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# the canadian amateur

November 1978 No. 10

## First Canadian PEACE-SAT station opens

- The first Canadian station in the Pan Pacific Education And Communication Experiments by Satellite, a radio information exchange between 14 countries bordered by the Pacific Ocean was opened at Simon Fraser University in Vancouver on September 18. "PEACE-SAT" uses a U.S. geostationary satellite ATS-1. At Simon Fraser University the Amateur station equipment is utilized by AMSAT member Tony Craig, VE7XQ, Gail Martin and Pat Hindley for Canadian input to the net.

# Symposium


The Calgary ARA Symposium Committee and your TCA Editor; Standing, Bill Hammond VE6GQ, Tony Mountjoy VE6 MX, Bob Eccleston VE6EX, Doug Burrill VE3CDC; Seated, Doreen Hammond, Jeanette Mackay, Abe Mackay VE6MI.L.

The second National Amateur Radio Symposium, convened by the Canadian Amateur Radio Federation Inc. wound up its two-day session in Calgary on October 1.

The conference, hosted by the Calgary Amateur Radio Association under the auspices of the Amateur Radio League of Alberta, made several important recommendations to the DOC senior officials who attended, concerning the future of the Amateur radio in Canada.

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CARF **the canadian amateur**

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Editor:
VE3CDC Doug Burrill

Publisher:
Steve Campbell

The Canadian Amateur is the official monthly publication of the Canadian Amateur Radio Federation, Inc. It is distributed to members and is available to others for $7.00 per year. The Federation 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.





## LATE DELIVERY

The current hassle in the Post Office has played havoc with delivery of The Canadian Amateur which, like other publications using third class mail, goes to the bottom of the pile-up.

'TCA' is usually posted in the first week of the month or earlier and if you find it takes an unreasonable amount of time to get your copy, write to your MP.

# GRS Symposium

At a national GRS (CB) users' symposium convened by DOC in Ottawa on September 21, the Department unveiled a tentative plan to add 100 more CB channels in the UHF range. Mention was made that while a 900 MHz area slot was being considered, no decision had yet been reached.

Encouraging to Amateurs was the fact that no mention was made of 220 MHz as being given to the GRS. (A reliable source notes that an FCC meeting in Washington on October 12 discussed 900 MHz area but like DOC, made no mention of 220 MHz being considered.)

In reply to the operators' beef that they were continually being blamed for interference which was really the fault of "cheap television sets", Dr. John deMercado, Telecommunications Regulatory chief, said that the first well-shielded TV sets would be on the market next year but it would be four to five years before their impact in clearing up TVI would be significant...this word also fell on grateful Amateur ears.

Of some interest to Amateurs was the announcement of the availability of the new DOC full-color illustrated booklet (ask your District Office for it), based on a similar FCC publication, showing do-it-yourself methods of clearing up interference problems. Its chief use for knowledgeable Amateurs may be in explaining to complainants just what it's all about.

The DOC rated the symposium, an outcome of the eight held in different centres across the country, as being important enough to warrant a speech by the Minister's Parliamentary Secretary M.P. Crawford Douglas and Assistant Deputy Minister Jean-Paul Lefebvre.

# Prefixes

- The question of a separate prefix for Nova Scotia to replace the present VE1 was put to 159 Cape Breton Amateurs and the 49% response showed 58 wanted one, with 20 voting "no".

# 5H3BP

Canadians who pursue DX may come upon fellow countryman Bill Proctor 5H3BP located in Dar Es Salaam, Tanzania. Bill, who recently visited in Ottawa, works for the Department of External Affairs, but as a DOT operator he spent time in Norman Wells and Medicine Hat. The picture shows Bill's shack, just 200 yards from the Indian Ocean. Running an FT 101E and an FL211B using a TA33Jr. beam on a 40' tower, Bill can be heard on 10, 15 and 20 metres just below the U.S. portion from 1600 to 2000 Z almost daily and longer on weekends.

Word about Ottawa is that the far-flung operators of External Affairs are in the process of forming a net.

# ITU awards Canadian Amateurs

Two eminent Amateurs were among five Canadians who have received international recognition for their work with a UN organization, the International Telecommunications Union.

CARF president, Bill Wilson, VE3NR and Bob Eldridge VE7BS, president of the Canadian Radio Technical Planning Board were awarded a place in the ITU Honor Roll at a ceremony presided over by DOC Minister Jeanne Sauve in Ottawa October 17th.

Bill, now retired from DOC and Bob, a B.C. Telephone Co. official, received the honor as a result of their outstanding work with the ITU working committees (CCIR).

Three other Canadians were similarly honored by Mme. Sauvé, who acted on behalf of the Secretary of the ITU; Dr. Siocos, formerly of the CBC, Chris Schultz formerly of DOC and John Wilson of the Canadian Telecommunications Carriers Association.

# Computer fans:

If you belong to or know of a computer or microprocessor club in your area drop a line to CARF, Box 356, Kingston, Ont., K7L 4W2 and let us know the names and addresses of the club executive. With the first exams for the new computer-oriented Amateur certificate (the "Digital Operator" ticket) being held November 15 and the new horizon which Amateur radio will open up for microprocessor interconnection, CARF will soon have useful information for those wishing to write the new no-code exam.

# Tariff Board hearings

With the all-time low of the dollar in terms of U.S. bucks and Japanese yen, Canadian Amateurs who are now taking a worse beating than ever on duty and sales tax on Amateur gear are looking with some hope at the hearings now being held across Canada by the Tariff Board.

The current public hearings include listening to briefs and arguments for the reduction of the duty on imported Amateur equipment. The Board sat in Vancouver on October 23 and 24; Edmonton on October 27. It will be in Toronto November 6, 7 and 8 and in Ottawa on November 15, 16 and 17.

CARF will present a well-researched brief at the Ottawa hearing. The Moncton area ARC presented an excellent argument to the Board when it met recently in that city.

The outcome of the hearings will not be known for some time, judging from past experience.

CRAG Canadian Repeater Advisory Group

Hugh Lines VE3DWL

This month we have some news from travelers over the summer. Frank, VE3 DVB, travelled west and reports that there is a new repeater on at Lucy Lake, Sask. (146.13/146.73) with the call sign unknown. He also reports that the two repeaters in Sault Ste. Marie are working well and that the Moosomin Sask. repeater is exceptionally good. Congratulations to the total Amateur population of Moosomin, all four of you!

Gord, VE3CSH, reports that the coverage of VE3BTF in Bancroft Ont. (147.84/147.24) is very impressive. A new repeater in Orangeville Ont., near Toronto, is VE3RSO on 146.625/146.025. It is one of Canada's widest coverage repeaters, blanketing an area of southwestern Ontario including Toronto, Hamilton, Niagara Falls, Brantford, Woodstock, and as far north as Owen Sound, Midland and Orillia. It is microprocessor controlled, 1800 feet above sea level and has standby battery power.

From Bob, VE3DNG in Cobalt, Ont., we find that VE3TAR in Cobalt is now on 146.37/146.97; VE3KLR is proposed for Kirkland Lake on 146.28/146.88 and should be on soon, and VE3JIQ is on 146.16/146.76 in Sudbury.

Jerry VE2EAE advises that VE2EH in La Tuque is not linked as shown in the repeater directory, although it is equipped with an autopatch.

Via the Cape Breton Amateur, we have an update on repeaters in that area of the country. VE1CBI, which is owned by the Sydney ARC, has been leased to the Sydney RTTY group for RTTY operation. This repeater has been moved to Harwood Hill in Sydney and is still on 146.01/146.61. The autopatch facility has been removed and although its primary use is RTTY, it can still be accessed by voice. A new repeater in North Sydney is VE1AUY on 147.84/147.24. It is intended for voice operation and is equipped with autopatch on the North Sydney exchange. Carl, VE3BYX notes the following from his trip down east. There is no repeater operating in Gander, Nfld, and the Cornerbrook Nfld repeater is operating very well on 146.34 146.94.

Thanks very much to those who have taken the time to let us know what is going on.



# Information wanted

--The Department of National Defence is making a "briefing" film to show prospective volunteers(?) for posting to Alert, Canada's North Pole station, what life in a remote posting like that can be. "Project Alert Myth" will have as its predominate theme the contrast between the present facility and the primitive ones of the "good old days". Unfortunately there are no official film records of those times and former Alert residents are asked to either forward old snapshots, 8 mm home movies or even anecdotes (the printable ones) to the project co-ordinator, Maj. W.J. Berry, D/Commsec 6, National Defence H.Q. 101 Col. By Drive, Ottawa, Ont. Your material will be returned.

# YI1BGD mystery cleared

DX fans will be interested in this story by Jack Winterbourne VE3ITO in the Burlington ARC bulletin. While the Iraqui government telecom agency firmly denies that Amateur radio operation is allowed in that country, U.S. and Canadian operators are working YI1BGD in Baghdad which, according to Jack, is indeed alive and well, for real, and very much on the air. Here is his story:

"During a business trip to Baghdad in September, 1978, I contacted Majid Abdulhamid, Chief Operator of the Radio Club of Baghdad Amateur station YI1 BGD.

Majid gave me telephone directions to find the club premises now located in the building of the General Directorate of Scientific Welfare in Azamia district of Baghdad where I was met by Majid and another club operator, Saad Al Tai, both of whom accorded me a very courteous welcome.

"On being informed of the general interest of North American Amateurs in the situation of ham radio in Iraq, they explained their present status. YI1BGD is the only legal ham station in Iraq at present. Majid is holder of the licence which is limited to the 20 metre band and 100 Watt input. The club hopes to be permitted to operate on other bands soon and with higher power.

"The present membership, beside Majid, consists of seven operators including two YLs. Majid expects the club to grow as their activities become more widely known. The whole operation was made possible through a radio course given by YU1NZV, who has since left Iraq. The club station began operating on April 14, 1978, and has logged a respectable number of countries and QSOs since that time. It is equipped with an Atlas 210 and a two-element quad which is operated manually. They recently received a donation from Japan of a Yaesu FT 101 which is awaiting clearance at customs pending the revised station licence.

"Their operating schedule is Monday and Wednesday on 14.210 MHz and on Friday from 2000 UTC until 0100 UTC, their beam is directed at North America. At that time they have regular skeds with VO1CU (Gordon) and 12CBM (Bert) who act as control stations on their behalf. The Friday frequency is 14.310 MHz,

"When I inquired if they had any QSLs for VE3 which I could carry back, they showed me the station log which indicated almost 100% QSL response from them. Those hams who have sent QSLs are quite certain to receive confirmation but it will take time. The club doesn't take long to respond, but the distance and conditions really slow things down.

(Jack, who works for an engineering consulting firm, is due back in Iraq around the first of next year and will be taking back with him material relevant to Amateur radio for the club at YI1BGD, which aims to show the worth of Amateur radio to the Iraqui government.)

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# Card contest

Glenn McMichael VE3GCU is offering a series of prizes for the best three cards submitted in a unique 'Best QSL Card Contest' open to all Canadian stations.

To participate, mail two cards to Glenn McMichael VE3CGU, Box 231, Goderich, Ont. N7A 3Z2. Cards must be blank ... no writing on them. Entries must be postmarked before Jan. 1, 1979 and will be judged by five Amateurs in the Goderich area: Glenn, Jim Cooper VE3CR, Bruce McCreath VE3EAR, Bill Smith VE3JFJ and Fred Looker VE3ZL. Judging will be based on originality, completeness of information and good design. Cards cannot be returned. The winning cards, it is hoped, will be reproduced in these columns.

