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TCA

The Canadian Amateur Radio Magazine

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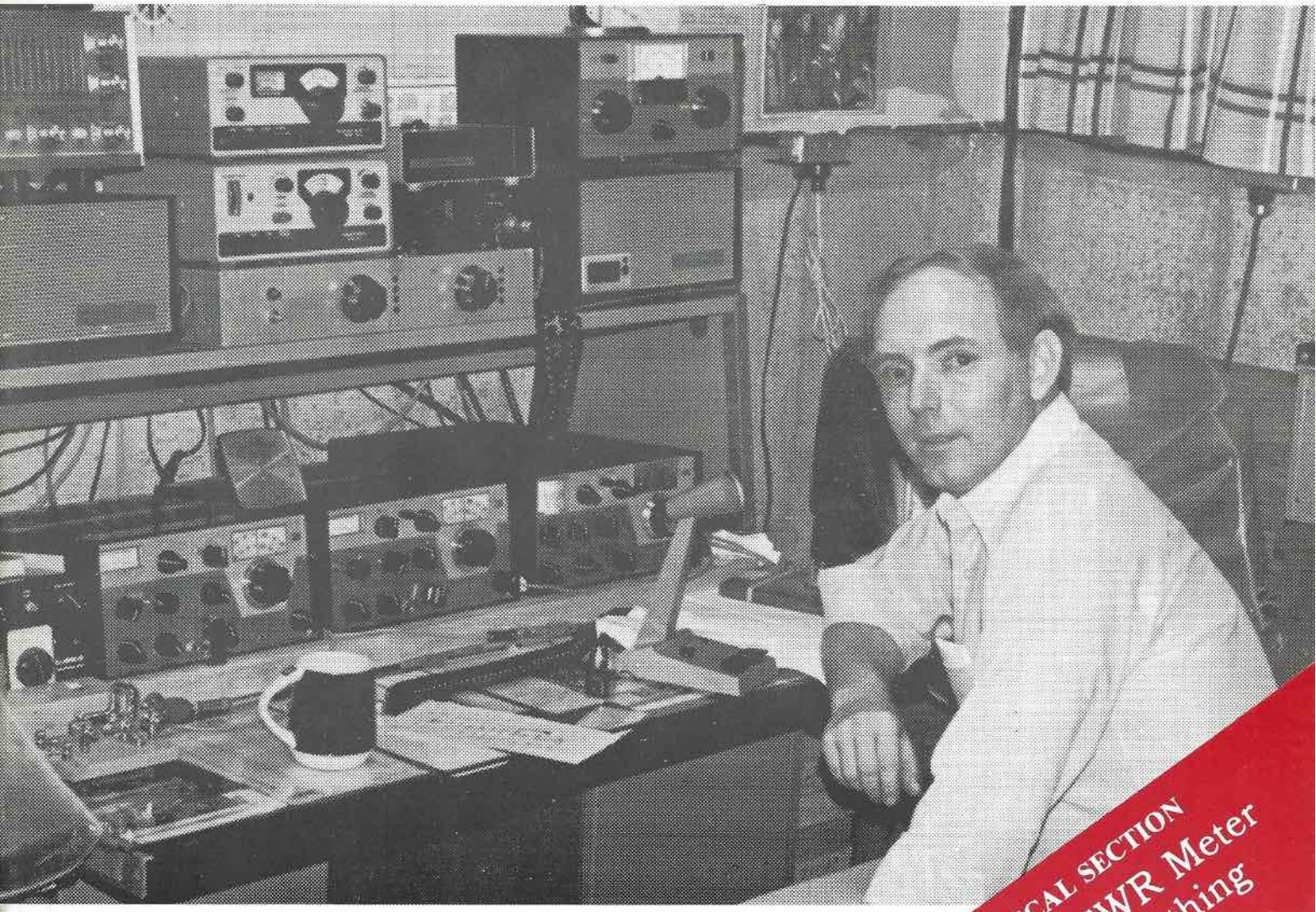

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Chuck VE3JDM checks into the Quebec Radio Net from VE3SH's QTH.

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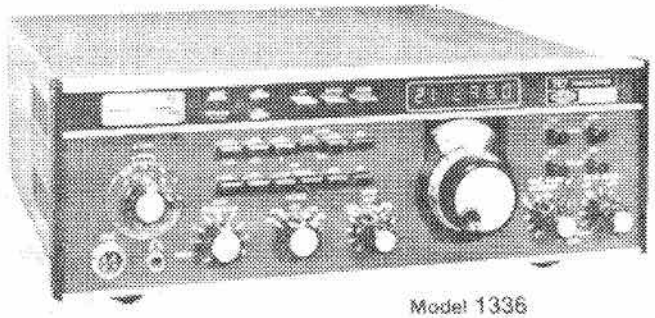

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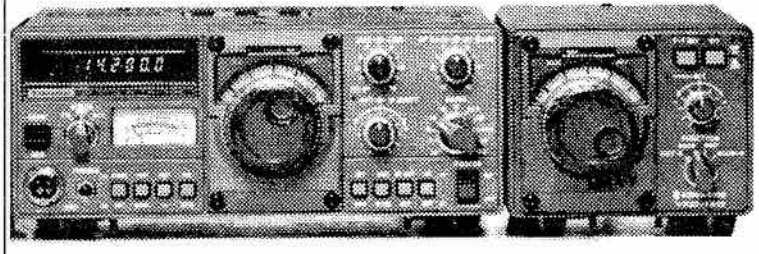

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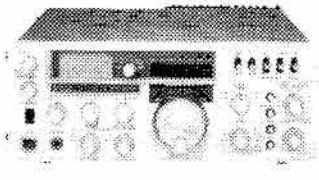

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January 1982 Vol. 10 No. 1

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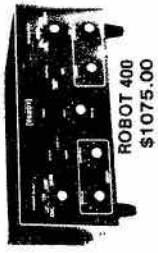
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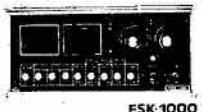
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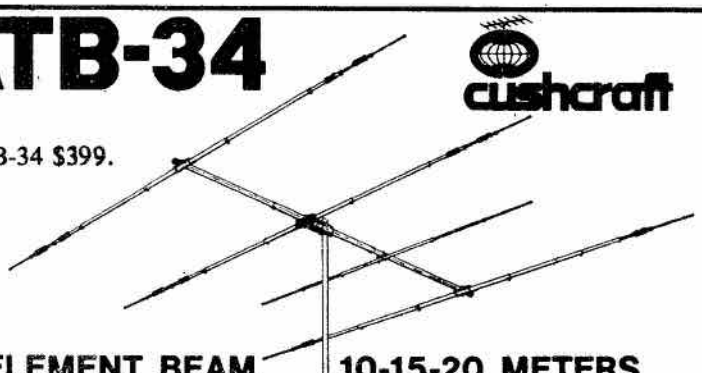

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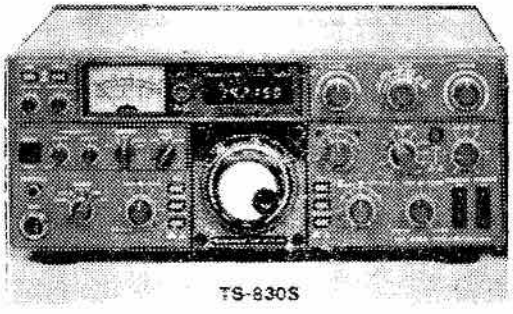

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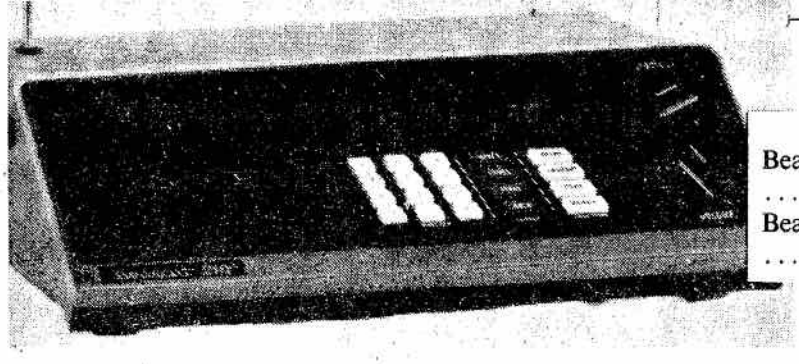

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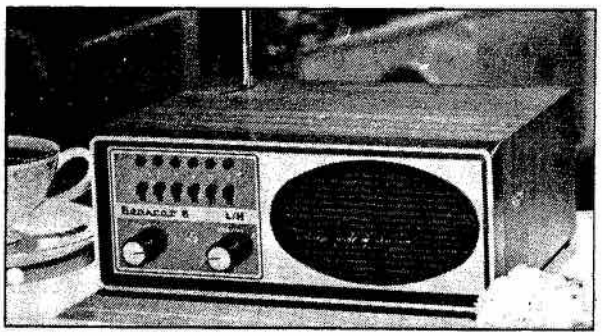

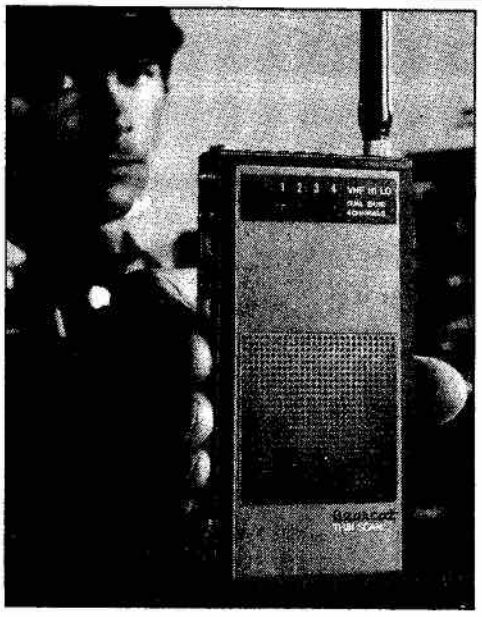

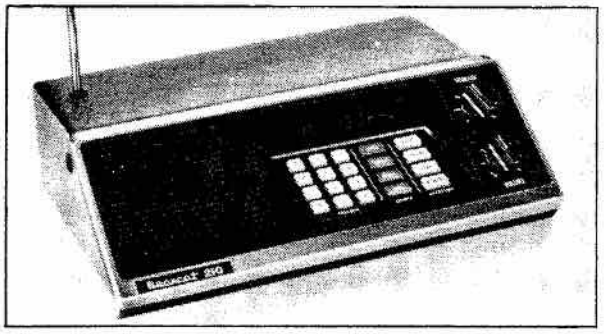

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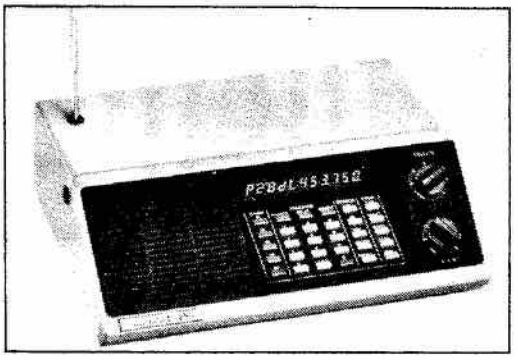

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THE CANADIAN

Contest Scene

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

CANADA CONTEST 1980
Correction to results as published in October TCA: All band entrant VE3DQM was mistakenly called VE3HQM. Apologies to both stations.

CONTEST CALENDAR

January
9-10 73 Mag. 40 & 80 Metres SSB*
16-17 73 Mag. 160 metres SSB*
29-31 CQ WW 160 metres CW*
February
6-7 RSGB 7 MHz SSB
13-14 YU DX WW CW (40/80m)
20-21 ARRL DX CW
26-28 CQ WW 160M SSB*
27-28 RSGB 7 MHz CW
March
6-7 ARRL DX SSB
13-14 RSGB Commonwealth CW
20-21 BARTG RTTY
27-28 CQ WPX SSB
*see Dec. TCA

This year's CQ WW CW contest saw excellent conditions and a great deal of participation by Canadian Amateurs. The single op all band class saw a three-way race between VE3IY, with an estimated score of 2.5 million, VE6OU with anywhere from 1.5 to 2 million, and VE7BTV with an as yet undisclosed score.

As promised, multi/single was the scene of a big battle between VE3PCA with about 3.8 meg, a new Canadian record, VE1DXA with about 3.3 meg, VE5DX with with about 2.8 meg and VE7WJ with a score of about 2.8 meg. With four stations potentially over the old 2.84 meg record, conditions must have been good.

VE3BMV, the perennial single-band champ, is believed to have broken the old record on 21 MHz, and VE3KRM and VE3IPR were observed making big noises on 40 and 80 respectively.

Conditions were nothing short of superb. 40 was widely acclaimed by the all-band types as the most productive band. At VE3PCA, we never got a single JA opening of any consequence, but still managed a QSO total of about 3000, less than 30% of which were USA stations. The MUF went way up above 30 MHz, perhaps even up to 50 MHz, so while there was good propagation on 10 metres, it became more a source for multipliers than QSOs, much the way 20 metres was like during the SSB contest.

80 and 160 were spectacular. 160 really came to life on the second day, with S9 Europeans filling the DX window. At 'PCA many western Europeans were heard, then propagation shifted and KH6CC was piling in. On 80, the local sunset openings to Europe, traditionally poorer than the European sunrise openings, produced Eastern European signals of S7 or so. Due to QRM from Western Europeans, running S9 and louder, they were almost unworkable at times. VE3IY noticed long path Africa and Middle East signals on 40, and actually made more multipliers on 40 than on 10 metres.

20 metres was, well, 20 metres. The most popular DX band lived up to its reputation at long last, and if any Canadian did go 20 single band, he would have been hard pressed to find a time to go to sleep. Except for a few hours in mid-afternoon, 20 was great to somewhere. On 15, Yuri is known to have made about 1500 QSOs and about 115 multipliers. Yuri did not spend much time needlessly calling CQ.

In other aspects of the contest, Bob VE3KZ decided to make the Canadian All Band QRP record respectable, rolling up a 250 K score with less than five watts.

For the CW contest, 1981 will be another year of the records. With the oncoming sunspot slump, it will be time for us to turn our attention to the lower frequencies. Records made this year in the CW contest, and last year in the SSB, may stand for a number of years. There are, however, a few good years left in this cycle, so be prepared for some surprises next year.

This year's ARRL 160 metre contest was not so fortunate. Conditions were rather poor, but competition was extreme. There were many hours when no-one was around to work but the serious entrants. By that time, everyone had already worked everyone else.

VE3BMV's long standing record of 86K (511 QSOs, 81 multipliers) was under serious attack from VE3INQ, who appeared to be everywhere all the time. It is not yet known how well he did. Also in the tussle was VE3BVD, who was there most of the time, and me, that is when I didn't fall asleep in the slow stretches. I made a rather nondescript score of 45K, which is probably a new Quebec record. If nothing else, I got a

chance to see what my new antenna can do.

As there is no low power section, let us hope that our wonderful DOC will see fit to allow us to use the same power on 160 we can use on the other bands. As for violations of the sacred DX window, they were relatively few in number. The two principal DX participants, VP2MFZ and V3MS, didn't help matters much by working transceiver on 1827 for hours on end. Transatlantics were kind of rough. The noise level generated by a local AM BC station's overloading of my front end didn't help matters much. Any help anyone can provide in curing the FT 901 DM's overload problem would be appreciated.

January is filled with new and major low-band contests, details of which appeared in last month's column. February is much the same, with the added all band interest generated by the ARRL DX CW contest.

The first month of the year is also a good time to think about one's contest priorities. The Canadian DX Association, CANAD-X, has just published the rules for their year-long Canadian Contests Championship. The CCC takes scores from all of the major, and some of the not-so-major contests popular among Canadians. The objective is to encourage more contesting by more Canadians more often. This year they have really opened up the show, and allowed all three CARF contests, and some of the major single-band contests into the figuring. This should be considered very important to most Canadian Amateurs involved in contests. The rules appear here.

Good luck to all, and I hope everyone got their hand in the Canada Contest.

RSGB 7 MHz CONTESTS

Period: SSB- 1200z 6 Feb to 1200z 7 Feb. CW- 1200z 27 Feb to 1200z 28 Feb.

Classes of Entry: Single op stations only.

1982 Canadian Contest Championship Rules

Objectives: To generate interest in contest operation and to provide a measure of the performance of Canadian Contest operators.

Eligibility: Only holders of Canadian Amateur licences are eligible.

Categories:
A- Single op All-mode
A1- Single op CW
A3- Single op Phone
B- Club stations
C- Special contest achievement
S- Single band/op
A/A1/A3/S only eligible if the operator is the holder of the station licence. B- Club stations, single op stations operated by someone other than the licensee, multi-op single transmitter and multi-op multi-transmitter stations. C- special achievement in contest operating, i.e. establishment of a record, a remarkable score, a contest expedition or similar noteworthy accomplishment.

Winners: In the A categories, S and B, the champion will be determined by the highest point total obtained in the contests selected for this championship year. Separate tabulations for each of these five categories will be kept. In category C, the winners are selected by the CANAD-X Contest Committee. It is not necessary to apply to be included in the CCC. The results will be tabulated automatically when the results of the various contests are published.

Contests: Participation in the following contests will count, if the contest gives at least 10 points to the highest Canadian in the contest.
ARRL DX Phone, ARRL DX CW, CQ WPX SSB, CQ WPX CW, CAN-AM Phone, CAN-AM CW, ARRL 160m, ARRL 10m, CQWW Phone, CQ WW CW, CQ 160m SSB, CQ 160m CW, Canada Day, Canada Contest, ARRL SS Phone, ARRL SS CW, IARU Radiosport, 73 160m SSB, CMWL Phone, CMWL CW.

Scoring: The station placing first in a contest will be given points equivalent to the number of those participating in that category. The next station, placing second, will receive one point less, and so on. The last station will have one point. For category A, both all-band and single band are listed together. A separate scoring is also included for the category S single band where appropriate. In multi-mode contests with separate SSB and CW entries, these individually count towards categories A1 and A3 as well as towards category A. Where CW and SSB are combined, such scores count for category A only. Category B scoring is basically the same as for A.

In categories A, A1, A3, S and B, the five best scores will be used to calculate the score for the Championship.

Championship Plaques:
A- Cdn. Champion, single op
A1- CW Champion, single op
A3- Phone Champion, single op
S- Single band Champion, single op
B- Cdn Champion Club station
C- Special Contest Achievement

Plaques will be awarded to the geographic winners in category A for each of the following areas: V°/VE1, VE2, VE3, VE4, VE5, VE6, VE7 and VY1/VE8. If a station is eligible for more than one award, the second or less significant award will be granted to the next qualifying station.

Tnx VE3KZ

Exchange: RST and serial number. Work only stations in the UK.

Points: 15 points per QSO.

Multiplier: total of UK prefixes worked. There are 42 in all.

Awards: Certificates will be awarded to the top three stations outside Europe.

