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THE CANADIAN AMATEUR

Canada's Amateur Radio Magazine

La Revue des Radio Amateurs Canadiens

MAY 1989



Paradise Revisited

Achilles YJ8PE (left) and Roy YJ0ARP/VE7TG on Achilles' yacht on Efate Island, Vanuatu. Achilles has a big signal while on the water with his SB 220 linear and a 10-80 metre trap vertical, mounted on the stern of the *Isle Vert*.



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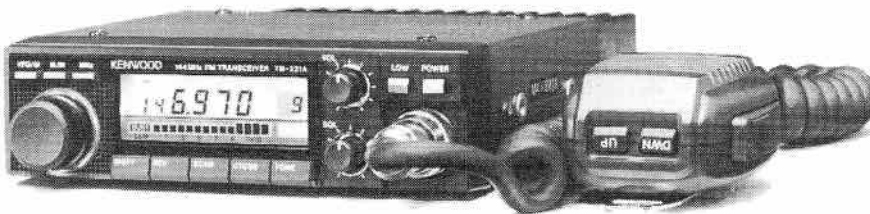
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Unsolicited articles, reviews, features, criticisms, photographs and essays are welcomed. Manuscripts should be legible and include the contributor's name and address. A signed article expresses the view of the author and not necessarily that of C.A.R.F. Publications Limited.

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

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



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EDITORIAL

Frequency Plans in the Amateur Radio Service

By Bill Wilson VE3NR

It is generally accepted by Amateurs in Canada today that we should have band plans of some sort to replace the sub-band allocations that are being lost due to deregulation. Before considering the specifics of band plans, we should study briefly what the International Telecommunications Union (ITU) has done about plans, those that have succeeded and those that have failed. Then, better informed, we can decide what we want in our Amateur plans.

The ITU's first plan was prepared for the maritime mobile service after the loss of the *Titanic*. It was based on the calling and safety frequency for ships of 500 kHz and included the associated ship and coast stations frequencies in the 415-495 kHz. The latest plans (one for each region) now also specify what frequencies may be used by member countries' coast stations.

Plans for the MF/HF Aeronautical Mobile Service came later, in the 1950s. They divide the world into areas and allot frequencies to countries in each of the areas, thus solving the competition for frequencies for that service in that part of the spectrum.

The 'Hague Plan' of 1951, established by an ITU conference in the Netherlands and updated in 1963, does the same sort of thing for ships equipped for VHF communications. The plan covers the two narrow bands between 156.025 and 160.095 MHz allocated to the maritime mobile service and by designating specific frequencies for various purposes, it resolves the competition for spectrum between such activities as calling and safety, intership, port operation, harbour control, etc. and facilitates communications.

In the band between 118 and 137 MHz, for example, there is a plan for aircraft air-ground communications. This plan resolves competition for frequencies between various aeronautical radio activities such as air traffic control, approach control, ground and ramp control, company communications, airport safety and maintenance, etc. To facilitate communications, the plan designates the uses to be made of certain

frequencies. For example, 121.5 MHz is designated for emergency communications and it is kept clear and continuously monitored by all ground stations for this kind of communications.

Plans of a second kind were not developed until the early '60s. They are now very popular and are used to ensure the orderly growth and good spectrum utilization efficiency of microwave radio services (such as radio relay systems). These plans specify: transmit and receive frequencies, the order in which frequencies are to be put in service, occupied bandwidth, and antenna characteristics, for both main line and spur systems. They, too, are often used by member countries to solve problems of frequency competition between various users of the same band. They also facilitate communications, for example, by making unnecessary the use of expensive frequency changing equipment at sites where systems interconnect either in a country or between two countries.

A feature of all these plans that is of interest to Amateurs is that they are very detailed as to how each frequency in the plan is to be used. Another feature of practically all plans that is of interest to Amateurs is that they are very detailed as to how each frequency in the plan is to be used. Another feature of practically all plans is that within the band limits of each, equipment performance characteristics are fairly well-standardized.

The mode of transmission in planned bands usually remains unchanged for long periods of time. Thus such plans are easy to prepare and usually have quite a long 'life'. They are not rendered obsolete within a few years by frequent and large changes in technology or activity in a particular geographical area.

The reason for the success of the above plans is simple. The activities that those plans support are absolutely essential to commerce. The same can be said of the plans for radio relay and satellite communications. Business has found those kinds of communications to be essential and has forced those who use radio for business to observe the

plans. Also, to have these kinds of communications, countries just had to solve any frequency competition problems that arose. And they did.

There have been some very notable failures in the development of plans. In 1947 the members of the ITU thought plans could be developed for international high frequency broadcasting (HFB). Major conferences in 1948 (Mexico City), 1949-50 (Florence-Rapallo), Geneva (1959) and Geneva (1987) have all failed to produce plans for this service. The reasons are simple. Jamming was common until a short time ago and led to simultaneous broadcasting of the same program on numerous frequencies across the HF broadcast bands.

Increases in transmitter powers from 50 kW to 250 and even 750 kW did not help. No agreement could be achieved on the use of compatible SSB, power ceilings or on stopping jamming. The demands of the HF broadcasters continue to be just too great for the spectrum available. The next ITU HFB conference to be held before the end of 1992 will probably not be able to produce an acceptable plan either!

Again, back in 1947 it was felt that plans were desirable for the HF fixed (point-to-point) service. However, it turned out that the demand for frequencies was just too, too great for the fixed service bands to accommodate. Also, people could see that changes in technology would occur at such a rate that any plans that might be developed would have a very short life and therefore not be cost-effective. Despite the use of the most modern technology, the HF spectrum available for the fixed services is not adequate.

Are you getting the feeling that these are not the kind of plans that we Amateurs in Canada should have? Read on!

The sub-band allocations that regulated our Amateur activities for as long as most of us can remember could be classed as frequency plans of a very simple kind because they harmonized our radio communications by facilitating the intercommunication between stations using CW and

Continued on next page ►

EDITORIAL (cont'd)

between stations using phone. Also the sub-allocations resolved (some may think well, others not so well) problems of competition for spectrum between those who used CW and those who used phone.

The Joint Technical Advisory Committee comprising a group of distinguished radio engineers, in its eighth report to the FCC on spectrum management in the States, commented briefly on Amateur radio some years ago. It noted that the HF Amateur bands were the most crowded of any in the spectrum and stated that the frequency agility enjoyed by the Amateurs enabled them to get better spectrum utilization efficiency than all other radio services. In discussing spectrum management in general, they noted that better spectrum efficiency was obtained when systems were grouped in sub-bands according to their occupied bandwidths. We have had that for a long time now: CW stations in one sub-band and phone in another.

In looking after the management of our own bands and developing our own plans we should keep in mind the following:

1. The HF Amateur bands are the most crowded of any of the HF bands and the competition for frequencies in them is always very keen,

2. Amateurs employ a large number of different communications techniques (modes of operation) and these will continue to increase as Amateurs continue to experiment,

3. Amateur equipment has a very wide range of performance characteristics and Amateurs take full advantage of these characteristics in their use of their bands, and,

4. Amateurs have all the advantages of frequency agility to help them cope with band congestion and they use it.

Taking all this into account, it looks as if any plans we produce should allow the maximum flexibility so that we can adjust our operation to cope with frequency congestion whenever it occurs. Obviously our plans should not try to reserve little slots for specialized activities with the hope that these slots will be kept clear for those special purposes. Even those who have specialized communication or experimenting needs should be allowed to benefit from flexibility. Foreign Amateurs, let alone Canadian Amateurs, would be first to use to use their frequency agility capability to take up any available unused spectrum in times of high activity.

Below 29.7 MHz at least, our plans should divide each band into two parts, one for narrow band emissions such as are used for radio telegraphy and the

like, the other for wide band emissions such as are used for radio telephony and other activities of similar bandwidths.

For those who are interested in specialized activities, a directory of such activities could be used to supplement the above plan, encourage recognition of those activities and inform others of some very interesting goings-on. ■

PACKET NEWS

Heath Company recently donated three HK-21 Pocket Packet TNCs (Terminal Node Controller) to the NASA Johnson Space Centre Amateur Radio Club in Houston. As part of the Shuttle Amateur Radio Experiment (SAREX), it is proposed that an HK-21 be used on a March, 1990 shuttle flight.

Packet allows digitized information—voices, images and data—to be transmitted. In this experiment, Amateur frequencies will be used to transmit packetized data to and from the shuttle.

If the project is approved, one of the Packet radios will be specially adapted for space travel. NASA will mount it into a protective SAREX casing unit and modifications will be made for zero gravity.

ATTENTION PAST MEMBERS OF



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

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

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

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

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

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LETTERS

'COLOUR ME GONE' or CARF MEMBERSHIP LOSS

I have decided to let my CARF membership lapse. The reasons for this are as follows:

1. I feel that there should be one unified organization representing Amateur radio in Canada, as do the large majority of hams in this country. I know this because I am into communications and I ask. To my knowledge, CARF has never asked. They certainly have not asked me! I have not found one ham on or off the air who supports the present system of two bodies.

2. I would like to see a Canadian magazine that would give *QST* a run for its money. We will never see that as long as we have duplication of effort. I like *QST* but I can get it from ARRL.

3. I think it is regretful that a handful of Amateurs in the east continue to nurse their petty jealousies and grudges and ignore the wishes of their membership.

I am not renewing with CRRL either. I plan to rejoin ARRL to keep getting *QST* and will give my wholehearted support to a unified Canadian group if and when we ever get one.

Robby Robertson VE7ARS

THE PRESIDENT RESPONDS

Your letter of Feb. 10 has been sent to me by the CARF office.

First, may I say that we at CARF sincerely regret your decision to drop out. CARF dues are a membership, not a subscription. Many services are provided by many people behind the scenes, all of them volunteers. Some are direct, such as the QSL bureau, others are indirect such as the committees which negotiate with Communications Canada.

Your feelings about a single organization are shared by many Amateurs, both CARF and CRRL members. My experience would suggest that, within CARF, about 2/3 favour merger, the balance oppose it, some more strongly than others. The proportion has varied only a bit over the years. We on the CARF executive are very aware of the feelings of Amateurs and we have tried to reach agreement with CRRL on many occasions. Two years ago a committee of CARF and CRRL sat down to try and reach agreement. CARF supported their proposals fully at a special board meeting held by long-distance telephone. The CRRL board tabled the proposal twice and finally discontinued talks with us. The details were in the series of four letters between CARF and CRRL published verbatim in the

February 1988 *The Canadian Amateur*.

We cannot force a merger upon an unwilling party.

No Canadian magazine will ever rival *QST* in terms of quality. Magazines are paid for by their advertisers. *QST* has a subscription list of over 100,000, the charges are thousands of dollars a page and there are hundreds of advertisers. In Canada there are only 24,474 Amateurs; if ALL of them subscribed to a magazine it would only have 1/4 the *QST* circulation. Page charges would have to be less because of the smaller potential market. In Canada there are fewer advertisers too, maybe 50 at most would ever advertise in an Amateur Radio magazine. Did you ever buy anything from a TCA advertiser? Did you say you saw it in his ad in *The Canadian Amateur*? He was helping pay for your magazine.

I cannot speak for CRRL, I just don't know, but I can assure you that we at CARF are not carrying any petty jealousies or grudges. There just isn't any reason to do so. I am spending a lot of time I would much rather use on the air and at the workbench trying to improve Amateur Radio in Canada. None of CARF's people draw a salary or get an expense account. It is done on our own time and, excepting the annual director's meeting, at our own expense. CARF dues are set below the actual costs and the shortage is made up by CARF's business activities such as printing/binding in the office, the advertising income from *The Canadian Amateur*, sales of in-house publications, and third party activity such as the *Ham Radio* subscription service.

I am proud of my organization, and I think you are giving us a bum deal. I wish you would reconsider.

MORE MERGER

For some time we have been concerned about the existence of two organizations representing the Radio Amateurs in this country. We feel that if the two could be amalgamated it would make a stronger body to represent the Amateurs in Canada.

We would like to see steps taken which would lead to the joining of the Canadian Radio Relay League and the Canadian Amateur Radio Federation.

W. Keith Weir VE3KJA
Secretary,
Rideau ARC

THANKS CARF

The Code and Theory Class wishes to thank Bernie Burdsall of CARF for responding to the request in our Club's newsletter. (Imagine a national

ANNUAL GENERAL MEETING

The AGM of the Canadian Amateur Radio Federation Inc. will be held on June 17, 1989 at St. Andrews College, Aurora, Ontario commencing at 9:30 a.m.

All members are encouraged to attend this important annual event to hear about your Federation's past year's activities and to learn what is planned for the future. Come and take part. See how the Federation works and give it the benefits of your advice and suggestions.

The following Motion will be placed before you for your discussion and voting:

To delete the period at the end of Section Two, Article 2(b) of By-law Number 7 and add thereto the following: "save and except therefrom the offices of Treasurer and General Manager." The purpose of this motion is to enable the positions of Treasurer and General Manager to be filled by persons who do not necessarily hold Amateur Licences.

See you at the AGM.

Eric Ilott VE3XE

Secretary

Canadian Amateur Radio
Federation Inc.

publication reading about our newsletter!) for Ham Radio magazines. CARF generously sent about 15 current issues of *The Canadian Amateur*, along with best wishes for the Class's success!

Bob Richards VE3RDR

SPECIAL CALL PROCEDURE

This is to inform you of changes in processing requests for special Amateur call sign prefixes.

In order to improve our efficiency and provide a better service to the radio users, requests for special Amateur call sign prefixes used to commemorate special events and anniversaries will now be processed by our regional offices. All requests may now be sent to the nearest district office.

P. Carrey,
A/Manager,
Terrestrial Frequency
Management Division

CALL SIGN PROPOSAL— A LETTER TO COM CAN

In reference to the letter from David B. Hunter VE1CIT, page 4, *The Canadian Amateur*, March 1989. I am more convinced than ever that the Canadian Amateur radio operator needs a new call sign with the new restructured Amateur service. A call sign where the two letter prefix indicates the Canadian 'political pasture' (province, territory, island, Labrador, etc.), a digit to

LETTERS (cont'd)

indicate the class of licence and a suffix of one, two, three or even four letters.

I feel my proposed call sign would be a much more personal call sign and a lot easier to police.

Spurgeon G. Roscoe VE1BC

TECHNICAL ARTICLES

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

THE SILENT KEYS' FOREST

A long time has gone by since we last mentioned the Silent Keys' Forest that was inaugurated over three years ago. In Israel we honour those who have passed on by planting trees in their name, thus giving our dear departed ones a living memorial and also creating forests in the hilly areas that had become bare from centuries of neglect and over-grazing.

Thus it was fitting that the Israel chapter of the Quarter Century Wireless Association (QCWA) envisioned the establishment of the Amateur Radio Forest to be planted entirely from donations commemorating Silent Keys. To date there are 3,000 saplings growing in the Ben-Shemen forests that constitute the Silent Keys' Forest. The location is about five km east of the Ben Gurion International Airport, in the Judean foothills.

The Ministry of Communications has issued the callsign 4X4SKF that may be used by any group operating a station there, and the Israel Amateur Radio Club has activated the call on many occasions when 'field days' and ham picnics have been held in the forest.

Hams and families all over the world as well as in Israel are invited to plant a tree in the Silent Keys' Forest. The procedure is as follows: Send a cheque (\$5 for every tree) payable to the Keren Kayemet Le'Israel, The Israel Forestation Authority), being sure to write on the back of the cheque or on a separate page the name and callsign (if applicable) of the donor. Mail it to the Keren Kayemet Le'Israel, attention Mrs. Vicky Alkalay, P.O. Box 283, 91 002 Jerusalem, Israel. A handsome certificate will be sent to the donor, suitable for framing and hanging on the hamshack wall.