Glenn will donate a Nye Viking heavy duty hand key to the first prizewinner, a Bill Orr W6SAI Wire Antenna Book to number two, and the Callbook Radio Amateur World Atlas to the third winner.

CARF will sweeten the pot with a free copy of its Regulations Handbook to each of the three winners.

# DND announces CFARS

Because of numerious problems faced by the Amateurs providing personal communications for Armed Forces personnel in isolated places, the Department of National Defense is establishing a Canadian Forces Affiliate Radio System to include Amateur operators. This annoucement was made by Capt. Ron Gebhardt, VE1VE/3, at the National Amateur Radio Symposium in Calgary last month.

Since the mid 1950s, an informal network of Amateur radio stations located across Canada has been operating to handle voice and message traffic for Canadian Forces military personnel stationed at such isolated locations as the far north, Middle East countries, the Congo and on board Canadian naval ships.

This unofficial communications service has been encouraged by the Department of National Defence because it is considered to be a key "morale booster" for military personnel serving at remote and isolated posts.

Unfortunately, several problems have appeared over the past two or three years which have delayed or interfered with this for extended periods and in some cases, made it necessary to close some of the isolated Amateur stations. These problems include the increasingly difficult task of finding licenced Amateur radio operators in the military who would volunteer to serve at an isolated location. The second problem being encountered is one of interference which at times is intentional jamming and at other times is attributed to the crowded conditions in the Amateur bands.

Basically, the CFARS program will operate in a somewhat similar fashion to the United States Military Affiliate Radio System (MARS). Although the final format of CFARS has not been resolved, basically it will operate on specially allocated frequencies outside the Amateur bands and membership will include military installation stations, military Amateur radio club stations, and a number of civilian affiliate licenced Amateur radio stations. It will use military radio voice and operating procedures and special CFARS call signs. Several different radio nets are intended such as a Northern net, Maritime or ships net, European net, Middle East or UN net.

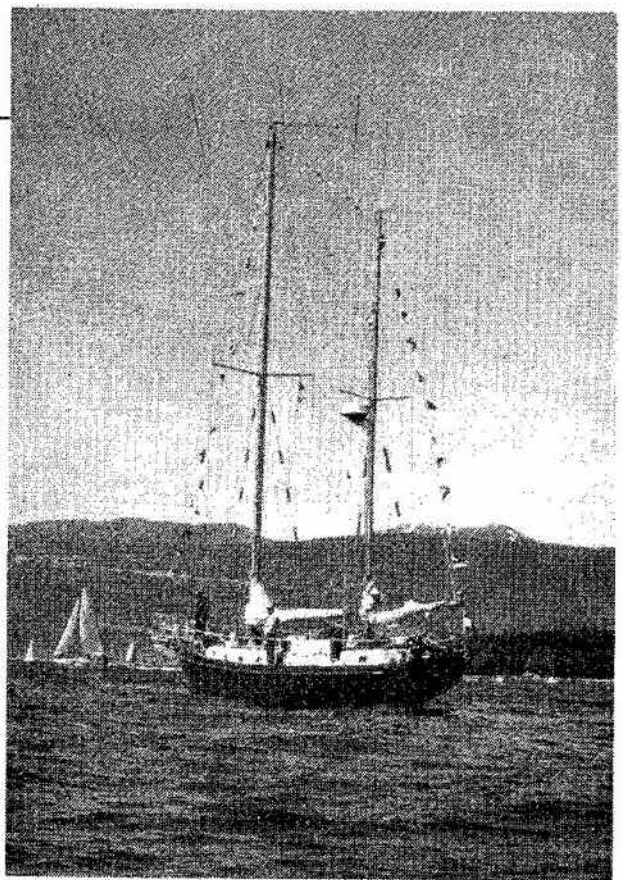
Trials conducted during the Apr/May 78 period which included military Amateur stations in the Middle East and about 13 civilian Amateur stations in Canada operating on frequency 13972.5 MHz were extremely successful.

Organizing and getting a communications system such as the CFARS program into operation will take considerable time. For instance, DOC approval of Amateurs to operate outside the Amateur band must be given, a CFARS operating manual will have to be designed and published, a full range of frequencies will have to be allocated through DOC, membership details will have to be worked out, etc. Implementation of the program will be done in various steps or stages, the first of which will begin in the fall of 1978.

Generally, CFARS will improve the radio communications service provided over the years by eliminating the interference problem. It will also ensure that the military Amateur stations in isolated locations will not be shut down because no military personnel holding an Amateur licence are available to operate the station.

(Details of how Amateurs may participate will be made known in these columns as DND releases them.)

# Sailor/Amateur off to Antarctica



Note the beam mounted on the mast for use when anchored.

From May to Oct. 1977, Willi de Roos VK9XR/MM sailed his 42 ft. Ketch 'Williwaw' from Falmouth, England, across the Atlantic into the Arctic waters and through the Northwest Passage. He arrived in Vancouver on Oct. 18 and became the first man to complete such a voyage in a small sailing vessel. With the exception of six weeks, the voyage was made single handed.

After spending eight months in Vancouver harbour, writing a book about his historical voyage through the Northwest Passage, Willi set sail again from the Royal Vancouver Yacht Club on June 22nd to continue his adventures and circumnavigate the entire American continent.

The next voyage for this adventurous Amateur will take him to the Island of Tahiti and then on to Valdivia, Chile and then into Antarctica where he will spend the ten month winter frozen in the ice pack.

Willi expects to be in Valdivia for about 5 weeks during October and the first part of November. He will first take a short vacation of two weeks back to his home in Belgium and then he will return to Valdivia and prepare the Williwaw for the voyage into the Antarctica.

On arriving in the Antarctica approximately Dec. 15 - 30, Willi is planning to attempt a landing on the Norwegian-owned island of PETER I which is located at 68:47 degs. south latitude and 90:35 degs. west longitude, and if conditions permit, Willi will set up his station on this island and operate from there, possibly the complete 10 month period. Willi has been given permission by the Norwegian Government to land and operate an Amateur Radio station on this Island from Jan. 1st to Dec. 31st 1979 and has been issued the call sign 3Y0BZ. This will be a new country for all DX credits... QSL via VE7ZQ.

During Willi's stay in Vancouver, the Williwaw was fitted with special equipment for the Antarctica. A complete Kenwood station using the TS-520S and all accessories was donated by Kenwood Corporation and a 203BA monoband 20 meter beam was donated by Hygain (shown in picture mounted on the main mast of the Williwaw while in Vancouver). This antenna will be re-installed when Willi anchors in the Antarctica and used for all 20 meter operation. In addition a multi-band inverted "V" will also be installed on the mizzen mast and used for all other bands.

After wintering in the Antarctica, Willi will sail out in the following summer (December 1979) and then sail

continued over -

around Cape Horn. If time permits, he may sail to the South Sandwich Island and operate from there for a while before crossing the Atlantic and back to his home in Belgium.

When his voyage is completed, Willi will be the first man to sail completely around the American continent in a small sailing Yacht. During his stay in Antarctica, Willi will write the second book of his adventures (that is between QSO's) and will be writing a third book after returning to his home in Belgium.

Harry Beardsell VE7ZQ

# Murphy's Law

We often hear Murphy's Law quoted to cover those situations when everything goes wrong ... but seldom is it quoted in full. Here it is:

"Nothing is as simple as it looks,
Everything takes longer than you expect,
And if anything can go wrong ... it does
At the worst possible moment."

# Origin of call signs

Once there were no rules and regulations governing Amateur Radio Call Signs, and "Hams" usually chose their own, following their own inclinations, some used their initials, etc...

After the first World War, Amateur Radio started to grow and the Canadian government started issuing call signs to its Amateurs. Canada was divided into 5 districts. The United States into 9 Districts and in Europe a system was worked out by sharing numbers between countries. Italy chose number 1, England got 2, Germany 4, France 8 and so on.

Governments decided something better had to be done. So they in the late 20's held a Conference where it was decided that the first one or two letters in any call sign should indicate the nationality. Regarding this, the Canadians received anything between CF to CK, CY to CZ and VA to VG, and it can be discerned from this where the calls of broadcast stations, our VE Prefix and special calls originated.

The U.S. got anything beginning with K, N or W. Great Britain took G and M, France F, Germany D, etc.

After World War II there was a general shuffle of prefixes as some countries disappeared and some new ones appeared. Canada kept those she had and added VO when Newfoundland joined, and also added VX to VY and XJ to XO, which accounts for the Olympic prefixes used recently.

This went along quite satisfactorily until it was realized there was a shortage of letters arising, due to many colonies throughout the world gaining their independence, and being proclaimed as new countries. It was decided that using a number first and followed by a letter was an answer to the problem. e.g. 3A for Monaco and 9V for Singapore.

Ten years later this series of prefixes was run out, and something new had to be instituted. The I.T.U. just reversed the procedure and used a letter first followed by a number. Thus we have P2, etc. It must be remembered upon hearing a call such as this, that only the letter and the first number belong to the prefix. Some countries, like the Bahamas, didn't use a second number for their Ham calls and thus you hear A2CAB, C6ABC and such. Not all these letter-number prefixes belong to new nations. Canada at one time had 3C (used in the Canadian Centennial), but since then it has been relinquished to Equatorial Guinea. We hear some strange calls every day, usually used in commemoration of some special occasion or event. Mexico used 6D to commemorate the Pan American Games, Venezuela has used 9Z and the USSR 4J and 4K.

(West Island ARC "W'ARC" Dorval, Que)

# CORK '79

Bill Bushell VE3DXY

CORK '79 ... Kingston has been hosting this popular event since 1969. The name stands for Canadian Olympic Regatta Kingston and involves the best sailors in the world.

What does a sailing regatta have to do with Amateur Radio? Just this: They require Radio Communications of the Highest Calibre on a grand scale for a whole week - and they've asked us to provide!

The organizing committee for CORK approached the Kingston Amateur Radio Club and I have agreed to coordinate the effort required to ascertain the feeling of the Amateurs in Ontario and Quebec. The operation is simply too large for KARC to handle without substantial help.

The time frame within which we shall be operating is quite wide but we must have your firm commitment in a very short time.

To begin: CORK '79 will be held at Kingston, Ontario from August 24 to August 31, 1979. Labour Day is September 3 and schools open in Ontario September 4. Sailing takes place every day unless cancelled by weather and communications are required from about 0800 to approximately 1630 hours.

This is the proposition then: We need a firm commitment from you before Dec. 10, 1978, that you will be here in Kingston for CORK '79 August 24 - August 31, 1979, with your VHF equipment, preferably capable of 12 volt operation or hand held, that you be willing to operate this equipment on board a good size power cruiser or yacht every day that racing is held.

In return for this big effort on your part, CORK '79 will: provide complete liability coverage for all your Amateur equipment while in Kingston; pay your travel expenses QTH to Kingston and return, pay residence accommodation at Queen's University for yourself or pay for trailer park fees at local establishments for you and your family; pay for all of your meals; pay for any special equipment such as crystals, adapters, etc. required for your equipment (yours to keep). In addition, as an official member of the Racing Committee, many evening social functions for both competitors and staff will be open to you. Sound good? Read on!

