectre) du niveau des harmoniques indésirables. Il est donc indispensable de respecter les valeurs des composants utilisés.

1) Mise sous tension

Vérification des tensions sur les

SELF, LIGNE et CAVITE

Self



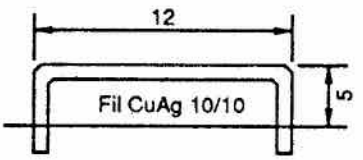
L1 = 5061 Néosid
L2, L3 = 1 spire 1/2 de fil 12/10 CuAg sur air Ø 8 mm

Figure 6

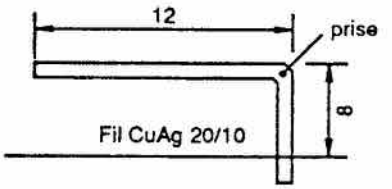
Ligne

Pour OL 23, 13, 6 cm

L4, L5



L6, L7



L8, L9, L10

- Pour le 23 cm : idem à L5, L6
- Pour le 13 cm :

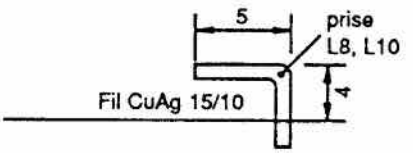


Figure 7

Tableau 1

Fréquences	OL	FI	Multiplicateurs	Quartz (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

éléments actifs aux points suivants, indiqués sur la figure 1:
1. 10V
2. 9V
3. 1,44V
4. 4,13V
5. 9V
6. 9V
7. 8,8V
8. 9V
9. 0,69V
10. 8V

Les valeurs des tensions à titre indicatif (+/-5%)

2) Préréglage des capacités d'accord et de la self 5061 (pour 2176)

5061: noyau enfoncé d'environ 3 mm
CV1: 3/4 ouvert
C2: 1/2 à 3/4 ouvert
C3: 3/4 fermé
C4: 1/2 ouvert
CV5, CV6, CV7: 5 mm dévissé
CV8, CV9: 8 mm dévissé

3) Les réglages s'effectuent avec un détecteur comme celui décrit en figure 9 (HP 2800, etc.) ou tout autre instrument pouvant mesurer une puissance (milliwatt-mètre, analyseur de spectre, ondemètre à absorption, etc.)

REGLAGE

L'oscillateur avec le U310 doit démarrer franchement. Dans le cas de quartz entre 89 et 96 MHz, vérifier, si possible, la fréquence de cet étage. Ensuite, régler, étage par étage (attention car certains réglages sont pointus), en respectant les préréglages des capacités et en les réajustant successivement pour obtenir le maximum de puissance en sortie.

Sur l'amplificateur final, régler le potentiomètre (multitours si possible), pour une puissance maximale de sortie.

Elle est d'environ 400 mW (pour le 2176 mégahertz), ce qui est plus que suffisant pour le ME13.

Le blindage permet une meilleure réjection des signaux indésirables (-40 dBc environ), un filtrage plus sévère avec l'emploi de cavités coaxiales permettrait de réduire le taux de plusiers dizaines de dB.

Les capots inférieurs et supérieurs devront être percés de trous permettre le réglage, l'influence du capot supérieur est importante.

CONCLUSION

Cet oscillateur local a été développé pour être utilisé dans un transverter pour les bandes amateurs 23 cm, 13 cm, 6 cm, mais également pour les futurs réseaux satellite dont je ne connaîs pas actuellement les fréquences (à calculer). La partie oscillateur avec le U310 et le quartz peut être thermostatée pour une meilleure stabilité.

Bon réglage.

QUELQUES INFORMATIONS EN BREF SUR 2,3 GHz

F9FT, Tonna, vient de construire une 25 éléments Yagi, avec comme élément rayonnant une transition guide/coax. Cette nouvelle antenne m'a déjà permis, au moment ou j'écris ces lignes, de contacter depuis ZE (Bordeaux) plusieurs stations PA0, DL et françaises (dont certains avec à peine 1 W). Elle est annoncée pour un gain iso de 18,2 dBiso. Cette antenne peut également être couplée (cf. constructeur).

Le gain est moins important, certes, que celui d'une parabole de 1 m mais cette antenne a l'avantage d'être petite et de présenter peu de prise au vent.