Shimshon 4X4GF (Gefilte Fish) has suggested that 70 trees is a fitting donation— seventy trees— 73's— got it?!

— Hagal International
Israel ARC

What's CARF done for you lately?



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Department of Communications

Gouvernement du Canada
Ministère des Communications

Mr. John Iliffe, VE3CES
President
Canadian Amateur Radio Federation Inc.
387 Selby Cresc.
Newmarket, Ontario
L3Y 6E2

Dear Mr. Iliffe:

On behalf of Mr. Paul Racine, Director General, Telecommunications Policy Branch, I wish to acknowledge receipt of your comments on Canada Gazette Notice no. DGTP-005-88 concerning our proposals for the "Spectrum Utilization Policy for the Band 896-960 MHz".

Thank you for your interest in this subject.

Sincerely yours,

Murray J. Hunt
A/Director, Spectrum & Orbit
Policy
Telecommunications Policy
Branch



Office of the Minister of Communications

Mr. John Iliffe
President
Canadian Amateur Radio Federation Inc.
387 Selby Crescent
Newmarket, Ontario
L3Y 6E2

Dear Mr. Iliffe:

On behalf of the Honourable Marcel Masse, I am pleased to acknowledge receipt of your letter dated February 12, 1989, congratulating the Minister on his appointment.

Please be assured that your correspondence will be brought to the attention of the Minister.

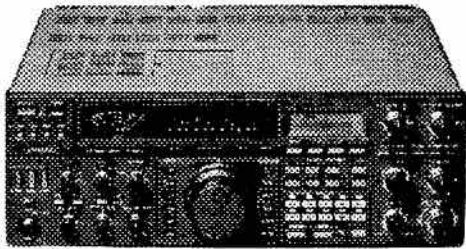
Yours sincerely,

Pauline Potvin
Correspondence Officer

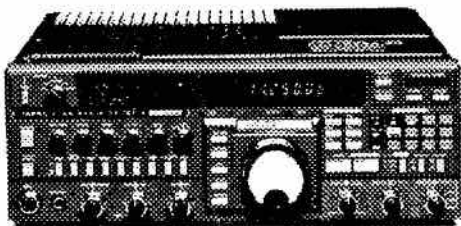
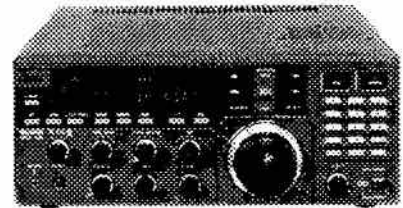
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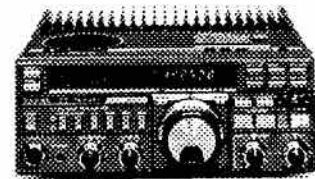
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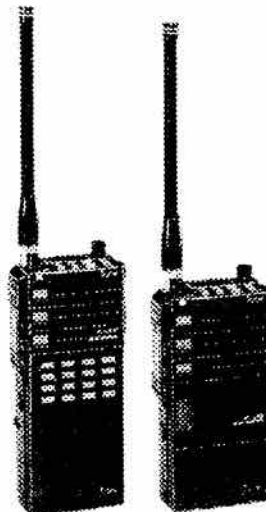
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Paradise Revisited

By Roy Parrett VE7TG

The South Pacific Islands have a unique charm, and were the basis of James Michener's *Tales of the South Pacific* and the Broadway musical and movie *South Pacific*.

My first visit to Vanuatu, formerly the New Hebrides Islands, was by accident. I had planned to visit Kiribati (formerly the Gilbert Islands) on a one-man DXpedition, at the invitation of a Canadian teacher on Beru Island. Unfortunately the airline was on strike and my plans were cancelled. Discussion with Norman YJ8NJS on the air from Port Vila led to new ones: "Come to Vanuatu, I can make all the arrangements for your stay, and for your antenna, etc.," he said. He was as good as his word. Vila is on Efate Island, at 168 degrees East, 18 degrees South, and it has a delightful climate, especially from May through September.

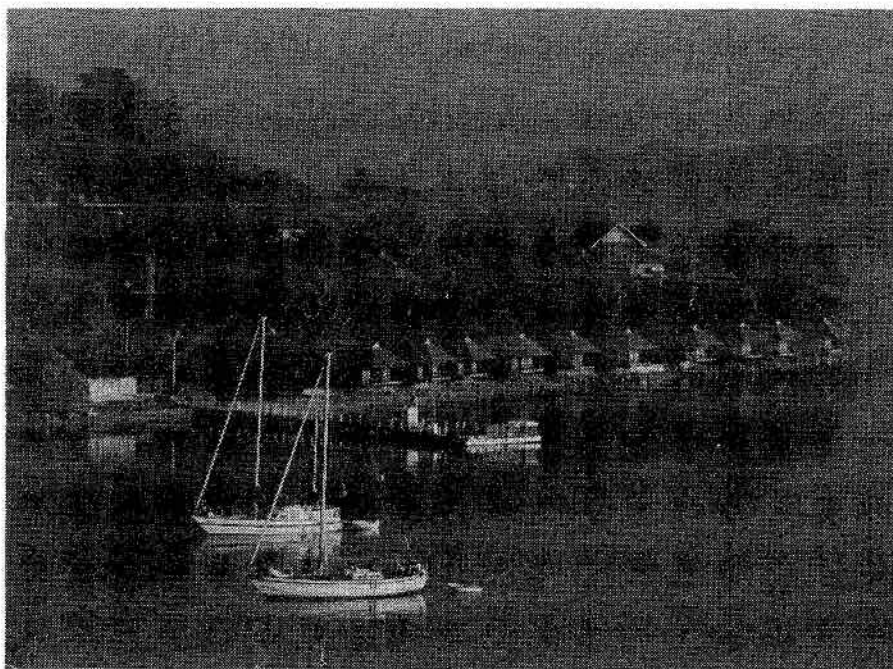
I reached Vila, via Vancouver, Los Angeles, Honolulu, with no difficulty at Customs, in spite of my seven-foot antenna package. I took along my Yaesu FT-77 transceiver, a two-element beam and a three-band dipole. All of this gear made my luggage seriously overweight, but the airlines were very understanding, and didn't charge me a penalty. I did not take my 12-volt power supply, but planned to use a 12-volt storage battery, obtained locally.

Norman met me at Vila Airport and assisted me through the formalities. As he is Head of Customs there, it was most convenient, especially because of my mysterious packages of gear. Arrangements had been made at nearby Iririki Island resort.

"They are very understanding about Amateurs and antennas," he said. This resort has individual houses for the guests, and I was given a choice. I chose one near the beach, more for good take-off conductivity than for the view!

Before breakfast the following day, Norman was at my door with Robert YJ8VRL, and Rod YJ8NRN and several helpers, ready to install the beam. Rod had brought along his 20-foot Armstrong rotatable mast, pegs, ropes and a mountain of other gear. Robert loaned me the battery, a charger and the use of his car. Robert, the Vila Club Secretary, also gave me a key to the clubhouse so that I could use the facilities there.

We visited the Post and Telegraph Department for my licence. It took five minutes to pay the \$5 fee and to obtain



A view of peaceful Vanuatu in the South Pacific.

my call, YJOARP, the zero indicating a visitor. It was suggested that I call back 'in a few days' for the piece of paper. I called several times, and the Department seemed surprised. They finally advised that "we are not worried about you, just go ahead and operate". Some weeks later I managed to get it in writing, mainly as a souvenir of my visit. They have a charming way of conducting business in these islands!

Vila is an interesting place. Independent for nine years, it was formerly under joint British and French administration. This made for unique situations—there were two of everything, including jails. I was told that one had a choice—the British one, which was clean, meant good treatment and poor food, or the French Gaol, which was untidy, had the Napoleonic Prison Code, but had fine French food!

Life is easy in these islands. No-one is in a hurry. Perhaps the people are smarter than we are—they enjoy life, and will probably not suffer ulcers or heart attacks due to stress!

Vila and the New Hebrides Islands was the jumping-off place for the Pacific war. It marked the limit of Japanese influence during WWII. *The Wackiest Ship in the Army*, made famous by the movie, was based here, although it was actually an Australian vessel. Today's

'wackiest ship' is the yacht *Isle Vert* owned and operated by Achilles YJ8PE, whom I had the pleasure of meeting in Port Vila.

The *Baa, Baa Black Sheep* Marine Fighter Squadron, with Captain 'Pappy' Boyington, featured in another movie and a television series, flew out of Vila. The famous pilot died in California, in 1988. Baur Field, the Vila Airport, is named after the C.O. of the squadron.

On my return to Port Vila, I managed to find another small house at Le Chumierres, courtesy of Norman. Again I received a great deal of help from the club with antennas and transportation. Robert loaned me a TS-130S with power supply, which ended my dependence on battery power.

Operating from Iririki has its advantages. One hears many Indian, Korean, Philippino and Indonesian Amateurs, not regularly heard at home. Radio Australia daily features propagation information and forecasts on their regular broadcasts, which is helpful. Most contacts are very kind, enclosing IRCs or a Green stamp and cheery little messages. Unfortunately, most Canadians and Americans enclose a small envelope for reply, too

Continued on next page ▶

► **PARADISE** (cont'd)

small for my cards. I am also unable to enclose the interesting tourist literature which I scrounged in Vila. Most foreign contacts, including hundreds of Japanese Amateurs, always send along a large envelope which can be stuffed with the coloured folders.

During my two visits in 1988, 15 and 20 metres were open. I regularly talked to Canada, even with the dipole, which is made of rotor lead, and cut for 10, 15 and 20 metres, with my battery power. When the bands were open, there were always pile-ups, with a YJ0 call. Most contacts were very considerate in the pile-ups, even the inconsiderate 'screamers' usually responded to an appeal for reason. I have received 3,500 QSLs to date, and more are still arriving.

In March, 1989, I will again be in Fiji, and in April in Vanuatu, with improved equipment, on 10, 15 and 20 metres, and possibly other bands, if open. Please QSL by VE7TG and be sure to enclose a LARGE SASE or an IRC with SAE!

Bali Ha'i from the South Pacific! ■

LETTERS

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

H.M.S. Plymouth Group

Members of the Royal Naval Amateur Radio Society living in the Devon and Cornwall area have formed an H.M.S. Plymouth Group to be responsible for Amateur radio operations from the Falklands Veteran *H.M.S. Plymouth* based at her namesake city.

The ship will be open to the public from March 29, 1989, until October. There will be a charge for admission.

The intention of the radio Amateur group is to provide— as far as possible—a replica room ('W/T Office') and at the same time carry on with radio contacts which will be seen and heard by visitors. Frequencies in use will be the usual HF and VHF bands, and QSL cards will be sent to all contacts via the bureau. The callsign has yet to be allocated but it is hoped to re-issue the old Devonport signal letters GUZ and the ship would then be using GB3GUZ.

Members of the RNARS both at home and abroad are invited to join the Group at an annual subscription of 2 Pounds to be sent to the Hon. Treasurer, Chris Harper, 24 Cunningham Road, Taerton Foliot, Plymouth PL5 4PS. Other financial offers would be gratefully accepted and applied to the provision of

additional equipment. The Secretary of the Group is Mrs. 'Bobby' Harper, XYL of the Treasurer with the same address as above.

H.M.S. Plymouth, the last of the Type 12 Frigates, is at present 'in retirement' and was heading for a watery grave as a missile target. Since then the Warship Preservation Trust and a strong team of volunteers have worked small miracles to open the ship for public display.

Her operational details were: displacement 2,800 tons, dimensions 113m x 13m x 5m; speed 28 knots; armament 2 x 4.5" guns, one Sea-Cat missile system; one mortar, Mark 10; Wasp Helicopter; complement 250.

She was involved in the thick of the Falklands action from South Georgia to bomb alley San Carols and finally to Port Stanley.

A warm welcome is extended to all visitors and in particular to those with an interest and inclination to Amateur radio.

For more information, contact: Public Relations Officer Lt.Cdr. Ellis Diggle (G3LSO) Netherton Cottage, The Elms Stoke Damerel, Plymouth England PL3 4BR. ■

Smiths Falls Amateur Radio Club Fifth ANNUAL FLEA MARKET Saturday, May 13th

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RFI = Nuisance

A Look at Legalities

The Ravenscroft court case in Canada has sent shock waves through national radio societies and radio Amateurs throughout the world. Jack Ravenscroft VE3SR was found guilty of being a 'nuisance' when his Amateur operation interfered with a neighbour's domestic appliance operation.

The radio frequency interference (RFI) problem was not attributed to Jack's equipment, but due to the susceptibility of electronic and electrical consumer equipment to interference from Amateur radio signals.

He was found guilty of being a nuisance and put off the air.

Jack lodged an appeal in the Court of Appeals, which ruled that both Canadian radio Amateurs and those affected by RFI must work together to remove the problem.

This means that Canadian radio Amateurs must arrange for neighbourhood radio frequency interference suppression to a standard approved by the Canadian Department of Communications. Those affected by RFI must accept the modifications, and if they do not, then they have no further recourse.

But, while that court ruling only applies in Canada, it raises questions which could have application in Australia. *Amateur Radio* magazine sought a legal opinion on the case from George Brzostowski VK1GB. WIA Federal Executive member, and Lawyer. The following reviews the Canadian landmark RFI ruling:

RADIO INTERFERENCE AND THE LAW OF NUISANCE

I have been asked to explain the ramifications of the Canadian Appeal Decision in the Ravenscroft case for the Australian radio Amateur. What follows is intended to be for information only. The variety of circumstances in which nuisance may be held to happen is so vast, that I do not assume responsibility to write something which has universal application.

WHAT IS 'NUISANCE'?

An accepted definition of nuisance is: "An unreasonable and substantial interference with the use and enjoyment of property."

The key words are in bold. Clearly, RFI may constitute interference with the enjoyment of television, video, stereo units, etc. Whether nuisance has been committed depends on whether the extent of interference is unreasonable and substantial.

WHAT IF I DO ALL I CAN TO AVOID RFI?

If you have, then you may prove that you are a responsible and considerate citizen, but you may still be guilty of nuisance. A good way of looking at it is to draw analogy with the growing of a tree. That is something which normally is quite inoffensive, but once its roots start to cause damage to a house on the neighbour's land, a nuisance has been committed by the person on whose land the tree grows, regardless of what steps were taken to confine its root system, and regardless of who planted it.

Nuisance is a strict liability tort (i.e. a wrong done to someone else).

Using a transmitter under terms of a licence is perfectly legal in itself. However it is the interference with the neighbour's use of his equipment which must be found to be unreasonable and substantial, not the actual use of the transmitter.

However, while the reasonableness in the use of a transmitter is not directly relevant in itself, the conduct of the person causing the RFI may have an indirect bearing on the question of whether the interference was 'substantial and unreasonable.'

For instance, somebody transmitting only on Saturday afternoons on the 14.220 net for a few minutes, is unlikely to be found guilty of RFI interference. Someone talking every evening for a few hours, during prime viewing time, is exposed to the risk of a different finding.

The law is not perfect, and I even venture to say that a few minutes each week of splatter and unsuppressed harmonics may be found not to constitute nuisance (on the ground it is not substantial enough to have become 'unreasonable'), but several hours each day of perfectly clean signals may be a nuisance!

WHAT IS MEANT BY 'UNREASONABLE AND SUBSTANTIAL'?

A related question is, "What about the quality of the susceptible equipment?"