Three nets will operate simultaneously all day on three separate frequencies in the 2m FM band. These must be interference free so we shall be using odd-ball simplex channels. Each net, which is responsible for a course, will have a control station at the Olympic Harbor Site in Kingston and four

MM stations on the course. Each course will be separated from its neighbour by several miles of water and there is no need for them to be linked together. Each course however could have over 100 competitors in three different classes, racing so it can become quite hectic.

Due to the training required for the control station at the Harbour Site, it is planned that this will be manned by local Amateurs.

During the past nine years, D.N.D. have provided all the communications and written it off as a training exercise, but they are reluctant to carry it all. They will handle the Rescue net this year so that means we won't have to put an operator with a hand-held in a large rubber dinghy with a ten horse motor!

Also the long lead time is required for the Military to plan its operation if they must do it all again.

If you are sincerely interested in taking part in CORK '79 (Amateur), send the information in the questionnaire at right to Box 1402, Kingston, Ont.

All questionnaires will be filed chronologically and acknowledged. If the response is sufficient to continue with this project further articles will appear to amplify this brief outline.

CORK '79 (AMATEUR)

Coordinated by Kingston Amateur Radio Club

Yes I will come to Kingston with my VHF equipment from August 24, 1979 to August 31, 1979 in order to participate in CORK '79.

NAME: _____

ADDRESS: _____

POSTAL CODE: _____

CALL SIGN: _____

EQUIPMENT: Make: _____ Model: _____

FULLY SYNTHESIZED: Yes: _____ No: _____

ACCOMMODATION REQUIRED: Yes: _____ No: _____

QUEEN'S UNIVERSITY RESIDENCE: _____

(You may be asked to share a double room with another participant.)

TRAILER PARK or CAMP GROUND: _____

(Lake Ontario Park quite close.)

(KOA 5 miles North-West)

(Kingston Mills Campground 6 miles North-East)

_____

Signature

# Amateur Radio Week gets publicity

Results of the CARF suggestion that clubs get local publicity for Amateur Radio by carrying out their own ideas for exposing the hobby to public view in a nation-wide Amateur Radio Week are showing up in the club bulletins received recently.

Under the guidance of Joan Powell VE3FVO, CARF Secretary, who put her knowledge of the PR business into practice, clubs were provided with publicity blurbs for radio and TV stations and suggestions for promoting Amateur Radio.

The week of September 24-30 was officially declared Amateur Radio Week by municipal authorities in a number of places. In Calgary, the municipally proclaimed Week ended with the start of the National Amateur Symposium which featured the deputy mayor, Brian Lee, as a speaker at the banquet.

The Sydney, N.S. ARC started off its club activity for the season by getting radio and TV coverage and by setting up a display at a shopping center. A tape was made of a typical QSO to demonstrate to the public.

The South Pickering (Ont.) ARC set up a display at a local mall, featuring an operating station.

Typical of reaction to the idea is that of the club in Cambridge, Ont. Mary Ketchahaw, XYL of Joe VE3BGJ, wrote us this story on their Amateur Radio Week activities:

About the same time that CARF was promoting the idea of club action in an Amateur Radio Week, a new club was forming in the Cambridge area. The Cambridge DX Society started up with the call sign VE3UM obtained after the passing of Con Gorth (VE3UM) one of the first hams in Cambridge. A lot of planning was on the board about promoting a certificate to be offered by the club for working five stations from Cambridge and the club station.

I pointed out the article to the ham in the family, Joe VE3BGJ, president of South Waterloo ARC, and he called the president of the new club, Earl VE3CTY. Both agreed that Amateur Radio Week was a great way to promote the hobby and the new club at the same time. The job fell to Joe as he had already done some work for the club to promote the certificate.

Joe approached the Community Services Department to provide the funds for the certificates and to help get the club off the ground. This they did and suggested the club do something to help themselves, so phone calls were made to the Mayor's office and the necessary letter asking the Mayor to proclaim Amateur Radio Week in Cambridge was sent. The reply came; yes, he would make the declaration with the cost to be carried by the club.

The rest of the work began. The newspapers were contacted and requested to do articles. The local radio station was contacted and they also agreed to do blurbs for us. The local television station, having heard of the proclamation at a city council meeting, called us for information.

Everything was going well. The telephone rang. It was Earl wanting Joe on the air. Earl was operating VE3UM and he had just worked OH6UM. Quite a coincidence and, as the certificates had just come off the press, the young fella would like to be the first person to receive it. With some help he made it. They then told him Amateur Radio Week was being held in Cambridge and asked him to send us his picture and information about himself to be used in the paper. This he did.

The next thing was to set up the stations. Antennas had to be erected and people recruited to man these stations for three days. Two stations were set up in each of two Radio Shack Stores in Cambridge. One, the South Waterloo Amateur Radio Club VE3SWA and the other The Cambridge DX Society VE3UM. They were in operation Thursday and Friday (Sept. 28 and 29) afternoon and evenings and all day Saturday (Sept. 30). Unfortunately the bands were not in the best of shape but a good variety of contacts were made. Those who viewed the operation of these stations were certainly impressed with the capability of Amateur Radio.

The S.W.A.R.C. station was operated mainly by Joe VE3BGJ with able assistance from John McIntosh VE3BWP and Marshall Killen VE3KK. Marshall operated on 40 meters CW for the most part of Saturday sending out no less than 52 messages to all parts of North America through a network of stations which he and Noreen Nimmons VE3GOL set up previously. Many other club members were on hand to answer questions put forth by young and old alike.

At the other location, The Cambridge DX Society VE3UM was operated by the old pro Dr. George Collins VE3FXT. After only one hour operation George had eight countries worked on 20 metres. A great effort. The turnout at this location was equally gratifying. George also had help from his XYL Jem VE3CCA and several other club members.

This ended Amateur Radio Week in Cambridge. A station will be set up at a local Mall on November 11, and we hope conditions will be greatly improved so that Amateur Radio can be well promoted in our area.

The participants put a lot into this endeavor and they got a great deal of satisfaction in return for a great deal of time spent on a worthwhile hobby.



# 'Anchor-men' invited to meeting

- VE7ZQ, Harry Beardsell and VE2 DDR Claire Bell who have been Canadian "anchor men" for Willi de Roos have been invited to the annual French national society REM, meeting at Le Mans, France in late October. Willi himself will be honored by REM for his achievements in single-handed sailing adventures. Harry will fly back to Valdivia, Chile, with Willi to help him prepare for his voyage to the Norwegian-owned Peter I island in the Antarctic. Willi's call there for his ten or twelve month stay will be 3YOBZ.

## - Classified ads —

Single insertion is $1.00 (minimum charge) for 10 words and $1.00 for each additional 10 words. To renew, send copy and payment again. Deadline is first of month preceding publication.

Put your membership number. and call (not counted), if any, at the end of your ad. Print or type your ad and include your address with postal code. If using a phone number, include the area code. CARF and The Canadian Amateur accept no responsibility or liability for content or matters arising from ads.

Send to CARF, Inc., Box 356, Kingston, Ont. K7L 4W2.

FOR SALE: Signal Relay. Small (3/8x3/8x1 1/2"), 8-volt mercury wetted contact relay for keyer, RTTY etc. - NEW- with application note @ $8.00 (plus Prov. tax BC residents) plus 50¢ handling and postage -Regular price $18.00. Merritt Communications Ltd., 400 Prideaux St., Nanaimo, B.C. V9R 2N5.

FOR SALE: Collins KWM-2 Transceiver, all mods, recently aligned, mint condition with 516-F power supply. Includes Magnum 6 RF processor (for Collins). $1000.00. Contact Dr. D. Campbell VE7AQC, 4910 Blenheim, Vancouver, B.C. V6N 1N3. (Ph: 604-261-1674.)

WANTED: One Vibroplex Bug, 1950-1960 vintage approx. Jim Angel VE3EKK, 226 Delrex, Georgetown, Ont. L7G 4E9. Ph: 416-877-7047.

FOR SALE: HW101, Power supply, SWR meter, mic., speaker, manual. $400.00 R. Spurrell VE3 IBQ, RR 3 Hanover, Ont. N4N 3B9. 519-364-3629.

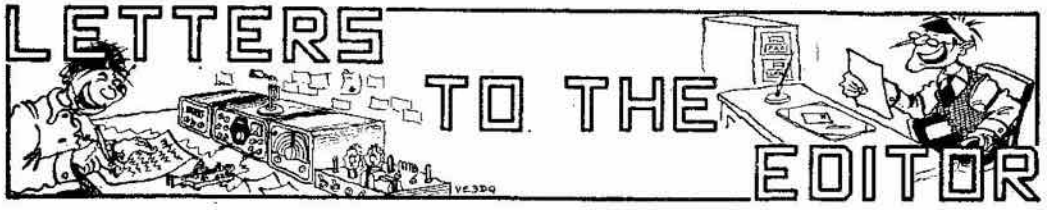
# DOC News

- DOC has announced a $20.4 million space technology program to expand and upgrade DOC lab facilities near Ottawa in order to provide Canadian industry with a fully-equipped centre for the test and assembly of communications satellites and space sub-systems. The DOC Minister, Mme. Jeanne Sauve, said that the program "will further a priority objective of Canada's space program -- that of developing and demonstrating a Canadian capability" to supply complete satellites for domestic and export markets. (Co-incidentally, it is a group of Ottawa Amateurs associated with AMSAT Canada who are designing and constructing the electronics for the first geostationary Amateur satellite which hopefully will hitch a ride on the NASA space shuttle program in the early 1980s.)

- The second phase of the DOC program enabling the public to buy certain no-dialling devices certified by the Department rather than having to lease the equipment and a coupler from a telecommunications company is being implemented.

In the first phase devices which may be certified by the Department included automatic answering and recording devices, plugs and jacks. The new categories of equipment which may be submitted for certification include telewriters, facsimile machines, medical terminals, modems and traffic measuring equipment. Note that equipment categories approved or scheduled for approval in phase two do NOT include phone patches or similar devices.

- In order to ensure that the search powers of radio inspectors under the Radio Act are fully understood by judicial authorities and the public, DOC has published in the Canada Gazette of October 7 the names of 300 of its field personnel as being authorized to apply for and be granted a search warrant under section 10 of the Radio Act.




- Thanks to VE3IIU Randy, for his letter. With the new deputy minister in DOC there seems to be a trend to do what we've been hollering for during the past few years ... enforcement of the Radio Act.

- To VE7DDF, thanks for the letter maintaining that CARF is "doing its best" despite the fact that he suspects we do not read various parliamentary papers and that we suppress unpleasant news at the whim of CARF directors. (Hell, Ford, we would be happy to even hear from some of them!)

- Thanks in advance to those who will no doubt be writing to ask if as apparently reported in our October issue, the Federation des Radio Amateurs du Quebec are opening up not only new nets but new Amateur bands. The new nets they are operating are on 3775 kHz as stated. There are two red faces in this mistake... that of the professional electrical engineer who gave us the note and your Editor for not catching the error.

- To VE3AYZ, sorry you are leaving the PR job for the Lakehead ARC., and thanks for your news stories in the past.

- VE3HPR writes to let us know that a "QSO Phrase Book" with Amateur talk in Spanish, German, French and Russian is available from Mike Holubov, VE2BAG Baie Comeau, P.Q., G4Z 1E4, for $2.00 plus postage (about $1.00); VE5QY would like to see some RTTY articles ... let's hear from the TTY men ... we pay for articles; VE6CFK writes on two metre procedure ... a pet topic of all repeater users; VE2FOR would like practical experience reports or technical reports on the Drake TR-7 ... if you can help, write C/O CARF; VE2QO writes re the QSL Bureau plug in this publication ... "cards cannot be sorted alphabetically by country OR by call/prefix" ... The QSL gals have been asked to straighten out the wording.