Les composants seront disponibles à Bordeaux chez Zener France, 1 Quai de Bacalan, ainsi que les circuits imprimés ME13, EM13, et MR13 en téflon et époxy. On peut trouver également des AsGa DXL1503 abordables pour le budget OM.

BIBLIOGRAPHIE

Dubus Info: DC0DA, DB6NT, DL1RQ, etc.
Radio-REF 87: F1FLN EM13
Rapport de stage IUT de Cachan 1984 - convertisseur Météosat - Michel Rousselet
Hurk Info.

■

LISTE DES COMPOSANTS

D1 : 1N4007
D2 : 1N4148
TR1 : 78L10
TR2 : 7809
T1 : J310 ou U310
T2 : BF 960
T3 à T7 : NE 21937 ou NE 85637
T8 : 2N2907
Q : voir tableau
CV1 : ajustable RTC jaune 1-10 pF
CV2 : ajustable RTC jaune 1-10 pF
CV3 : ajustable RTC gris 0,5-5 pF
CV4 : ajustable RTC gris 0,5-5 pF
CV5, CV6, CV7, CV8, CV9 : capacité Stetner 0,3-3 pF piston
Ch1 : 10 µF
C1 : 10 pF 16 V
C2 : 2 nF
C3 : 10 nF
C4 : 1 nF
C5 : 10 pF 16 V
C6 : 10 pF 16 V
C7 : 1 nF
C8 : 5,6 pF
C9 : 12 pF
C10 : 68 pF
C11 : 2,2 pF
C12 : 1 nF
C13 : 1 nF
C14 : 1 nF
C15 : 1,8 pF
C16 : 1 nF
C17 : 10 nF
C18 : 3,3 pF
C19 : 100 pF*
C20 : 1 nF*
C21 : 2,2 pF
C22 : 2,2 pF
C23 : 1 nF*
C24 : 100 pF*
C25 : 10 pF
C26 : 5,6 pF
C27 : 100 pF*
C28 : 1 nF*

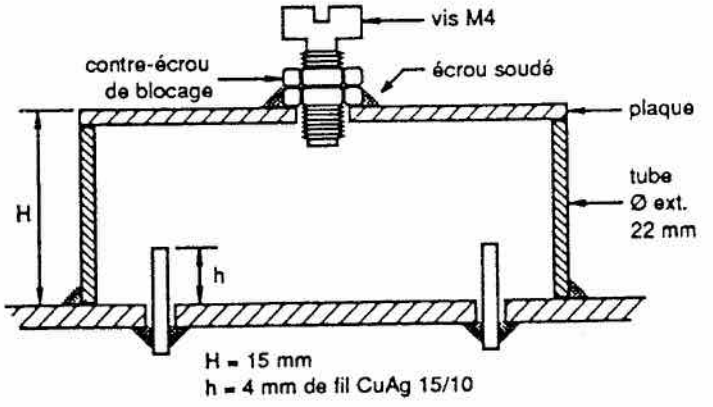


Figure 8

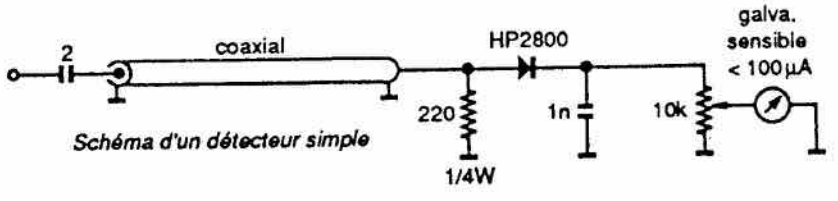


Figure 9

M13 *(cont'd)*

C29 : 100 pF*
C30 : 1 nF*
C31 : 100 pF*
C32 : 1 nF*
C33 : 100 pF*
C34 : 1 nF
* = chip ou trapèze
R1 : 330 Ω
R2 : 10 kΩ
R3 : 12 kΩ
R4 : 10 Ω
R5 : 1,2 kΩ
R6 : 1,2 kΩ
R7 : 10 Ω
R8 : 1,2 kΩ
R9 : 47 Ω
R10 : 4,7 kΩ
R11 : 100 Ω
R12 : potentiomètre 1 kΩ multitours
R13 : 18 Ω
R14 : 1 kΩ
R15 : 10 Ω
Toutes les résistances sont 1/4 W.
FB : ferrite câblée côté soudure