The judgement in the Ravenscroft appeal is not much help in making this issue clearer. What it does do, is look at the practicalities of how a neighbourhood dispute can be resolved. As you may know, Jack Ravenscroft lost at the first instance, and was not only ordered to pay damages to the neighbour, but he was also prevented by injunction from using his equipment.

The Appeal Court ordered Jack to compensate the neighbour for inconvenience, but lifted the injunction conditionally, and ordered the neighbour to co-operate, and make his equipment available for modification which should prevent further susceptibility to RFI. If the neighbour failed to co-operate the injunction was lifted permanently. If the modifications failed to eliminate the problem, then the injunction was to be reinstated.

It emphasized the need for reasonable give-and-take in a suburban dispute.

The case is interesting for two other reasons. It paid little heed to the question of whether the neighbour's equipment was unusually sensitive to RFI, but such sensitivity may have been the subject of argument in the lower court, and simply omitted from the text of the appeal judgement.

The issue of unusual sensitivity may be important in deciding whether the interference was unreasonable in the first place. There is no suggestion that the neighbour's equipment was defective, but there is a strong suggestion that it had scope for further improvement.

Therefore, if Jack wanted to use his radio, and if the neighbour had reasonable equipment in the first place, it was up to Jack to arrange for that equipment to be made compatible with his transmissions.

I am of the view that where the neighbour's equipment is defective, i.e. as falling below reasonably accepted standards, a radio Amateur would have a strong argument that he is not guilty of nuisance on the ground that the interference was not unreasonable in the first place. The argument could be that the neighbour brought it upon himself, and that in such cases, there ought not to be any obligation to improve the neighbour's equipment.

What is comforting, is the affirmation of the need for reasonableness on the part of the neighbour. ■

JRSD FUND

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

Has your PC got a Virus?

By J.F. Hopwood VE7AHB

I hope not! A virus can mean that the corruption or destruction of your files is imminent. This can be a very serious situation for Hams who rely on their PC for home and shack and who download files from packet radio or local bulletin boards! A computer virus is a parasitic program which reproduces by cloning itself into logically connected data and software during execution. A virus's purpose is usually destructive and definitely unauthorized. People who make or spread a PC virus may be guilty of a criminal offense. There are ways of uncovering a virus and, most importantly, of avoiding them completely.

A virus most often spreads throughout a computer system infecting it at all levels, even at times, including the backup system! It activates and completes its destructive purpose on a particular signal, which may be a date, an event or even at random. The object may be to corrupt data, to erase or re-format the disk, to steal data or to display a prank message. In effect the virus can be something that is simply annoying with no serious impact or can be a very malicious act causing great harm and trouble.

While most viral crippling activities have been highlighted as a part of the risks of the large corporate or institutional main frame computer users, viruses are turning up in bulletin board type files associated with telephone modem access systems and can be deliberately carried via Amateur packet radio as well. One such virus was detected in an 'archive' file through a Vancouver bulletin board recently. Foolproof security procedures are next to impossible to devise.

Even though some security specialists feel the threat is overstated, the impact of crippling virus infection was well demonstrated in late 1988 with the serious overload which caused the Harvard University system to come to a standstill and the export of this virus to other U.S. Eastern Seaboard university computer systems. With all that high profile publicity, it is likely that a number of new viruses will emerge; monkey see— monkey do!

Some virus cases have now been documented.

ACTUAL VIRUS CASES

The IBM Christmas Tree Virus

This now-famous virus appeared in the IBM internal network. It was a prank program that drew a Christmas tree and printed a Christmas greeting on user terminals. The virus is reported to have spread throughout the network and slowed the system down to a standstill.

The Lehigh Virus

The Lehigh virus was first discovered at Lehigh University in Bethlehem, Pennsylvania. The virus was concealed within 'COMMAND.COM', one of the principle operating system files for IBM PCs and compatibles. Once activated, the destructive virus replicates itself into any uninfected version of 'COMMAND.COM' that it can find. After four replications, the virus effectively makes the disk unusable.

The Brain Virus

The Brain was written by two brothers in Lahore, Pakistan, and is said to have been developed to protect their programs from software pirates. No one knows how it got to North America, but it was first reported at the University of Delaware. This virus hides in the boot sector of a disk and is reported to lie dormant for a long time before erasing data. There has been at least one report of this virus in Vancouver recently.

The Israeli Virus

Found at the Hebrew University, the Israeli Virus was designed to wipe out all data on Friday, May 13, 1988 (the 40th Anniversary of the founding of Israel or the dissolution of the state of Palestine). The virus was discovered through a programming flaw and was eliminated before it could do any damage.

There are also MacIntosh and Amiga viruses that have been identified.

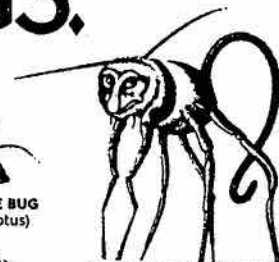
KNOW YOUR BUGS.



PYGMY JUMPING SPIKE FLY
(*rapiditis bombus*)



HUMPBACK SURGE BUG
(*destructus abruptus*)



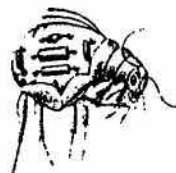
DANCING VOLTAGE MONKEY ROACH
(*disci dumpi*)



CREEPING BROWNOUT FUNGUS LOUSE
(*systemii interruptii*)



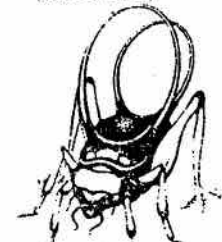
SNOUTSUCKING SAG WORM
(*datis obliteratis*)



TRANSIENT STINK FLEA
(*printii garbagetii*)



GIANT BLACKOUT ASSASSIN BEETLE
(*monstrositus catastrophus*)



RINGED-ANTENNA LINEHOPPER
(*signallus distorti*)

SIGNS OF VIRAL INFECTION

Here are a number of things to look for which indicate a virus may have invaded your PC and which may alert you and give an opportunity to stop further damage. To recognize these symptoms you must have an understanding of DOS.

Unusual Disk Activity

Most hard disk activity is indicated by the LED—a red or green light which is located on the front of the machine. If the number of disk accesses within any application appear to be greater than normal, it may indicate that a virus is replicating.

Unexplained Increase in File Size

The size of a file may increase when the virus attaches itself to it.

Change in the Update Time and Date Stamp

Check to see that the time and date stamp for the operating system files—COMMAND.COM, IBMBIO.COM AND IBMDOS.COM, have not changed.

Note: The IBMBIO.COM and IBMDOS.COM or their MSDOS equivalents are normally hidden files and will not be displayed using the regular DOS DIR command. A number of commercially available utilities will display these hidden files.

Same Date and/or Time for a Number of Executable Programs

They may have been updated by a virus at the same time. Check for this by performing a directory listing.

Sudden Unexplained Decrease in the Free Space on the Disk

Use the DOS CHKDSK command to monitor free disk space.

A CRIME PUNISHABLE BY 10 YEARS IN PRISON

Section 387, subsection 1.1 of the criminal code states:

Everyone commits mischief who willfully a) destroys or alters data, b) renders data meaningless, useless or ineffective, c) obstructs, interrupts or interferes with lawful use of data, or d) obstructs, interrupts or interferes with any person in the lawful use of data or denies access to data to any person who is entitled to access thereto.

Conviction under this subsection can mean 10 years in prison. Surely viruses fall under a, b or c. However, we do not know of any test case which has been tried under this section. Undoubtedly, a prosecution would be very difficult, particularly if the virus was widespread and involved other countries. It is also unlikely that investigators would find the names, addresses and telephone numbers of the authors embedded in

the virus code, as was the case with the Brain virus.

PREVENTING A VIRAL INFECTION

Security specialists recommend you abide by two principles:

1. Only buy and use software from reputable firms. There are a few cases where a virus has sneaked into a commercial software package, but presumably in these cases the user has legal recourse.

2. Never download compiled code from any bulletin board or board information network. Source code can be downloaded as long as you have working knowledge of the language and are prepared to review the code to detect possible viruses.

If you abide by these two principles, it is highly unlikely that your PC will ever be infected by a virus. However, the lure of a new utility or a free shareware program can tempt many of us to 'throw caution to the wind' and download a compiled program.

Perhaps the use of 'prevention' rather than working on a 'cure' after the damage is done puts a bit of a damper on the world of free info and freebies, but it assures peace of mind over the data and work you've so carefully gathered and produced and which now resides in your PC. ■

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

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

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

For the month of May we would like to mention: (1) New stock of Simpson Model 635 VOM's, with leather case @ \$30.00 (2) Further shipment of Cardwell dual 250pf variable capacitors, new, boxed @ \$10.00 (3) Solid state signal generators, Marconi Models TF2002 (100KHz-72MHz) @ \$250; TF2002AS (100KHz-72MHz) with manual @ \$300 and TF2002B (100KHz-88MHz) @ \$350 (4) Marconi AM/FM signal generators Model 995 (1.5MHz-220MHz) @ \$150 (5) Several ex-govt Heathkit items including IM-17 VOM @ \$11.00; OP oscilloscope @ \$25.00; Impedance bridge @ \$75.00; Decade capacitor box DC-1 @ \$12.00 and capacitor checker IT-28 @ \$30.00 (6) Small 7x7x4 sloping front metal speaker cabinets, 5" spkr--part of intercom system, \$2.00 (7) Small table top (15x14x13H) Cybernex video display terminals. Good green CRT, screen size 10x8H with separate keyboard which is included. Mostly Model XLA-84. \$15.00 each (8) Swivel/tilting stands for above or similar units, Cybernex model STS-1 at \$5.00 each.

Telephone Questionnaire

In the modern world a telephone is more than a convenience, it is a vital safety link with the outside world and a necessity that most people take for granted. It is critical that Amateurs do not cause severe interference to this service.

In recent months increasing numbers of cases of EMI to telephones have come to our attention at CARF. In many cases these can be resolved by the Amateur involved with the assistance of the telephone's owner, however, in at least some cases suppression has not been possible, even with extensive changes inside the telephone. This questionnaire is designed to determine how extensive the problem is and the results will be presented to Communications Canada, Telecom Canada, CSA and other organizations in the hope that some sort of standards can be set and enforced for privately-owned

telephones. Please feel free to add comments you feel are appropriate.

We hope to provide a list of brand names and models of telephones that are interference-free as well as those where suppression is possible to assist you with any problems you encounter.

Please provide information on the telephones in your home even if no problems have been encountered. This is needed to provide a full database of reliable equipment. If you have encountered interference in your home telephone we would be interested in the results of any attempts to eliminate it.

Information provided should be based on telephones located in the near field of your antenna. While problems at greater distances should be reported, immunity at greater distances is not conclusive.

Please provide information even if

you do not have all the details. We hope to cross-match the replies received by computer and details will be analyzed statistically. The more replies we have the greater the reliability of the survey.

NOTE: Digital— there are no known true 'digital' home telephone services at present. This question concerns services inside the telephone such as autodial, redial, etc., which are microprocessor-controlled. If interference is selective please indicate which features are involved. Power level: 1 level at which telephone experiences no interference, 2 level at which interference becomes objectionable, 3 level at which telephone becomes inoperable.

Please complete one report per different telephone brand or model. Either photocopies or hand-written facsimiles of the form are acceptable.■

NAME: _____ CALL: _____
ADDRESS: _____ CITY: _____
PROVINCE: _____ POSTCODE: _____
1: MANUFACTURER: _____ 2: MODEL: _____
3: COUNTRY OF ORIGIN: (if known) _____
4: RETAILER: (if known) _____
5: DIGITAL?: (yes/no): _____ 6: LIST PRICE: \$ _____
7: IF DOC APPROVAL STICKER, NUMBER AND DATE: _____
7a: OTHER APPROVAL STICKERS: (UL, FCC, etc) _____
8: INTERFERENCE (none, slight, moderate, extreme) _____
8a: BANDS: _____ 8b: MODES: _____
8c: POWER LEVEL: (see notes) 1: _____ 2: _____ 3: _____
9: EXTERNAL SERVICE (buried/pole): _____
9a: IS BUILDING PREWIRED? (y/n/y-not this phone) _____
10: COMMENTS: _____

Send completed survey forms to Earle Smith, VE6NM,
Vice President, Education,
P.O. Box 412,
Grande Prairie, Alta.,
T8V 2A2.

The Shack Handbook

By Frank Hughes VE3DQB

I have received a number of letters recently (orders for FOXX kits) which contained comments such as: "I am just starting in the hobby, and I'm trying to learn all I can." I don't know of a good text to recommend to them, one that deals with construction, so I thought I'd provide one as a serial in *The Canadian Amateur*. Things have changed so drastically in the past few years than an entirely new approach is required for building radio equipment.

Since this aspect of our service (not 'hobby') is wonderfully satisfying, a new text is needed to set the beginner off on the right foot. There are so many little odds and ends one needs to know—a recent letter to a magazine related how a newcomer found immense difficulty soldering his project together, for nobody had told him to remove the insulating varnish off the wire! Certainly nobody told him to use a bit of gelled paint remover to do it: remarkably efficient, cheaper than the radio shop stuff, and less liable to damage the wire than scraping. I'll see how many of these little tips I can press into the articles.

THE SHACK

If you've just decided to go into radio construction, the first necessity is somewhere to work—in other words, a shack. Perhaps you own the house; lucky you. Choose a suitable room. If you don't own it, then make do with what you have.

Let's work from the top down. A good, roomy, insulated attic is choice. Plenty of space, peace, power easily available, antenna right there. Disadvantages few: a long lead to ground the worst.

A room on the top floor is excellent too, with the advantage that there is usually a better window to look out of—an important point, for the eyes work better if occasionally rested at long focus.

A room devoted to radio is preferred, of course, but now that projects are physically smaller, it is easier to work in a small bedroom than it used to be.

A room shared with the rest of the household is less desirable. The equipment and projects must be

portable and storable, and a suitable storage space must be acquired. Nevertheless, do not be disheartened. Many a rig has literally been built on the kitchen table.

A basement room is excellent, if warm and dry. The window is high, the ambiance somewhat dark. Ground is usually right there, but an antenna needs a long downlead.

FURNITURE

We are dealing with a mechanism usually between five and six feet in height, with two manipulators at the end of three foot extensions. Computer and light and sound sensors are contained in an extremely strong case at the upper end of the frame, which

"Anyone who has used all three types of screwheads wonders mildly why the Robertson did not take over long ago. The reason is a sad one: it is a Canadian invention."

fold at the joints of the two transporters. The preferred position of the mechanism at rest is upon a padded support, usually called a chair, and the purpose of furniture is to assemble all important ancillary equipment within easy reach of the manipulators, with data input convenient to the sensors.

A table, then, of six foot span, with the chair centrally located, is ideal. Two tables, with a three foot space between them, and a revolving or typist's chair, provides all the space a modern Amateur can usefully occupy. Even so, much of the table space will then be devoted to storage, which is useful.

Besides the table, bookcases and chests-of-drawers are needed to store the supplies and the accumulating junk. (An item in your store is junk. On a hamfest table for sale, it becomes a valuable bargain.) These can back on to the table, to use space effectively. Indeed, if space allows, a table in the middle of the room is preferable to one

against the wall. Even Communicators need to gain access to the back of the transceiver at times, and to be able to do that just by walking around the back of the table is a boon.

Those who do not have space for an optimum sized bench have to make do with the space available. After all, a card table sufficed to support all the equipment needed to make the first ever antipodal ten metre QSO, long ago.

The unpainted furniture available cheaply can be pressed into service. Its light construction should be allowed for, and the rather small surfaces can be extended by a plywood top. I have a 30-year-old (still unpainted) chest of drawers now full of junk (and sagging under the weight), its 16 inch wide top extended to 24 inches with half-inch plywood.