## Instructors' Workshop

CARF is convening a day-long workshop to work out details for a study aid for the new Digital and to discuss teaching methods. The meeting will be held on November 4 in St. Lawrence College, Kingston, starting at 10.30 a.m. It is expected that about 40 instructors will attend. For further details contact Art Blick, VE3AHU, General Manager, CARF Box 356, Kingston, K7L 4W2.

# CBers are Amateurs; Hams are Amateurs

Bob Rouleau VE2PY
from Montreal ARC Marcogram

For some time now, I have been coming to the conclusion that we Hams have been doing ourselves in because of the name we call ourselves. Have you ever had the experience of trying to explain to a friend or business associate the difference between CBers and Amateurs. I did. What an exercise in frustration. The fellow I was talking to was a bright guy, so it should have been easy. It wasn't. For my opening sortie, I pointed out that Amateurs were licensed differently. No signing a form and getting a ticket for us, we had to undergo tough exams before the DOC would let us loose on the air waves. The cursed Morse Code had to be mastered etc. I thought I had done a reasonable job of demonstrating the differences between Amateurs and CBers until he said, "If Amateurs are so professional, why do you call yourselves Amateurs?" "CBers are the ones who sound like amateurs to me." You know, he was right.

An Amateur working away at his keyer paddle in a traffic net coast to coast, or on RTTY or Slow Scan sure does conjure up the image of professionalism much more than our CBers calling, "This is Rubber Duck controlling channel 16, 10-4?" To the average guy on the street, Amateur has a very different connotation in everyday use than the meaning we apply to it. Likewise Ham, a derogatory term in most instances is not very accurate when viewed by the uninitiated.

This semantic confusion probably explains why the media so often calls CBers "Hams" or Amateurs. Again, the image of someone saying, "Rubber Duckie, this is Coax Cutter, there are Smokies on your tail, get your eyes off the Beavers in the 4 wheeler in front and get off the wood, 10-4?" How theatrical, how hammy! How amateur! No wonder the media and the public has difficulty telling us apart. The very names we have for ourselves describe the antics of CBers perfectly. We are the victims of our own "in" joke which we have perpetrated for the last 50 years or more.

Based on what I see of the argument over 220 MHz CB in the U.S., it would seem that the radio spectrum is becoming a political football due to the huge population of CBers. Like anything political, the arguments will be directed to a jury consisting of the public at large. The intervention of the Office of the President was just the beginning of what is to come. We Amateurs were a protected species for years because we had friends in high places who were Amateurs, and the public was not interested nor privy to the events. No more. We are losing our pull in the upper echelons, more non-Amateurs are being given positions of authority. Since we are outnumbered by our CB friends and there is no way we will ever come close to their numbers, we deal in quality not quantity. How will we ever convince the public of our quality if they can't tell us apart from CBers? One guy I talked to went away with the impression that Amateurs were really CBers who didn't like the name CBer.

I think the time may have come to look around for another name for our fraternity. Something which makes our qualities evident, and which will never be confused with CB. Various groups are spending considerable funds to educate

the public as to the differences between us. How much more difficult it is to do when the very semantics of our name run against the distinction we are trying to convey. We are trying to tell people, we are Amateurs, which is to say that we aren't really amateurs, but in fact a rather professional lot, etc. DUMB!

Let's hear it from you. Someone with a creative bent and a way with words must be able to come up with a better name for what we are. I suspect the DOC would be willing to listen to a plea of change of name as well. Don't forget some of them are still Amateurs too, and they of all people must be upset when confused with CBers.

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The Wonderful World of

# Certificate Hunting

From Kamloops B.C. A.R.C. "Splatter"

Amateur radio is a hobby that offers something to everyone, and mostly the gains are of relatively low cost even in these days of high prices and scarcity of almost everything. We all grumble about this, yet what we get is cheap when the prices many pay for smoking, drinking, automobile operation, golf and the like are considered -- and many have these things as a hobby.

Radio clubs place stress on many different facets of Amateur radio. Kamloops Amateur Radio Club lays great importance on two meter operation especially through the use of the two Club repeaters which provide enjoyable "on the air" hours for many Amateurs both local and visiting and these repeaters reflect the greatest credit on those dedicated Amateurs who give constant, very often unappreciated, service to them.

However in this article I would like to discuss another side of our hobby; namely certificate hunting, both local and DX. By local, I mean continent-wide, with the term DX applying to all other types of 'hunting' activity.

Certificate hunting can be simple and relaxed with all shades of operation up to the membership in the Certificate Hunters Club, an organization, to my way of thinking, of extreme complexity and in some ways out of the reach of the average Amateur, at least in its higher levels. It publishes an extremely informative Directory of Awards probably the best in existence but the tremendous amount of other matter dealing with the running of C.H.C. is not of any value to me personally: I just do not have the time to give to doing an FB job in and for it. I certainly do not wish to convey an impression

that I am denegrating C.H.C. but only feel that it is not for me.

Canada, the Republic of Mexico and the United States all have many awards which can be obtained with relatively little effort, while others are extremely difficult to achieve. Our Kamloops Award is given in three forms, while the fourth the Eyeball, can only be given to those who have one of the other forms. Details of the Award are shown elsewhere in this issue.

Canadian WAVE and WACAN are also very popular around the world. The United States has dozens of awards and I feel that WAZ and the DX Award given by CQ Magazine are the two best. Their running of the Awards is relaxed and the QSL's needed to obtain them can be validated in Canada and other countries, by Amateurs selected by CQ to provide this service. DXCC, WAS and other ARRL Awards require transmission to them, of the QSL's which give proof that the Amateur has them.

New Zealand is a Commonwealth country which has many beautiful Awards both hard and easy to obtain. Those from NZART administered with great expertise by Jock, ZL2GX are worthwhile, WAP (Worked all Pacific) being an example. They make a slight charge to Amateurs in other countries, and the check lists of "proof of working" signed by other Amateurs are accepted. Jock says Amateur Radio is a mature and fraternal hobby, and so Amateurs should be trusted. Certificates from R.S.G.B. including the BCRTA can be given in any country after proof of working is attested to by other Amateurs. Most other countries in the world provide certificates and many are extremely beautiful.

So what is the use of all this? The answer is simple: we are given the opportunity to test our equipment and operating skill against other Amateurs who have similar interest. One does not have to be a DX-er to be a C.H. I can think of about 50 certificates which can be obtained on 75 meters from a radius of one to four hundred miles.

In conclusion I would like to say the Kamloops Awards are well liked and much sought after, as a look at our countries list in this issue will show. But, Kamloops Amateurs on bands other than 20 meters, please apply for the Award and support it in your QSO's. Help your Award Committee to make it bigger and better every year.

John Bower VE7TL

# Two-way TV services

DOC has developed a technology which consists of a new two-way TV system, called Videotex. The development makes Canada a world leader in two-way television technology.

Users of the Canadian Videotex system will be able to retrieve, by phone or interactive cable, information stored in various computer data bases and have it displayed on modified TV receivers or business video terminals. Users would also be able to transmit graphic, tonal or textual information to each other or to a data bank. Connected to the TV would be a pushbutton unit like a pocket calculator or a keyboard unit like a typewriter for retrieving or inserting information.

Videotex, will expand the capabilities of home TVs through the addition of new services. The DOC developments represent a significant technological improvement over existing systems. Such systems allow the introduction of such things as electronic newspapers, electronic mail, electronic publishing by individuals, and many other business, entertainment and new home services, delivered electronically to home television receivers.

So far, the system has been demonstrated in laboratories at the Department's Communications Research Centre. Field trials are expected to start in 1979.

Large scale integration in microprocessing is expected to bring the cost of the Videotex modules down to within reach of the mass market within the next four or five years.

A further development, which would allow direct terminal-to-terminal interaction, without the need to go through a central computer, has also been developed and will be a part of the system.

# OVERSEAS REPORT

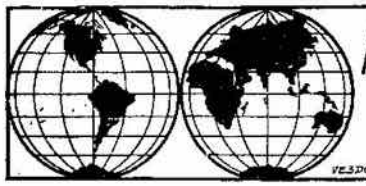
by Lynn Boothroyd DJ0NT

Last June the DOC sent John Demers and Larry Greeham from Ottawa to preside over the Amateur exams written by our Lahr club class and in two days our membership changed from mostly provisional licences to licensed Amateurs. The Baden ARC joined us for the occasion. Two of us even managed to snag our advanced certificates ... Mike DA1QR and myself. Unfortunately, not all of the Canadian or reciprocal licences had arrived at the time of writing (August).

Rotation to Canada will see some of the members back home ... Donna DA1 HO and Ted DA2BH in Greenwood, Bob DA1IT in Calgary and Ernie VE3LAM in Ottawa.

See you on Sundays at 1800 GMT on 14.169 MHz plus or minus the QRM.

Right, the successful candidates: Back row, Mike DA1UO and Fred DA1UP. Next row, Ernie VE3LAM, Daryl VE1 BTQ, Mike DA1QR; Middle row, Howard DA1JM, Bill DA1MH, John VE3KYT, Gabe VE7BQO, Arn VE3JUX; Next row, Lynn DJ0NT, Carol, Shirley (whose licences were assigned later); and Front row, Andy DJ0NU (Instructor), John Demers (DOC), Larry Greetham (DOC) and Burt DA2WL (Instructor).




# INTERNATIONAL NEWS

- The U.S. State Department has proven to be an unexpected ally in the Amateur position in both U.S. and Canada that the proposals by both FCC and DOC to hack at our 80 and 160 metre bands in WARC '79 proposals should be scrapped. The FCC proposal to cut both 80 and 160 metre bands in favor of broadcasters etc., has been opposed by the State Department due to what is thought to be Latin American support for the Amateur Service over broadcasters.

- U.S. repeater organizations are voting to go back to FCC licensing of repeaters due to the conflicts now erupting over interference due to the proliferations of repeaters.

- HR Report states that "concerns over potential radar interference to the SYNCOM III Amateur transponder 23 cm input have led to thoughts of switching it from 1297 to about 1252 MHz. Amateurs who have experienced radar interference on 23 cm should relate their experiences to AMSAT Canada or AMSAT's Washington office."

- The FCC end-of-July head count for U.S. Amateurs was 348,561. (Canadian count should be above 19,000 about now.)

# news briefs

- ANALOG vs. DIGITAL; The clock with sweep hands is an analog device. The digital "samples" time. When watching a motion picture, there is nothing on the screen 50% of the time. Continuous analog action has been converted to a digital form, i.e., still pictures, which the viewing process transfers back to an analog experience.

(The Ontario Amateur).

- The Cape Breton Net is operational again on 3735 kHz every Sunday at 1300 (Eastern Time). VE1CH is net manager. A VHF net with VE1DB Dave, at net control is on a local repeater 146.34/146.94 Sundays at 2000 local time.

- The Thunder Bay club has an award for $1.00 for those in the area logging 8 TB stations. Others have only to work 5 TB stations. The certificate commem-

orates the union of the twin cities Port Arthur and Fort William into Thunder Bay, in 1970. A unique winner was UA6-APP, the first USSR station to qualify. Award manager is Ken VE3EFZ.