Entries: must include logs and a summary sheet with multiplier checklist. Entries should be sent to RSGB HF Contests Ctte., P.O. Box 73, Lichfield, Staffs. WS13 6UJ, U.K. Logs must arrive by April 3 for the CW contest, and by April 24 for the SSB.

YU DX WW CW

Period: 2100z 13 Feb to 2100z 14 Feb

Classes of entry: Single op, both bands. When on one band, you must stay on that band for 30 minutes. Multi op, both bands. You must stay on one band for 10 minutes, unless collecting a multiplier on the other band.

Bands: CW only, 3520-3590 kHz and 7010-7040 kHz.

Exchange: RST and serial number.

Points: on 3.5 MHz, 2 pt/QSO with stations in other North American countries, 5 pt/QSO with stations on other continents, 10/QSO with YU. On 7 MHz, 1 pt/NA, 2 pt/DX, 5 pt/YU.

Multiplier: DXCC countries and YU prefixes worked on each band.

Awards: Certificates will be awarded to top scoring stations in each class in each country, and a plaque will be awarded to the top scoring single op entrant in each continent.

Entries: Logs, including a summary sheet of QSO points and multipliers, must be postmarked before March 15 and sent to: SRJ, YU DX Contest, P.O. Box 48, Beograd, Yugoslavia.

ARRL DX CONTEST

Period: CW- 0000z 20 Feb to 2400z 21 Feb. SSB- 0000z 6 Mar to 2400z 7 Mar.

Classes of entry: Single op, all bands; single op, single band; multi-op, single transmitter; and multi-op, multi-transmitter. There are also single op QRP sections for stations running 5w DC or 10w PEP. Single op stations may operate a maximum of 30 hours in each contest. Multi-singles must stay on any band a minimum of 10 minutes, unless collecting multipliers.

Bands: 160 thru 10 metres.

Exchange: Canadians send RST and province or territory. DX will send RST and power.

Points: 3 pt/QSO. Work only stations outside Canada and the continental USA.

Multiplier: Total of DXCC countries (outside Canada and USA) worked on each band.

Entries: must include dupe sheets and a cover sheet detailing QSOs and Multiplier points claimed. Entries must be sent within one month of the end of the contest to: ARRL, DX Contest (indicate CW or SSB), 225 Main St., Newington, Ct., 06111, USA.

News Briefs

No Licence

A recent decision of the County Court of Westminster in British Columbia dismissed charges against Lougheed Village Holdings Ltd., the owner of an apartment complex in Vancouver, for operating a satellite earth station and a broadcasting undertaking without the required licences from the Department of Communications and the Canadian Radio-television and Telecommunications Commission.

Minister of Communications Francis Fox indicated that the Court dismissed the charges on a technical evidentiary ground, namely that the Crown had not adduced sufficient evidence that the signals received by Lougheed Village Holdings constituted radiocommunications within the meaning of the *Radio Act* and the *Broadcasting Act*.

"There are other cases presently before the courts," Fox said, "in which the substantial issues raised in the Lougheed Village case will be dealt with. Consequently the federal government has decided not to appeal this particular decision."

He also noted that the DOC and the CRTC have a continuing concern about these operations and that the CRTC, DOC and the Department of Justice will actively pursue the other cases before the courts.

CARF News Service

Polish Stations

Although commercial communications with Poland were cut off, Amateur radio operators picked up some news from stations which appear to be coming from inside that stricken country, using the Amateur bands.

Early in the military crackdown, a Swedish operator claimed to have established a short-lived channel with a Polish station and the CBC National News on TV recently featured Herb Thomas VE3KHT of Ottawa, who monitored and taped a broadcast account of conditions given by what appeared to be a Polish commercial station or Amateur station. The SSB signal was very strong on 20 metres. The station, which was probably operating clandestinely, was aware that its message would always be heard on the Amateur bands. Although several stations queried it, there was, not unexpectedly, no reply.

CARF News Service

Letter on Handicapped Amateurs

This letter was written to the DOC Regional Office in Halifax.

Amateur Licensing Policy Respecting Handicapped Individuals

Sirs:

Recently I have been requested, as President of the Nova Scotia Amateur Radio Association, to investigate the known issuance of at least two Advanced Amateur Radio Certificates without benefit of regular examinations as prescribed under the Radio Regulations. These requests have come not only from individuals, but collectively from a club.

It appears that in at least one of these instances, such action by the Department of Communications is not regarded as being in the best interests of the Amateur fraternity and question the criteria used in reaching the decision to license this individual. While it is clearly understood within the Amateur community that the ultimate decision rests with DOC, it is requested that the DOC consult with the Amateurs in the area by advising the Nova Scotia Amateur Radio Assoc., who in turn will contact the club concerned prior to making the decision.

Perhaps to be all encompassing within Nova Scotia, the Sydney office of DOC could undertake to handle requests for Amateur licences under the compassionate and disability provisions as well as the Halifax office.

The Association will endeavour to provide both offices of DOC in Nova Scotia with up to date information on the name and address of the then-current president, and assure the Department that prompt investigation and report with recommendations will be forthcoming for any cases referred to it.

Whereas the issuing of licences referred to above is done under directives rather than published regulations, perhaps a letter of clarification of those directives might be in order so that we may have a better understanding and knowledge of those items considered by the Department.

We would appreciate the cooperation of the Department in agreeing to the above request. Amateurs have a long-standing obsession with maintaining the quality and integrity of operators and to make the Amateur Radio Operators Certificate worthy of considerable effort on the part of the individual.

B.J. Bonnar VE1UT
Pres., NSARA

Dear Mr. Bonnar:

Thank you for your recent letter concerning the licensing of handicapped individuals to operate on the amateur radio bands.

As you can well appreciate, numerous requests are received from individuals who believe that they are handicapped to such a degree that they are unable to participate in the formal examination procedures required by the regulations set forth under the Radio Act.

Each request is reviewed on a case-by-case basis, realizing that the primary concern of this Department and the amateur fraternity in general is to maintain the quality of performance of amateur operators.

Our decision to waive the formal code test is based on information or recommendations from the medical profession, and/or observations on our own part, and finally recommendations from local amateur clubs or individual amateurs. In some instances, a handicapped individual may be incapable of completing the written theory and regulations examination papers.

However, in all such cases the handicapped individual is required to demonstrate to an experienced inspector, through oral examination, that he has a thorough understanding of the basic fundamentals of radio and the current radio regulations.

You can surely appreciate that it is somntimes extremely difficult to try and render a fair decision that will be acceptable to all parties concerned.

We will, of course, make every effort to consult with your organization prior to making a final decision on the licensing of handicapped individuals.

J.L. Palmer
District Manager

HISTORIC BROADCAST

To commemmorate the first voice broadcast using continuous wave, made by Canadian radio pioneer Reginald Fessenden on Christmas, 1906, a special station, AA1A, operated from the historic original site in Massachusetts from Dec. 24 to New Year's Eve.

Some thoughts on Jamming

N8AJK

Every now and then we will hear malicious interference on the air, particularly on popular repeaters with wide coverage like VE3TTY or VE3RPT with bells and whistles to play with.

By and large, the response by Amateurs has been inappropriate and I feel that this is partly due to a mistaken idea as to what sort of person would do such a thing.

Remarks like "Get yourself a licence," or "refugee from the chicken band" or names like "idiot" or "turkey" serve only to make the problem worse and are probably incorrect to boot. The average jammer is licensed, possibly for many years, and is likely to be as smart as anyone else on the air.

Jammers come in two packages: one is a short-lived type who has had some quarrel with someone and takes it out on them on the air. But, as tempers cool down, this stops. The other is a real problem: an individual with personal problems, not necessarily connected with Amateur radio, who derives some satisfaction from distressing the rest of us, and who needs attention.

Usually socially timid or awkward, such a person can be bold and say things in this anonymous way which he could never do face to face. If we appreciate this, we can see that the appropriate response is to ignore him, however difficult that is. No attention means no satisfaction. Calling him names just makes him even more upset and aggravates the problem.

You can help by listening on the repeater input frequency and privately letting the group executive or whatever know your observations. If you manage to figure out his identity in some way, please *don't* call him and scare him off or take action on your own, as one gentleman did in October to our then-active jammer (WB2JAM, whose real call starts with VE3).

We have a good DF team in Toronto that works quietly and at that time we had already known the identity of WB2JAM since August (he also used the name Fred and the call sign VE3ARS which belongs to a legitimate ham in Ottawa).

The DOC, which tends to move slowly, was all set for prosecution but still demanded more readings and observations by inspectors when the jammer was scared into hiding by one individual who thinks himself smarter than anyone else on the air.

I have subsequently listened to this ham telling his cronies on VE3TOR of the inefficiency of DF work and how simple it was to finish the WB2JAM business on his own. He did not know how frustrating his actions were, nor how he sounded to those of us who knew what was happening.

Be that as it may, I only tell this tale to discourage uncoordinated effort in future, and to illustrate the pitfalls of such action.

In this particular example, I am told that vigilante action was taken by unknown individuals which have effectively solved the problem for now (until he comes back). If you have suspicions, please call one of the executive of the repeater group which runs the machine on which the problem exists and let them know.

DF work is done in secret and unless you are involved you cannot predict the trouble you may cause by acting on your own. Sometimes it seems as if nothing is being done, but you would be surprised at how much is known about a jamming in this area and the amount of evidence needed to convict in court.

A final point: If you come across a persistent jammer, try to listen on the input and provide us with the following information:

1. Whether you could hear him or not (please report even if you couldn't hear him).
2. The repeater, time, date and your location at the time as accurately as possible.
3. If you can try to estimate how far away the jammer would be from you if he were running a 10-watt station. This estimate is helpful but not essential.
4. If you have a beam or other DF equipment, then your estimate of his direction would also be helpful, but not essential.

This data is collected and fed to a statistical computer program (based on an atomic physics idea) which can find the location of a fixed jammer or even the route a mobile jammer is using. The key to its success is the number of observations; the more, the better. So please don't think that someone else will do it. We need your observations.

de N8AJK, Toronto FM Commx S o c .

in the Ottawa Groundwave

VHF/UHF News

By John Dudley VE5JQ
3125 Mountbatten St.,
Saskatoon, Sask. S7M 3T3

Welcome to our first column dealing with VHF-UHF and other related matters. We hope to report activity on the various bands and items of related interest. As for any column reporting activity, your contribution is required to make this a viable undertaking. All information, questions or suggestions will be gratefully received.

SIX METRES

Our lowest VHF band has been stealing the spotlight with recent F2 propagation. The solar flux has been high enough to produce enough ionization in the F2 layer to produce 50 MHz around the world contacts this autumn. Although we are two years past the apparent sunspot peak of cycle 21, the sun is keeping very active.

Eastern Canada has fared very well with numerous crossband contacts (transmit on six metres, listen on ten metres for those countries where six metres is unavailable) and direct two-ways with all continents including Oceania in the form of Hawaii.

At our QTH, things did not get underway until Oct. 31, 1981, when VP9IX and VP2VGR were worked in the morning, followed by KG6DX and 25 JA's in the afternoon. The number of Japanese stations active on six metres is incredible, estimated to be over 40,000. Whenever any DX shows up like ourselves, you are greeted by an incredible pile-up.

Nov. 2, 1981 brought more Caribbean in the form of HH2PR, KV4FZ, KP4AAN and VP5D. At 1800 UTC on the same day, the ZS3E beacon was heard but its owner was not home so no two-ways were possible. The previous day, both ZS3E and ZS3AK were heard here, but weakly and we could not break the pile-ups.

Nov. 2 also brought my first-ever cross-band contacts to Europe with G4BPY and DJ2RE. At 1830 our CQ was answered by a weak and watery sounding ZS6XJ for our first African QSO. The rest of the week brought a few more Japanese stations and T32AB on Nov. 5.

All six metre operators are hoping that we shall be blessed with more of these superb conditions.

TWO METRES

Ah yes, there is life on two metres beyond the FM repeaters. SSB is growing in popularity at a great rate. This summer brought some sporadic 'E' to Canadian stations allowing 1000-1300 mile range contacts to be made.

On July 26 a strong aurora let Montana, Idaho and Washington be heard here. As the sunspot cycle declines, we are in store for a lot of flares and the resultant geo-magnetic disturbances producing frequent auroras.

I would appreciate hearing if you or your local group has a two metre SSB net or activity night. We could hopefully publish a list of these and this would help stimulate activity in your area.

70 CM, 23 CM

Your writer has been off 432 for some months following a recent move. Activity on 432 is minimal in Western Canada. One group which is trying to improve things is the Northern Alberta UHF Society. This group has been active for a few years and holds a local Edmonton net on 432, some 75 metre nets and also publishes a newsletter. Details are available from Ken Yeatheard VE6KY, 13814-102nd Ave., Edmonton, Alta T5N 0P3.

Barry VE4MA is interested in regular skeds on 432 and 1296; interested persons please contact him.

E.M.E.

Canada has a number of distinguished and very active EME operators, the calls VE7BBG, VE7BOH, VE4MA and VE2PFO coming to mind in addition to others. These operators have taken up and met the challenge of this difficult but most rewarding mode of operation. Interest is on the rise and the experience of our predecessors makes getting started easier.

There are a few stations with very large antennas which can work stations with less than the minimum requirements, making it easier than you might think. Your scribe will be trying to listen on two metre EME this winter for those big stations with a pair of Boomers and a GaAsFet pre-amp. On 1296 progress is being made in collaboration with VE5MG. Using his 12' dish as a starting point, the other components of the stations are going together, albeit very slowly.

If you are interested in EME, there are two newsletters available highlighting activities. Two metres is covered by a recent newsletter published by KI7D (WB7UFO) and distributed by WB7DTI. 432 and up is covered by K2UYH's newsletter. A supply of SASE's to either WB7DTI or K2UYH will bring you your copy.

BEACONS

Beacons are an invaluable indicator of band openings on our VHF-UHF bands, in addition to providing a frequency marker and signal source for testing and aligning equipment. If you maintain a beacon or know of one in your area, please tell us so that we could compile and publish a list of beacons operating in Canada.

MICROWAVES

This part of the spectrum is certainly ripe for more activity and experimentation. Saskatoon has recently become the home of Kees Kaper PA0KKZ, a microwave enthusiast. Kees has gear for 10 GHz and 24 GHz. He would like to correspond with other microwave enthusiasts in Canada. His address is Kees Kaper PA0KKZ, 210 25th St. East, Saskatoon, Sask. S7K 0L2.

The Burnaby Amateur Radio Club

By Dan Gentry VE7DG

There was a complete record of the history of the Burnaby B.C. Amateur Radio Club written some years ago and filed, but at this time no-one seems to be able to locate it. To the best of my memory, I have included here some of the highlights that come to mind. I am sure that many will find at least some of them interesting.

In 1958, John Brown VE7JB was in contact with the Municipality of Burnaby's Civil Defense (does that sound familar?) with the idea of interesting them in using Amateur operations in C.D. Nothing came of that (in Burnaby) but John did get permission to use the CD building for the use of some Club meetings. This was the beginning of BARC.

Since the beginning, it has been a teaching club and, although John didn't do much teaching, he was very active, as was Bart Wilkinson VE7BAM, the Burnaby Parks Superintendent.

Included in the original teaching group were VE7FO, VE7BBB (the original) who was famous for running his Globe DSB rig into a vertical hanging down from the 14th floor of the Georgia Towers, and myself. There was no set syllabus and it was more of a random question and answer type of lesson. At first no code was taught and the pupils were told that they were the only ones who could actually teach themselves. Later oscillators were built and guidance was then given.

For the first few years the QTH was anything but permanent. We alternated locations, then established the Centennial Pavillion as our official QTH. We used to meet in the basement, and coffee was provided by the Chef of the restaurant which was then run by the Burnaby Municipality. The first two years we had a 'bash' at the Pavillion, which was catered to by Bill the Chef, and I might add that I never since had such good meals for such a small price.

Eventually we realized that the QTH up the mountain was all very nice but we were not getting any more members. As a matter of fact, we were losing members because of transportation, or rather lack of it. At that time there was no such thing as buses up the mountain. We managed to get into the CD building in South Burnaby but it was not always available, so we then managed to get one classroom at the Edmunds School.

One classroom was soon not good enough for the attendance we were getting, and eventually we were able to get room at the St. John's Anglican Church at Smith. We were there until about 1965, when we had the chance to get either into Bonsor or what is now the Heritage Centre. It turned out to be the Bonsor Rec. Centre, and we have met there ever since.

In the early years, we always took part in Field Day and our site was Burnaby Mountain, and in those times it was mostly bush. We had to clear areas to enable us to erect antennas which, apart from one beam, were mostly high dipoles.

In those days Field Day was 50% social and 50% operating. Many XYL's came up and cooked, and of course everything had to be carried up from the parking area. After a few years the results became more important than the social side, and eventually by a majority decision, a trip was made one year to the Mud Flats at Boundary Bay. It was not a success, but it had disrupted the continuity of the operation, and for a couple of years Field Day was not very well supported. However, it did survive and was relocated in the new SFU parking lot. It was unsatisfactory, and the next year we moved to a piece of land north of the C.G. Brown swimming pool complex. Two years there and then a move to the present place, north of the Kensington Park.

Over the years, BARC has taken part in many displays, including what used to be the Burnaby Hobby Display. We have also taken over the running of VE7PNE operation which was originally supplied and operated by our old friend VE7JB. Some of you may remember the 1 kw AM station in the B.C. Building, right next to the then B.C. Electric display.

Since its inception, the Club has constantly and successfully sent many people down to the house of the DOC (DOT) and they have come out smiling and clutching that piece of paper which entitles them to add to the QRM on Amateur Bands.

At a rough estimate of 10 a year (probably very conservative) that makes about 230 Hams through the Club's teaching system. So, if for nothing else over the years, we can be blamed for that. Of those, at least five have been nominated 'Ham of the Year' by the BCARA.

The Burnaby Connection

PARC aids in Canoe Race

The 1981 Canadian Canoe Championships were held in Ottawa at Mooney's Bay on Aug. 27, 28 and 29, 1981. The event was hosted by the Rideau Canoe Club.

The Pioneer Amateur Radio Club (Ottawa) was asked to provide communications. PARC members and other Amateurs who assisted are listed here.

Behind the scenes assistance was provided by PARC members who supplied equipment:

Joe Blanchett	VE3BAD
Des Wale	VE3MP
Bill Reed	VE3JSR

Communications were required between the following points: the judges stand and the finish line; the 500 metre start location; the 1000 metre start location; four referee boats that followed the races; the whipper-in location where the next race is assembled, lane numbers assigned and participants sent on their way to the start location; the public address announcer; and the awards presentation area.

The types of messages handled were five minute and three minute warnings for the start of the next race; the one minute warning plus start of race which was relayed by radio and broadcast over the public address system; messages from the start officials and referees regarding rule infringements, missing entrant numbers (quite a few fell off participating boats), disqualifications, etc; cancellation of races, changes of crew members passed from chief official to announcer (announcer could not see the awards area); miscellaneous traffic on rulings, delays in starts of races, etc.

The race officials and organizers from the RCC indicated that they were well pleased with the quality of the communications provided, and the time and effort put into the event.

The club expresses its thanks to all those who organized, participated and provided equipment in this challenging exercise.

Alex VE3KIY.