If space is really a problem, consider the Black and Decker workbench. Of infinite value as it stands, it can form an excellent small workbench by the use of a 2 or 3 foot wide by 3 or 4 foot long 1/2 (or better 3/4) inch plywood top, along the centre of which is screwed a 30" length of 2x2. This is gripped by the B&D vise. The lot can be stored away in quite a small space.

A bridge, that is, a shelf half the width and half the length of the table and about six inches above it, lifts the data input from dials, readouts and screens to a height convenient for the sensors. The space below stores key and logs. The free half of the table is the construction area.

BENCH WIRING

The unskilled should employ a qualified electrician to wire outlets to a bench. The skilled can do it themselves. There can never be too many outlets. Transceiver, ancillaries, soldering iron, clock, oscilloscope, computer, item under construction... better to have an 'extra' on or two outlets than go the horrible route of plug-in expanders.

The bench light is deliberately omitted from the list above. It should be arranged on a separate circuit, so that when the inevitable fuse goes, the place is not suddenly plunged in darkness. If this is impractical, put a fuse in the

Continued on next page ►

SHACK (cont'd)

bench line of half the rating of the fusebox one. Put an outlet on the unprotected side of this fuse for the light, and use a positionable light.

Wire a double-pole, double-throw switch in the line after the bench fuse. This main switch cuts off all power from the bench. See that other members of the household know where it is.

While you are at it, wire metal-oxide varistors across the line, and from live to ground. A MOV will remove any transient high voltages produced by the switching of motors and similar loads from the line and possibly save some valuable equipment. If a fuse is set to protect a semiconductor, the semiconductor will usually fail and protect the fuse, instead of vice versa. MOVs are nimble enough to do the trick. (Do not rely on MOVs in place of fuses, though.)

GROUNDS

You will, of course, have used the three-wire grounded system all through. Besides this, you need an entirely separate radio ground. The earth is a conductor which makes up in diameter what it lacks in conductivity, and is the reference point for all electrical measurements. The power line ground is a necessity for safety, the third wire being connected at the house fusebox to ground. It is, however, likely to pick up radio noise and inject it where it is not needed, so a separate ground for radio use is a great help.

Get a piece of black insulating floor covering the same size as the construction area of your bench. Mine has a corrugated surface... this is excellent in that it is hard for little pieces to roll off. It may be troublesome, though, to pick them out from the valleys. Anyway, get a piece of copper foil (best) or aluminum foil and put it between the bench surface and the cover, and ground it. This helps to calm down projects otherwise likely to take off by themselves.

Radio grounds are of many kinds. A metallic water pipe of many years' vintage is excellent. Scrape the paint off it till you find bright metal and affix your ground lead to it with a hose clip. The ground lead should be heavy gauge wire or flexible braid. Recently installed (last 10 years or so) water pipes should be looked at carefully. They may be of plastic and useless, or be of screw-together pipe with teflon tape to seal the threads, and so again, useless. Avoid gas piping for grounds.

The metal frame of an apartment building is excellent, if you can find one of the girders and ground to that.

The 'ground rod' available from radio stores can be used by those with close-by access to the garden. Drive it into the ground and connect the ground wire by the screw provided. Braid is useful here

as it will pass under a window sash and allow it to close.

A metal fence, with metal fenceposts driven into the earth, can be an excellent ground. A metal fence on wooden posts, (or any large metal object insulated from the earth) is a good ground too. This works because of the electrical capacity of the fence, etc., to ground. All the metallic parts of an aircraft are carefully bonded together electrically, and this conglomeration is 'aircraft ground', even though it is miles up.

Several lengths of insulated wire laid on the surface are a good ground, again because of the electrical capacity.

Test for voltage between the various grounds available in the house. This will include the hydro line ground and the telephone ground. It should be zero, according to the theory, but often is not. The reason is usually that corrosion has turned some part of the system into a battery.

TOOLS

A careful selection of tools will make work easy. Nowadays only small hand tools are needed, and should be accumulated over time, as experience grows. (I glanced at a beginner's book on modern electronics in the library. Tools suggested included a half-inch breast drill, 2-pound tinman's soldering iron, mechanic's hammer... I shudder to think of what the rest of the text is like!)

Of screwdrivers, unfortunately, a fair selection is needed. Not only different in size, which is understandable, but in tip type, too. The ordinary slotted screw is a relic of the joiner's craft. Wood screwed together rarely needs to come apart, and it is usual to drill a pilot hole to guide the thread. Many of the screws used today are for use in thin metal—sheet metal screws, or on heavy gauge metal—self-tapping screws. These latter are also used on plastics. If either of these is slotted, trying to start them is an exercise in frustration. You can get slotted screwdrivers with little spring clips on the ends to hold the screw—useful until the screwdriver needs regrinding, after which the springs are useless.

The cross-head screw is little better. They are slightly easier to start, for you have some control in two dimensions. However, regrinding the tip is beyond most people's capacity. An accurately mounted jig is a necessity for the task.

By long odds, the best screwhead is the Robertson. This has a square hole in the head, and the screwdrivers have a hardened steel tip that never needs regrinding. The screwdriver tip is slightly tapered, so that the screw is a friction fit. You can hold the screwdriver and screw in any position, and the screw won't fall off. Starting any Robertson screw is simplicity itself—

you have complete control over the operation. The screw stays put until you find the hole, and takes all the force you need to start it without wobbling all over the place.

Anyone who has used all three types of screwheads wonders mildly why the Robertson did not take over long ago. The reason is a sad one: it is a Canadian invention. Mr. Robertson invented it in about 1907, and probably thought it would sweep the world. It did not, however, it is used in Canada, especially on electrical equipment like switchboxes, as you will find to your delight. Workmen in the rest of the world have to fiddle around with other screwheads, losing time and accuracy. Only in Canada, eh? ■

LUBRICATING ELECTRO-MECHANICAL DEVICES

Sometime ago I experienced a problem of 'derailment' with the rotary coil in my homebrewed version of the 'SPC Transmatch'. Specifically, the pick-up 'pulley wheels' of the coil—which are mounted on a sliding bushing—would fall between turns of the coil, due to a slight binding condition between the bushing, and the conductive rod on which it travels as the coil is rotated.

Light sanding of the rod did not alleviate this repetitive and aggravating problem, but relief finally arrived in the form of a suggestion put forth by VE3IHK: Vic claimed that an old toolmaster's trick in maintaining electro-mechanical devices was the judicious use of good old-fashioned *castor oil*—not taken internally, of course!!

Vic stated that castor oil affords two benefits: it acts as a lubricant, and it does not hinder the conduction of electrical current.

The proof of the pudding came when I lightly dabbed a few drops of a generic castor oil (obtained from the local drug store) onto the conductive/guiding rod of my rotary coil; a few slow complete revolutions of the coil, 'end-to-end', dispensed a thin, protective coating of oil across the entire length of the conductive rod, thus lubricating the sliding bushing very nicely.

I have had no further problems with 'de-railment' since performing this 'lube job'. Also, I have found it necessary to repeat this procedure only about once every three years.

This idea need not be limited to roller inductors; large air-variable capacitors have a need for lubrication as well from time-to-time, especially at the shaft bearings.

— Ed Swynar VE3CUI
in SPARC Gap

THE CARF NATIONAL QSL BUREAU

THE CARF NATIONAL QSL BUREAU has an outgoing service for members. In other words, we send your cards to other Bureaux for you. This includes Overseas, American and other Canadian Bureaux. This service is free to CARF members. If you consider current airmail rates, it takes only 30 cards per year to pay for your CARF membership. Here's how it works:

1. Sort all cards alphabetically by prefix.
2. Sort Canadian cards numerically by call area.
3. Place small lots of cards in strong heavy envelopes and seal securely. Wrap heavier packages in strong paper or put in cardboard box. Tie securely. Do not staple!
4. Address your package as shown in diagram to Box 66, Islington, Ont.
5. Do not register cards. This only delays them, costs more, and is not really necessary.
6. If you want proof that CARF has received your cards, enclose a self-addressed stamped postcard or envelope with 'Receipt' marked on it.
7. If a package has been damaged on arrival (very rare), CARF will send you a list of cards received so that you can check if any were lost.
8. As proof of CARF membership include your current label from *The Canadian Amateur* or copy of same.

Name, Call Return Address	PRINTED MATTER	Correct Postage
CARF National QSL Bureau P.O. Box 66 ISLINGTON, ONTARIO M9A 4X1		

Your finished package
should look like this.

To RECEIVE cards from YOUR Provincial Bureau, send a quantity of pre-addressed (including your callsign) 5"x7" envelopes, along with money for postage (money is better than stamps as the postal rates are always changing). Your Provincial Bureau will forward cards to you on a regular basis and inform you of the need for more postage money. Although the addresses of the Provincial Bureaux are found in the latest International Callbook, we have included them here for the benefit of CARF members. This service is for all Canadian Amateurs. These bureaux are operated by Volunteers— please give them your help, consideration and thanks.

VE1QSL Bureau
Box 51
Saint John, N.B.
E2L 3X1

VE2QSL Bureau
2960 Douglas Avenue
Montreal, Quebec
H3R 2E3

VE3QSL Bureau
Box 157,
Downsview, Ont.
M3M 3A3

VE4QSL Bureau
Box 365,
Carman, Man.
ROG 0J0

VE5QSL Bureau
739 Washington Dr.
Weyburn, Sask.
S4H 3C7

VE6QSL Bureau
Box 1890,
Morinville, Alta.
TOG 1P0

VE7QSL Bureau
8922-148 Street
Surrey, B.C.
V3R 3W4

VE8QSL Bureau
2 Taylor Road,
Yellowknife, N.W.T.
X1A 2K9

VY1QSL Bureau
Box 4597,
Whitehorse, Yukon
Y1A 2R8

VO1/VO2QSL Bureau
Box 6,
St. John's, Nfld.
A1C 5H5

For more information write CANADIAN AMATEUR RADIO FEDERATION,
P.O. Box 356, Kingston, Ont. K7L 4W2, (613) 545-9100.

REVIEWS

'NEVADA' ROLLER INDUCTOR AND VARIABLE CAPACITORS

As a compulsive amplifier builder, I am always on the lookout for suitable components. The supply of roller inductors and high voltage capacitors has been dwindling every year.

Nevada Communications in England has introduced a line of roller inductors, single and dual section capacitors, turns counters, and a transmatch kit using these components.

The roller inductor is continuously tunable from .5 to 27 μH , is rated at 1 kW, and measures 5.5mm x 10.5mm x 16mm. The winding is silver plated wire and a unique system is used to keep the

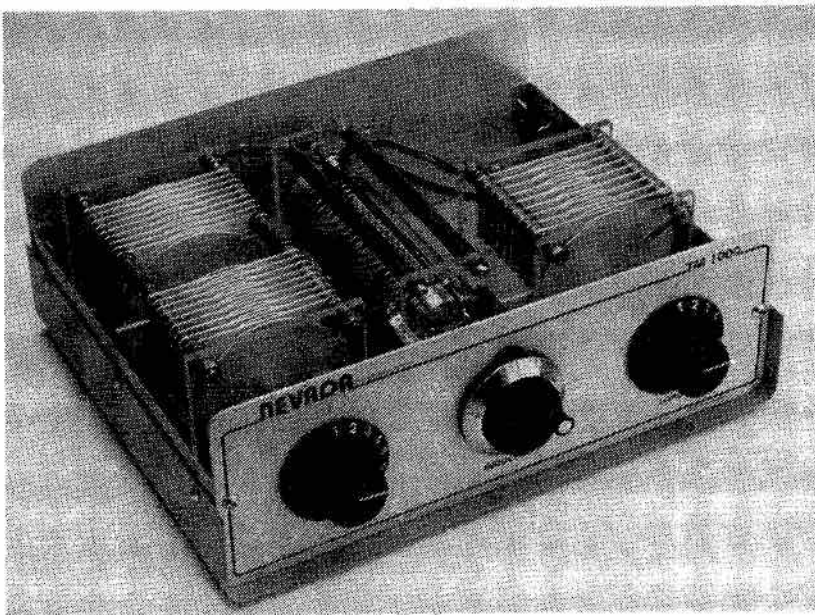
roller in contact with the coil at all times. It is listed as part number RC26 and sells for 20.87 pounds. The matching turns counter lists at 11.26 pounds including spinner type knob. Quality of both items is very high and they have a very smooth feel when turned.

The capacitors are both air variable and rated at 7.8 kV. The single unit is 13 to 250 pF and the dual section is 13 to 500 pF. The dual unit is actually two of the single units on a common shaft. Metal parts are brass and anodized aluminum while the end plates are high voltage acrylic. They sell for 17.35 and 24.35 pounds.

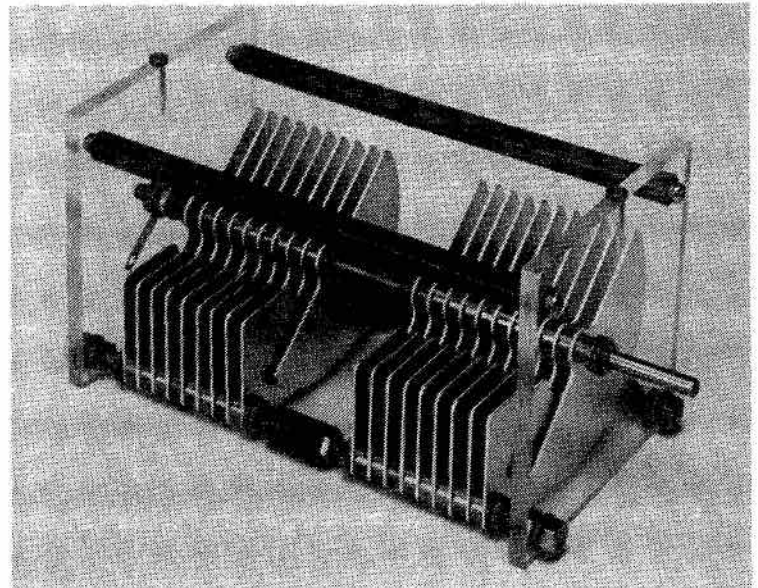
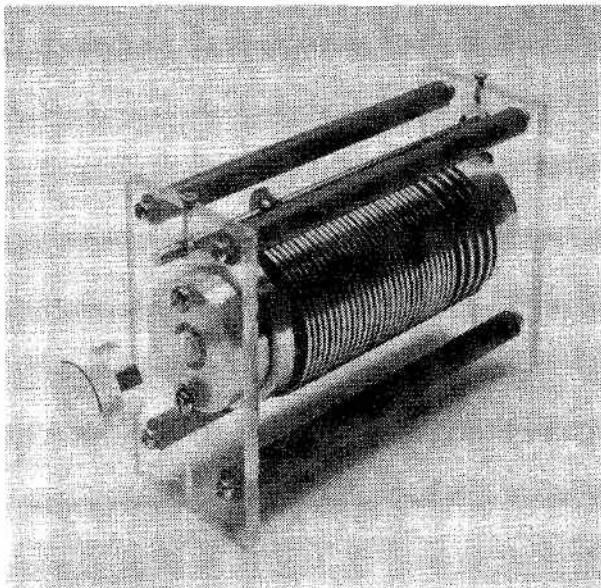
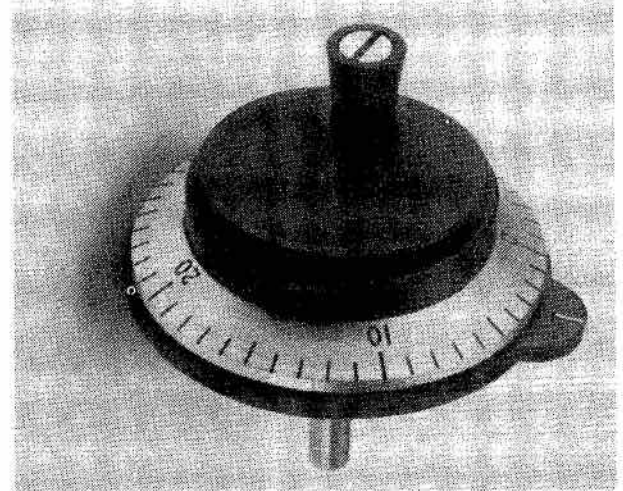
Parts are available from: Telecomms,

189 London Road, North End, Portsmouth, Hants, PO2 9AE, U.K. Their catalogue is well worth writing for. I received the catalogue 11 days from the time I mailed the request and when parts were ordered, they were received in 17 days. All major credit cards are acceptable. This is truly outstanding service for this day and age.