- CARF officials were scheduled to speak on "packet radio" and the new Digital Operator's Certificate at an area gathering of computer buffs at Carleton University in Ottawa. The two-day symposium features workshops and a flea market on October 28 and 29.

- The Vancouver DOC office is undertaking a number of prosecutions for illegal possession of radio equipment. The joint program involving police agencies and DOC is expected to decrease the number of unlicensed GRS stations which is estimated to range from five to 25% of the million GRS stations in Canada.

- Two metre DXers should note that VE1ASJ Andy, has a pulsing beacon on 144.084 MHz.

# Tracking Space Junk

The disintegration of the Soviet Cosmos 954 satellite in Northern Canada in January has focused attention on just how crowded the outer atmosphere is with man-made material.

The first man-made satellite, a 23-inch aluminum sphere called Sputnik 1, was rocketed into orbit by the Soviets October 4, 1957. It came down three months later.

Since then 10,744 space objects -- instrumented payloads, rocket motors and debris fragments -- have been detected and catalogued.

In the summer of 1978, there were still 4,578 'things' floating around in space, most of them bits and pieces of decayed satellites and space probes. But there are 948 earth satellite vehicles and 56 space probes still functioning. The USSR has the most with 450, followed by the United States with 400. Canada has eight.

Since the space age began, 6,165 satellite and space probe pieces of debris have decayed, the great majority disintegrating due to friction as they entered the earth's dense atmosphere.

Radar, optical and radio-energy sensors at various locations around the globe are used in the space detection and tracking system. They send some 20,000 observations daily to Norad's control facility. Two optical sensors -- Baker-Nunn cameras -- are in Canada at CFB Cold Lake, Alta., and at 21 Radar Squadron, St. Margaret's, near Chatham, N.B. Others are in Korea, New Zealand, Italy and the United States.

-CAF 'Intercom'

Starting this month, the Technical Section of The Canadian Amateur will be contained in the centre section of each issue, so that it can be pulled out and filed with ease. TCA is also looking for original articles of a technical nature for future issues. Send to Box 356, Kingston, Ontario K7L 4W2.

# TECHNICAL SECTION

# The Phase Locked Loop

by Kim Lantz, VE1AKL

With the appearance of this relatively new circuit concept, anyone involved in radio has greatly benefited. I think that many people find this circuit idea a little mystical, and therefore tend to avoid it. Really, it is a very simple concept and any Amateur should understand the basic idea of how it works. I will discuss each part in detail and we will see how each part logically fits into the whole picture.

## The VCO

This simply stands for Voltage Controlled Oscillator and that in itself should be self-explanatory. This is simply an oscillator that changes frequency with a change of voltage. This voltage would be applied to a part of the circuit that was made especially for this. Also, the change is very linear. This means if the voltage changed .5 volt and the frequency changed 100 cycles then the frequency would change 200 cycles if you applied a 1.0 volt change.

In Fig. 1 you will see the simplified block diagram of the VCO. It has basically a supply voltage, an input and an output. Firstly consider the control voltage we feed into it is 0.00 volts. We put a frequency counter on the output and we might see for example, 5.000 MHz. The important thing to remember at this point is that the frequency of the vco is dependant on the input voltage at the control pin.

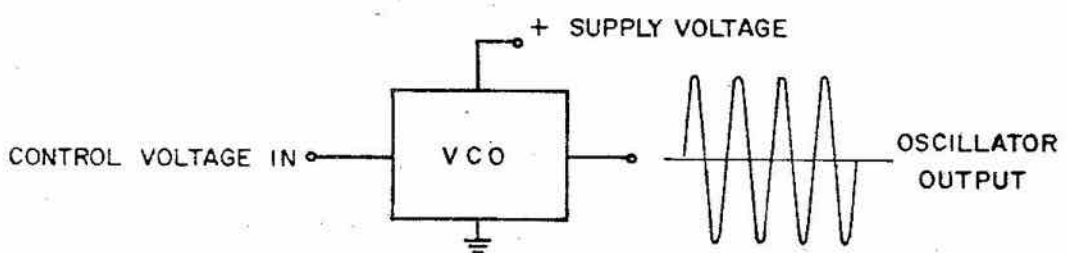



FIG. 1

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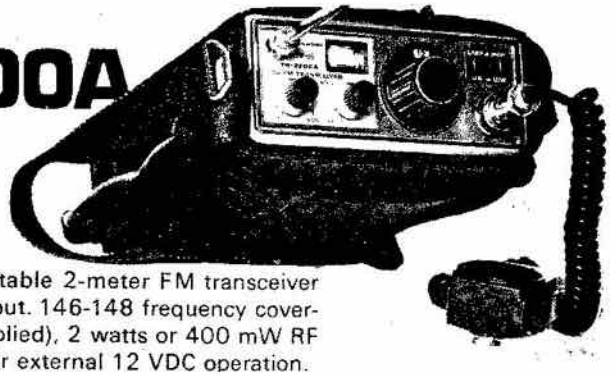

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THE PHASE/FREQUENCY

## Comparator

Once again, this is self-explanatory. This unit compares two input signal frequencies. If they are different, it sends out a voltage that is proportional to their difference. If the two signals fed in are equal in frequency and phase, there is no output because there is no difference in the inputs.

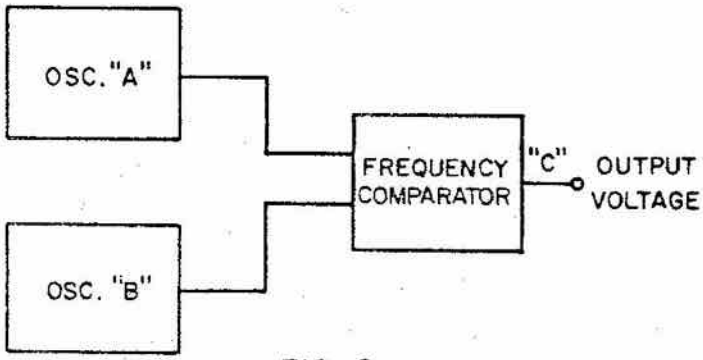


FIG. 2

In Fig. 2 if oscillators A and B are on the same frequency, there will be no voltage present at pin "C". More correctly, the voltage there would be zero. If one, or both oscillators were to change frequency for any reason, there would be a voltage at pin C that was in proportion to the difference in the frequencies of the two oscillators.

These two circuits form the basis of our simple phase locked loop (PLL). We will start with this very basic PLL and then expand it into a useable circuit that is very much similar to that found in two of the more common synthesised rigs, Heath 2036 and the IC 22S.

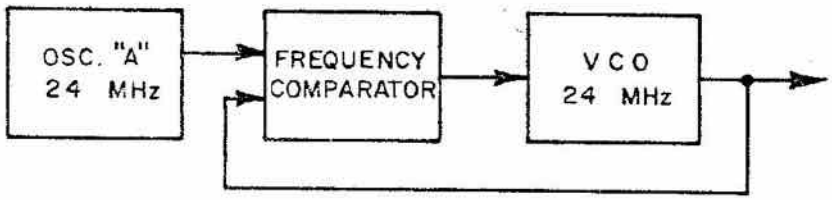


FIG. 3

In Fig. 3 you will see where our basic circuits all fit together in this puzzle. With zero volts input to the VCO, it will be operating at 24 MHz. The output of the VCO is sent back to the comparator where it is sampled against a very stable reference oscillator, which is also operating at 24 MHz. If there is any difference between the two signals, it will send a correction voltage to the VCO. The circuit is designed so this correction voltage will be such that it will bring the VCO back on to frequency with the reference oscillator. It would seem at this time we were just as well off with the reference oscillator and forgetting all the extra circuit, but the next things that we will add will make it all worthwhile. The whole point of going through all of this trouble is make the VCO as stable as the reference oscillator.

We have a much more complicated system in Fig. 4 but it is just made up of single simple circuits that all work together. This time our reference oscillator is running at 10.00 MHz, but is divided down to 5.0000 KHz. This is the signal by which all others are controlled, so this oscillator must be very stable. This time, also, our VCO is operating at quite a different frequency,

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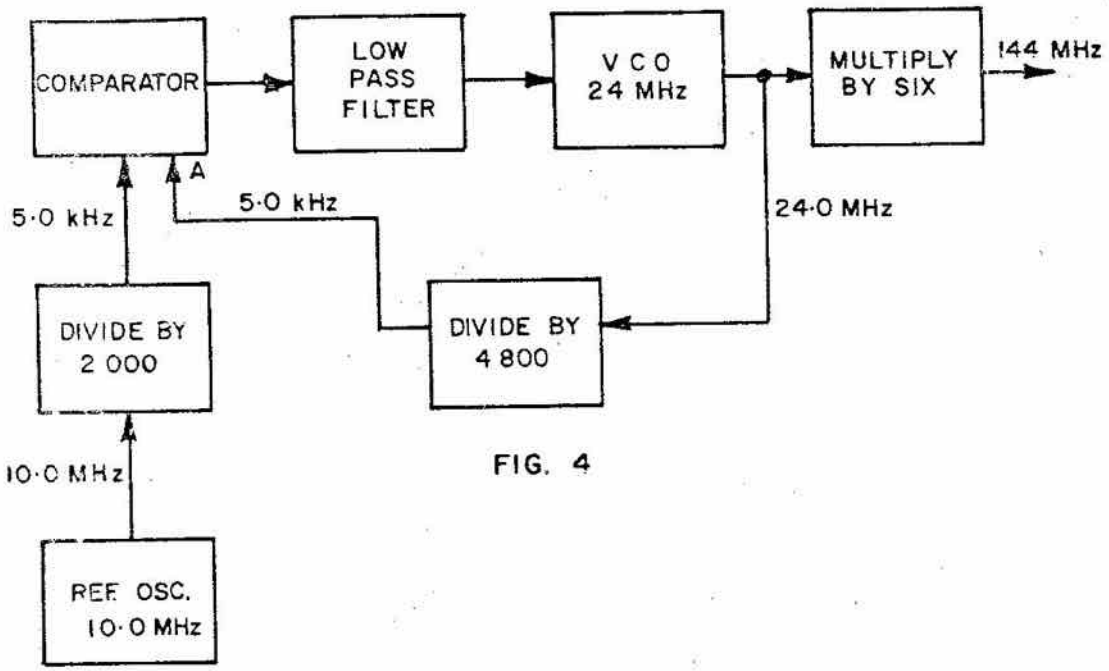


FIG. 4

i.e. 24 MHz. After the VCO you will see a multiply-by-six stage, and at the output of this, we will have our 144.000 MHz signal, the start of the two metre band. At the output of the VCO (24.0 MHz), some of the signal is tapped off and sent to a divider stage. Here it is divided by 4800.

A little math will tell us that if the VCO is dead on 24.000 MHz, the output of this divider will be exactly 5 KHz, which is the same as the frequency out of the reference oscillator divider. If these two turn out to be the same, the comparator does not put out a correction signal and the VCO stays at the same frequency it is at now.

Note the low pass filter added between the comparator and the VCO. In normal operation, the correction signal that is here is a very low (audio) frequency. If there was any pulse noise here, it would send the VCO off into space whenever one of those noise pulses got through. With the low pass filter, only those low correction voltages can get through. So, if you remember the last diagram, we had 24.000 MHz locked in with the 24.000 MHz VCO; now we have tricked the comparator into accepting a 5 kHz signal and a 24.000 MHz signal and thinking they are both the same frequency. This was the job of that divider (4,800). But we still cannot change channels!!