Pour le 1296 MHz
T1 x 1 OL
T2 x multiplicateur par 3
T3 x multiplicateur par 2
T4 x multiplicateur par 2
T5 x amplificateur

Pour le 2320 MHz
T1 x 1 OL
T2 x multiplicateur par 3
T3 x multiplicateur par 2
T4 x multiplicateur par 2
T5 x multiplicateur par 2
T6 x amplificateur

Pour le 5760 MHz
T1 x 1 OL
T2 x multiplicateur par 3
T3 x multiplicateur par 2
T4 x multiplicateur par 2
T5 x multiplicateur par 2
T6 x amplificateur
T7 x multiplicateur par 2 ou par 3 (ou plus, en changeant la cavité de sortie, si on veut faire du 10 GHz) ■

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.

VE3VCA

CARF would like to invite Amateurs who are in the Kingston area to come operate the club station, VE3VCA. If you'd like to visit the station, just contact the CARF Office and make an appointment.

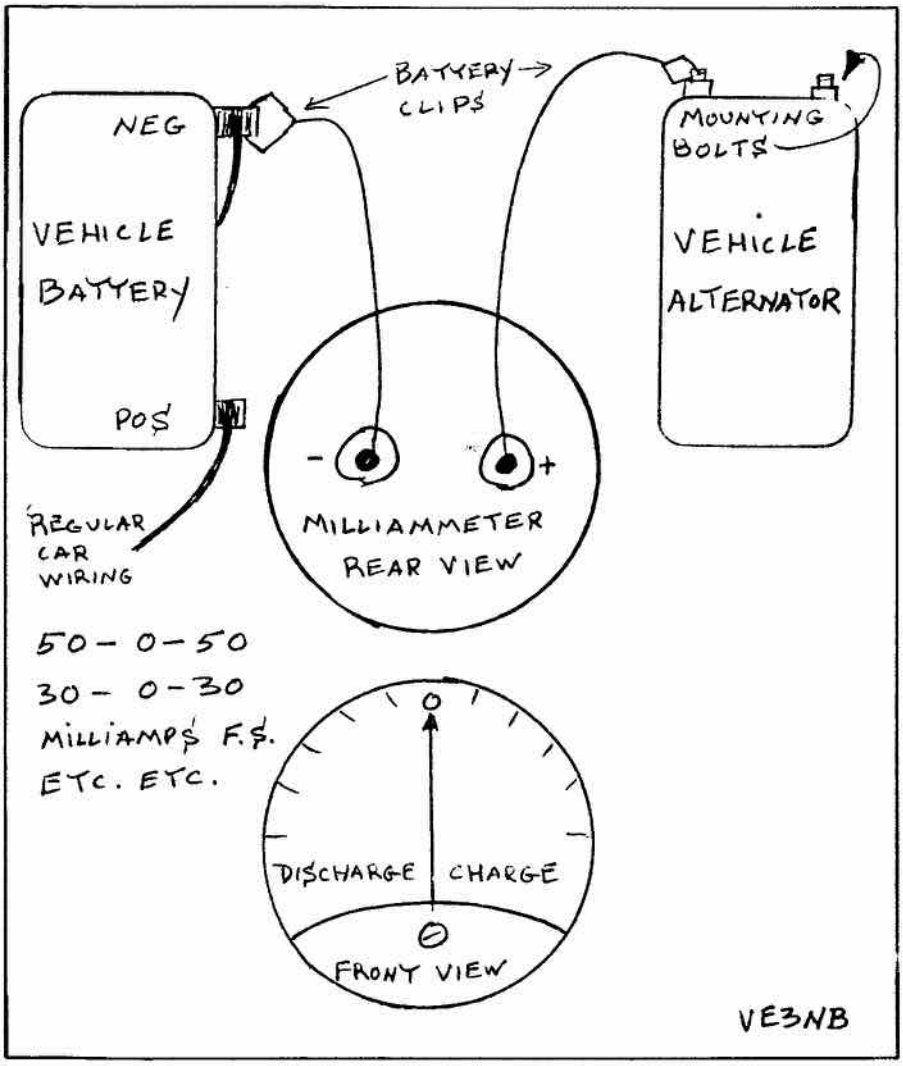
Adding an ammeter to your vehicle... the easy way

By Bernie Burdsall VE3NB

Requires: a centre 0 milliammeter (I use a 30-0-30, but any similar range will work); a length of 2 conductor lamp cord; 2 battery clips about 10a size.