I purchased two roller inductors with turns counters and one of each of the capacitors and used them in previously built amplifiers. All components performed perfectly. The one roller inductor went into a 4-1000 at 5.6kV and the other into a pair of 4-400s at 4 kV. No arcing or heating of components



Nevada components



was noted and efficiency was as good or better than the replaced components.

I would recommend this company and its products to anyone looking for good amplifier or transmatch components.

NADY NARRATOR HEADSET

The Nady NHM-220 allows a video camera operator to record voice-overs while shooting. The NHM-200 is a lightweight monaural headphone/boom mic combination with a list price of \$24.95 U.S.

The headset system is compatible with all video cameras and camcorders, and is easy to hook up and use. The connector for the headphone plugs into the camera's headphone jack, allowing the user to hear his voice track as it is being recorded. The microphone connector plugs into the external mic or on-board mic jack on the camera.

The Narrator Headset is the newest addition to Nady's line of video camera accessories that includes wireless and directional microphones for consumer video cameras. For more information, contact Nady Systems, Inc., 1145 65th Street, Oakland, California 94608.

BTL 3344 AUDIO GENERATOR

The BTL 3344 Audio Generator now available from Brunelle Instruments features frequency ranges of 10 Hz-1 MHz selectable in 5 ranges. This unit has a high output design, more than 7V RMS at no load and more than 3.5 RMS at 600 ohms (sine wave). Output level is fully adjustable with a 10 dB-step, 6 range attenuator and a level adjuster. The Model 3344 has a low output impedance of 600 ohms and the attenuator provides accuracy of plus or minus 1.0 dB at 600 ohm load. Sine and square waves are easily available. This compact unit, with vertical type panel

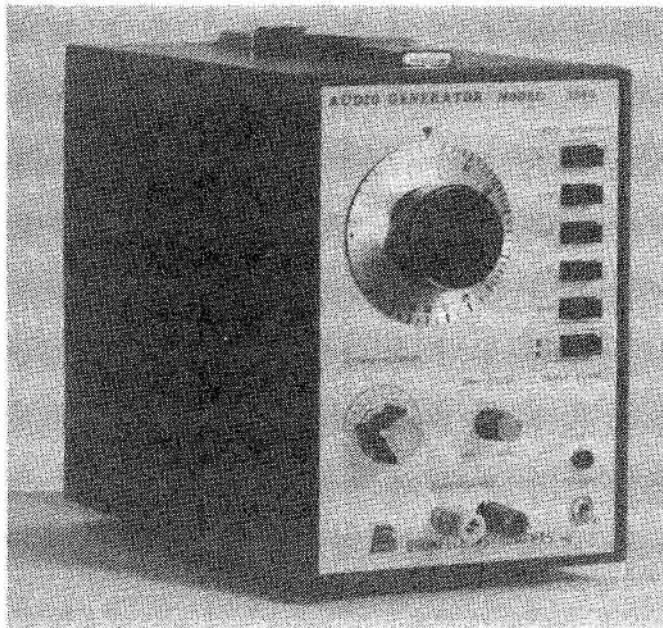
LIMITED SPACE ANTENNA SOLUTIONS

By Frank P. Hughes VE3DQB, Soft cover
28cm x 21cm, 52 pp. ISBN: 0-936653-13-



Nady Narrator Headset

for easy operation, also features all solid state circuitry ensuring extremely high stability and minimum warm-up time for less power consumption. Contact Brunelle Instruments Inc., 69 6th Range S, St-Elie d'Orford, Quebec JOB 2S0 for additional information. ■



BTL 3344 Audio Generator

Book Review

2. Published by Tiare Publications, P.O. Box 493 Lake Geneva, Wisconsin 53147.

An essentially practical book on simple receiving antennas written specifically for the shortwave listener (examples are all based on dimensions for the shortwave broadcasting bands), starting from absolute basics. Special attention is paid to antennas for small lots or restricted space, outdoors and indoors.

There is advice on wire, insulators, masts, guying and guy anchors, antenna installation, and an excellent primer on soldering. The coverage on grounding techniques emphasizes the safety aspect of grounds.

A simple L-match tuner is described, and there is a summary of available commercial antenna kits and active antennas.

The print is large and easy to read, and there is plenty of white space for notes and sketches by the reader. The book is obviously not intended for 'further education' of people already well-versed in the construction and application of antennas; it will be useful for shortwave listeners just starting out or wondering how they can improve their reception. ■

MAHALO-ALOHA-VE3KCE

In that far off, wonderful, 'KH6' land, Mahalo means Thank You, and Aloha, among other things, means a fond farewell. Geoff Smith deserves both!

One of the first persons to jump in and help preserve Amateur radio at the Canadian National Exhibition, he is a Charter Member of the PRESIDENTS' COUNCIL which took over VE3CNE when it was in imminent danger of being terminated by the 'EX'.

Geoff gave very generously of his time and talents to the station project. His responsibilities included Station Publicity Manager, Opening Parade communications, Reviewing Stand Communications for The Warriors' Day Parade and Antenna Manager for the station.

Until last August Geoff was Assistant Headmaster at St. Andrew's College in Aurora, Ontario. At that time he was appointed Headmaster at King's Edgehill College in Windsor, Nova Scotia.

He will be greatly missed by many and none more than VE3CNE. All of us wish him well.

For a job well done, his many friends say, MAHALO, ALOHA.

— Evan Harriot VE3IND

The Angle of the Dangle

By Ian VE3ISL

It was a hotter summer than usual on the Island of Samos and the local populace was waiting for a cooling breeze; but day followed day without any relief from the heat. People were tired and tempers frayed. The kids were out of hand and out of school.

The old man sat in his usual shady place in the market square. A crowd of ruffian school kids came rushing through the marketplace, one ragged creature scooped up a half-rotten pomegranate from the ground and hurled it at the old man. The pomegranate splattered all over the old man's shirt. His face creased with anger at the insult bestowed upon him, he roared out to the fast-disappearing school kids: "Damn kids ought to be horsewhipped."

The old man's friend who was sitting nearby had also shared some of the splatter from the rotten fruit. "Somehow those kids should be punished," the old man remarked to no-one in particular. The old man's friend commented, "Well, you're the brains in this town, so why not think something up that will occupy their rotten little minds and keep them busy?"

"You're right, my friend, you're so right, and I've already got an idea." The old man walked over to the school and sought out the Principal. Soon chalk lines were covering the blackboard and the principal was shaking his head in a 'No, no' fashion. The old man produced paper and scissors and cut out various shapes as proof of his conversation, at which time the principal nodded in full agreement.

The school principal said to the old man, "You do realize, of course, that school kids will hate forever the sound of your name!"

"Can you be sure of that?" he asked. "No doubt about it; the students will have to spend a lot of time on this matter, especially as homework. Remember, school starts tomorrow and so will this subject."

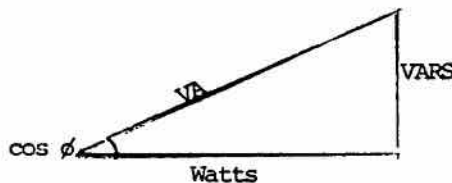
"Well, I must be off," said the now-smiling old man.

The next day as he sat in his usual place in the market square, no school children were around at all. The old man's friend, sitting nearby, commented— "No school kids bothering us today."

"That's true, friend, and I suspect we will be bothered a lot less from now

on." Pythagoras closed his eyes and leaned back to contemplate upon the Universe and Immortality, these thoughts being his favorite relaxation. Thus revealed is the story of how and why Pythagoras developed his Theorum of the Square of the Hypotenuse equalling the sum of the squares of the two adjacent sides of the right angle triangle! School children since 600 BC have struggled with the workings thereof!

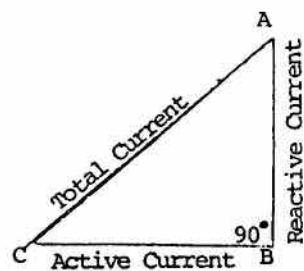
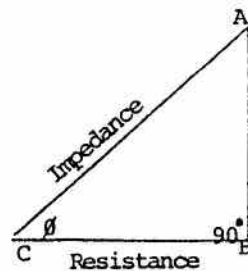
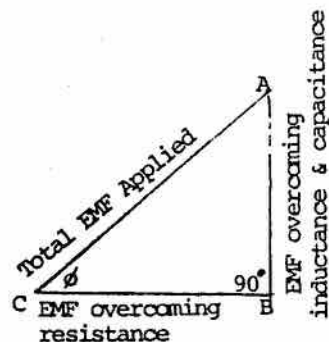
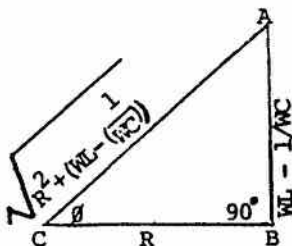
Now when old Pyth developed his theorem, he recognized that one day Amateur Radio would be around, electricity would be in common use, and that the Electrical triangle would be useful. We have the most common use whereby we look at true power and volt amps, power factor and VARS illustrated by:



$$\text{VARS}^2 + \text{Watts}^2 = \text{VA}^2$$

$$\text{Power Factor} = \frac{\text{True Watts}}{\text{Apparent Watts}}$$

Now one can see that VARS is a linear expression of $\cos \theta$ and for small changes of the angle $\cos \theta$ a larger change on the vertical line VARS will occur, this being much easier to read if so required. As the vertical VARS line decreases, so does the VA line, so that when there is no measurable angle $\cos \theta$ then there is no reactive component. Our antenna is perfectly resonant at that moment! and 1:1 VSWR. Pyth didn't dwell upon this for too long but decided to toss in a few other uses for his triangles as follows:



Studying and trying to understand what Pyth had on his mind those 2587 years ago still gives school kids the horrors. It follows them all up the engineering ladder— it's inescapable. It will go on and on, and the result of some miserable hooligan of a school kid who chucked a pomegranate at Pythagoras! Not even the computer can evade the electrical triangle and misery of the mind. The fact that you don't seem to use it doesn't mean that you're not using it! A pox on Pythagoras for all this!

LETTERS TO THE EDITOR

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

GREAT BRITAIN 1988 YOUNG AMATEUR OF THE YEAR

There certainly is an awareness in Britain that a healthy Amateur radio movement contributes to the development of the electronics industry.

The Department of Trade and Industry (DTI) sponsors a 'Young Amateur of the Year Award'. The award for 1988 was presented by the Duke of Edinburgh at the 75th Anniversary Convention of the Radio Society of Great Britain, to Andrew Keeble G1XYE.

Andrew Keeble is 15 years old and was nominated for his work in the Scout movement, RAYNET (emergency and disaster communications), and for his interest in antennas and propagation. In addition to the prize of 250 Pounds and a day at the DTI Monitoring Station, Andrew received:

- a one-week training course at the College of Marine Electronics;
- an engraved presentation model of the RSGB Beginners' Receiver;
- a week in Vienna as the guest of the Austrian national society OVSV;
- a meeting with the CBC Engineering Dept. to talk about careers in engineering.

MORSE OPERATORS ON TV

BBC TV has a program called *Record Breakers*, produced in co-operation with the *Guinness Book of Records*. Attempts are made on camera to break some of the long-standing records.

The present record for sending Morse on a manual key, as given in the *Book of Records*, is 35 wpm and was set by Harry Turner, an American Amateur, on Nov. 9, 1942 at Camp Crowder, Missouri. He was demonstrating morse to General Ben Lear, U.S. Sixth Army Commander.

The *Record Breakers* program put out an invitation to anyone who thinks they can beat the record on-air. No spring-loaded or servo mechanism would be permitted on the key, a five-word penalty for any error, at least one minute of sending (preferably three or five, to set a more difficult task for future challengers). The present record was set without error.

By the time this appears in *The Canadian Amateur*, the program will probably have appeared on screen. We'll keep you posted if we hear more.

PROJECT YEAR

Youth into Electronics via Amateur Radio (YEAR) is an ambitious program initiated by the Radio Society of Great

Britain in cooperation with government departments, broadcasters, the armed forces, youth organizations and industry. It was launched in conjunction with the proposals for a new beginner's Amateur radio licence.

YEAR is intended to provide basic training in electronics with:

a simple study course to a set curriculum;

a formal qualification with a certificate. The objective is a good grounding on how to operate on the air in a safe and disciplined manner—representing a challenge but not a barrier.

In September 1988 RSGB put out a questionnaire to members asking their opinion on various aspects of the program, and in January 1989 published a summary of the results.

The most popular name for the licence was 'Novice';

A bare majority favoured a lower age limit of 8 years, but 33% favoured no lower age limit;

75% favoured a power input limit of 4 watts;

60% favoured 5 wpm morse test, 32% were for 7 wpm, 6% felt no morse test was necessary;

50% agreed with proposed frequency allocations which included 50 kHz phone and CW in the 1.8 band, 15 or 20 CW only at 3.5, 10 kHz CW only at 10 MHz, 50 kHz CW only at 21, a small allocation at 28 MHz allowing contact with novice operators in other countries, a small allocation at 50 MHz and 430 MHz. 40% felt these allocations were too many;

The most popular duration for the licence was three years; 80% liked the concept in general.

There was an interesting trend in some of the comments towards granting phone privileges, and allowing licensees to progress upwards to CW, the motivation being the better opportunity to make longer distance contacts.

INTERNATIONAL LICENSING

Nine European nations have agreed to operation of Amateur stations from participating countries without prior notice. British Amateurs are now able to use most of their equipment in Austria, Western Germany, Liechtenstein, Luxembourg, Monaco, Netherlands, Norway, Switzerland and Turkey. More will be added later. A Euro-licence, for member states of the European Community is being discussed.

THIRD PARTY TRAFFIC

The radio regulations in Britain

recognize two kinds of Amateur third-party traffic: messages passed on behalf of other licensed radio Amateurs, and messages passed on behalf of non-licensed people or organizations.

It is accepted that passing messages on behalf of other licensed Amateurs (domestic or foreign) does not contravene the prohibition against third-party traffic in International Radio Regulation 2733. RR2733 is intended to prevent the Amateur service from being used for commercial service.

Third-party messages for unlicensed persons is permitted only under special circumstances. As part of 'self-training', messages may be passed by a Special Event station for two-minute periods and to discuss trivial matters of personal interest, or messages may be passed at the request of a 'User Service', for example in exercises for disaster planning by Red Cross, St. John's Ambulance, local authorities and the like.

Also, during natural disasters when normal lines of communication are not open, messages may be passed that relate to matters directly concerned with relief of distress.