What would happen if we changed that 4800 divider to, say, 4795? One thing for sure, the frequency at point 'A' would not be 5 kHz any more, it would be higher. Remember what would happen if the frequency at 'A' was not the same as the reference frequency? The comparator would send out a correction voltage to the VCO to force it to go to a frequency that would result in the signal at 'A' being equal to the reference, in this case 5 kHz x 4795 or 23.975 MHz.

We now have the VCO operating at a slightly different frequency, but still close to the original 24 MHz. Because we have the correct amount of dividing taking place, the comparator thinks the reference and point 'A' are the same. But now instead of being at 24 x 6 - 144 MHz, we are operating at 23.975 x 6 - 143,85 MHz. This signal would be just as stable as the reference oscillator. This is one of the great advantages of the PLL circuit. If you remember seeing the HW2036 synthesized rig, you probably remember the switches on the front to 'dial' up your frequency. When you change these numbers, you are changing the amount of dividing taking place. When you change the dividing ratio, you change frequency.

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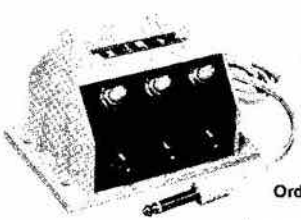

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# Anti-Kerchunk Circuit

The circuit described here is to defeat the sadists on repeaters who enjoy 'kerchunking' to the irritation of those monitoring the channel. The kerchunker will end up with a sore finger if he holds a carrier long enough to activate the repeater to kerchunk it on a continual basis, and the odds of his being caught will be increased.

It is intended to be inserted between the COR output of a repeater receiver and the rest of the control logic circuitry of the repeater. It is designed for positive going logic levels only. Modifications to negative going levels will be required as may be found in some older tube receivers.

This anti-kerchunk circuit requires users to hold their mike buttons down for a certain time interval before the repeater will repeat itself. IC1 timer performs this task. By varying R1, intervals from less than a second to several seconds are possible.

Once the time interval of IC1 is reached, IC2 will also trigger. This too is a timer, R2 being used to vary its time duration. This timer allows users to use the repeater normally without having to hold down a carrier until IC1 times out, on the start of every new transmission. By setting R2 to a desired value, the repeater can be dropped between transmissions without worrying about IC1. However, if the repeater is dropped for longer than IC2's time out, the hold down procedure for IC1 must be repeated.

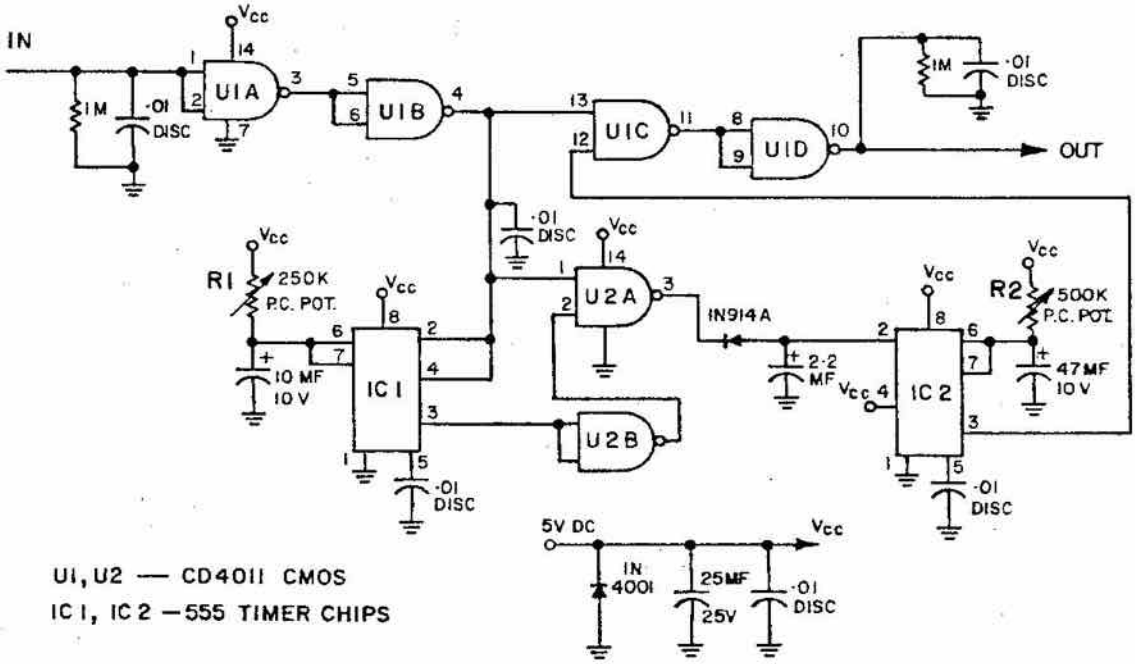
IC1 is automatically reset each time the carrier is dropped. If for instance, the 'mad kerchunker' kerchunks at a time sequence of 1 second on, one-quarter second off, and R1 is set to give IC1 a time out of greater than 1 second, nothing will happen to the machine.

The output of this circuit is only a voltage level and cannot deliver much power. This however should not be a problem in most systems, especially solid state types.

The timer chips - 555s - will not work reliably in temperatures below 0° C. If this circuit is to be used in wide temperature variations, special 555s should be obtained.

The entire circuit mounts nicely on a p.c. board.

73 de Gord Woroshelo VE3EYW




U1, U2 — CD4011 CMOS

IC 1, IC 2 —555 TIMER CHIPS

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# EQUIPMENT REVIEW

TRS-80 Microcomputer
by Radio Shack

by Bob Rouleau, VE2PY

Right off, let me warn you that micro-computers are like potato chips; once you start you won't stop. Fortunately, the price of admission has gone down a lot in the last year or so with the introduction of the TRS-80. No longer do you have to think about multi-kilobuck systems. A real computer for around $850.00. This price brings you the whole package consisting of the brain, a black and white video monitor, cassette recorder, power supply, instructions and sample programs.

Perhaps the fundamental question is, "what is it good for?" Well, this is one field where your imagination is the limit. In the Amateur context, it can control your synthesized radio, make it scan and the like, keep your log, inventory your parts and on and on. Already you can buy software which can turn it into a RTTY terminal, or have it send and receive CW. It's a delight to decide on the spur of the moment that you'll build a new keyer. It is even more delightful to realize that all you need is your computer and a bit of imagination. Likewise digital clocks. You never need any additional parts, just make the micro do what you want. One important point is that the TRS-80 is one item which you won't have to sneak into the house past your XYL. Let her participate in the decision, and watch what happens. Unlike most pieces of electronic equipment I own, this one has the blessing of my wife. It is much more a family-oriented device than solely an Amateur toy. Once she sees the recipe program, the Christmas card list and the like, you may have to reserve time on it for your Amateur-related activities. This is not to mention the games. This may be giving away another of the deep dark secrets of the computer business but when programmers are not writing general ledger, or missile control software, they have been known to write and play games. They range from the merely amusing to the really engrossing and challenging. Nobody likes to admit it, but it's easy to get hooked on games. There is even a chess program, which will challenge the average player.

So far my comments have applied to micro-computers in general. Let's get down to specifics with the TRS-80.

About five minutes after you bring the beastie home, it's ready to play and after loading the demonstration Blackjack game cassette and losing your shirt to the machine in short order, you'll open the manual to the programming section to learn how it works. Radio Shack is to be complimented on the excellent manual. It is written in a humorous, breezy style which takes you into BASIC programming without any pain. Note: absolutely no math background is required to program in basic!

The TRS-80 has a fine keyboard, which makes typing a breeze. This is not always the case with some other brands I have tried. The package includes everything you need to get started, and it will work first time out. This too is not always the case with others. As the TRS-80 comes, you get a limited power BASIC, with not too much memory by some standards. Don't let anybody fool you though, 4K is a lot of space. The chess program I mentioned earlier fits in the 4K. Once the machine is upgraded to the BASIC II level with some more memory then it can hold its head high with other micros available today. It represents good value for the money.

The "brain" of the TRS-80 is a Z-80 microprocessor chip from Zilog. This is the latest generation chip and is considered by most to be the "state of the art" in MPU (micro-processor unit) devices. The standard unit comes with

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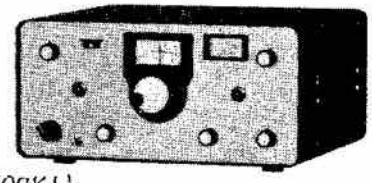

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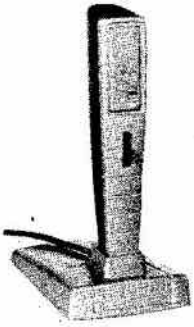

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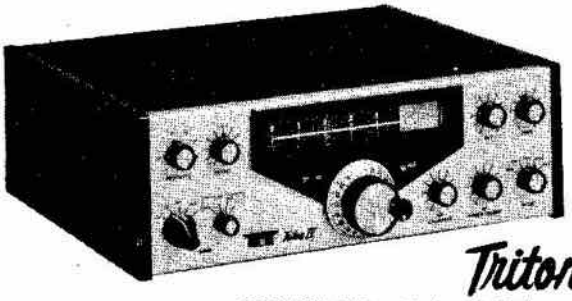

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BASIC stored in ROM, and an additional 4K of memory for programming in RAM. This can be expanded to 16K in the machine at any time (more about this later). The Level I BASIC, is not too impressive for people who are old hands in computing. To the beginner however, it represents an easy and comfortable entry into the arcane and mysterious world of programming. Once you get into programming you'll want the Level II BASIC which costs an additional $160, and is worth every penny. It is a powerful language which compares very favorably to any other available for more expensive machines. It provides the flexibility to use powerful software, as well as control of peripheral devices (accessories). Radio Shack has a catalogue full of peripherals including additional cassette drives, disc drives, printers, and the like. The list of new stuff appearing is endless and seems to grow every day. Remember my warning about potato chips though!

One of its weaknesses and yet one of its strengths is that you are limited to equipment made for the Radio Shack bus system. Since right now, this means mostly from Radio Shack, you are in a sense locked in. On the other hand, some machines which claim to be on a standard bus system require immense amounts of work when you try to interconnect peripherals from another manufacturer supposedly on the same "standard bus". So far the equipment Radio Shack has introduced for it is priced very competitively, so this doesn't seem to be much of a hardship. It is also a guarantee that when you plug the printer or what-have-you into your machine it will work. Servicing is also a consideration, and it is available locally in most cases.

If so far it sounds like a perfect machine -- well, it has its weaknesses too. One of the major ones is that there is no provision for expansion in the machine itself. If you want to add a printer, disc drive or what have you, you must buy the Expansion Interface. This is often standard equipment with some of the higher priced machines. Radio Shack is marketing the machine as an appliance, and does not furnish technical details and schematics with the machine. They do, however, give the outputs of the pins across the back of the machine which will enable someone who knows micro's to add his own peripherals.

While I'm on the bad side of the ledger, I might as well take a shot at their machine level programming. You can access the full instruction set of the Z-80, which means that if you know what you're doing you can make it do just about anything. Access to the machine level instructions is provided by using a program called "T-Bug" which you load first. This program ($29.95) has to be the worst-documented piece of software I have ever seen. If you are already a computer expert there is enough there but I feel that more information should have been provided for the not-so-expert programmer. This is not a really important gripe however, as the assembler level programming package is well documented and will be used by most in place of T-Bug.