Overall organizer	-	*Wayne Gethchell	VE3CZO
Assistant organizer	-	*Joe Blanchett	VE3BAD
27 August			
Larry Schweizer		- VE3IHZ	(control)
*Lorne Hunt		- VE3AHA	
*Huck Humphrey		- VE3ASJ	
George Schuthe		- VE3DMC	
*Stu Glen		- VE3MHX	
*Bill Cousins		- VE3GPR	
Bill Deacon		- VE3BDO	
Chip Wiest		- VE3BGV	
28 August			
*Alex Milne		- VE3KIY	(control)
*Art Childerhose		- VE3CGD	
*Lorne Hunt		- VE3AHA	
*Croft Taylor		- VE3OR	
*Stu Glen		- VE3MHX	
*Murray Gold		- VE3KHG	
George Schuthe		- VE3DMC	
Denton Craig		- VE3HJV	
*Erik Christensen		- VE3KIH	
29 August			
*Eli Desson		- VE3PI	(control)
*Alex Milne		- VE3KIY	
*Rod Adkins		- VE3INE	
*Wayne Gethchell		- VE3CZO	
*Geoff Clarke		- VE3JBD	
Ted Caron		- VE3HMC	

*Pioneer Amateur Radio Club (Ottawa) members.

MANITOBA EVENTS

Malcolm Timlick VE4MG reports interesting events from Manitoba: VE4AFO in Selkirk has contacted a Winnipeg station on 1296 megs. The CW signals over the 20 mile path were perfect each way.

A second event was the theft of DOC's regional mobile monitoring station. This is the elaborate one displayed at the 1978 CARF Symposium in Calgary. The mobile-home type vehicle was recovered but all of the precision equipment used to monitor TV stations had been carefully removed. Loss in the theft, which was obviously not a run-of-the-mill rip-off, amounted to $200,000.

In an attempt to bolster its dwindling numbers, the Amateur Radio League of Manitoba is launching a membership drive. To help it out, a new phone net will be held on the first Monday of every month on 3765 KHz, following the Manitoba evening phone net. If the drive fails, the League executive may suspend the operation.

The Quebec Radio Net

Ed Henderson VE3SH

On Jue 6, the annual meeting of the Quebec Radio Net Controllers took place at the QTH of VE3SH in Orleans, near Ottawa, Ont. In attendance were nine of the regular controllers and six wives.

It was a special meeting this year as it marked the 10th anniversary of the Quebec Radio Net, which has met every night of the week, all year round, on 3775 KHz at 1930 est/edst since 1971. The QR Net has become a favorable meeting place for Amateurs from VE1 to VE3 lands with occasional VO1, VO2, VE4, VE5 and, of course, VE/W4 in the winter months.

The Quebec Radio Net was spawned by Ed Gareau VE2GA back in June 1971, when he began patching a vacationing ham, Bruce VE2BQL, to his neighbour back home. Ed continued to offer this service to any Amateurs on a regular basis and he called every night at 1930 hrs on 3770 KHz soliciting traffic for the West Island area of Montreal.

Soon other local stations were attracted to help maintain a constant service and spread the load. Some of these early volunteers were Ken VE2DU, Joe VE2ALE, Barry VE2BQK, Arn VE2SD, Dave VE2BIT, Jim VE2UY, Lloyd VE2AXY, Bill VE2DR, Ron VE3AUM, Vic VE3DEP, Bill VE2BZU, Bob VE2AXO and Ed VE2BHX. There have been so many service-minded volunteers that it is difficult to make a comprehensive list.

The purpose and objective of the QR Net, which opened officially on Sept. 3, 1971, is to provide a meeting place for Amateur radio operators in eastern Canada, linking primarily VE1, VE2 and VE3 call areas, and to contribute in some small way to Canadian Unity. The objective has been and continues to be met as witnessed by the hundreds of regulars checking in over the past ten years.

From records kept on the Monday night sessions over the past two years, there were 603 different VE3 callsigns checking in, 166 VE2's and 121 VE1's.

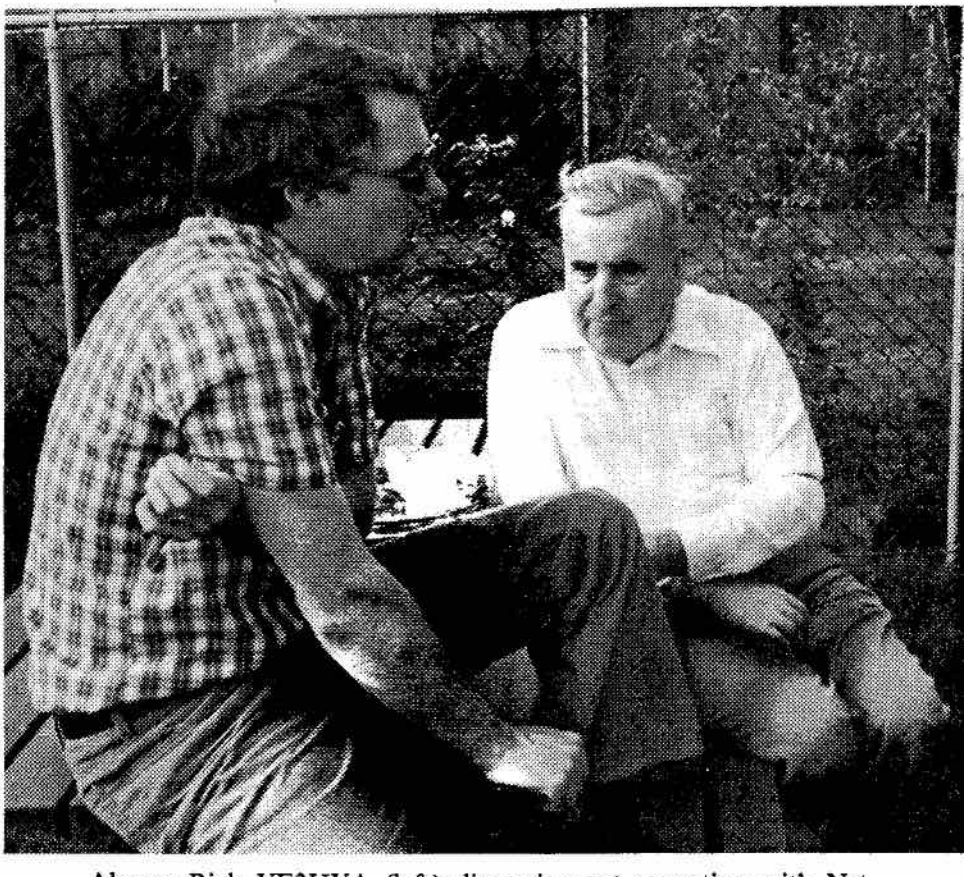
In an effort to honour those individuals who check in regularly and assist the net by relays, passing traffic and handling phone patches, the QR Net committee will single out a few persons each year from ballots cast by the net controllers. This past year, 1980/81, the outstanding contributors were Tony VE3HRI, Gord VE3HTJ, Louise VE1BRX and Merv VE3CV. Because of the vast number of people checking in, the selection becomes very difficult!

Lloyd McClintock VE2AXY has been the QR Net Manager for several years now, and with him are a group of hard-working, friendly and dedicated controllers and assistants. The present regular net controllers are:

Monday	Ed VE3SH
Tuesday	Serge VE2BOO
Wednesday	Ed VE2BHX
Thursday	Vic VE3DEP
Friday	Lloyd VE2AXY
Saturday	Arn VE2SD
Sunday	Bill VE2BZU

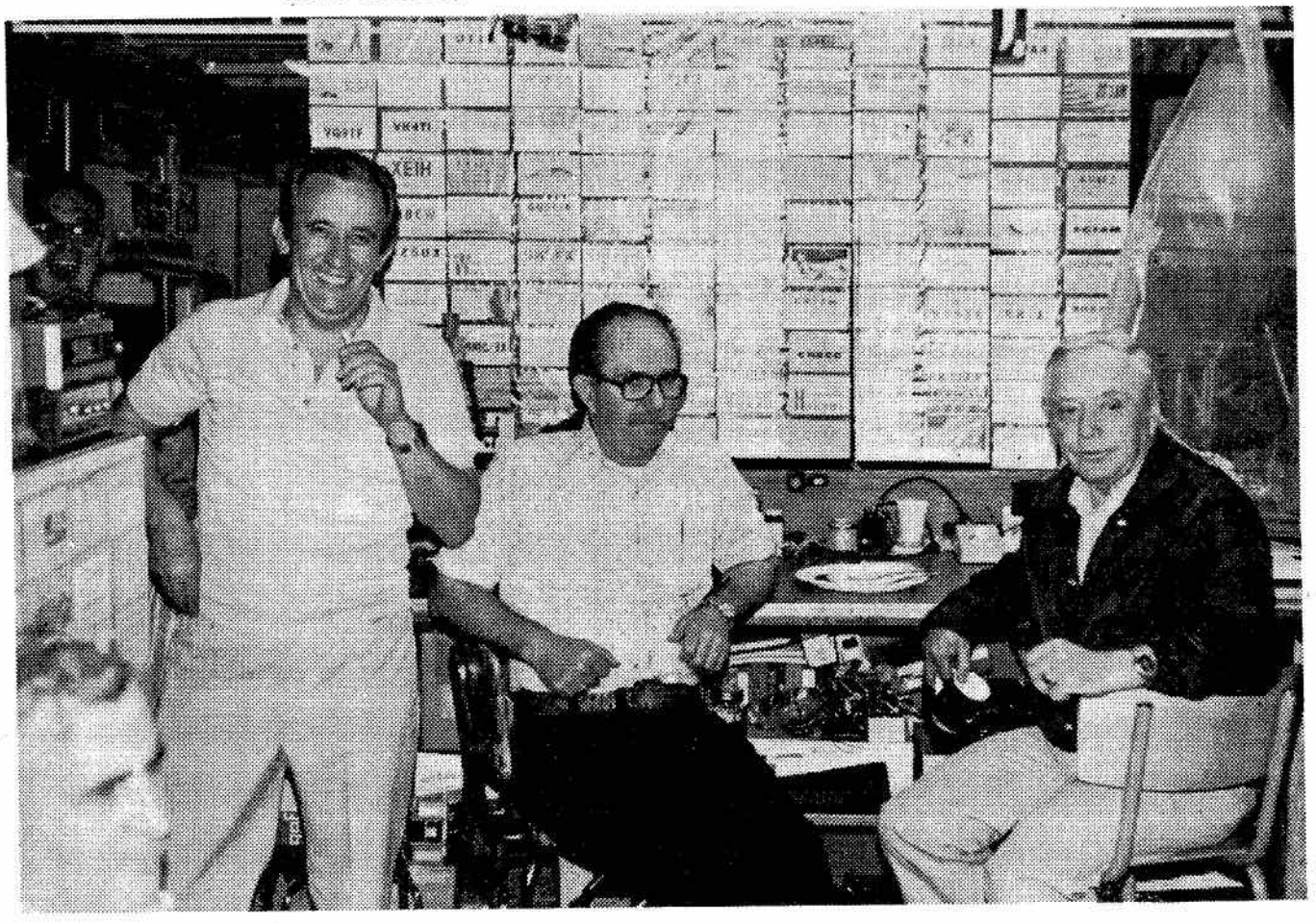
Net frequency is 3775 KHz, nightly at 1930 to 2030 Hrs. est/edst.

We invite anyone out there who can hear the Quebec Radio Net and who hasn't checked in (is it possible?), to please give us a call. We will be happy to say hello and who knows, you might even meet an old or new friend!



Above: Rick VE3HVA (left) discussing net operation with Net Manager Lloyd VE2AXY.

Above, left to right, Rick VE3HVA, Gord VE3HTJ, Vic VE3DEP, Ed VE2BHX (seated), Bill VE2BZU, Chuck VE3JDM, Lloyd VE2AXY, Ed VE3SH, Arn VE2SD. Below, relaxing after supper, Gord VE3HTJ, Bill VE2BZU and Ed VE2BHX.



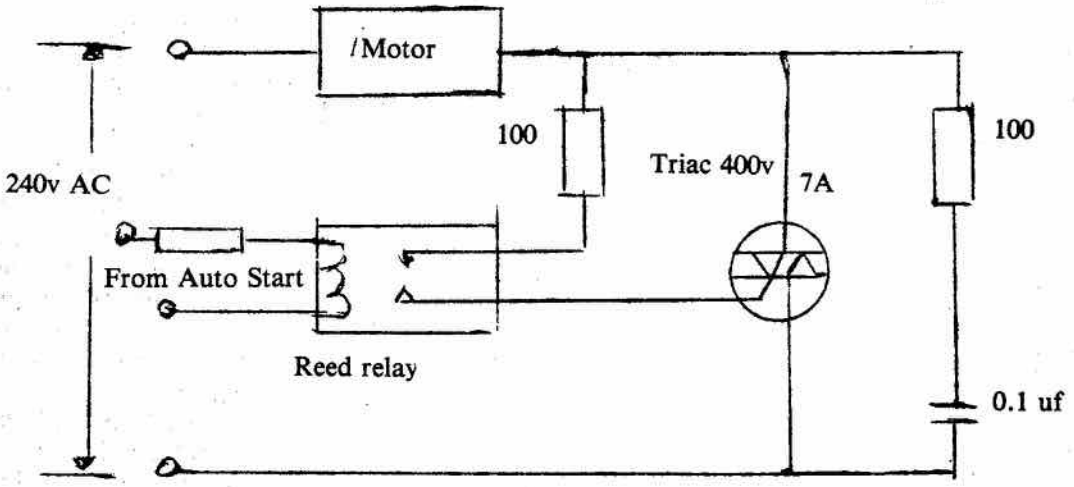
Auto Start Motor Switch

A problem encountered with TVs that have auto-start facilities is the noise spike generated by the motor control relay supplying power to the printer, when the TV detects an incoming RTTY signal and switches on the printer for autostart copy. Also relays with contacts of sufficient current ratings are expensive and sometimes automotive horn relays are pressed into service, degrading the professional finish of many home brew TVs(?).

The perfect solution was developed by Jim VK2BVJ, with a tiny solid-state circuit that can be tucked away in the innards of your printer somewhere. This circuit is also TTL voltage compatible and should therefore be of interest to anyone with computers or other digital equipment wishing to switch high voltage/current loads with TTL voltage level signals.

The circuit consists of a small DIL type relay which is TTL voltage compatible which fires a triac to provide the motor supply. If the relay is then allowed to release, the triac will cease to conduct on the next zero crossing of the 110 Vac supply. The 100 ohm resistor and 0.1 uf/630v capacitor provide suppression for reactive loads such as Teletype motors.

SARTG News
Credited to Jim Lupton
VK2BVJ



R to suit relay if required

Spectrum Management Letter signed

A Letter of Understanding was signed on Sept. 11, 1981 between the govenments of Saudi Arabia and Canada for the establishment of a Spectrum Management System in Saudi Arabia.

The Letter requires ratification by the two governments, and details of a contract for establishment of the System have yet to be negotiated.

The two governments have agreed that the Canadian Commercial Corporation, in consultation with the Department of Communications, will be the responsible contractor for the System Program.

Developed by the DOC, the program envisages the establishment of a Spectrum Management organization and the necessary tools and technology in Saudi Arabia. Its scope covers the allocation of frequencies and the enforcement and monitoring facilities for radio waves across the electro-magnetic spectrum, which includes radio, television, microwave, mobile radio, marine and aeronautical bands.

NEW HF NET

VE3EY is net manager for a new 75 metre phone net. The Northwest Ontario net operates daily at 0015 Zulu time on 3750 KHz and serves the North Bay and Sault Ste. Marie area.

Amateur Puzzle

John W. Ficner VE3DQM

The words hidden in the puzzle below may be found horizontally, vertically, diagonally, forward or backward. Just to make it a little tougher, I did not bother to circle the first word, hi.

VE3DQM

AMATEUR RADIO #1

H S O Y N T H U A W D V C G R A U T K M I S I R A
T E F W S C H I L S L A G J K V Y C A F D Z U X I
A U B A T B Z J E W T R L C O E J C K O S H J N B
K C N A R X M V T A Z I D Y D L Y F D C I X Q S L
M S M I C A A H N O R A D S F I U I X D W W L Y P
F X M O N G D K K D X B J C G S P X N B G C F L N
G T I K F G V Y G E V L H M G C O O L G N C X N E
D L I N E J C G P D O E Z W I G L I L B O S S I L
W Z G Q N J M T Y Y Y K W L X K E E M I E W U T J J
A T M D K H F S I M Y H F E M M R B Z E C J K X R
X Y C N E U Q E R F G I W I C A E D E A L I X O M
W Q G Q R F I Z A K F V T A D N O P T D R V T C D
U O K I O I U X K G R T Z I C S A H L L Q C U B L
A B G B G W B R L R E P A A R N O T Q T E R F J H
K U F E E N N N E R C T P K O D O T C L M K Z E E
P Y F T J P H S G U I A B A E R A I L U W B J W S
S T D Y L H I X R O C P P E D N N O T W D O K K W
R E X T J S Q R N I J O D A N W C G N A Y N D A V
R N F O T E E F T P T U E E H G V T E H L I I D B
G X B O G N X O E Z T K T L F H Q W I F R U I C W
F L R Y T L R J C I G N M V P F D I A G S J D T I
D S G X F C S K L B A V G F W I H B R V R W E O F
O H M R Y U E P Y X A Y Q C Y N X W X T E K T S M
N W K W K P M A U M A Q U Y M A L I W K N S K C A
I Q Z B O A T L U U V U G K A L M R T L V D F F G

FIND THESE HIDDEN WORDS IN THE ABOVE PUZZLE:

amplitude	antenna	capacitor
dipole	emitter	farad
inductance	keying	line
radiation	resistor	sweep
wave		
cathode	collector	current
final	frequency	grid
match	modulation	ohm
tank	tuning	variable

German Repeaters

VE3KPK

On my trip last year to Germany, I worked quite a few repeaters. One thing I was surprised at: most of the OM's work only a few watts with mickey mouse antennas, like a combination of car radio and two metres. So I investigated a bit further and found their repeaters have been all tone operated. I guess the purpose for this is that no skip is going over the repeater.

The distance a repeater covers was also surprising. I found out that they use a high sensitivity receiving amp. on the repeater. That answered my question about coverage.

As everyone knows, all the modern rigs have a tone burst. So the only thing we must have is a tone squelch that will open the repeater and an antenna pre-amp. When someone has an older rig, he would have to get or build a tone burst on it.

Well, there might be some objection from OM's that would like to work skip! But I think the purpose for the repeater is to give 'reliable communication' locally. When someone would like to work skip on two metres he would have to go down in frequency to 52.

There might be other objections we would have to advertise that the Owen Sound repeater is tone operated. Well, OM's, we'll have to think about this one!

CANADX CHANGES

Here is news for card collectors and DXers: The Canadian DX organization, CANADX, is changing its DX information, contest and round table net to 1730 hours Zulu on 14173 on Jan. 3.

AMATEUR EXAMS

The next Amateur exams are on February 10. Applications close Jan. 13.