SPORADIC E PROPAGATION

Work at Southampton University supports theories that sporadic E propagation is caused by shear winds in the upper atmosphere. The movement of charged gas particles (ions), carried along by high-altitude winds, causes two adjacent layers to move in opposite directions. Ions tend to converge at the shear zone between the two streams, producing a very thin high-density ion layer. Upper atmosphere winds penetrate no higher than the E-layer, and sporadic E only occurs when this layer is sufficiently ionized, so sporadic E is confined mainly to the summer months. ■

— all from *Radio Communication*

SASKATCHEWAN HAMFEST

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

AGK ANTENNAS

THE ANTENNA GAME GAIN by GERRY KING VE3CK

A QUAD FOR 80 METRES? ROTATING AND COLLAPSIBLE? INTRODUCTION

I built a rotating quad for 80 metres—crazy, eh?—used it for a short time, got tangled in the trees (all sorts of problems), but I finally got it to work.

Now I'm not saying that I think anyone else be as nuts as me but it seemed to fun be idea at the time.

I remember calling into the ONTARS net on 3.755 MHz asking for a front to back check— they thought I was bananas.

For what it's worth here are the specs: (Please refer to the pictures and scale drawing for details.)

A. Loop— 200 ft. of double twisted wire in each element.

B. Top of the Diamond— 117 ft. Bottom about— 20 ft.

C. Spacing— 40 ft. between driven element and other loop because it served as a reflector on fone and a director on CW.

D. Tuning Stubs— tuned to extra length to make up shortage ref-dir, tuned to 3.62 MHz; D.E. tuned to 3.75 MHz.

E. 1/4 Wave 72 ohm Coax Transformer

from driven element to match impedance to 3.775 (use antenna tuner to adjust for minimum reflected power at low end of CW band.)

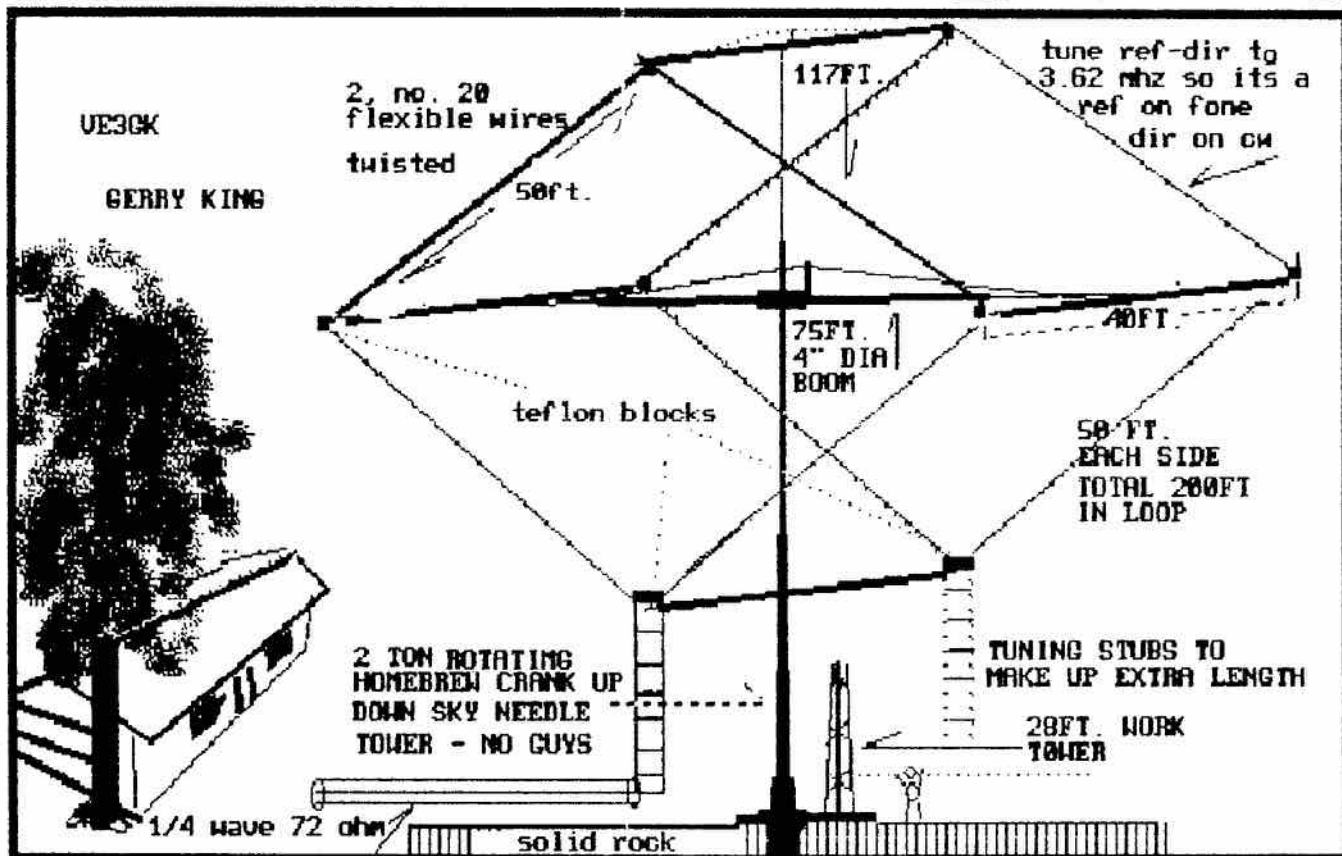
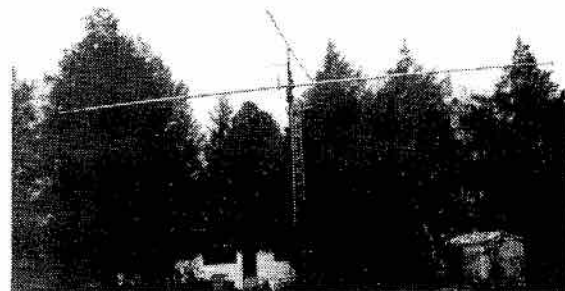
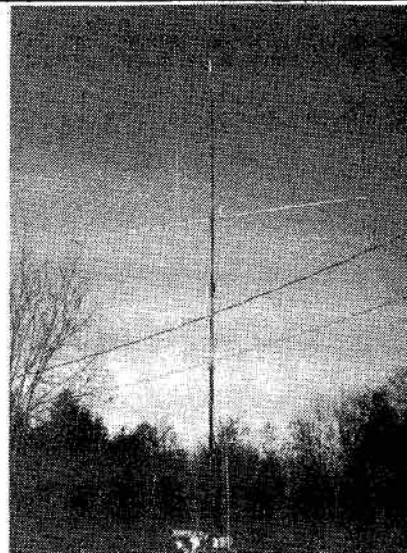
F. Front to Back— approx. 15 dBd.

G. Front to Side— approx. 35 dBd super side rejection.

Note: The element that was not driven was tuned to 3.62 MHz; it acted as a reflector on phone, and when working low on CW, using an transmatch on the D.E., it acted as a director.

PERFORMANCE

Only had it up for a short period but Wow!— could hear the Europeans 1/2 hour before the crowd. The side to front was really good, bringing the U.S. QRM way down. What can I say? It was super while it lasted. Maybe I will put it up again, the tower can only support one large array at a time. Have the 4 over 4 up there now for 20 metres. It's still around hanging on a fence. Have fun!



PREFIX	COUNTRY	PREFIX	COUNTRY	PREFIX	COUNTRY	PREFIX	COUNTRY
A2	Botswana	HV	Vatican	TA	Turkey	YS	El Salvador
A3	Tonga	HZ 7Z	Saudi Arabia	TF	Iceland	YU	Yugoslavia
A4	Oman	I, IT	Italy	TG	Guatemala	YV	Venezuela
A5	Bhutan	IS	Sardinia	TI	Costa Rica	YV8	Aves Is
A6	United Arab Emirates	J2 FL8	Djibouti	TN	Cocos Is.	Z2 ZE	Zimbabwe
A7	Qatar	J3 VP2G	Grenada & Dep	TJ	Cameroon	ZA	Albania
A9	Bahrain	J5 CR3	Guinea-Bissau	TL	Central African Republic	ZB	Gibraltar
AA (See K)		J6 VP2L	St. Lucia	TN	Congo	ZC (See S8)	
AP	Pakistan	J7 VP2D	Dominica	TR	Gabon	ZD7	St. Helena
BV	Taiwan	J8 VP2S	St. Vincent & Dep	TT	Chad	ZD8	Ascension Is
BY	China	JA-JN, KA	Japan	TU	Ivory Coast	ZD9	Tristan da Cunha & Gough Is
C2	Nauru	JO KA1	Minami Torishima	TY	Benin	ZF	Cayman Is
C3	Andorra	JO KA1	Ogasawara	TZ	Mali	ZK1	So. Cook Is
C5	The Gambia	JT	Mongolia	UA UA1, 3, 4, 5, 6, 7, 8, 9, 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 0	European Russian SFSR	ZK1	No. Cook Is
C6	Bahamas	JW	Svalbard	UA1, UK1	Franz Josef Land	ZK2	Niue
C9	Mozambique	JX	Jan Mayen	UA1, UK1 (See CE9)		ZL	New Zealand
CE	Chile	JY	Jordan	UA2, UK2F	Kaliningradsk	ZL	Auckland & Campbell Is
CE9/KC4	Antarctica	K, W, N, AA-AL	United States of America	UA, UK, UV, UW9-0	Asiatic R.S.F.S.R.	ZL	Chatham Is
CE9 (See VP8)		KC4 (See CE9)		UB, UK, UT, UY5	Ukraine	ZL	Kermadec Is
CE9A	Easter Is	KC6 (E. Caroline Is.)	Fed. States of Micronesia	UC2, UK2A/C/I/L/O/S/W	White R.S.S.R.	ZL5 (See CE9)	
CE9X	San Felix	KC6 (W. Caroline Is.)	Republic of Belau	UD6, UK6C/D/K	Azerbaijan	ZM7	Tokelau Is
CE9Z	Juan Fernandez	KG4	Guantanamo Bay	UF6, UK6F/O/D/V	Georgia	ZP	Paraguay
CM, CO	Cuba	KH1, KB6	Baker, Howland & Am Phoenix Is.	UG6, UK6G	Armenia	ZS1-6 (HS, S4, S8, T4, V9)	South Africa
CN	Morocco	KH2, KG6	Guam	UH8, UK8H	Turkoman	ZS1 (See CE9)	
CP	Bolivia	KH3, KJ6	Johnston Is.	UJ8, UK8	Uzbek	ZS2	Prince Edward & Marion Is
CR9	Macao	KH4, KM6	Midway Is.	UJ8, UK8J/R	Tadzhik	ZS3	Namibia S.W. Africa
CT	Portugal	KH5, KP6	Palmyra, Jarvis Is.	UL7, UK7	Kazakh	1A8	Sov. Mil. Order of Malta
CT2	Azores	KH5K, KP6	Kingman Reef	UM8, UK8M, N	Kirghiz	1S	Spratly Is
CT3	Madeira Is.	KH6	Hawanan Is.	UO5, UK5O	Moldavia	3A	Monaco
CX	Uruguay	KH7	Kure Is.	UP2, UK2B/P	Lithuania	3B6, 7	Agalega & St. Brandon
D2, 3	Angola	KH8, KS6	American Samoa	UQ2, UK2G/O	Latvia	3B9	Mauritius
D4	Cape Verde	KH9, KW6	Wake Is.	UR2, UK2R/T	Estonia	3B9	Rodriguez Is
D6	Comoros	KH6, KG6R, S, T	Manana Is.	V2, VP2A	Antigua, Barbuda	3C	Equatorial Guinea
DA, DF, DJ, DK, DL, 1	Fed. Rep. of Germany	KL7	Alaska	V3, VP1	Belize	3C8	Annobon
DU	Philippines	KP1, KC4	Navassa Is.	VE, VO, VY1	Canada	3D2	Fiji Is
EA	Spain	KP2, KV4	Virgin Is.	VE1	Sable Is.	3D6	Swaziland
EA6	Balearic Is.	KP4	Puerto Rico	VE1	St. Paul Is.	3V	Tunisia
EA8	Canary Is.	KP4, KP5	Desecheo Is.	VK	Australia	3X	Rep. of Guinea
EA9	Ceuta and Melilla	KX6	Marshall Is.	VK	Lord Howe Is.	3Y	Bouvet
EI	Ireland	LA, LB, LF, LG, LJ	Norway	VK9	Willis Is.	3Y	Peter Is.
EL	Liberia	LA (See CE9)		VK9	Christmas Is.	3Y (See CE9)	
EP	Iran	LU	Argentina	VK9	Cocos-Keeling Is.	4K (See CE9)	
ET	Ethiopia	LU-Z (See CE9, VP8)		VK9	Melish Reef	4S	Sri Lanka
F	France	LX	Luxembourg	VK9	Norfolk Is.	4U	ITU Geneva
FB8W	Crozet	LZ	Bulgaria	VK6 (See CE9)		4U	Hdgtrs. United Nations
FB8X	Kerqueien Is.	M1 (See T7)		VK6	Heard Is.	4W	Yemen
FB8Y (See CE9)		N (See K)		VK6	Macquarie Is.	4X, 4Z	Israel
FB8Z	Amsterdam & St. Paul Is.	OA	Peru	VO (See VE)		5A	Libya
FC	Corsica	OD	Lebanon	VP2E	Anguilla	5B, ZC	Cyprus
FG	Guadeloupe	OE	Austria	VP2K	St. Kitts Nevis	5H	Tanzania
FG, FS	Saint Martin	OH	Finland	VP2M	Montserrat	5N	Nigeria
FH	Mayotte	OH0	Aland Is.	VP2V	Brit. Virgin Is.	5R	Malagasy Rep
FK	New Caledonia	OJ8	Market Reef	VP5	Turks & Caicos Is.	5T	Mauritania
FM	Martinique	OK	Czechoslovakia	VP8 (See CE9)		5U	Niger
FO	Chipperton Is.	ON	Belgium	VP8	Falkland Is.	5V	Togo
FD	French Polynesia	OR4 (See CE9)		VP8, LU-Z	South Georgia Is.	5W	Western Samoa
FP	St. Pierre & Miquelon	OX, XP	Greenland	VP8, LU-Z	South Orkney Is.	5X	Uganda
FR	Glorioso Is.	OY	Faroe Is.	VP8, LU-Z	South Sandwich Is.	5Z	Kenya
FR	Juan de Nova, Europa	OZ	Denmark	VP8, LU-Z, CE9, HF8, 4K	South Shetland Is.	60, 15	Somali
FR	Reunion	P2	Papua New Guinea	VP9	Bermuda	6W	Senegal
FR	Tromelin	PA, PD, PE, PI	Netherlands	VO9	Chagos	6Y	Jamaica
FW	Wallis & Futuna Is.	PJ2, 3, 4, 9	Neth. Antilles	VR6	Pitcairn Is.	70	People's Dem. Rep. of Yemen
FY	French Guiana	PJ5, 6, 7, 8	St. Maarten, Saba, St. Eustatius	VS5	Brunei	7P	Lesotho
G	England	PY, PP, PR-PW	Brazil	VS6	Hong Kong	7Q	Malawi
GO	Isle of Man	PY8	Fernando de Noronha	VS9 (See 8Q)		7X	Algeria
GI	Northern Ireland	PY8	St. Peter & St. Paul Rocks	VU	India	7Z (See HZ)	
GJ, GC	Jersey	PY8	Trinidad & Martin Vaz Is.	VU7	Andaman & Nicobar Is.	8J (See CE9)	
GM	Scotland	PZ	Surinam	VU7	Laccadive Is.	8P	Barbados
GU, GC	Guernsey & Dep.	S2	Bangladesh	W (See K)		8Q, VS9	Maldives Is.
GW	Wales	S7	Seychelles	XE	Mexico	8R	Guyana
HA, VR4	Solomon Is.	S9, CR5	Sao Tome & Principe	XF4	Revilla Gagedo	9A, (M1), T7	San Marino
HA	Hungary	SK, SL, SM	Sweden	XP (See 0X)		9G	Ghana
HB	Switzerland	SP	Poland	XT	Upper Volta	9H	Malta
HB8	Liechtenstein	ST	Sudan	XU	Kampuchea	9J	Zambia
HC	Ecuador	ST8	Southern Sudan	XV	Vietnam	9K	Kuwait
HC8	Galapagos Is.	SU	Egypt	XW	Laos	9L	Sierra Leone
HM	Haiti	SV	Greece	XZ	Burma	9M2	West Malaysia
HM	Dominican Republic	SV	Crete	Y2-9, DM, DT	German Dem. Rep.	9M6, 8	East Malaysia
HK	Colombia	SV	Dodecanese	YA	Afghanistan	9N	Nepal
HK8	Malpelo Is.	SV	Mount Athos	YB, YC	Indonesia	9O	Zaire
HK8	San Andres & Providencia	T2, VR8	Tuvalu	YI	Iraq	9U	Burundi
HL, HM	Korea	T38, VR1	W. Kiribati (Gilbert & Ocn Is.)	YJ	New Hebrides	9V	Singapore
HP	Panama	T31, VR1	C. Kiribati (Brit. Phoenix Is.)	YK	Syria	9X	Rwanda
HR	Honduras	T32, VR3	East Kiribati (Line Is.)	YN, HT	Nicaragua	9Y	Trinidad & Tobago
HS	Thailand	T7 (M1, 9A)	San Marino	YO	Romania	J2, A	Abu Ail, Jabal al Tar

uniden



HR-2510

- Mobile 10 Meter Transceiver
 - SSB/AM/FM/CW \$449.00
 - 25 Watts PEP
 - Computer Controlled Operation
- SALE PRICED