As there is no voltage on the wires, there is no danger to the vehicle should the insulation fail. The meter operates on the very slight voltage drop between the negative grounded terminal on the battery and a ground point on the engine block usually near the alternator.

Connect the wires as shown using the battery clips. With headlights ON and engine OFF, the meter should move about ¼ scale to the left. If not, move the clip to a different point on the engine block. If the meter moves to the right, reverse the clips. Start the engine. There will be a big surge to the left as the engine cranks and then the meter should show a reading to the right as the alternator charges. I route the cable through the driver's doorway above the top hinge and under the front hood to save finding a hole in the firewall. This unit has been in my car for a number of years and is very useful in keeping a check on the battery and alternator. ■



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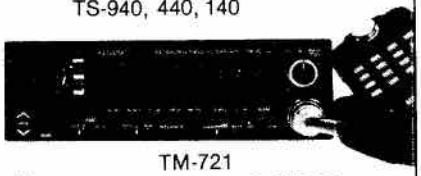

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TH-215AT, 315A,
415A, TH-205AT

TH-25AT, 45AT

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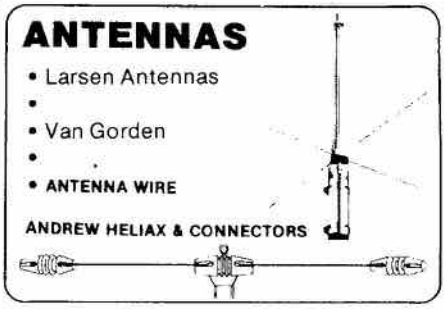

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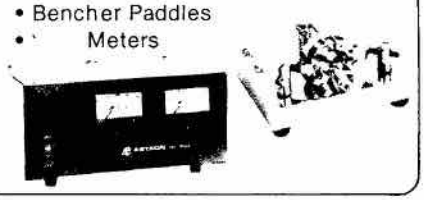
- Power Supplies
- Accessories
- Bencher Paddles
- Meters

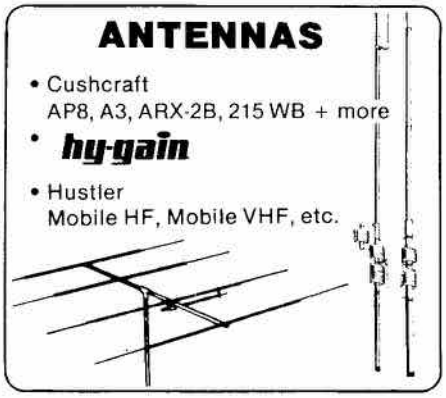


PUBLICATIONS

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

ANTENNAS

- Cushcraft
  AP8, A3, ARX-2B, 215 WB + more
- hy-gain
- Hustler
  Mobile HF, Mobile VHF, etc.



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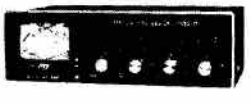

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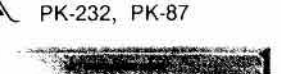

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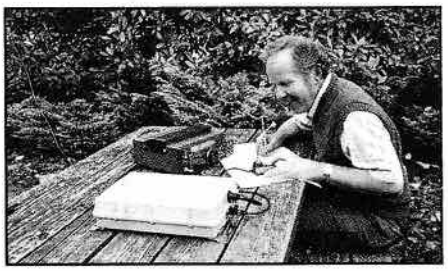

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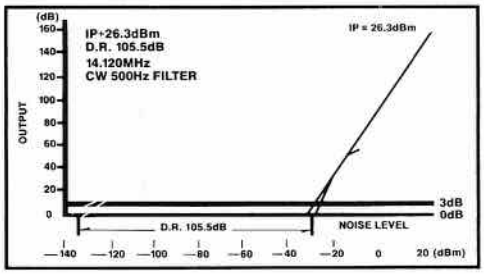

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