Canadaward Report

The CARF Canadaward awards program has grown by leaps and bounds over the year since the last large-scale report. Statistically, the number of awards issued has almost doubled, with 20 and 10 metres still the most popular bands on which to earn this award. 6 metre interest has just skyrocketed, with 19 awards so far issued.

For those of you looking for a challenge, no awards have yet been issued for 160 metres. There are stations active in all provinces and territories on all bands 160 through 6, so lack of activity should be no-one's excuse. Two more Five Band Canadawards have been earned, and several stations are known to be working on them.

Unfortunately, Canadians are living up to their reputations as poor QSLers. After having examined over 150 applications for awards, and having to turn down perhaps 20% of them for incomplete QSL information, it appears that a few of us do not know what sort of info is necessary for a QSL to be valid.

Date, including the year, is essential. 'Tuesday' is insufficient. The band and mode are essential. Signal reports are not necessary, except to be used as a check on what mode was used. The call of the station worked is also quite important. I would have thought this sort of info was pretty obvious, but apparently it is not.

In recognition of the difficulties some of you will have in collecting the necessary cards, the committee has decided to give credit for QSOs made during the Canada Day, Canada and CARF Phone Commonwealth contests, provided logs are received by both stations. That is, if you manage a Canadaward during the contest period, and both you and all the 12 stations you work submit logs, then credit will be given for all QSOs. You can pull QSOs out of any running of any of these three contests. When you make applications, be specific about which QSOs from which contests you wish to claim, including QSO serial numbers sent and received. If logs are received by you and the stations you worked, then credit will be given. This should help those of you who are especially keen on some of the low-band or 5 Band awards, or who are rather poor QSLers yourselves. Anything the committee can do to make earning the award easier, we will do.

So far, the SSB endorsements are the most commonly requested endorsements. CW comes a distance second, but so far there have been no RTTY endorsements. As QRP is gaining popularity among Canadian Amateurs, QRP endorsements will be given to any station whose application was made while running 5 watts DC or 10 watts PEP input or less. A note accompanying your application with details of how your power was maintained at QRP levels will suffice. If you and the 12 stations you work were running at QRP levels, then you can ask for a two-way QRP endorsement. QSL cards received should show that the other station was running QRP.

I feel like a broken record when I say this, but the popularity of the award on six metres is nothing short of amazing. A six-metre Canadaward is becoming as prestigious among six-metre types as WAC or WAS. There has been a noticeable increase in interest among six-metre types in working Canadians. So far, Canadian and American Amateurs have been the only winners of the award on this band, but JA's are known to have worked stations in the Maritimes and Newfoundland. We may soon see an application or two from outside North America.

I am only sorry that so few Canadians have earned the award on this band, in comparison with their USA comrades. VE1AVX (now VE1YX), VE1ASJ and VE6CX are the lucky three. Thanks go to VE1ASJ for helping to disseminate info about the award among six metre operators.

As for the other bands, that is 80, 40 and 15 metres, what is wrong with Canadians? The letter from Dave VE7AYU in October TCA illustrates the problem on 15 metres. 40 and 80 are, however, extremely popular bands in this country, and there are regular coast-to-coast QSOs made on these two bands. For all the activity generated by the dozens of nets on these two bands, where is the interest in achievements? If the few regular users of 15 metres in Canada were really keen on getting more Canadians to use the band, they should perhaps do some missionary work, by pulling people onto 15 from other bands to complete their own Canadawards.

I hope Dave VE7AYU and others will do their part in the contests and try to get some competition going between them, thereby creating more activity on the band.

The awards program is a success, thanks to all who have applied for the award and all those who have been good enough to make QSOs and hand out useful QSL cards. Let's see more interest in 160, 80, 40, 15 RTTY or QRP on any band. Any comments you have on how the award may be improved will be appreciated. Info about the award can be had through the Kingston Office, or via P.O. Box 2172, Station D, Ottawa, Ontario K1P 5W4 or via my own address which appears at the head of the TCA Contests Column. Dave Goodwin VE2ZP

Awards issued to Dec. 1, 1981

CANADAWARDS

3.5 MHz
1. VE3GCO SSB
2. VE7IX SSB
3. VE3XK SSB
4. VE3JPJ SSB

7 MHz
1. VE3GCO
2. VE3JPJ SSB

14 MHz
1. VE3ET SSB
2. VE3GCO SSB
3. VE2QO SSB
4. W9VWV SSB
5. W6BZ CW
6. K6UY CW
7. WB8YXT
8. WD8CYR CW
9. VE3IUE
10. WD9ACQ
11. DA1HO SSB
12. VE6PW SSB
13. W3TUB CW
14. VE7CNE CW
15. VE3ITU
16. VE3JIJ
17. VE3DMC
18. VE3IPR
19. WA8VDC
20. VE3JPJ SSB
21. VE3HLL SSB
22. WA4SKE
23. VE2DZT SSB
24. EP2LI SSB
25. VE7IX SSB
26. VE3KK CW
27. 7X2LS SSB
28. VE7DEN SSB
29. VE7MH CW
30. PI1PT CW
31. VE7BAK SSB
32. I8YRK SSB
33. JH1VRQ
34. OE5AHL CW
35. VO2CW
36. VE3CZJ
37. HI8XGF SSB
38. HI8XJO SSB
39. K8EK SSB
40. VE3DIJ SSB
41. DL7CS CW
42. VE3YE SSB
43. VE3OCU SSB
44. WA2FUM SSB

21 MHz
1. VE3GCO SSB
2. 9H4G SSB
3. WA2FUM SSB
4. VE3JPJ SSB
5. KA0FAR CW
6. G4CMT SSB
7. VE2ZP CW

28 MHz
1. VE3GCO SSB
2. WB9WFZ SSB
3. VE1BNN SSB
4. VE6KQ SSB
5. WB7UCK
6. WB0WAP
7. WB2RLK/VE1 SSB
8. VE7CER SSB
9. VE3KXE SSB
10. WA4QMQ SSB
11. VE6BEU SSB
12. WB5RQM SSB
13. VE3KIF SSB
14. PA0PCA SSB
15. DA1QR SSB
16. VE3DAX SSB
17. VY1BR SSB
18. VE7DRI SSB
19. DA1MH SSB
20. VE3HOM
21. VE7CUF SSB
22. VK2NSE SSB
23. VE3KRX SSB
24. VE1BNN CW
25. VE7DOG SSB
26. JA7GB SSB
27. WA2FUM SSB
28. VK2NOG SSB
29. VE1BBS SSB
30. VE4AFO SSB
31. W2JBZ SSB
32. K8IXU SSB
33. VK2NYI
34. PA0SMU SSB
35. N6BOI SSB
36. N4BBY SSB
37. WB3DKY SSB
38. VY1AL SSB
39. WA4NOM SSB
40. VE3JPJ SSB
41. G4FXS SSB
42. JH1IFS SSB
43. JG1FJT SSB
44. VE5ABJ SSB
45. VE3IPR SSB
46. VE7FAO SSB
47. VE7EDA SSB
48. WD9FOE SSB
49. K6PKO SSB
50. WB0PPR SSB
51. WA1YRB SSB
52. KC4OH
53. AJ1L SSB
54. KB6CO SSB
55. WD6DRM SSB
56. KA8ECT SSB
57. K6CID SSB
58. W8BCE SSB
59. VY1AU SSB
60. VY1BF SSB
61. PA0MA SSB
62. VK3NXQ SSB
63. VE7FCK SSB
64. VE6AYA SSB
65. VE2AJX SSB
66. VE3GTB SSB
67. VE6CKD SSB
68. G4CMT SSB
69. VE3LCJ SSB
70. VE1CAW SSB
71. VE1BWP SSB
72. JA7EPO SSB
73. JA2MTM SSB
74. WD4SII CW

50 MHz
1. VE1AVX SSB
2. KA4AOK SSB
3. N3AHI
4. VE1ASJ SSB
5. W7WKR SSB
6. N7DB
7. KA1BRD SSB
8. W2UTH SSB
9. WA7HQG SSB
10. W7ZTT SSB
11. WB1FVS SSB
12. WD2AKA SSB
13. WA7GCS SSB
14. K8WKZ SSB
15. W2IDZ SSB
16. W7IDZ SSB
17. K7LED SSB
18. VE6CX
19. N4CD SSB

Five-Band Canadawards
1. VE3GCO
2. VE3JPJ SSB
3. WA1UVX

News Briefs

ONE LITTLE WORD!

If the recent federal budget held little good news for the average citizen, it at least had a word of cheer for Canadian Amateurs. Quite literally, the changing of a single word has made easier the duty-free entry of Amateur equipment. Because the 1980 budget permitted duty-free entry to certain equipment designed *only* for use on the Amateur bands, the wording caused difficulties in importing such gear which is equipped with WWV and the new-but-not-yet-legal Amateur bands.

As a result of representations made by CARF and other organizations to the Department of National Revenue, the recent budget has eased things by substituting the word 'primarily' for the word 'only'. Duty-free equipment is now defined as transmitters, receivers, transceivers and transverters, assembled or in kit form, which are *primarily* designed for Amateur use. Also included are linear amplifiers, VFOs, oscillators and power supplies designed for use with this equipment. In dealing with customs officers, quote the amended tariff item No. 44534-2.

CARF News Service

DISH KIT

Heathkit, which pioneered in selling Amateur equipment in kit form, has come up with its ultimate package: it is now marketing a complete satellite receiver, nine-foot parabolic dish and all.

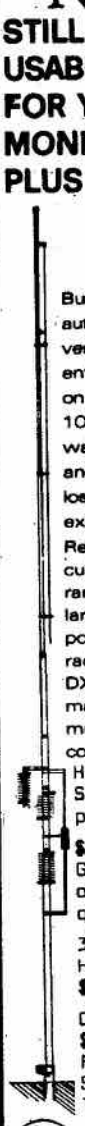
CARF News Service

80-10 METRES

A new U.S. FCC ruling will soon allow U.S. Amateurs to use slow scan TV and facsimile on the bands 80 through 10 metres.

CARF News Service

NEW
STILL MORE USABLE ANTENNA FOR YOUR MONEY . . . PLUS 30 Meters!



Butternut's new HF6V automatic bandswitching vertical lets you use the entire 26-foot radiator on 80/75, 40, **30**, 20 and 10 meters (full quarter-wave unloaded performance on 15 meters). No lossy traps. Butternut's exclusive Differential Reactance Tuning™ circuitry uses rugged ceramic capacitors and large-diameter self-supporting inductors for radiation efficiency and DX performance unmatched by conventional multiband designs of comparable height.

HF6V INTRODUCTORY SPECIAL. Same as previous HF5VIII.

$149 + $9 S&H
Good till Mar 15 or while initial quantities last.

30MCK(30M kit for HF5VII-III models) $45 + $4 S&H

CLEARANCE HF5VII $125 + $9 S&H
RMK-II $65 + $6
STR-II $39 + $4
TBR-160$59 + $4

BUTTERNUT ELECTRONICS CO.

---

cushcraft CORPORATION

Regular $ 75

RINGO RANGER II ARX-2B

Sale Price $ 59

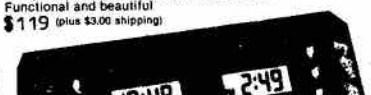
S & H add $4

$9 S&H Incl.

MODEL LAC-1 with UHF fittings accepts one PL-259 and one SO-239.
MODEL LAC-2 with UHF fittings accepts two PL-259 connectors.

OTHER CUSHCRAFT in stock for immediate del.
HF
A3 triband
A4 triband
A743 7,10MHzA3
15-4CD 4el 15M
617-6B 6M Boomr
32-19 2M Boomr
214B 2M Jr " "
214FB FM " "
A144-11 11el
A147-11 11el
A147-22 22el
A147-20T V/H
A449-11 11el
ARX450 R. R.

Model 173DM
Dual, independent clocks/Solid walnut case/ Functional and beautiful
$119 (plus $3.00 shipping)



Model 173B
Internal backlight/Aluminum and Poly case/Portable
$59 (plus $3.00 shipping)

Independent Military Option

Military time format clocks by **Benjamin Michael.** Independent of power lines these units are energy efficient, secure, and free to provide accurate quartz controlled time in any setting. Used by the Military and U.S. government agencies as well as many municipal law enforcement and public safety departments, these units won't quit just because commercial power did.

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DEALERS WANTED! *Send letterhead for information package.*

QUANTITY DISCOUNTS ON THESE CLOCKS FOR CLUBS.

NEW!! YAESU FT-ONE

CALL FOR QUOTE

- three selectivity positions for CW (two for FSK!) using optional filters
- 73 MHz first IF
- 0.3 uV sensitivity
- full break in
- Curtis 8044 keyer available as option
- front panel keyboard
- ten VFO's
- one year factory warranty

YAESU

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FT 101ZD

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NEW FT-208R
Synthesized 2m FM HT
SAVE $50
Reg. $469
SALE $419

Accessories
NC-8 Quick Desk/Charger 105
PA-3 Mobile Adapter 55
FNB-2 Extra Capacity 32
FBA-2 Battery Holder for 6 AA 12
MMB-10 15
YM-24A Speaker Mic 45

LOWER YAESU PRICES !!

CALL NOW AND GET OUR QUOTE. YOU'LL BE VERY PLEASANTLY SURPRISED. FT-ONE PRICE LOWER THAN IN THE U.S.A.

$299.00

OTHER VOCOM PRODUCTS !!

FM 2M Amplifiers
50-500 milliwatts in 25 Watts out----------$135
1-5 watts in 25 watts out----------$125
1-5 Watts in 50 Watts out----------$169
2 or 25 Watts in 100 Watts out----------$269
10 or 25 Watts in 100 Watts out----------$269
2/25 or 10/25 program modules for 100W amps $ 15

5/8 wave 2M collapsible antenna with BNC---$ 35
Mini Duck for 2M with BNC----------$ 22

FULL ONE YEAR PARTS AND LABOUR WARRANTY BY VOCOM ON ALL THEIR PRODUCTS !! !!

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YAESU FP301D
YAESU FT7B T
YAESU FP12 P
YAESU YC7B D
YAESU FT707
SWAN Astro
SWAN PSU5(A
SWAN ST3B Ar
YAESU CPU25
DAIWA RF440
N.P.C. 12 ar

DEMOS
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YAESU FL210
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Up to 3 KW PEP an
1.8-30 MHz, coax, bala

POW

Hand-He

Simply plug in synthesized mo hand-held opera

RF POWE

The Power Pock the IC-2A, applie rf amplifier, and mobile antenna.

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The Power Poc audio output a that messages noise, even with by using the Po fier, you can volume — thus pack.

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***NEW!* Bearcat® 100**
The first no-crystal programmable handheld scanner.
6-Band, 16 Channel • Liquid Crystal Display Search • Limit • Hold • Lockout • AC/DC
Frequency range: 30-50, 138-174, 406-512 MHz.

The world's first no-crystal handheld scanner has compressed into a 3" x 7" x 1¾" case more scanning power than is found in many base or mobile scanners. The *Bearcat* 100 has a full 16 channels with frequency coverage that includes all public service bands (Low, High, UHF and "T" bands), the 2-Meter and 70 cm. Amateur bands, *plus* Military and Federal Government frequencies. It has chrome-plated keys for functions that are user controlled, such as lockout, manual and automatic scan. Even search is provided, both manual and automatic. Wow...what a scanner!

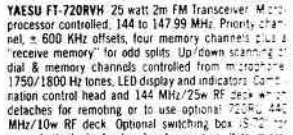
The *Bearcat* 100 produces audio power output of 300 milliwatts, is track-tuned and has selectivity of better than 50 dB down and sensitivity of 0.6 microvolts on VHF and 1.0 microvolts on UHF. Power consumption is kept extremely low by using a liquid crystal display and exclusive low power integrated circuits.

Included in our low price is a sturdy carrying case, earphone, battery charger/AC adapter, six AA ni-cad batteries and flexible antenna.

— IN STOCK — $559

INSURED SHIPPING & HANDLING
POSTAL CODE A-P add 2%
POSTAL CODE R-X add 3%
MINIMUM - A-P $2; R-X $3
UNLESS STATED OTHERWISE !!

SPECIAL THIS MONTH



YAESU FT-720RVH 25 watt 2m FM Transceiver. Microprocessor controlled, 144 to 147.99 MHz. Priority channel, ± 600 KHz offsets, four memory channels plus a "receive memory" for odd splits. Up/down scanning of dial & memory channels controlled from microphone. 1750/1800 Hz tones, LED display and indicators. Configuration control head and 144 MHz/25w RF deck which detaches for remoting or to use optional 720RU 440 MHz/10w RF deck. Optional switching box (S-720) for using both decks for two band operation. With mic, phone, wire stand, mobile mount, DC cord. Weighs 13.8 VDC/6½ A. 6"w × 2"h × 10"d. 5 lbs.

Regular $673 - ***Closeout $349.95***

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ike-------$ 49
ansceiver-$749
wer Supply$199
sceiver---$599
r supply--$119
Dis for 78$119
nsceiver--$899
Transcvr--$899
wer supply$179
na Tuner--$189
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2m ALL MDE$599
Transc.--$1529

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LLBOOKS----$42
APS & ATLAS$ 7
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MFJ-984

$ 495

tches any feedline,
r random.

HI-Q BALUN

- For dipoles yags inverted vees & doublers
- Replaces center insulator
- Puts power in antenna
- Broadbanded 3-40 MHz
- Small, lightweight and weatherproof
- 1:1 Impedance ratio
- For full legal power and more
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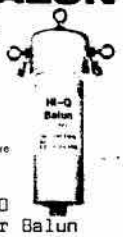
- With SO 239 connector



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8TATE-OF-THE-ART 2 METER MICROCOMPUTER-CONTROLLED TRANSCEIVER

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TILL FEB 28 Only $10.00
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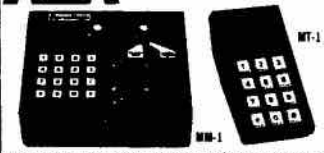

MM-1 MorseMatic Brogrammable keyer. 16 button pad tailors unit to operate as a Memory Keyer, Morse Trainer, Beacon, or Automatic Serial Number Sequencer. Speed 2-99 wpm, 500 character memory. Use with all popular paddles. Keys gnd block, cathode or transistor circuits. 9-16vdc @ 350 ma.

$309

MT-1 Morse Trainer. Generates random morse characters at precisely calibrated speeds, 1-99 wpm. One character speed can be selected with another (slower) actual speed. Two levels of difficulty. Select five-letter code groups, or random word length. Programmable automatic increase in speed from a beginning speed to an ending speed over a duration of .1-99.9 minutes. Normally operates in a random mode, but for checking progress, a 24,000 character answer booklet is supplied. 9-16vdc @ 200 ma.

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MT-1P Morse Trainer. Portable version of the MT-1. Take it with you! Contains a rechargeable battery pack which provides hours of practice between charges. With battery pack and charger.

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CK-1 Contest keyer. Incorporates virtually all of the features of the famous MorseMatic, with the exception of the Trainer and Beacon modes. Two pre-set speeds for fast recall and a stepped variable speed control for contesting, 1-99 wpm. 9-16vdc @ 350 ma.