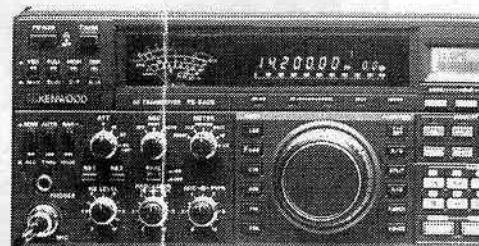


ICOM IC-781 \$7799

HF XCVR



ICOM IC-761 \$3499



KENWOOD TS-940SAT \$3099



YAESU FT-767GX \$2999



YAESU FT-757GX Mk II \$1749



ICOM IC-751A \$2159

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



ICOM IC-735 \$1499



New IC-725 -- New small low priced HF Xcvr. Gen Cov Rx, Dual VFO, 2



KENWOOD TS-440SAT \$1879 TS-440S \$1699



KENWOOD TS-680S \$1429 TS-140S \$1199



YAESU FT-747GX \$1249

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TS-440S	\$1799	\$1699
TS-680S	\$1489	\$1429
TS-140S	\$1379	\$1199
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IC-765	\$4299	\$3999
IC-761	\$3999	\$3499
IC-751A	\$2349	\$2159
IC-735	\$1649	\$1499
IC-725	\$1299	\$1199
YAESU FT-767GX	\$3289	\$2999
FT-257GX	\$2189	\$1749
FT-747GX	\$1349	\$1249
UNIDEN HR-2510	\$549	\$449
HR-2600	\$699	\$559

Visa & Mastercard add 2%.....

USED UNIDEN 8010 Rem VFO for 2020 Transceiver---\$175

Looking for a compact transceiver for your mobile VHF and UHF operations? KENWOOD has a compact rig for each of the most popular VHF/UHF bands.

2-m 220MHz 70-cm 1200MHz
TM-231A/331A/431A/531A
 \$579

FM MOBILE TRANSCEIVER
KENWOOD

New Product Information

TM-701A
 \$789.00 DUAL BANDER

The TM-701A combines two radios into one compact package. You get 25 watts on 2 meters and 70cm, 20 memory channels, tone encoder built-in, multiple scanning, built-in dual digital VFOs, and a host of additional features!



Communications Canada Deregulated Emissions Proposal

"SCHEDULE II

(Sections 42, 44, 45 and 49)

AMATEUR SERVICE FREQUENCY ALLOCATIONS

Item	Column I	Column II	Column III	Column IV	Column V	Column VI
	Lower Frequency Limit (MHz)	Higher Frequency Limit (MHz)	Permitted Emissions			Maximum Bandwidth
			Amateur Advanced	Amateur	Amateur Digital	
1.	1.800	2.000	X	X	—	6 kHz
2.	3.500	4.000	X	T	—	6 kHz
3.	7.000	7.350	X	T	—	6 kHz
4.	10.100	10.150	X	T	—	6 kHz
5.	14.000	14.350	X	T	—	6 kHz
6.	18.068	18.168	X	T	—	6 kHz
7.	21.000	21.450	X	T	—	6 kHz
8.	24.890	24.990	X	T	—	6 kHz
9.	28.000	29.700	X	X	—	6 kHz
10.	50.000	54.000	X	X	X	30 kHz
11.	144.000	148.000	X	X	X	30 kHz
12.	220.000	225.000	X	X	X	100 kHz
13.	430.000	450.000	X	X	X	6 MHz
14.	902.000	928.000	X	X	X	6 MHz
15.	1 240.000	1 300.000	X	X	X	6 MHz
16.	2 300.000	2 450.000	X	X	X	Not Specified
17.	3 300.000	3 500.000	X	X	X	Not Specified
18.	5 650.000	5 725.000	X	X	X	Not Specified
19.	5 725.000	5 850.000	X	X	X	Not Specified
20.	5 850.000	5 925.000	X	X	X	Not Specified
21.	10 000.000	10 500.000	X	X	X	Not Specified
22.	24 000.000	24 050.000	X	X	X	Not Specified
23.	24 050.000	24 250.000	X	X	X	Not Specified
24.	47 000.000	47 200.000	X	X	X	Not Specified
25.	75 500.000	76 000.000	X	X	X	Not Specified
26.	76 000.000	81 000.000	X	X	X	Not Specified
27.	142 000.000	144 000.000	X	X	X	Not Specified
28.	144 000.000	149 000.000	X	X	X	Not Specified
29.	241 000.000	248 000.000	X	X	X	Not Specified
30.	248 000.000	250 000.000	X	X	X	Not Specified

"SCHEDULE III

(Subsection 58(2))

AMATEUR CALL SIGN PREFIXES

Item	Column I Amateur call sign prefix	Column II Geographical Location
1.	VO1	Newfoundland
2.	VO2	Labrador
3.	VE1	Prince Edward Island, Nova Scotia, New Brunswick
4.	VE2	Quebec
5.	VE3	Ontario
6.	VE4	Manitoba
7.	VE5	Saskatchewan
8.	VE6	Alberta
9.	VE7	British Columbia
10.	VE8	Northwest Territories
11.	VY1	Yukon Territory

Note:

In this Schedule,

"X" means any emission is permitted;

"T" means only aural or direct printing radiotelegraphy is permitted;

"—" means no emission is permitted;"

13. Schedules III to VI¹ of the said Regulations are revoked and the following substituted therefor:

¹ SOR/80-169, 1980 *Canada Gazette* Part II, p. 580.
SOR/87-432, 1987 *Canada Gazette* Part II, p. 2841.

14. Schedules VIII and IX of the said Regulations are revoked.

CROSSWAVES

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



- Interference filters from AT&T
- Hydro trucks experience Mobile RFI
- Terrorists resort to 2M hand held

AT&T PRODUCES TELEPHONE FILTER

Hoppy Hopwood VE7AHB advises that B.C. Telephone Company has standardized on a Radio Interference Filter, Z100A. It said that the Z100A has been designed to eliminate radio interference that may be picked up on telephone sets. B.C. Telephone will offer this filter to their customer. No price is known yet nor are the technical details. Watch for both in a forthcoming Crosswaves.

Several calls to Bell Tel recently have brought feedback from Amateurs about effectiveness of Bell-installed filters. In most cases the filters were installed within two days free of charge and were entirely effective. In one case the repairman tried several types only to find the clamp-on toroid used by the Amateur was more effective. When aesthetics enter into the equation, clamp-on toroids on a telephone leave a lot to be desired, especially if you have kids. That phone can undergo a lot of verbal and mechanical stress.

Incidentally, Bell's policy for radio interference to phone sets purchased from a Bell phone centre is that they will install a filter at no cost to the customer, providing it is done within the warranty period. Lately, I have personally made arrangements with Bell Repair facilities to have interfered phones treated for neighbours of Amateurs. In a surprising number of cases I have had to almost become rude to get the desired co-operation.

For those who get persistent rejection when reporting a radio interference type problem, drop me a line—I have a sure fire solution. I don't give it publicly for fear it may be abused, after all, Bell is human too. The last time I called to report this problem the operator was very prompt and the offended phone was fixed the next day. Who else but Bell could offer this service?

I recently had one of those Far East manufactured telephone sets repaired at the repair centre in Toronto. It was no surprise to the technician who repaired the phone that the line transformer had opened. How many times can you recall that happening to a Bell phone? Not very often I suspect, because Bell system practices reach standards of quality seldom achieved by off-shore manufacturers, unless, of course, the assembly and manufacturing has been done in the Far East, to Bell standards.

Also, it seems the IC in the handset of the repaired unit was susceptible to transients. Cost corner-cutting again.

HYDRO TRUCKS AND RFI FROM MOBILE RADIO

The following is report of mobile radio interference to 1987 Ford F800 370 cu. in. gasoline engined trucks:

"Ottawa Hydro have in service six 1987 Ford F800 trucks with 370 cu. in. gasoline engines. All are equipped with Motorola Maxar 80, 25 watt mobile radios operating on 153-470 MHz and installed in the standard, 'entertainment radio' location, in the centre of the dashboard.

"Five of these vehicles are line trucks with buckets. The line body extends about two feet above the cab roof. The sixth (and last to have a radio installed) is a Bucket truck with a service body which does not project above the cab. Quarter wave roof-mount antennas are normally as close to the centre of the cab roof as possible. This was done in the case of the Service truck but, because of directional shielding from the line body, the antennas on these trucks were installed in a solid topped piece of copper pipe, 1/4 wavelength long, mounted to the left, behind the driver, on the superstructure for the boom support.

"Ford F800 trucks have a tilt front. The fibreglass fenders and hood tip forward as a unit. The cab is steel and the bodies are aluminum. These trucks have an electronic governor located under the top of the dashboard, on the right hand side, behind the glove box. Its purpose is to slow the engine down to idle when the engine overrevs."

SERIOUS PROBLEM

"No trouble was experienced with the line trucks, but the Service-bodied truck and engine came to an abrupt stop, under certain speed conditions, each time the transmitter was keyed.

"Many antenna-radio-shielding combinations were tried inside and outside and all around the cab. Without doubt, at certain speeds (not necessarily excessive) the governor was shutting down the engine when the transmitter was keyed at any time the antenna was located on the roof or within several feet of the sides of the front of the cab.

"A suitable location for a pipe-type antenna was found on the driver's side of the ladder rack, several feet behind the cab. No further trouble has been noted.

"The vehicle in question has been

tested for interference from radios in other vehicles, in our fleet, but no matter where, or how close they are, no abnormalities have been noted as their transmitters were keyed."—signed W.J. Birrell, Ottawa Hydro.

2M HANDHELD USED FOR ILLEGAL PURPOSE

The U.K. publication, *The Sunday Times*, Sept. 18/88, issued a disturbing and macabre report of a popular Amateur 2M transceiver being used by terrorists to trigger bombs by remote control.

A forensic scientist, at an inquest held in Gibraltar, revealed how an inexpensive Icom EC2 transceiver had been used many times by the IRA in Northern Ireland to set bombs by use of the radio as a remote trigger.

It became known during discovery of an arms cache, in February 1987, that the IC2 was being used in arming sophisticated radio-controlled bombs. This equipment is popular on the Continent with 'radio enthusiasts' as well as private security firms, according to the article. Remote detonation has occurred about 200 times since friction erupted in 1972.

A quotation from Icom U.K. Ltd. states that under good conditions it is possible to transmit and receive signals from the IC2 over a distance of 600 miles. Such would be the case of an extreme ground-to-air path during an aircraft flight. It is surprising the newspaper went into such lengthy detail in using the transceiver for an illegal purpose. Anyone with a rudimentary knowledge of electronics could follow the instructions given.

Please send any details of RFI/EMI related cases to the author.

JRSD FUND

Note: The JRSD Fund needs your help in finishing the monumental task of defraying the legal expenses of VE3SR (now a Silent Key). There remains to be paid about \$1000. We have been legally audited, the case has been legally satisfied to requirements laid down by the Supreme Court of Ontario and all suppression has been successful. Any small overpayments of donations made to this cause will be returned in order to terminate the Fund as quickly as possible.

Should a major return of donations be received, in the near term, a statement of use will be published prior to any commitment being made. Twenty clubs donating \$50 each will clear this unfortunate account. Thank you. ■

QRP

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

Let us continue with another home-built project started last month and using the original gathering of parts to assemble the Astable Multivibrator in Figure 1.

Double check all your connections before touching the 9V battery briefly in the circuit. Make your initial observations at this time, then connect the 9V battery for further scrutiny. The 555 IC is just a bit more fragile than the other components you have been working with, up until now. By making sure certain components are properly inserted in the circuit, you will avoid a costly mistake which also delays further experiments.

Check all connections thoroughly before applying power, then apply power briefly at first. All solid state parts have 'smoke' built-in and once you let it out they do not work properly any longer.

Another rule uppermost in Amateur Radio is 'Experiment and observe results'. The by-product of these rules not only complies with our licence requirements but also adds knowledge of a practical nature. Any experiment, when successful, also provides confidence and an urge to go further, so by all means step out and be brave!

In the above circuit the two LEDs will flash on and off alternately as opposed to a continuous light in the earlier experiments. What actual practical use has anyone managed to devise from assembling these projects? Write your Editor and he may extend experimenting to other columns.

EYEBALL QSOs

Stopping while en route south, we talked to Bill W7GHT and his wife Oly during January. They have an attractive spread in the heart of Craigmont, ID,

not too far from the border of Washington State, a few miles from Spokane. Bill is retired from the Justice Department as a Judge where he covered five counties when active. Now both he and Oly enjoy travelling around giving out contacts to ardent 'County Hunters'. Not to mention the scrumptious apple pies they both mix up together (all by hand) and give away to visitors. We enjoyed ours later in the journey and shared it with four other people who all wanted to know where they could 'buy more'.

On arrival in Arizona we met another interesting couple, both in their eighties, combing the countryside looking for nuggets. Otis W7DFP and his wife Grace pull a trailer, which is their only home, behind a camper truck they use for overnight side trips. Not too noticeable at first is the fact that Otis does not have any hands, having lost them both in an industrial electrical accident some 50 years ago. He carries a metal detector strapped to his belt and manipulates the wand/coil with an adaptor to accommodate his right arm hook/pincer. His target the day I met him was the smallest piece of birdshot I have ever seen and barely detectable with my Garrett. He uses an audio amplifier with his because of a hearing deficiency and aids for both ears. His best fun to date is a two pennyweight nugget found on one of their trips to Alaska recently which he wears on a chain around his neck. It certainly does one's heart good to see someone less fortunate who is really enjoying life. Grace does crocheting while waiting for Otis during their field trips.