For those on a budget, you can buy only the keyboard and power supply (keyboard assembly contains the computer) and use your own TV set as a monitor. The resolution is not as good as the one Radio Shack provides, but is adequate, and you save almost $300 to boot. Likewise if you already have a decent cassette recorder you have enough to run and record cassette tape programs. This brings the price to below $600, and there are other savings possible. At the time of this writing, there are a number of firms offering accessories for the TRS-80 at below the Radio Shack prices. This applies especially to memory expansion. This had to happen given the popularity of the unit, and it's all to our benefit.

The low price of the TRS-80 is not achieved at the expense of the innards but rather by volume production. Rumor has it that there are now more TRS-80's being built than all other micro's combined. Even if this is not the case, there's a lot of them around. This is a key point because it assures a lot of software being available for the machine, as well as accessories.

As for interferences, my VHF and HF stations have not bothered it, nor does it bother my HF/VHF receivers (unlike some reviewers in other magazines -- my antennas are on the roof and not in the shack).

My TRS-80 has worked without a glitch for some 3 months now and gives every indication of doing so for a long

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time. In its standard format, it is a reasonably priced way to get into micro's and, when you add the bells and whistles, will do anything that its higher-priced predecessors can do. BASIC is very powerful; one of the best around, and allows you to take programs from almost any BASIC manual and run them with little or no modification. In summary, it works as advertised.

It is not the machine for the hardware freak who wants to dig inside and play with the chips; It is perfect for someone who wants to use a computer as opposed to building one.

I like mine.

---

# ON BECOMING an AMATEUR

PART 6

DON WARD • RR(412-7) Millican Drive • Rothesay EOG 2WO • New Brunswick

(Don Ward continues his series on his struggle for his ticket)

## One 'Weak' before the Exam

Twenty weeks of night classes each two hours long seemed hardly enough to do the job. While in class one received direction, answers to questions and some practice. All amounted to about forty hours of study, but there were nights that you were not "with it", so it came down to homework. The formula was simple, the instructor gave you direction and explanation, CARF supplied the manuals, and you did your homework. The time came to prepare for the actual exam and code test. The big question was, could I really do it?

I found I had been doing a fairly good thirteen words per minute and could handle that speed quite well in order to be tested at ten words per minute. I decided that my theory study was good and we had been advised to read over the regulations manual. With classes now completed, I carried on. When well prepared I always get a good feeling but this time something bothered me. I put it down to the fact that I was working in an area that was new and therefore didn't know all about basic radio principles. I had gotten over the worst with the code and figured that I was ready for the theory; questions, math and all.

A lot of time was spent working on the eight diagrams during that final week of review. Apart from the diagrams most trouble came from not getting to an in-depth study of the subject. Receiving code at thirteen words per minute was encouraging. Sending was no real problem.

How different things were twenty weeks later. My ideas had changed and many false ones were left behind. I met many fascinating people and opened new doors for myself. Time spent on writing articles was interesting and did not take me away from study time. It did a lot of good, kept up my interest and allowed me to learn more. During that time I began a small fund, putting aside a certain amount each week toward my rig and am still doing it.

Another self-help device was saving articles from old Amateur Radio magazines and other sources with notes and information of different kinds, all filed in a special place. Encounters with others in Amateur radio was very interesting. Many were studying as I was. Friendliness and help abounded. One talked on the phone, wrote letters and sometimes sent tapes. With radio a common bond, you shared your knowledge and made new friends.

And now it was here! Time for the test. I called the DOC and made an appointment. I had mixed feelings. The week prior to the exam was spent in review and code practice. I got up early Friday morning, and went over some areas to freshen my memory. About two hours later I walked nervously into the Department of Communications office and the final step toward becoming an Amateur had begun.

(The outcome of Don's hard work will appear in a later issue. - Ed.)

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# Symposium

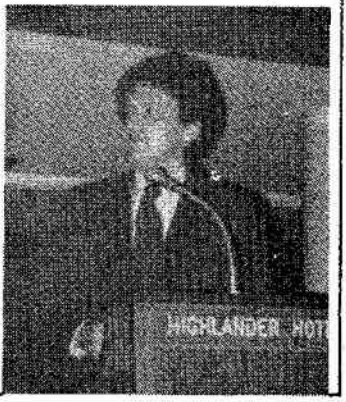

Left to right, Bill Wilson VE3NR CARF President, Bob Eccleston, Symposium Committee Chairman, W.W. (Scotty) Scott, DOC Ottawa.



Ed Ducharme, DOC, outlines the Canadian position in the WARC '79 Workshop.

The general assembly hears workshop reports on the Sunday a.m.

Calgary's youthful deputy mayor, Brian Lee, welcomes the Symposium members.



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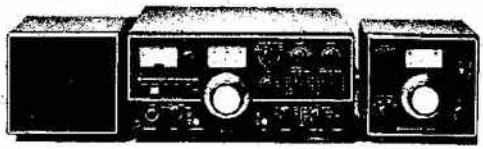

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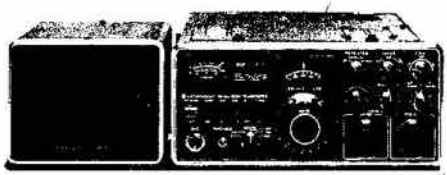

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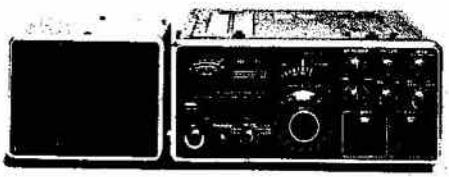


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# National Amateur Radio

# * Symposium *

Continued from Page One

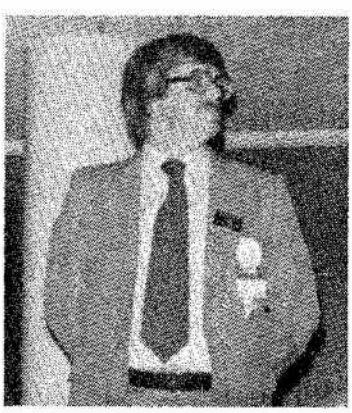
The more than 80 participants included Amateurs representing major organizations and individual operators from all call districts except VO1, VO2 and VY1.

After a pleasant Friday evening cocktail party the four workshops got down to business for a full-day session on Saturday, followed by a banquet and a Sunday half day general assembly.

The workshop on digital and computer communication examined the new no-code Digital Radio Operator's certificate in detail. John deSilva, DOC HQ consultant, gave the group an overview of data communication concepts. Technical discussions followed on their applicability to Amateur use and the need to establish interim standards and specifications for Amateur "packet radio". Asynchronous FSK was recommended for initial use for 1200 band or below with synchronous PSK or other techniques for higher speeds. Format recommended was ASCII with packet length of 150 characters of ASCII with Amateur call signs for identification.

The working group made a number of other technical recommendations and has asked CARF to form a committee to devise protocol details. Packet radio should be introduced slowly and deliberately, much the same as was single sideband, the group reported. The cost to Amateurs should be minimal and CARF will publish availability of surplus equipment. To get into packet radio should cost only about $150, according to the group's moderator, Croft Taylor, VE3OR. (CARF is producing a study aid for packet radio.)

Probably of more impact to most Amateurs was the work of the group on



Above, left: Capt. Ron Gebhardt outlines the new CFARS project. Centre: Symposium committee chairman Bob Eccleston VE6EX surveys the scene at the banquet. Right: Guest speaker Mike Moorehouse VE6VM regaled the banquet with the story of CG6CG and the Edmonton club's participation in communications for the Commonwealth Games this past summer.

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WARC '79 who heard it first hand from Ed Ducharme, head of DOC WARC '79 planning, the status of Canadian plans as they affect Amateurs. Adjustments to the Canadian position are still in progress with the objective of completing a position which will, in the view of the federal government, best meet the unique needs of Canadian radio users.

DOC did not pursue the idea of a new band around 18 MHz because of what was termed "A lack of support from the Amateurs" but is still proposing 10.1 - 10.3 MHz as a new band. Amateurs were advised that although the new frequency allocations may be decided upon in late 1979 it would be 1981 or 1982 before implementation of the changes would be effectively under way. The working group strongly urged DOC to reconsider the lopping off of 200 kHz from 75 metres (3800 - 4000 kHz) although it would propose exclusive use of the remaining 3500 - 3800 segment.

The group was told that little world sympathy could be expected for any expansion of the present 40 metre band, but a proposal to reduce it to 6.9 - 7.1 MHz exclusive for Amateur use could be a significant gain.

The exclusive slot for "packet radio" from 221 - 223 MHz came under fire and in both the working group and the general assembly which heard and discussed all of the working group results, there was a unanimous reaction voiced to DOC to let Amateurs undertake their own band planning.

Bernie Bonnar VE1UT, NSARA prez, won the ten-gallon hat for travelling the farthest ... from Yarmouth.

Head table guest W.W. (Scotty) Scott, DOC HQ, Bill Wilson VE3NR, CARF President, Glen Sutfin VE6SA, ARLA President and Bill Hammond VE6GQ, Calgary ARA President.

DOC noted that it would consider providing space for ATV in other parts of the 420 - 430 MHz band other than those authorized because it proposes to reduce to 430 - 450 MHz.

The discussion in the WARC group covered a number of other frequency problems, detials of which will be found in the symposium official report.

While WARC '79 will have a delayed impact on Amateur operations the recommendations of the workshop on regulations would have a more immediate effect, if adopted. It recommended elimination of the log-keeping requirement for mobile stations. The abolition of the FCC reciprocal permits for operating while in the U.S. is now being undertaken by DOC. Special call signs, the group concluded, should be eliminated and DOC HQ will survey the regional offices to see if this step should be taken.

Clarification of the wording of the recent DOC notice concerning the new "Digital" certificate and the frequency schedules was requested, especially with regard to operation in the 224 - 225 MHz band.

DOC stated that all Amateurs may work in that band now as before, using the modes noted in the frequency schedules (most modes, with a slot exclusive for packet radio message formats).

Recommendations to bring regulations up to date were made, such as the

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abolition of the requirement for frequency and modulation measuring devices.

In reply to a workshop query, DOC said that the procedure in an interference complaint when the Amateur set was "clean" and all efforts on the part of the Amateur to co-operate with the complainant have been rebuffed, is for DOC to write to the complainant stating that it will take no further action.

The perennial problem of local government legislating on tower matters was discussed and DOC noted that such authorities cannot prohibit the erection of duly licensed radio station towers as it is an area of federal control. They can however, impose structural and safety requirements.

Amateurs who sign private agreements or leases with restrictions on towers or antennas have no recourse to DOC.

The recommendations arrived at by those considering certificates and examinations did not obtain the unanimous support on all of its conclusions which the general assembly accorded the other workshop recommendations.

The novice certificate was turned down by the group and the assembly. The group recommended a 5 w.p.m. code test for persons over 55. The majority of the general assembly did not accept the idea. A proposal to extend the principle and the present 10 metre phone endorsement to 160 metres in order to encourage activity on that band met with a majority approval

A recommendation was made that the DOC be relieved of the task of code examinations, which would be delegated to Amateurs appointed by DOC. It was also recommended that the Amateur exams be held once a month instead of four times a year as now in force. Both ideas met with the approval of the Sunday general assembly.