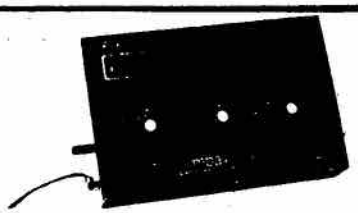
$199

KT-1 Keyer/Trainer. All of the features of the MT-1. However, except for the on/off volume control, all other functions including speed, sidetone pitch, weighting, tune & more, are programmable by using the keypad to address the internal microprocessor. Speed variable, 1-99 wpm. Automatic tune function allows two-handed xmtr tuning. Trainer provides a sequence of 24,000 characters with 10 starting positions or a random point. 9-16vdc @ 350 ma.

$199

MK-1 Morse Keyer. Features similar to the keyer portion of the KT-1 without automatic tune function. 9-16vdc @ 350 ma.

$119

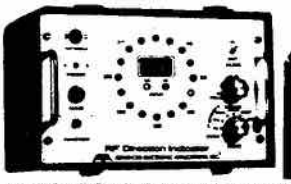


AEA MBA-RD Basic CW/ASCII/Baudot Reader. Reads and displays up to 99 wpm CW copy, 60-67-75 100 Baudot & ASCII at 110 baud (hand typed, 300 baud). 32 character flourescent display shows up to 5 words at one time. 12vdc.

$459

MBA-RC Deluxe Reader/Code Converter. Similar to the MBA-RD with the addition of a code converter which converts Morse CW input to Baudot or ASCII TTY output.

$599



AEA PFDF Radio Direction Finder. Locates signals quickly and accurately; even those appearing for only a split-second. Self-contained computer drives electronically spun array antenna, computes relative bearing within 1° and shows it on 3 digit LED display and 16 LED ring quadrant display. Works with any FM receiver -just plug into external speaker jack; has self-contained audio amplifier & speaker. Includes 130-180 MHz VHF antenna, rechargable internal battery and charger.

$1128

AEA ISOPOLE Omnidirectional VHF Base Station Antenna. A unique, efficient ½-wavelength design using resonant decoupling sleeves. Factory tuned, low SWR over entire band - just assemble and install on 1¼" mast. Connections and impedance matching network weather protected, wind survival 80+ mph. Jr. models are shorter, ½-wavelength design. All models are UPS shippable.

ISOPOLE 144. 2 meter base station antenna $59
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AC-2 12vdc/350ma. AC adaptor $15

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rovides 2½ watts of 4-inch speaker so e heard above road windows down. Also, Pocket's audio amplie the IC-2A at low drain on the power

POWER

ccepts and charges ks. Its spring-loaded charger pocket adapts to short or tall packs, assuring firm, positive contact for proper charging. The charging function has its own independent switch and indicator, so that you can charge the pack whether or not the amplifiers are turned on.

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The Power Pocket is compatible with any standard mobile microphone, thanks to its microphone preamplifier. It is also compatible with the Icom speaker/mic through jacks on the front panel.

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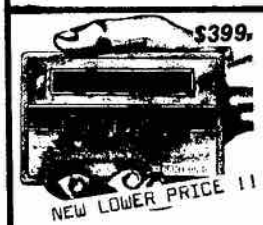

$399.

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Kantronics Mini-Reader™

At last, you can have the code-reading functions for Morse, RTTY and ASCII combined in a miniature package price at just over $300. The Kantronics **Mini-Reader** has all the functions of its larger counterpart, the **Field Day 2**, including code-speed display, automatic Morse speed tracking, demodulator output, a tuning eye, code-editing programs and a 24-hour clock.

But the **Mini-Reader** measures only 5.74" by 3.5" by 1" and runs on 12 volts! Its calculator size still leaves room for a 10-character, vacuum-tube flouresent display.

Compare the features and price of the Mini-Reader to any similar device, and you'll find what a breakthrough in code-reading it is!

MFJ-962 VERSA TUNER III

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Runs up to 1.5 KW PEP, match any feed line from 1.8-30 MHz.

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MFJ's best 300 watt Versa Tuner II.

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6 position antenna switch on front panel, 12 position air-wound inductor; coax connectors, binding posts, black and beige case 10x3x7".

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Chevalier
Guglielmo Marconi

Chevalier G. Marconi was born April 25, 1874 at Bologna, where he made his first experiments in connection with his system of wireless telegraphy.

Marconi needed police protection from people who threatened to kill him because they thought his radio waves were harmful. The frightened people complained that the radio signals were passing through their bodies and making it impossible for them to sleep. A wealthy woman charged that the waves made her feet itch. A German man publicly made plans to go to England and shoot Marconi, but he was turned away by British authorities.

The hostility toward the inventor came after years of being ignored. In 1894 the 20-year-old electronics pioneer coaxed his crude equipment to send a signal a few feet across the room. Next year, his signals spanned the length of his father's home in Bologna, Italy. When Marconi patriotically offered his invention to the Minister of Posts and Telegraphs, he was snubbed.

Marconi packed his equipment and, with his Irish mother, sailed to England. Surely the world's greatest maritime power could use ship-to-shore communications, he thought. British customs officials ignored his frantic efforts to explain that his radio was not a bomb. The delicate instrument was damaged when they forced it open.

The following year a family friend helped him gain the attention of the British postal authorities and he demonstrated that he could send a signal from

A Tribute to the Father of Radio

the General Post Office to a nearby building. The press and public showed no interest. Marconi then constructed a bamboo tower that thrust his transmitter 90 feet into the air and sent his wireless signals nearly two miles. He had built something too big to be ignored, and the press took notice. Years later he sadly observed, "The calm life is over".

The publicity aroused fears in a previously indifferent public about the possible harmful effects of radio waves. A flood of crank mail, some containing threats on his life, came pouring in. Guarded by police, Marconi moved his operation to Wales in 1897. Soon he was transmitting signals out 25 miles, then to 150, and in 1901 he had spanned the ocean with his wireless signals.

It was more than two years after this that the public outcry diminished enough for Scotland Yard to withdraw the police guards protecting the man who developed radio for the world.

Ham Hum

By Bruno Molino VE2FLB

Following on the work of Faraday and Maxwell in 1831, Lord Kelvin in 1853, Calzecchi Onesti in 1885, Branley in 1890, Lodge in 1894 and Popoff in 1895, Marconi worked to upgrade coherers, discovered by Branley, so that they could be used to receive morse signals.

Then Marconi conceived the idea of connecting a long vertical wire (later known as a Marconi antenna) to one of the two poles of a spark gap and generator. He connected the other pole of the gap to ground. A second wire equal to the first was used to receive the waves and conduct them to the coherer or receiver. In 1898 Marconi made the first transmission of signals by wireless between Wimereux in France and a location on the English coast about 30 Km away.

"Newfoundland did contribute in a way to Marconi's research..."

Marconi made use of the principle of tuning (the resonant coil) which was made available by Lodge, Blondel and Brown. In 1901 he made his memorable transmission by wireless across the North Atlantic from England to Canada on December 11, 1901.

Others soon made use of Marconi's invention. In France, Ducretet and Ferrie made use of radio in the military forces. Tissot got it started in the navy and Blandel in French lighthouses. Then Lee deForest invented the tube, which permitted the amplification of radio signals and gave us the radio we all know today.

Newfoundland did contribute in a way to Marconi's research. The history that led up to this is interesting.

The excellent fishing ground of the Grand Banks were a magnet which drew European fishermen to the waters off the coast of Newfoundland. The boats left Europe in the spring and returned in the autumn. But, beginning in the 17th century, some of the fishermen built small settlements on the shores so they could spend the winters there. French fishermen gradually congregated around Placentia and the English around St. John's.

At first, the governments of the two countries were not involved. But a commercial rivalry developed between the powerful fishing merchants who sent out expeditions to harass the colonists in an attempt to discourage any competitive settlements.

In 1662, the French government stepped in by officially colonizing Placentia and by 1700 the English had placed fortifications along the narrows and inner harbour of St. John's. Signal Hill, the rocky headland at the entrance of the harbour at St. John's became a lookout station alerting the people of the approach of enemy or friendly ships.

Not until the Seven Year's War between France and England (1756-1763) were any significant defenses erected on Signal Hill. The French captured St. John's in 1762, but the same year it was taken by the British who assaulted the hill and trained the gun there on the French garrison. Between 1790 and the War of 1812, the hill was so strongly fortified it became known as 'Fort Impregnable'.

Cabot Tower was erected on Signal Hill in 1898 to commemmorate the visits of the famous ex-

plorers Giovanni Caboto (1450-1498), the Venetian navigator born in Genova, and his son Sabastino (1476-1557) born in Venice, both of whom searched for the North-West Passages for King Henry VII. The tower was used as a flag and signal station for over 50 years to alert port authorities, merchants and ship owners to the arrival of ships.

Guglielmo Marconi knew this history and that the British were anxious to keep in touch with Newfoundland. So he chose England for one station and Signal Hill for the other, and hoped that the English would give him financial support if his experiment was a success. On Dec. 11, 1901, a signal was successfully transmitted from England across the Atlantic by electromagnetic waves— an event which impressively underlined in history the name of this deserving man.

The Marconi Company was established in England and became a leading manufacturer of radio equipment. Canada, too, was impressed and about 10 years later gave the Marconi Company a contract to establish and operate a chain of radio stations for communications with ships in the Gulf, along the St. Lawrence and on the Great Lakes as far west as Port Arthur (now Thunder Bay). Marconi had launched the era of international radio and he continued to dominate it for the next 30 years.

The Associations Radiotecnica Italiana (ARI) issues a diploma in honour of this great scientist, father of all radio Amateurs. Here are the details as translated from the ARI bulletin:

Associazione Radiotecnica Italiana
Diploma Guglielmo Marconi

The ARI institutes the 'Diploma Guglielmo Marconi' to commemmorate the work of this great scientist. This diploma is to celebrate the experiments carried out by Marconi in various parts of the world and bring them once again to the attention of Radio Amateurs.

- The DGM will be awarded to those who have made contact with, or listened to the localities in which Marconi conducted his experiments.
- It is issued by the ARI and is free. To obtain the diploma it is

- The localities to be contacted or listened to are the following:

Country	Region or City	Prefix
Capo Verde		CR4
Portogallo	Lisbona	CT1
Madeira Isl.		CT3
Marocco		CN8
Spagna	Cadice	EA7
Irlanda		EI
Francia		F
Corsica		FC
Inghilterra	Londra	G
”	Fiatholm Isl.	GB
”	Wight Isl.	G
Irlanda del Nord		GI
Scozia		GM
Svizzera		HB
Vaticano		HV
Italia	Bologne	I4
”		I5
”	Roma	I0
”	Fondaz G. Marconi Villa Grifone	II4FGM
”	Torre Tuglio Marconi (GE)	I01TTM
”	Sicilia	IT9
”	Sardegna	IS0
Giappone		JA
Argentina	Buenos Aires	LU-A-D
Belgio		ON
Brasile	Rio de Janeiro	PY
Svezia	Stoccolma	SM
”	Gotland Isl.	SM1
USSR	Leningrado	UA1
Canada		VE1
”	Newfoundland	VO1
”	Labrador	VO2
Australia	Sydney	VK2
Bermude		VP9
USA	Mass.	W1
”	NY and NJ	W2
”	Missouri	W0
”	Illinois	W9
India		VU
Gibilterra		ZB2
Yugoslavia		YU2
Libia	Tripoli	5A

Dxers, I wish you good luck.

Bruno Molino VE2FLB

necessary to send to the ARI a log containing all the details of contacts or listenings made, and:

a) 40 QSLs chosen from the localities listed below, or

b) 35 QSLs chosen from the localities listed below *plus* the QSL from the official commemmorative station II4FGM and one from any other G. Marconi Memorial Station for a total of 37 QSLs.

- The QSLs must indicate the city or region or locality well specified. For return of QSLs send the return postal expenses.
- The DGM can be obtained in AM, SSB, CW, RTTY, SSTV and mixed. There is no limitation to the bands but obviously regulations must be respected.
- The diploma will begin on 1st January 1973. The first diploma will be awarded on the occasion of the 1974 Marconi Celebrations. The list of diplomas will be published in the official journal of the ARI.
- QSLs must be sent to the Associazione Radiotecnica Italiana, via Scarlatti 31, Milano, Italy.

INTERFERENCE

Canada is rapidly losing ground in dealing with interference problems, according to a report to the recent annual meeting of the Canadian Radio Technical Planning Board, of which CARF is a sponsoring member. CARF past-president Bill Wilson VE3NR, vice-president of the Board, said that it was told unless DOC comes up with anti-interference standards and regulations similar to those now before the U.S. Congress, all sorts of interference-generating and susceptible equipment could be dumped in Canada, if U.S. legislation passes. A lack of resources in DOC and the Canadian Standards Association plus a shortage of the necessary expertise in Canada is holding up the drafting of standards and legislation.

CARF News Service

A View of the Amateur Scene

Jerry VE3CDS
in the OVMRC Rambler

After an absence from the Amateur radio scene for quite a few years, let me tell you about my observations and reflections of the last few months.

Listening on the HF bands, I find that the operating practice has not changed all that much. Certainly the use of automatic keyers are very much in evidence, but there are a lot of good straight key operators on the bands. There are very few AM phone stations; what a change from the 50's.

I have recommissioned my old S-40 and have found that it still brings in a pretty good signal... not as good as the Kenwood R-1000, but quite acceptable. Along with getting the S-40 going, we also took a look at the old HF rig, vintage '52, 80 through 10 with an 807 in the final. I decided not to put it back on the air. It'll be a collector's item; I'll put it in the attic along with the power supply that weighs a ton!

How well I remember the advent of TV in Ottawa with that rig. Those of you that were around will recall that the first TV available to listeners in that area was channel 2 from Montreal. The local dealers had a field day selling the TV-hungry public the whole ball of wax: tower, pre-amp and yagi.

Just imagine the consternation of the public when all they could see on the screen was snow and all they could hear on the audio was a bunch of local hams ragchewing on 10. Most of us saw the radio inspector as frequently as the mailman... The good old days.

It's quite startling when one looks at the change in technology in Amateur radio. The basics have not changed, but the way in which the basics are applied certainly have.

Looking at a copy of the 1950 handbook and comparing it with the 1981 edition, the change is very evident. The 1950 handbook listed over 40 pages of vacuum tube data. Solid state devices? Nine germanium diodes and 12 miniature selenium rectifiers. The '81 handbook does not list the characteristics of the once-popular receiving tubes that so many of us used in the post-war period. The 6AG7, 6AK5, 6L6, 5R4, etc... some of you know them all.

The change has been for the better. Look what is available today, synthesized rigs with every conceivable feature built in. What used to take up about 3 feet of rack space now sits on a desk top.

Notwithstanding the change, I find the fascination of Amateur radio as appealing as it ever was. The improved technology is in many ways different but the fundamentals are the same and I have found that younger hams, many of which are pursuing a career in electronics, are only too willing to pass on some of their state-of-the-art knowledge to the guys that grew up with vacuum tubes.

B4 it's too late

Verse on the back of a QSL Envelope:
Smile B/4 Opening...
Open B/4 Reading...
Read B/4 Answering...
Answer B/4 Long.

Don't put off answering those QSL's any longer. Remember that someone is waiting for your QSL.

Garry Hammond VE3GCO

The Fine Art of Listening

Long term enthusiasts of Amateur radio can often trace a series of stages in their interest in the hobby.

The first thrill of receiving signals, perhaps as a Short Wave Listener, gives way to the excitement of transmitting— first by CW and then by voice.

In the early stages of the hobby, the emphasis is on bigger and better antennas and high power as the desire to become one of the big signals on the bands takes its effect. Then later the wheel comes full circle as many Amateurs, searching for different aspects of the hobby, discover the thrill of low power (QRP) operation and other specialized facets of the world of radio.

A common theme which runs through most of these aspects is the need to become a skilled listener. With this in mind, this Chapter will review some of the benefits of listening and, in particular, will outline how well-oriented listening can enlarge the scope of the hobby for the average Amateur.

Using and operating an Amateur radio station can involve three quite separate facets. First, every Amateur should understand the procedures and practices which are followed by radio Amateurs on the air. Second, if one is to participate fully in all aspects of the hobby, it is wise to understand the *informal* arrangements which have developed over many decades and govern the use of the radio spectrum. Finally, the radio frequency spectrum offers many opportunities for the curious Amateur to learn new things— in a word— to experiment.

Operating practices and procedures have undergone extensive changes over the years, reflecting the many changes in technology in Amateur radio. The almost universal use of Variable Frequency Oscillators, channelized and transceive equipment, and equipment which requires little or no retuning with a change in frequency of operation have all but eliminated the need for the traditional repetitive use of call signs.

Current operations are aimed, for the most part, simply at meeting the legal requirement for station identification. With these changes, standard practices have tended to become modified and adapted to fit different types of operation.

Practices that may be acceptable in one part of the hobby may be quite unacceptable in another. For example, the efficient managing of traffic nets calls for short, abbreviated contacts. This is quite appropriate given the fact that most signals on a given net are 100% reliable and any repetition is simply wasting time. By contrast, the weak and marginal signals encountered by those whose interest leads them to 160 or 80 metre DXing requires quite a different style of operations. The high noise level and signal fading of these bands calls for the use of relatively slow CW speeds with frequent repetition of call signs and other information.

The neophyte who uses the wrong procedures at any given time is liable to find himself quickly reminded of the error of his ways. The station that is not *exactly* on a net frequency or the station that calls on a DX station's frequency when the station operator is listening 'up 5 kHz' will earn the wrath of his fellow Amateurs in no uncertain terms.

To further complicate the situation, the practices to be followed even within a specialized area of Amateur radio may appear to vary from one occasion to the next. Common courtesy requires that before a station transmits a CQ call he first asks "Is this frequency in use?" Such niceties fall by the wayside in the heat of a worldwide DX contest where the chances of a frequency not being in use are very slight indeed.

Similarly, it may be quite acceptable to converse with a New Zealand station exchanging names, type of equipment, the weather and a host of other interesting information. Let the same station, however, be operating portable on Kermadec Island and the rules suddenly change. Any station foolhardy enough to attempt to send any more than a signal report (and that not more than once) can be guaranteed to attract the unwelcome attention of several hundreds of DXers around the

By John Gilbert VE3CXL

"...it is better to remain silent and be thought a fool than to talk and remove all doubt.." Mark Twain

world all awaiting their turn to contact the rare DX station.

Experienced Amateurs make a practice of listening carefully to other stations on a frequency before transmitting. They then adapt their operating procedures to fit the circumstances.

The frequency bands used by radio Amateurs have been allocated by international agreement and many countries, including Canada, have further suballocated these bands on the basis of mode and power. In addition, as was the case with operating practices, Amateurs have themselves adopted certain rules, guidelines and 'gentlemen's agreements' which are almost universally observed. To a large extent, these 'agreements' permit thousands of stations, using a great variety of modes and following many different interests to live in harmony.

Many of these arrangements are quite obvious to anyone tuning across the bands. The use, for example, of lower sidebands on the lower bands and upper sideband on the higher bands is immediately apparent.

Similarly, the lack of CW in the phone bands and the segregation of satellites, RTTY and Slow Scan from the other activities is soon observed. Others are less obvious and it is worthwhile to listen around the bands to discover them. The use of very high speed morse around 7025-7030 kHz, and the DX windows on 80 and 160 metres are a couple of examples. Careful listening can uncover many special hobbies within the hobby, each providing its own particular fascination and having its own devotees.

The radio frequency spectrum provides many challenges for the curious and experimentally inclined Amateur. The early Amateurs, banished to the then-'useless' frequencies below 200 metres were forced to find new and innovative ways to communicate. Using the frequencies that they were allocated, they opened up new spectrum and played a highly significant role in developing the uses of the spectrum which exists today.

This early spirit is far from dead. The Summer of 1980, for example, saw Andy McLennan VE1ASJ of Saint John, N.B. make a transatlantic contact on 144 MHz, a feat which was considered virtually impossible only a few years ago. Persistence, knowledge and a lot of careful listening paid off...

Challenging traditional wisdom has become a trademark of the success of Amateur radio as a service. For example, traditional wisdom has long taught that the 28 MHz band is unusable during the long years between the peaks of the sunspot cycles. A small group of Amateurs in southern California, fearful that lack of activity on this Amateur band could be interpreted as a lack of interest in its use, decided to deliberately use the band right through the period when the band was supposed to be unusable. This group became the Ten-Ten International Net with a membership that extends worldwide and counts in the thousands. Needless to say, they were highly successful, as anyone trying to find a clear frequency on 10 metres can attest!

These examples show that there is still a great deal to be learned about the vagaries of the spectrum, and the good listener can gain considerable experience and pleasure from challenging traditional wisdom and folklore.

One of the leading DXers in Canada, VE1ZZ in Nova Scotia has, for example, amassed a very large percentage of his country total on 3.5 MHz, a band traditionally held to be suited only for local communications. Other Amateurs, unwilling to accept the traditional description of 80 and 40 metres as 'nightime' and 20, 15 and 10 as 'daytime' bands have deliberately extended their operating times for each of these bands into the taboo hours. The results have not only added to their DX totals and contest scores, but have led others to attempt the impossible and thus to experience the pleasure of breaking new ground.

Other challenges are surely there for the asking for the persistent, patient listener. Long delayed echoes, perhaps, but then you never know what you might hear when you listen.

1982 National Symposium

The 1982 National Amateur Radio Symposium will be hosted by the Scarborough Amateur Radio Club in Toronto, Ont. during the second quarter of 1982. Precise date and location will be publicised when set.

Previous symposia have demonstrated that they are the most effective method of communication between the Amateurs of Canda and officials of the Department of Communications.

As distance, time and space elements prohibit the attendance of large numbers of Amateurs to the National Symposium, provincial Amateur organizations and Amateur Radio Clubs are encouraged to hold regional, provincial or municipal symposia and forward the results of their discussions to CARF in advance of the National for submission to the National Forums. Contact your CARF Regional Director for assistance and advice in the formulation of such advance Symposia.

The Symposium is usually divided into four Forums, each discussing one main topic, followed by a Plenary Session to discuss results from the Forums. Previous symposia have had Forums on such subjects as Amateur Radio regulations, WARC '79 results and usage, Amateur examinations and procedures, introduction of Digital Amateur and Novice classes.

Topics for Forums are required for the 1982 Symposium and all Amateurs are encouraged to forward ideas for these to the Federation as soon as possible to enable a choice to be made in consultation with DOC.

Possible topics could be:

1. Instructor's forum to discuss methods of teaching the essential requirements for the Amateur certificate;
2. Use of ASCII and microprocessors on the HF bands;
3. Canadian Contests and Awards;
4. Restrictions placed on U.S. Amateurs operating in Canada;
5. Change of Amateur Autorepeaters to 20 kHz channels.

Please bring this to the attention of your members and forward ideas and comment to Box 356, Kingston, Ont. K7L 4W2.

The photo above shows part of the Niagara Peninsula Amateur Radio Club, Inc. of St. Catharines, Ont. The club took part in the 1981 Niagara Grape and Wine Festival in that city. The Communications Team, with 'Wintario Grant' handhelds are, left to right, Phil VE3GUO, Bill VE3HGJ, Don VE3LVH, Barb VE3KTX, Dave VE3FOI, Mel VE3MWB, Ron VE3LVV. In front is Lorie VE3LJN.

TCA: Technical Section

Make your SWR Meter tell you something

By Philip Gebhardt VE3ACK

Listening to the pros and cons of SWR measurement over the years, I have come to the conclusion that SWR meters just aren't telling us what we need to know.

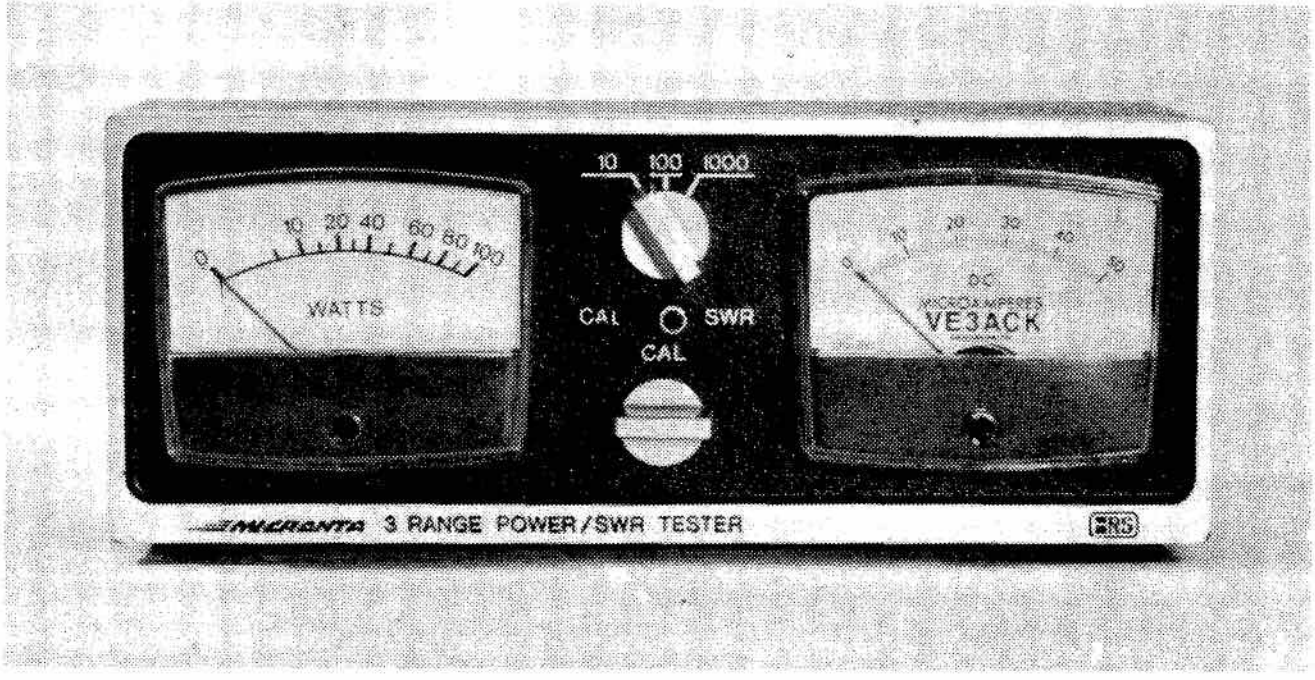
But I'm not suggesting that you throw out your SWR meter; the instrument has the potential to become a useful tool— with a little assistance from you.

The problem is threefold. First, for those among us without a great deal of background in wave theory, standing wave ratio (SWR) is a meaningless term. If there is nothing to relate to, then how can you make an intelligent assessment of the situation? It's like making a wager that you can walk 14 zebus in a day. Second, what happens if you have a low power rig and you can't even set the meter to the reference point to begin with? What then? And finally, many manufacturers calibrate SWR meters only up to 3:1. If you put up an antenna and the SWR is beyond 3:1, where do you go then?

Let's briefly outline the courses of action which are available and then tackle the problems mentioned above, one-by-one.

ADOPTING A METER SCALE

Those who have built their own SWR meter using a standard meter with a scale from 0 to 1 have an advantage. You may proceed to the solutions immediately and you



also get the benefit of using the full deflection range of the needle.

Realistically, there are two possible approaches for those who have commercially built instruments. One, you can use the SWR scale which you now have, and adapt it. Or, two, you can give the scale a thorough going over and utilize the whole deflection range of the needle.

So, for those who wish to leave the scale as it presently exists, head directly to the solutions. For those who want to convert your SWR scale to a numbered scale using the total deflection arc, read on.

MARKING OFF THE FULL SCALE

If you have an SWR meter with a scale similar to the scale illustrated in Figure 1(A), that is the SWR = 3 position appears at midscale, then you've got it made. Why? Because that means the scale increases from 0 to 1 in equal increments (the scale is linear). So automatically you know that the resting position of the meter needle (SWR = 1) represents 0, the midpoint of the scale (SWR = 3) represents 0.5, and the full scale deflection position (SET) represents 1. Knowing that the scale is linear, you can use a protractor to fill in the positions for 0.1, 0.2, 0.3, 0.4, 0.6, 0.7, 0.8 and 0.9. Incidentally, if you mark the positions accurately the 0.2 position will correspond to the SWR = 1.5 position. You now have a scale which is similar to the one illustrated in Figure 1(B) and you are ready to tackle the solutions.

SOLUTION 1

Since the term 'standing wave ratio' is difficult to relate to, let's pick a more meaningful concept.

Essentially what the SWR is trying to tell you is that some of the power which the transmission line is delivering to the antenna is radiated and some of the power is reflected back down the line toward the transmitter. If the SWR is low, then only a little of the power is being reflected; if the SWR is high, then the amount of power reflected is high. But with SWR, how low is enough? And how high is too high?

However, if you know that only 1% of the power delivered to the antenna is reflected (99% is radiated), you would probably be quite happy (purists excepted). Conversely, if you know that 80% of the power is reflected (only 20% radiated), then you probably would want to make some changes to your system.

The solution, therefore, is to

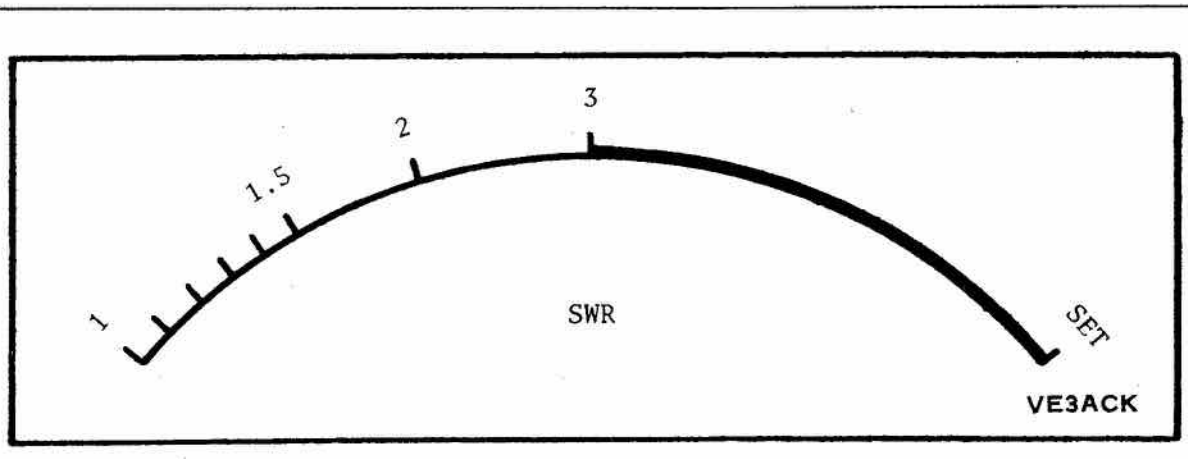


Figure 1 (A) - Typical SWR Meter Scale

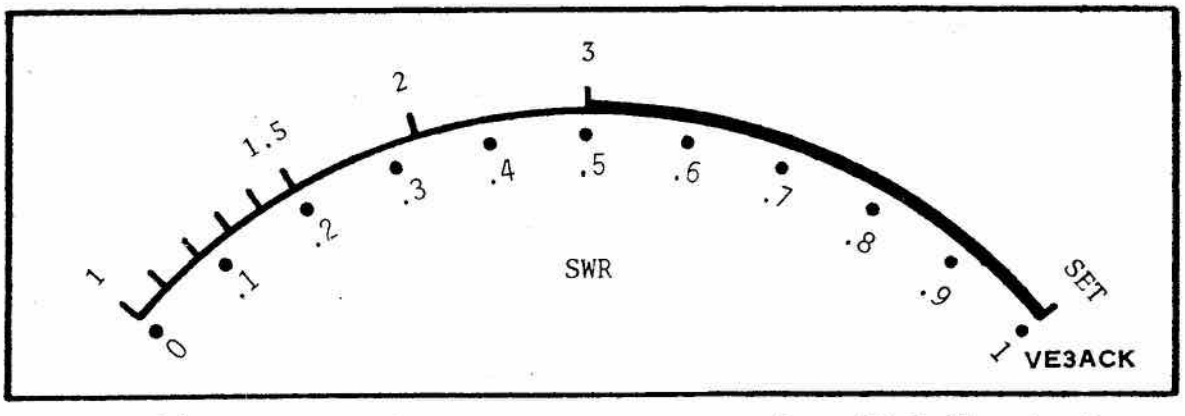


Figure 1 (B) - SWR Meter Scale Modified to Use the Full Deflection Range

put a new scale on the face of your SWR meter to tell you what percentage of the power is being reflected.

If you have chosen to leave your meter scale intact, use Figure 2 to adapt the scale.

For those who wish to verify the scale of Figure 2, or who wish to use different increments, refer to Equation 1.

For example, to find the percentage which corresponds to the SWR = 3 point on the meter, proceed as shown here.

$$\% = \frac{100(1-S)^2}{(1+S)^2}$$

where % = reflected power in per cent

S = SWR (Eq.1)

$$\% = \frac{100(1-S)^2}{(1+S)^2}$$

$$\% = \frac{100(1-3)^2}{(1+3)^2}$$

$$\% = \frac{100(-2)^2}{(4)^2}$$

$$\% = \frac{100(4)}{16}$$

$$\% = 25$$

(Compare to Figure 2)

If you have a meter scale which reads from 0 to 1, refer to Figure 3 and Table 1.

For those who wish to verify the scale of Figure 3 or who want to use different increments, refer to Equation 2.

meter reading = $\sqrt{\%/100}$

where meter reading refers to the 0-1 scale

% = reflected power as a percentage

(Eq.2)

For example, to find the meter reading which corresponds to 1% reflected power, proceed as shown below.

meter reading = $\sqrt{\%/100}$

meter reading = $\sqrt{1/100}$

meter reading = $\sqrt{0.01}$

meter reading = 0.1

(Compare to Figure 3)

TABLE 1

Meter Reading	% Reflection
0	0
.1	1
.16	2.5
.22	5
.32	10
.39	15
.44	20
.5	25
.55	30
.63	40
.71	50
.77	60
.84	70
.89	80
1	100

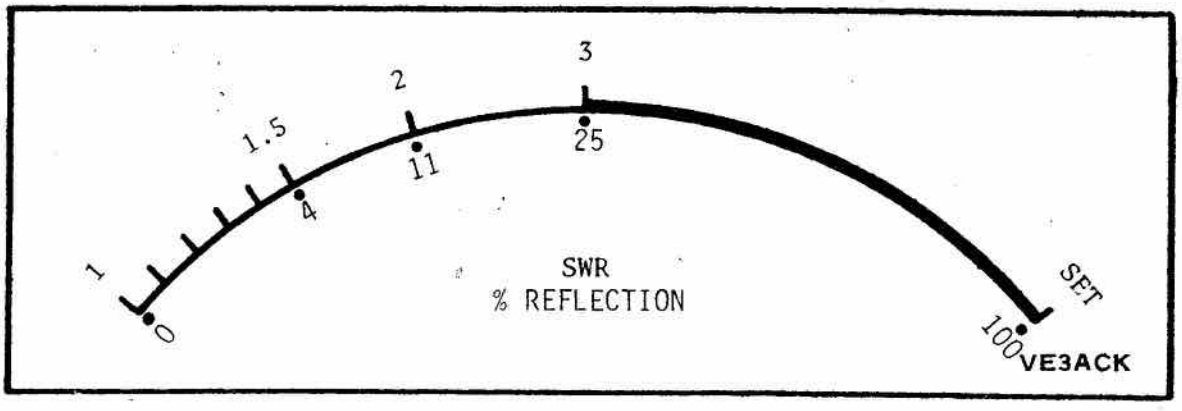


Figure 2 - SWR Scale with % Reflection Added

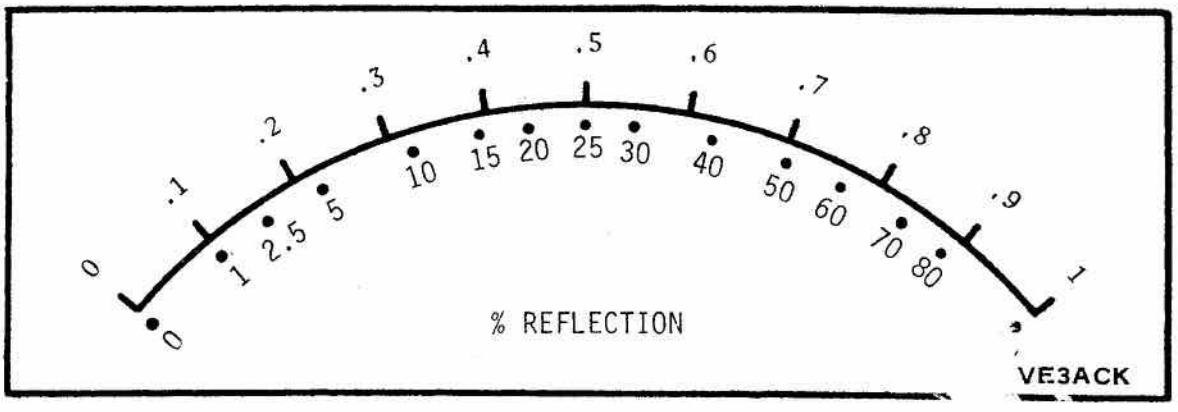


Figure 3 - Standard Meter Scale Indicating % Reflectio.

For either of the scales described, use the meter just as you would your SWR meter— set the needle to full scale (SET) with the switch in the forward (Calibrate) position and then read the percent reflected power by switching to the reverse (SWR) position. Naturally, the objective is to create an antenna system which reduces the power reflected to 0%.

In addition, if you actually know how much power is being delivered to the antenna, you can use the meter reading to determine the value of the reflected power in Watts. For example, if your transmitter delivers 160 Watts to the antenna and your meter indicates that 5% of the power is being reflected, then (160 × 5%) or 8 watts of power is being reflected.

SOLUTION 2

Percentage is a fairly common concept and as such is more useful than SWR in visualizing how effectively the system is functioning. It also allows you to logically and realistically determine whether you are willing to accept a given amount of reflection or whether you should look for ways to decrease it.