In view of the flexible policy of DOC in examining handicapped persons (for which the group commended the Department), it was felt that no waiver of examinations for the handicapped was necessary.

A move to restrict VHF phone privileges for new Amateurs met with a mixed reaction from the general assembly, with about half for it and half against the idea, which reflected the working group's tie "vote" on the matter.

In the general assembly ideas were expressed that the present advanced exam be "upgraded" to reflect the state of the art, with more about VHF and UHF in them.

Suggestions were advanced to issue the present station licences and certificates in a card form in order to make them more practical to carry when operating mobile or portable.

A member of the general assembly noted that a "no-code" Digital operator could use A1 according to schedule and suggested that morse code for a "no-code" certificate was redundant. It was explained however that in this day and age, with modern technology, morse could be sent by machine and received by machine.

Moderator for the symposium was Bill Wilson VE3NR, president of CARF. Jack Belrose, VE2CV represented the federal communications Research Centre. Moderators were Croft Taylor, VE3OR, for the digital workshop, Hugh Dallard, VE7PB for frequency allocations, Art Davis VE6KT for regulations, and Percy Croswaithe VE5RP for certificates and exams. This senior DOC Regulatory Service officer from HQ in Ottawa was W.W.(Scotty) Scott. DOC representatives from HQ were Ed Cucherme of International Planning, John de Silva, DOC Systems Engineering Consultant, Vic Decloux, Peter Fitzgerald. Regional and district offices were represented by Murray Watson, Bob Poirier, Jim Essex, Irwin Williams and Wes Garvin.

The meeting learned with regret that Dr. John deMercado, Director-General of the DOC Telecommunication Regulatory Service, who has been instrumental in originating these symposiums was, due to a last-minute change in plans, unable to attend.

The CARF executive and those who attended are indebted to the Calgary Amateur Radio Association and the symposium committee members (VE6EX, VE6GQ, VE6MX, VE6AMU, VE6SA and VE6CJC) for the interesting and productive meeting. Thanks too, to the City of Calgary, the Province of Alberta, Donna Petroleum, the Amateur Radio League of Alberta and the Canadian Imperial Bank of Commerce for their financial assistance and support.

(The CARF full, official report will be available soon).

# An Appreciation of DOC

In which the author battles an unexplained source of Noise ... until he is rescued by a DOC R.I.

George Goodwin, VE2DQ

As the old surplus DEW Line SP 600 receiver warmed up one hot summer morning, so did my cussing.

There it was again, that gosh-awful noise which overrode anything but an S 9 signal. Where oh where was that awful racket coming from and who, or what, was causing it?

Inasmuch as no combination of cuss-words, seemed to have any effect on curing the noise problem it was time for some answeres. Questions I had; but not a single answer.

The noise had been noticed over the past number of years, always during the summer months only but not too much attention had been paid to it.

At times it sounded as though Canada had gone one better than the "Russian Woodpecker" heard frequently on 21 MHz except that the pulses were of much faster duration. It sounded more like dirty meters being modulated by dirtier vacuum cleaners and pre WW II electric shavers.

Suffice to say, it was one horrible racket.....

A check through the station logs for the past few years verified the fact that the noise started during the first two weeks of May each year.

It also appeared to end around October or November when the colder weather arrived.

From October or November until the following May there was no problem and receiving conditions were entirely normal. Whatever it was that was causing the noise seemed to be "summer-oriented".

As my location is on a typical tree-lined street in suburbia rather than a downtown metropolitan area, such appliances as were used by surburbanites in summer immediately became suspect.

These included electric fans, air conditioners, electronic bug killers and the like, with swimming pool pumps being my first choice as a possible culprit.

Electric lawn mowers were exempt. Nobody could possibly take days and even weeks to mow the lawn.

In general the noise was present more or less constantly although there were occasional breaks for short periods. Particularly noticeable was the fact that the noise disappeared completely during prolonged rainy periods.

When the weather turned fair and things dried out again, back would come the noise which seemed to be a switch from what one would expect.

Cracked Hydro insulators or bad transformers were also discounted as both had been replaced with new types just last summer when the noise was also present and this had made no difference at all.

At times the noise "switched on" like some appliance being used and at other times it would be in half-hearted attempts to start up and then stop again. Certainly it gave every indication of some appliance breaking down somewhere, periodically, but why during dry spells instead of rainy spells?

The receiver, being a general coverage .54 to 54. MHz type brought to light some interesting but confusing facts.

While the noise was general over the whole range of the receiver, the noise also peaked at different frequencies at different times and varying from day to day.

With this observation, a survey was made over a one week period and a re-

cord kept, with readings taken every couple of hours, listing the different frequencies of noise peaks.

No set pattern could be discerned after the weeks survey was completed and each day's temperature did not appear to be a factor, at least over the normal range of summer temperatures

The easiest way out of this mess of course was to have called in DOC, as eventually I did anyway, but by now I was fully intrigued with the situation.

Also, at this point, the noise appeared to be so "local" in nature that I feared the trouble might possibly be originating in my own residence, which would not go over very big with any radio inspector.

Removing the antenna from the receiver resulted in the complete cessation of noise, leaving nothing but the gentle hiss of exuberant little electrons on their merry way so the noise was coming in through the antenna.

Placing a six-inch piece of wire in the antenna socket of the receiver brought in the noise again, give or take a few db loss in strength.

A battery-powered portable transistor AM, FM, SW receiver was then switched on and tuned to a noise peak. A search of the house in an endeavor to locate a faulty appliance or wall socket resulted in nothing being found.

Moving down to the basement, where the noise was still present, the main Hydro electric switch was thrown, cutting off all electric power to the house and eliminating all eliminating all electric appliances. The noise was still there ... True, it was somewhat subdued but it was there.

All sorts of exotic ideas flashed to mind, such as oxidized house wiring making like noise diodes or possibly some galvanic action between two disimilar metals.

Placing the transistor radio antenna alongside the now "dead" house wiring in the basement, there was a definite increase in noise. True, it was nothing like it was with the power switch thrown on but a detectable increase nevertheless.

Using extreme caution, the antenna of the transistor radio was then probed around the "hot" side of the Hydro switch and there was the noise back in full force.

A trip outdoors to where the Hydro power lines entered the house through a grounded metal conduit pipe produced the same horrible S 9 noise I had been experiencing before. Ha! I thought, an auxilliary ground on that conduit pipe should alleviate matters but on completing the job it didn't make one iota of difference; -- the noise was still there in full force.

A drive around the block was then undertaken with the transistor radio hanging out of the car window on my arm and sweeping the antenna in all directions searching for a peak in noise level.

This revealed the fact that the noise was prevalent at each Hydro pole bearing a power transformer, both on my own street and the adjoining street. What was going on here?

A further short trip along the main traffic artery feeding my own residential street indicated that receiving conditions were far better in the heavy traffic area than they were on my so called quiet residential street.

Also, still sweeping the transistor radio antenna around for a noise "fix" in the high density traffic area, there was an indication of a rather broad area of noise emanating from the general direction of my own street.

This was as far as I could go toward locating an unknown source of electrical interference with the primitive means at my disposal.

As the problem appeared to be connected to the Hydro lines there wasn't much that I could do about it anyway so this problem required more and better expertise.

I hesitated to call in DOC for my own little problems but then I thought that others on the street must be experiencing some ill effects also with their radio's and TV's and possibly blaming it on "that Amateur up the street" or some luckless CB'er.

Nothing daunted, nothing gained and with some misgivings as to what the outcome would be, a letter was sent off to the regional office of DOC requesting the help of their technical service and giving a resume of the type of noise being experienced.

Within a few days an acknowledging letter was received to inform me that an inspector would call upon me during his next field trip.

Shortly after, the radio inspector arrived one morning and wouldn't you know it, Murphy's Law was in effect and there wasn't a trace of noise to be found anywhere.

Putting aside my embarrassment, I gave the R.I. all the information I had garnered with a description of the type of noise being experienced and what I had done in my endeavours to locate the source of the problem.

The R.I. seemed to be satisfied with my description and seemed to have a few ideas of his own as to what the problem might be, even if the noise was not present at the moment.

Promising to make a spot check or two during the next few days, he left me to make a survey around the block.

A few days later I happened to spot the DOC car driving around the area and this time the noise was on again. Although only at an S 2 level, this should certainly be loud enough for the R.I. to locate with his specialized gear.

Sure enough, the following day he arrived again, this time accompanied by a Quebec Hydro elevating ladder truck and crew who proceeded to tighten up the Hydro transformer mountings on top of the poles.

Tightening up the transformers to the poles did not appear to make any difference that I could tell. However, my noise problem was so severe that a somewhat minor improvement would not have been noticeable anyway unless they had found the real source of the problem and the noise suddenly quit, and it didn't.

One thing for sure, every little bit helps even if it wasn't noticeable immediately. Certainly the R.I. must have found something of which I was not aware.

The following day there was no sign of activity and the noise was back up to an S5 level so I figured they'd done all they could to eliminate the noise and I was being left to my fate of having to put up with this sad state of affairs.

Oh ye of little faith ... Next day I had occasion to go to the bottom of the street about a thousand feet away. There was the Hydro tree trimming crew. I paid little attention until I noticed that they were only cutting off twigs from the tops of the trees.

No large branches were involved that might be capable of interrupting the electrical service, so why were they cutting these twigs which happened to have overgrown the Hydro wiring? Certainly they were incapable of creating trouble? Also, no large company would stand the expense of trucks, machinery and crew to cut mere twigs for a day or two unless ... and then the light dawned. They must be working at the instigation of DOC, and they were working on MY problem.

Yes, of course. All those little twigs of new tree growth with all their little leaves each spring, lasting all summer long where they brushed against the bare wire outputs of the Hydro lines to a half dozen houses, and gradually falling to earth in the fall.

All the facts fitted, but was it possible that this could cause such havoc in a receiver a thousand feet away?

Quitting time finally arrived, and as I watched the Hydro trucks depart, the SP600 was switched on with some trepidation and the gain slowly advanced to avois blasting the wax out of my ears. I still couldn't believe that those little twigs were the source of my problem, and I fully expected to be greeted by that infernal noise.

No, this is impossible. The receiver must have a dud tube or something ... but no, there's a DL9 and a G right alongside an IT. Up goes the gain to maximum and not a trace of noise anywhere. Just perfect quiet. DOC, you really did a job for me and no mistake!

A few weeks have now gone by with never a recurrence of my noise problem so certainly DOC, with the co-operation of our Quebec Hydro, have cured a very nasty noise interference problem.

As the R.I. responsible for curing my noise problem never did come back to see me, I was unable to thank him in person. Instead, I wrote a letter to our esteemed Minister of Communications, Jeanne Sauve, praising the merits of the R.I. concerned, with carbon copy to the Regional Office.

Personally, I now have a different view about our high $13.00 annual fee. Certainly one cannot track down a source of noise with a portable transistor radio with any accuracy. It takes specialized equipment to do that kind of job and you all know the cost of commercial gear.

DOC, I thank you sincerely for a job well done, and my gratitude knows no bounds!

# Publications:

* Canadian Amateur Radio Regulations Handbook - up-to-date interpretation of Canadian Amateur Radio Regulations written in language you can understand, plus more useful information concerning the operation of a station in the Canadian Amateur Experimental Service.

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