However, not many power comparisons in electronics are based on percentage. For example, the gain of a power amplifier is not expressed as the output being 10000% of the input. Nor is the comparison of a beam antenna to a half-wave dipole given as 600%. These power comparisons are expressed by using a standard unit— the decibel (dB). We can express the comparison between the power delivered to the antenna (forward power) and the reflected power in dB, too. Then you will be able to say the forward power is 6 dB greater than the reflected power, or whatever it happens to be in your case.

As before, if you wish to leave your meter scale intact, use Figure 4 to adapt your scale. You can establish your own scale or insert extra values if you wish, by using Equation 3.

$$M = 20 \text{ Log}_{10} \left(\frac{S+1}{S-1} \right)$$

where M = ratio of forward power to reflected power in dB
S = SWR

For example, to find the power ratio in dB which corresponds to the SWR = 3 position, proceed as shown below.

$$M = 20 \text{ Log}_{10} \left(\frac{S+1}{S-1} \right)$$

$$M = 20 \text{ Log}_{10} \left(\frac{3+1}{3-1} \right)$$

$$M = \text{Log}_{10} (4/2)$$

$$M = 20 \text{ Log}_{10} (2)$$

$$M = 20 (0.3)$$

$$M = 6 \text{ dB}$$

(Compare to Figure 4)

And for those who have a meter scale which reads from 0 to 1, refer to Figure 5 and Table II.

Notice that the values which appear in Figure 5 change in increments of 3 dB (except for the 1 dB and 2 dB points which were added due to the spread from 0 dB to 3 dB). This pattern was deliberately chosen because a +3 dB change doubles the ratio of the forward power compared to the reflected power.

If you wish to incorporate a different set of points on your scale, refer to Equation 4.

$$\text{meter reading} = \frac{1}{10^{(M/20)}}$$

where meter reading refers to the 0-1 scale
M = ratio of forward power to reverse power in dB

For example, to find the meter reading which corresponds to a power ratio of 6 dB proceed as shown below.

$$\text{meter reading} = \frac{1}{10^{(M/20)}}$$

$$\text{meter reading} = \frac{1}{10^{(6/20)}}$$

$$\text{meter reading} = \frac{1}{10^{(0.3)}}$$

$$\text{meter reading} = 1/1.995$$

$$\text{meter reading} = 0.5$$

(Compare to Figure 5)

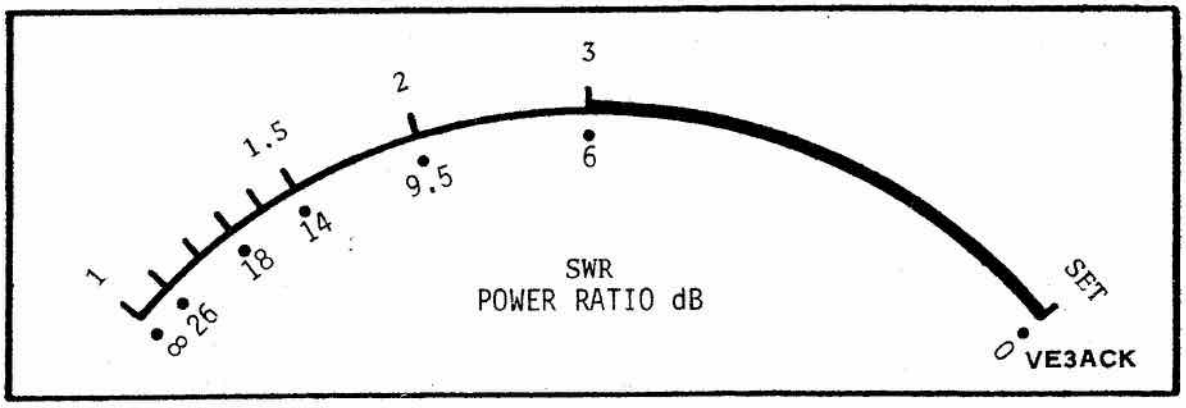


Figure 4 - SWR Scale with Power Ratio in dB Added

The meter is used in the same manner as a conventional SWR meter, only now the reading is in dB.

Once again you have a number by which you can assess your system. Using the SWR as a measurement leaves you wondering if a change from an SWR of 2:1 down to an SWR of 1.5:1 is much of a change in real terms and if it is worth the time and trouble. However, using the power ratio method, the change occurs from 6 dB to approx. 9 dB. That is, from a situation where the forward power is only 4 times the reflected power, to a situation where the forward power is 8 times the reflected power.

Furthermore, if you know the amount of power being delivered to the antenna, you can use the meter reading to determine the value of the reflected power in Watts. For example, when the transmitter delivers 160 Watts to the antenna and your meter indicates 18 dB, then knowing that 18 dB is equal to a ratio of 64:1 (refer to Table III), you can calculate the reflected power as (160 ÷ 64) or 2.5 Watts. Table III will assist those who need help with the conversion.

SOLUTION 3

The simplest solution (from the standpoint of devising a meter scale) is to simply use your scale "as is", if you have a standard meter, or to label the scale from 0 to 1, if you have an SWR meter. Refer to Figure 6. This is also the most versatile approach since you will be able to calculate: (a) the SWR over the whole scale; (b) the ratio of forward power to reflected

TABLE II

Power Ratio, dB	Meter Reading
∞	0
24	.06
21	.09
18	.13
15	.18
12	.25
9	.35
6	.5
3	.71
2	.79
1	.89
0	1

TABLE III

Meter Reading, dB	Ratio of Forward Power to Reflected Power
0	1:1
3	2:1
6	4:1
9	8:1
12	16:1
15	32:1
18	64:1
21	128:1
24	256:1

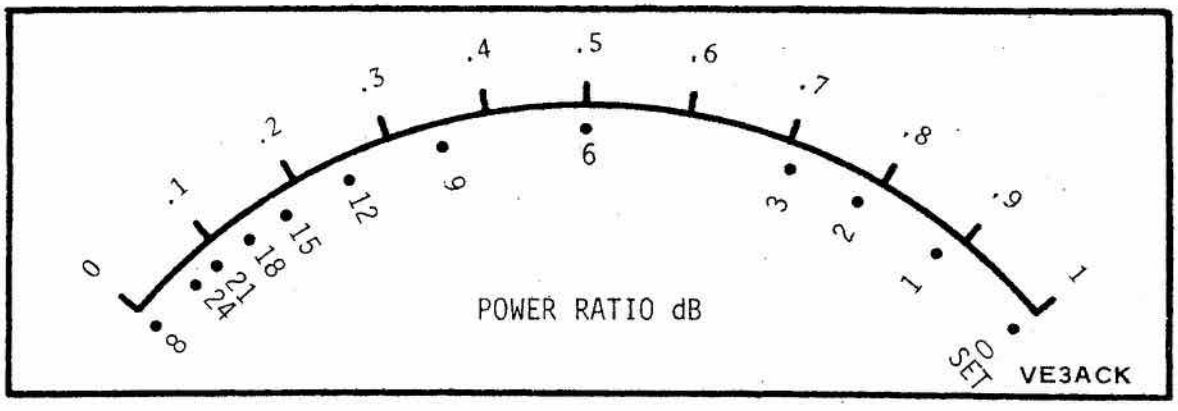


Figure 5 - Standard Meter Scale Indicating Power Ratio in dB

power in dB; and (c) the reflected power as a percentage of the forward power.

In addition, using a scale of 0 to 1 means that you no longer need to set the meter to the full scale deflection (SET) point in the forward direction before you make your measurement in the reverse direction. Therefore, if your low power rig can't deflect the needle to the SET position, it's no longer a problem, because the equations outlined in Table IV will still work.

Versatility always has a price. In this case, the price comes in the form of mathematical calculations. Whenever you want to know the SWR, or the power ratio, or the per cent power reflection, you must calculate the value. However, because of the availability of low cost pcoket calculators, this is much less inconvenient than it would have been just a few years ago.

How do you make the calculations? The necessary equations appear in Table IV along with some hints.

For example, to find the per cent power reflected, set the meter switch to the forward (Calibrate) position and adjust the sensitivity to deflect the meter needle to the 1 position on the 0-1 scale. This sets Vf to 1. Now switch to the reflected (SWR) position and note the meter reading. This is Vr. Let's assume Vr was 0.25. Use the equation from Table IV as follows:

$$\% = \frac{(Vr)^2}{(Vf)^2} \times 100$$

$$\% = \frac{(0.25)^2}{(1)^2} \times 100$$

$$\% = \frac{0.625}{1} \times 100$$

$$\% = 6.25$$

Let's try the same calculation for a low power rig. You find that you can't deflect the meter needle to the 1 position with the switch in the forward (Calibrate) position. Assume it only deflects to 0.6. Then Vf = 0.6. Now switch to the reflected (SWR) position and note the meter reading (Vr). Perhaps Vr was 0.15. Use the equation from Table IV as follows.

$$\% = \frac{(Vr)^2}{(Vf)^2} \times 100$$

$$\% = \frac{(0.15)^2}{(0.6)^2} \times 100$$

$$\% = \frac{0.0225}{0.36} \times 100$$

$$\% = 0.0625 \times 100$$

$$\% = 6.25$$

Note that the meter shown in Figure 3 could be used to calculate the SWR or the value of M by using the equations supplied in Table IV, because the meter has a scale graduated from 0 to 1. Likewise, the meter shown in Figure 5 could be used to calculate both the SWR and the per cent power reflected.

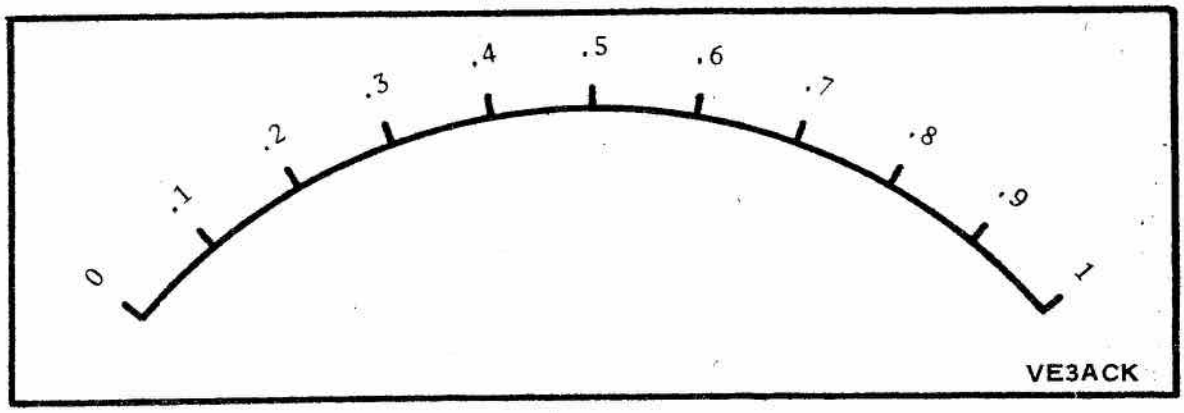


Figure 6 (A) - Standard Meter Scale

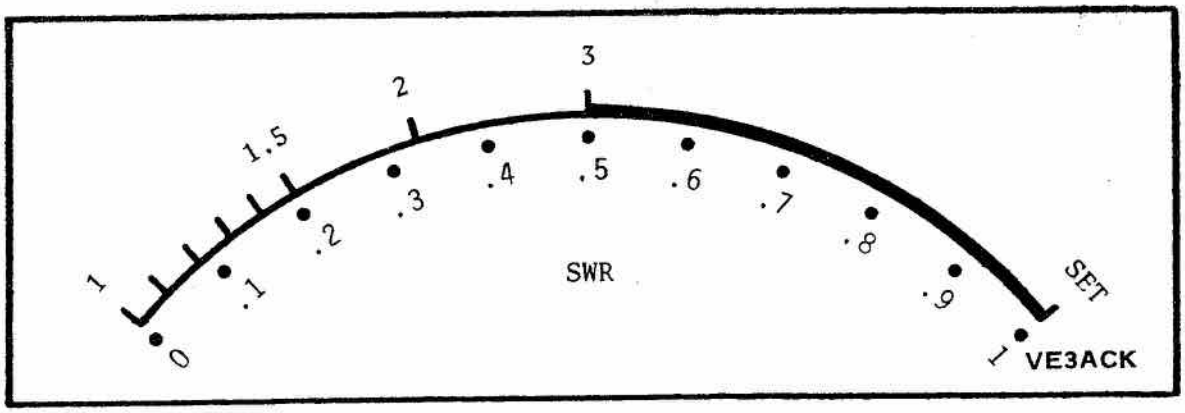


Figure 6 (B) - SWR Meter Scale Modified

TABLE IV - DO-IT-YOURSELF CALCULATION

UNKNOWN	EQUATIONS	REMARKS
. SWR	$S = \left(\frac{V_f + V_r}{V_f - V_r}\right)$	If you adjust the sensitivity of the instrument to deflect the needle to 1 (on the 0-1 scale) in the forward (CALIBRATE) position, then $V_f = 1$ and the equation simplifies to $S = \left(\frac{1 + V_r}{1 - V_r}\right)$
% power reflected	$\% = \frac{(V_r)^2}{(V_f)^2} \times 100$	Following the procedure outlined in the remark above, then $V_f = 1 = (V_f)^2$ and the equation simplifies to $\% = (V_r)^2 \times 100$
Ratio of forward power to reflected power	$M = 20 \log_{10}\left(\frac{V_f}{V_r}\right)$	Following the procedure outlined in the first remark, then $V_f = 1$ and the equation simplifies to $M = 20 \log_{10}\left(\frac{1}{V_r}\right)$

In the above equations, S = SWR

V_f = meter reading with the switch in the forward (CALIBRATE) position

V_r = meter reading with the switch in the reflected (SWR) position

M = ratio of forward power to reflected power in dB

SOLUTION 4

The last problem to eliminate is the case in which the SWR exceeds 3:1, but your meter is only calibrated up to the 3:1 point.

First of all, you'll need to divide your scale into equal increments as explained in the section *Marking Off the Full Scale.* Once you've marked off the scale, you can either refer to Figure 7 and locate the SWR points by estimation, or you can calculate the SWR points you want by using Equation 5.

$$\text{meter reading} = \frac{(S-1)}{(S+1)}$$

where meter reading refers to the 0-1 scale
S = SWR
(Eq. 5)

For example, to find the meter reading which corresponds to an SWR of 4:1 proceed as follows:

$$\text{meter reading} = \frac{(S-1)}{(S+1)}$$
$$\text{meter reading} = \frac{(4-1)}{(4+1)}$$
$$\text{meter reading} = 3/5$$
$$\text{meter reading} = 0.6$$

(Compare to Figure 7)

SUMMARY

Armed with the information presented in this article, you can produce a meaningful, useful tool. Whether you decide to adopt a scale which indicates the percentage of power reflected, a scale which indicates the ratio of forward power to reflected power in dB, or a scale simply marked off from 0 to 1, you have not only produced an instrument which dispenses meaningful information, you have also given yourself the opportunity to extend your knowledge and understanding of the circuit which you are monitoring. Even the scale which is simply extended beyond the SWR = 3 point provides additional data to which you did not previously have access.

ACKNOWLEDGEMENT

I would like to express my appreciation to Barb Cloughey and to Jim Steen who took the time to read through my work and offer beneficial comments and changes.

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Aurora, Ont. L4G 3T4

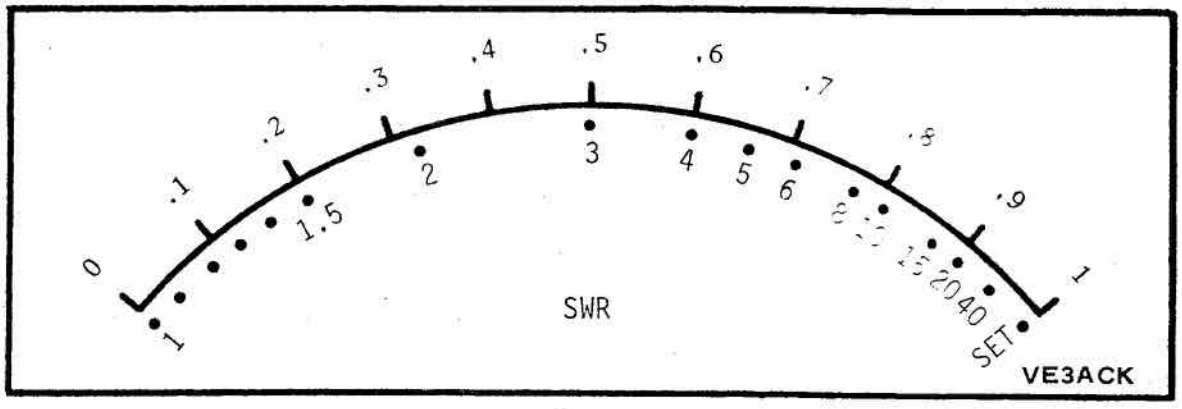
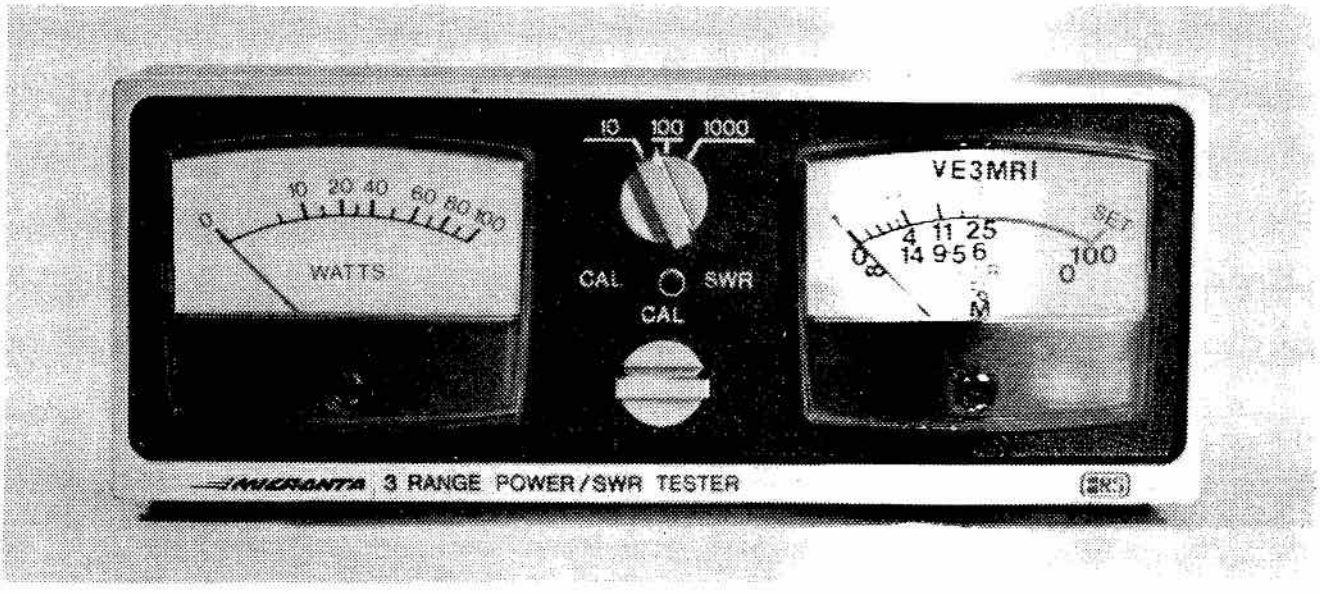


Figure 7 - SWR Scale Extended Beyond SWR = 3



TCA: Technical Section

Automobile Headlight Alarm

Although this is not strictly an Amateur radio project, it could prove useful to Amateurs, especially those who do some mobile operating, and want to keep their car batteries right up to snuff.

It is very easy to have your car battery run down when driving with your headlights on during daylight hours, such as on a rainy or foggy day, and forgetting to turn them off when reaching your destination. This alarm will sound when the driver's door is opened, if the parking or headlights are turned on.

The tone generator can be an audio oscillator, buzzer bell, 'Sonalert' or any similar device which will operate on 12 Volts DC. A simple and effective alarm is the 12 VDC buzzer from Radio Shack (Cat. No. 273-051) or their Mini 12 VDC buzzer (Cat. No. 273-055)

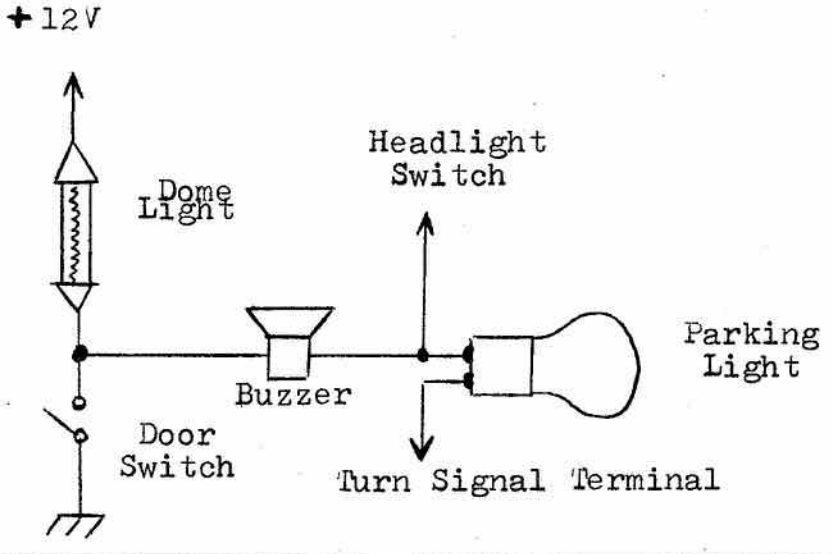
My car (a GM product) turns the dome light on by switching the ground lead, rather than the positive lead. This provides a convenient point to pick up switching for the alarm. Positive voltage for the buzzer is taken from one of the parking light wires, and the negative voltage is taken from the dome light.

In this way the alarm is activated only when the parking or headlights are on, and one of the front doors is opened. Use your volt meter to establish which of the two leads going to the parking light supplies the parking light filament. The second lead supplies the turn signal filament.

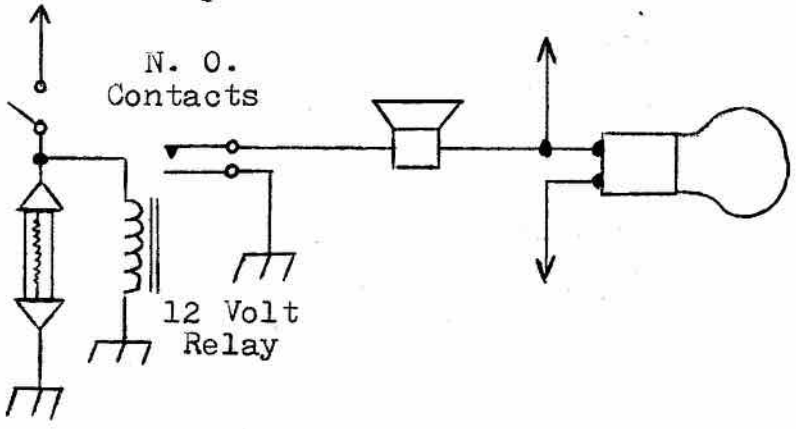
The diagram shows how to hook the alarm up; and the alternate diagram shows the hook-up for any vehicle in which the dome light is controlled by switching its positive lead, in which case a 12 Volt relay is required to provide the ground connection to the buzzer.

P.S. If you have a discarded smoke detector in your junk box, the buzzer from one of those makes a very satisfactory racket. If it's a 9-volt buzzer, it might be a good idea to measure its current consumption at 9 volts, and add the appropriate series resistor to operate it from 12 volts.

David Vail VE1GM
21 Southeast St.
Yarmouth, N.S.



Alternate circuit for use when dome light positive line is switched.



Check that Battery Voltage

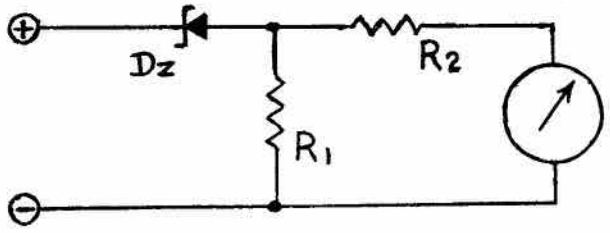
There is a frequent need to accurately read the voltage of a 12.7V storage battery. A simple meter can be made from a 1 mA DC meter by adding a series resistor of 15000 ohms to give a 0 to 15V indication. However, as most meters are graduated in 50 divisions to full scale, this only gives 3.33 volts per division. This does make it difficult to determine if the reading is 12.6V (fully charged) or 12.2V (requiring charge).

There is a simple way to change a basic DC mA meter to an 'expanded scale' voltmeter that will read 11 to 15V so that the meter now has 12.5 divisions per volt and enables you to read small changes in voltage. This circuit is shown here.

Other meter movements and ranges can be used noting that the voltmeter required is the difference between the full scale voltage reading and that of the zener diode.

The meter face can be calibrated in ½ volt divisions using a variable power supply and an accurate meter such as a Digital Multi-meter. To precisely set the full scale reading, a small screwdriver-adjust potentiometer can be used for R_2 or various resistors substituted for best result.

VE3AHU



Dz is an 11V, 1 watt zener diode. R_1 is the load resistor for the zener diode with value calculated to load the zener to approx. 10% of rated current. For the zener specified, this is 120 ohms. R_2 is the series resistor to change the mA meter to a 0-4 voltmeter, to give readings from 11 to 15V.

Infosection

CARF Head Office

The CARF Office in Kingston, Ont. is open from 9 a.m. to 3 p.m. on weekdays; Phone 613-544-6161. Below is listed the names and positions of the CARF Office Staff for your convenience.

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NEW CALL FOR MARINE MOBILE

A new call sign policy for marine mobile stations has been announced by DOC. Amateur marine mobile stations on vessels operating primarily outside of Canadian waters will be issued a separate licence with a call sign from the VE0 series, while a station on a Canadian vessel operating primarily in home waters will use the call sign assigned to the owner's home station, operating it as a mobile station. The policy is effective immediately for new applicants and will be in full effect by April 1, 1982.

CARF News Service

Swap Shop

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FOR SALE: Kenwood TS-120S HF Transceiver with Power Supply and desk microphone. 8 months old. Must sell to pay for university. Asking $750. What offers? Tim Leier VE5ADL/P, P.O. 6, Saskatoon, Sask. S7N 0W0 (306-343-4659)

WANTED: Manual (or good photocopy) for Heathkit IO-18 Oscilloscope. Lee Carruthers VY1AS, Box 5349, Whitehorse, Y.T. Y1A 4Z2.

FOR SALE: Swan 100MX, AC/DC 80-10 all solid state 235 watts P.E.P., RIT/VOX/N.B. Mic Gain, Low Pass Filter built in, Astatic mic., PTT and Lock, Manual included, very little use $500.00. Atlas 110, AC/DC with power supply, 80-10 all solid state 200 watts PEP, manual included, excellent condition $450. Tempo One (Yaesu FT-200) 80-10, A/C Power supply/Speaker, Digital freq counter, remote VFO, SWR/power meter, DC/DC Converter, 240 watts PEP, manuals included $500. VE2DTI Jim Miller 514-634-6069.

FOR SALE: Kenwood TS520S, manual, original carton, recent shop checkout, asking $525 U.S. Tel: 1-813-784-7553.

FOR SALE: Alda Model 103 completely solid state, 80, 40, 20 metres, 250 watts input, with noise blanker, crystal calibrator, microphone and manual, 3 years old, mint condition, $395.00. Systcom Commander 2 with GLB channelizer, 5 kc offset and scanner excellent condition $165.00. VE3COE Don Matheson, 37 Stonybrook Dr., Kitchener, Ontario N2M 4L6. 519-742-5005.

FOR SALE: Yaesu FT101, manual, carton, DC Converter, CW Filter, spare finals, hand mike, tel: 1-813-784-7553, asking $500 U.S.

FOR SALE: Yaesu FT-221 with built-in Lunar preamp. $500 negotiable. Jim Harris VE1RB, RR5, Box 1810, Yarmouth, Nova Scotia B5A 4A9. Tel: 902-742-5985.

Canadian Amateur Radio First!

WHAT IS CARF?

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

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

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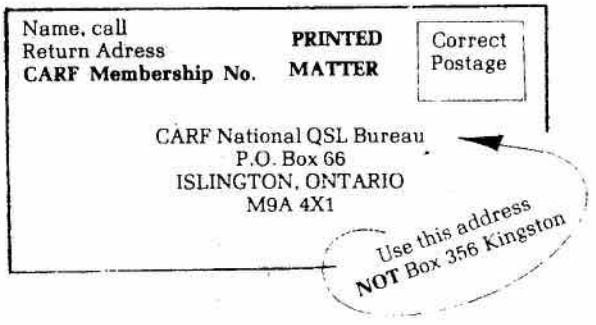
How to use the CARF QSL Service

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

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

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

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



Operating Information

RECIPROCAL OPERATING AGREEMENTS

Canada has concluded agreements or arrangements with the following countries to permit licensed Amateur radio operators to operate radio stations while temporarily in the other country: Australia, Austria, Barbados, Belgium, Bermuda, Botswana (Republic of), Brazil (Federative Republic of), Chile, Colombia (Republic of), Costa Rica, Denmark, Dominica, Dominican Republic, Ecuador, Finland, France, Germany (Federal Republic of), Greece, Guatemala (Republic of), Haiti (Republic of), Honduras (Republic of), India (Republic of), Indonesia (Republic of), Iceland, Ireland, Israel (State of), Luxembourg, Netherlands (Kingdom of the), New Zealand, Nicaragua, Norway, Panama (Republic of), Peru, Philippines (Republic of the), Poland (People's Republic of), Portugal, Senegal (Republic of the), Sweden, Switzerland (Confederation of), United Kingdom, United States of America, Uruguay (Oriental Republic of), Venezuela (Republic of).

Negotiations for the establishment of similar agreements or arrangements with the Republic of Bolivia, Cuba and Italy have been initiated.

BANNED COUNTRIES LIST

The following countries have notified the International Telecommunications Union that they forbid radiocommunications with Amateur stations under their jurisdiction:

Democratic Kamuchea, Iraq (Republic of), Libya (Socialist People's Libyan Arab Jamahiriya), Somali Democratic Republic, Turkey, Viet Nam (Socialist Republic of), Yemen (People's Democratic Republic of), Zaire (Republic of)

THIRD PARTY TRAFFIC AGREEMENTS

Canada has concluded agreements with the following countries to permit Amateur radio operators to exchange messages or other communications from or to third parties: Australia, Bolivia (Republic of), Chile, Columbia (Republic of), Costa Rica, Dominican Republic, El Salvador (Republic of), Guatemala (Republic of), Guyana, Haiti, Honduras (Republic of), Israel (State of), Jamaica, Mexico, Nicaragua, Paraguay (Republic of), Peru, Trinidad and Tobago, United States of America, Uruguay (Oriental Republic of), Venezuela (Republic of).

Negotiations for the establishment of similar agreements or arrangements with Ecuador and the Federal Republic of Nigeria have been initiated.

Amateurs who wish to operate in Commonwealth countries other than those listed above should apply to the embassy in Canada or directly to the appropriate regulatory agency.

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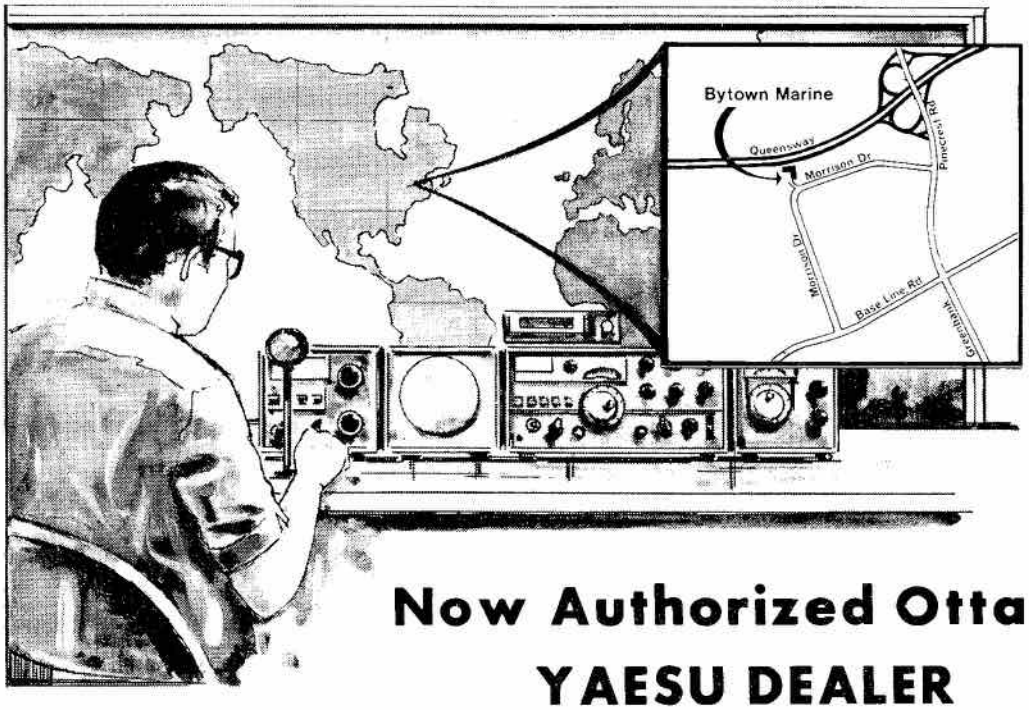

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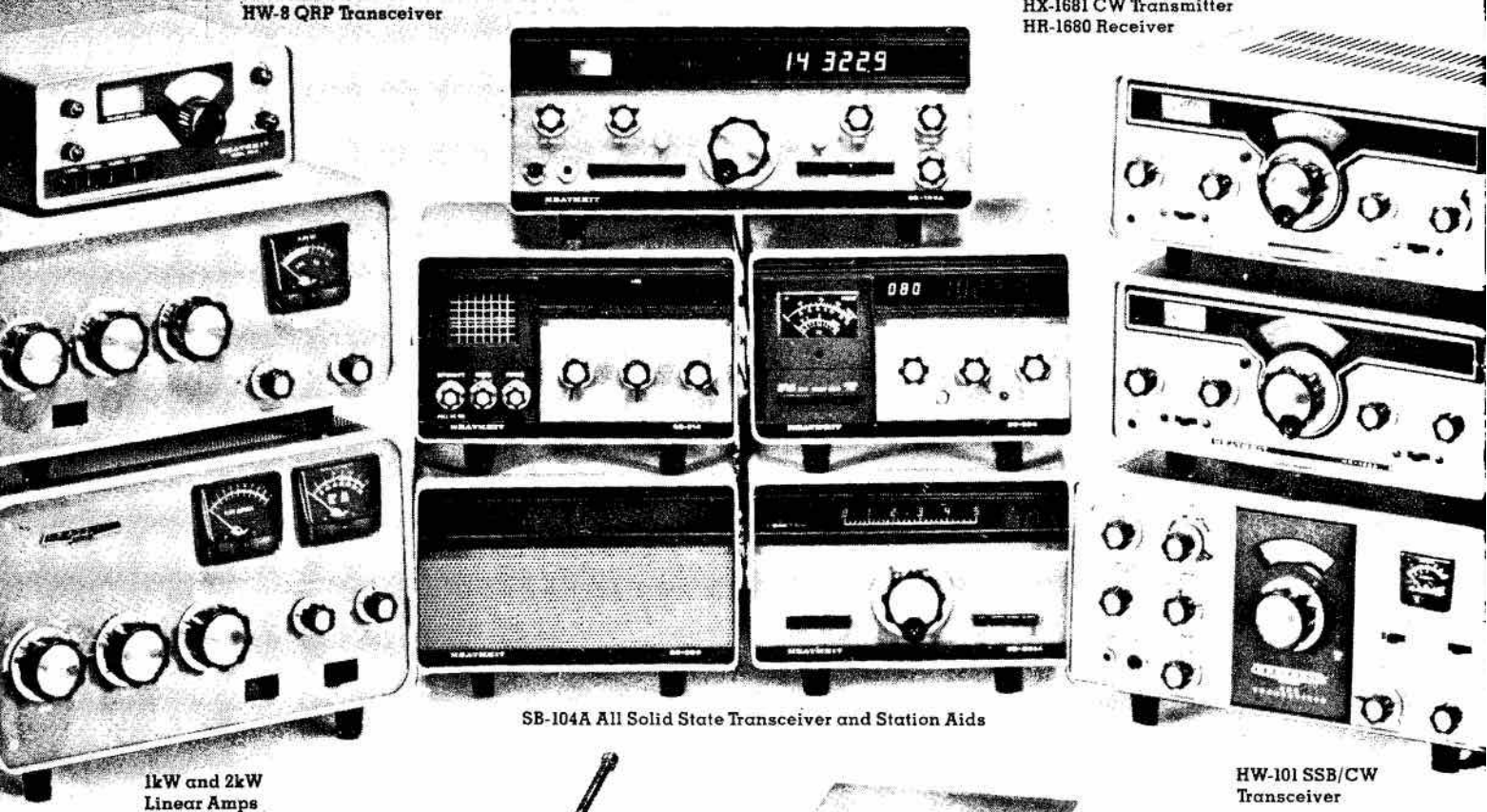

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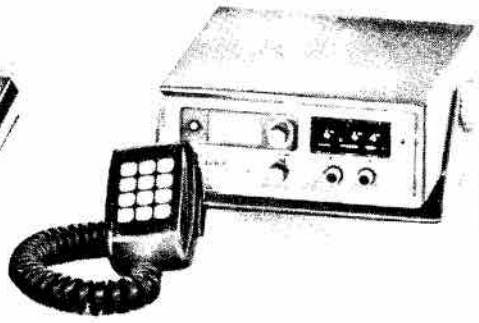

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