GLEANNINGS

Bob VE7SB dropped two more pages in the mail with word about the clear

stickers mentioned in the previous column. He also reports picking up a QRP beacon—KH6B/B running one watt on 180 kHz around sunrise. Another two-pager from Tom VE7BN1 and Lorraine VE7BNH letting us know he has shut down his traffic handling activities after nine years in the thick of things on various nets each day.

Two pages from his word processor arrived from Bob NM7M mentioning his writings for *ARCI QRP Quarterly* and G QRP Club *SPRAT*. Nearly two pages from Rick VE7FOU from the Bull Harbour Coast Guard teletype printer, dated Dec. 24, 1988. Probably one of the last pieces to leave that station which closed down at midnight just before New Year's Day exploded. Champagne corks were popping and horns blowing as VAG went QRT with a final 73 after over 67 years on the air according to Rick. He also mentioned considerable success restoring a TenTec PM 2B to full operational status on 20, 40 and 80 metres. He suggests this activity for anyone seeking QRP rigs and it was the first by TenTec on entering the Amateur radio equipment field.

Rick also built a two-fer transceiver into two halves of a Capstan tobacco tin and had a good pat on the back for his first satisfying homebrew venture.

More QRP activity reported by Nick VE7NJP in two notes from Port McNeil and announcing he has sent for a two-fer, so should be on the air by now. We had a short QSO during January early in the day before leaving on our trip south. Bob NM7M also mentioned having acquired the Microsoft Mouse and the Paintbrush program. He is seriously looking at Microsoft CADD, the computer-aided drafting and design system to dress up the articles he writes for various magazines. Am wondering now if Commodore has anything similar for my C128 or would it be better to change horses in midstream and try riding an Apple or something similar?

Bob is not busy enough now that he has a bright new colour award from Gland for IOTA, 100 Islands, he is going after the Russian Oblasts. Would not surprise me if he next announces the QRP Award for all U.S.A. County Award.

Bud VE7ASZ asked about QRP supply houses early in January so here is another new Ham turned QRP enthusiast headed in the right direction. Everyone remembers Tony G4FAI of Morsam Magnificat fame. He wrote to

Continued on next page

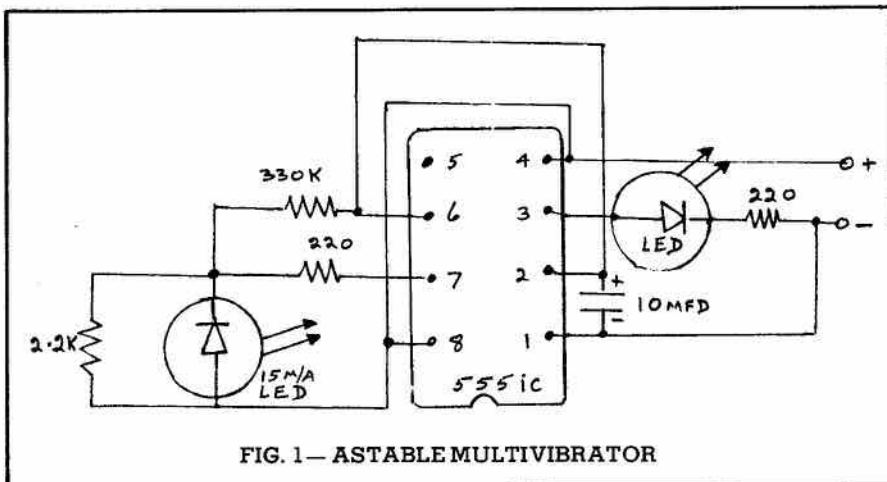


FIG. 1—ASTABLE MULTIVIBRATOR

YL News & Views

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



During my travels around to the various Hamfests and Fleamarkets, I have noticed an increase in the number of young folk. It's nice to see more young people involved. If we are to hold on to our hobby and what it has to offer, we MUST encourage younger people to become Amateur Radio Operators.

There are a number of things in the wind now which are helping. Guides On The Air and the Boy Scout Jamboree. Mainly it's Amateurs who are taking the time to have school classes come and visit their Amateur Radio Station and participate in its operation. This is the type of interaction that will make Amateur Radio better for all of us. Be proud of your status as an Amateur Radio Operator!

A Button I received from Doug Mackinnon VE3OLN states: "I LOVE HAM RADIO." Doug sells these at the Hamfests and I'm seeing a lot of them being worn. I now own one for my button collection and one to wear.

Sorry to tell you that Elsie Thompson VE6YW became a Silent Key on Jan. 22, 1989. Elsie was 93 years young and was active on the radio almost to the end. She became interested in Amateur Radio in 1920 along with her OM, although she didn't get her call until 1951. It was always an interesting QSO when Elsie was on the air. She will be missed.

Here are the details of a YL Contest of interest:

YLRL 50th ANNIVERSARY AWARD

The Young Ladies Radio League

QRP (cont'd)

say another issue is on the way and is doing it alone since Rinus PAOBFN folded the Dutch division due to his serious bout with cancer. Tony is seeking fraternal links with CW clubs around the world to strengthen the EUCW dedication of promoting and protecting CW activity on the Amateur bands. CW clubs are encouraged to write Tony at 1 Tash Place, London, England, N11 1PA with their club information. His son Paul does not get on the air too much but did recently qualify for his private pilot's licence, then took his mother for her first airplane ride.

Remember the International QRP frequencies 3560, 7030/40, 10106, 14060, 28060, daily and VE-QRP net each Sunday at 1900 UTC followed by TCN at 2300 UTC both on 14060 plus or minus QRM. Don't forget to get your QRP rig ready for the Field Day activities

would like to invite you to join us in the celebration of our 50th anniversary in 1989. We are offering a special award in recognition of the event.

The YLRL 50th Anniversary Award is available to any licensed Amateur in the world. Two-way communications must be established on the Amateur radio bands with 50 YLRL members during the calendar year 1989. Any and all Amateur bands may be used. Cross-band, repeater, or net contacts DO NOT count.

Applications must be received no later than Dec. 31, 1990 and should include a list of contacts, including date, callsign, time, RS(T), band and mode. Please indicate and sign your log that you have operated consistent with the rules of the award and your licence privileges. Include your name, callsign and mailing address. Applications should be accompanied by \$4 U.S. Non-U.S. applicants may choose to remit \$4 U.S. in the form of an Inter-

national Money Order, or 5 IRCs. Any proceeds over and above the cost of printing and distributing the certificates (should there be any) will be transferred to the YLRL Scholarship Fund.

Decisions of the Certificate Custodian regarding interpretations of these rules as here stated or later amended, shall be final. All inquiries regarding applications or the certificate should be addressed to the Custodian as follows:

Joan M. Gibson KG1F
RR 1, Box 1465
Waterbury, VT 05676, U.S.A.

Thanks to all for the good feedback from my appearance on the National CTV programme *Lifetime*. Daughter Dot VE3HUO and I did a 15-minute segment about Amateur Radio. I didn't know so many people watched daytime television! Your calls and letters are much appreciated.

That's it for now— 33/73/88 as the case may be.

220-225 MHz Amateur band under careful scrutiny by Communications Canada

By Bill Wilson VE3NR

The struggle is not yet over for the Amateur Bands between 30 and 890 MHz. Here, briefly, is what has been said specifically about the 220-225 MHz Amateur band.

The Ontario Ministry of Government Services would like to see that band withdrawn from the Amateur Service and used for government use including provincial governments and municipal safety service organizations.

Golden West Broadcasting, Manitoba, would like the band available for stereo and monaural point-to-point and for remote pickup of on-the-spot-news.

Lapp-Hancock, Ottawa, think it should be used for personal/business radio.

The Electrical and Electronics Manufacturers Association note the re-evaluation taken by the FCC sometime ago of the 220-225 MHz band and suggest that the "Department should consider joint implementation of any new services in allocations that may result from this evaluation."

Radio Atlantic, CKCL, Truro, N.S. noted that the 220-225 MHz band was lightly loaded and would probably remain so for the foreseeable future.

Reducing the band by 2 MHz for a Personal Service should not have a negative impact.

The Radio Advisory Board of Canada noted the causes of slow Amateur growth in this band but goes on to add, with regard to North American compatibility, the DOC should note the FCC's Notice of Proposed Rule Making (1987) regarding the 216-225 MHz band.

While these are the major organizations that have proposed other uses for the 220-225 MHz band, there is little doubt that the effect of other proposals will cause the DOC to look very carefully at this band, and perhaps to take into account the recent FCC decision to take 2 MHz for the commercial land mobile services and reduce the Amateur allocation to 222-225 MHz.

Canadian Amateurs and Amateur organizations submitted 41 of the nearly 90 briefs totally 2400 pages received by DOC. It will probably be summer before DOC's spectrum utilization policy paper, which will deal with the Amateur bands between 30 and 890 MHz, will be available for public comment. Amateurs should prepare themselves to comment at that time.

Social Events

1989 CARF ANNUAL GENERAL MEETING

Sat., June 17, 1989, 9:30 a.m., St. Andrews College, Aurora, Ontario.

All CARF members are invited to attend.

SASKATCHEWAN HAMFEST

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

QUEBEC HAMFEST 1989

Quebec Provincial Hamfest will be held on Sunday, May 28, 1989 at the Tracy Curling Club. Admission \$5, table (outdoor) \$7 (indoor) \$10. Limited quantity please reserve before May 15. Open at 0900 (0700 Exhibitors). (FM Batch Saturday 27 at 2000) For more information write to Sorel-Tracy ARC P.O. Box 533 Sorel Q.C. J3P 5N6 Canada.

Le Hamfest Provincial du Québec aura lieu au club de Tracy le dimanche 28 Mai 1989 à 0900 (0700 pour les exposants) samedi le 27 à 2000 soiree rencontre. Admission \$5, table extérieure \$7, intérieure \$10. N.B. quantité limitée, prière de réserver avant le 15 Mai. Ecrire à CRA Sorel-Tracy C.P. 533 Sorel Q.C. J3P 5N6 Canada.

CENTRAL ONTARIO FLEAMARKET

June 10, 1989— Central Ontario Amateur Radio Fleamarket at Bingeman Park, Kitchener, Ont. Contact Ray Jennings VE3CZE, 61 Ottawa Crescent, Guelph, Ont. N1E 2A8. Telephone: 519-822-8342.

VE3CNE & AMATEUR RADIO 1989

VE3CNE will once again be in operation. It is the Official Amateur Radio Communications for the Canadian National Exhibition.

This year it will again be located in the Arts Crafts & Hobbies building but in a new spot at the west wall near the south end.

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

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

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

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

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

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

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

AUCTION/FLEAMARKET WELCOME ONE AND ALL!

The Laval Laurentide Amateur Radio Club in collaboration with the Blainville Emergency Standards Association, invites you to an Auction and Flea Market on Saturday, May 6, 1989 at 421 Labelle Boulevard, Blainville, Quebec.

Auction Entrance Tickets: \$1; Flea Market Table Space: \$7; Opens around 8 a.m., Door Prize to be won.

For directions: VE2REL on 147.315 (+) or VE2RMR on 145.450 (-); For information contact VE2GDL— 514-627-5600, VE2KAR— 514-477-9820, VE2BWG— 514-430-2424.

Le Club de Radio Amateur Laval Laurentides en collaboration avec les Mesures D'Urgences de Blainville vous invitent a un Encan et Marche aux Puces, samedi le 6 mai 1989, au 421 Boul. Labelle, Blainville, Quebec.

Cout D'Entree pour L'Encan \$1, Cout des tables pour le Marche aux Puces \$7, Ouverture vers 8 a.m., Prix de Presence.

Guidage sur VE2REL 147.315 (+) et sur VE2RMR 145.450 (-). Pour information: VE2GDL— 514-627-5600, VE2KAR— 514-477-9820, VE2BWG— 514-430-2424. Bienvenus a tous.

BRIGADE CANADA

To celebrate 100 years of the Brigade movement in Canada, Brigade Canada is happy to announce that there will be a week-long summer camp for male and female Juniors (age 9 to 11 years) and

Seniors (12 to 18 years) near Rawdon, Quebec.

The camp will start July 9, 1989 at Camp Lac Louwhi in St. Alphonse, Quebec, 18 km from Rawdon, on six acres of wooded area some of which is cleared for campsite. The lakefront has a sandy beach, very safe, with clean water for children. This Centennial Camp is all under canvas. Everyone must bring tents, sleeping bags, air mattresses, etc. There are limited sleeping accommodations in the main lodge.

The Centennial Camp Committee of Brigade Canada has planned two events which will require the assistance of Amateur Radio Operators. We would like to have a base station set up at the camp to enable Brigade members to contact home during the week, as well as someone to give the children a 2.5 hour lecture session on the background of Amateur Radio. There will be about 100 children in groups of 10 per group for lecture purposes.

We sincerely hope that you can be of assistance to us in our endeavours to contact Amateur Radio Operators in Quebec, to fulfill our needs.

For additional information, contact: Bob Caldwell, 123 Matheson Street, Summerside, P.E.I. C1N 5A8, (902) 436-6985; Jim Groves, 3963 Halliday Rd, Rawdon, Quebec J0K 1S0, (514) 834-2712, or Jim Oakes VE1CII on the Maritime Net, 3.75 MHz at 1900 Local or on Packet VIA VE1CFB 14.105 MHz.

BACK IN BUSINESS?

You may have seen those advertisements in the past few months that Dentron and Atlas Radio were back in business. If you didn't get burned yet, then don't. Apparently someone in the U.S. figured that if the companies were dead he could re-use the names and open his Dentron and Atlas companies using a faceless P.O. Box in New York City to collect the incoming money and chargecard funds. Also he supposedly was 'the' distributor for the new Uniden 10M transceivers. That's not true either.

If you are one of the thousands to have been tricked by John MacNamara (or whatever name he was using that day), Martin Biegelman, a Postal Inspector in New York City wants to hear from you so that charges of Postal Fraud can be processed. Exact details of what you need to include in your correspondence is available from VE1BUE in Moncton.

— Moncton Area ARC

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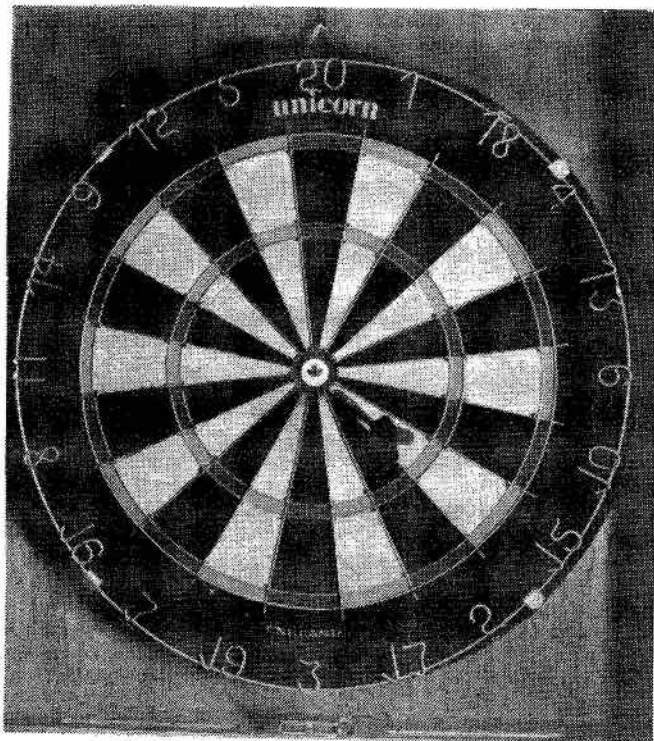
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613-821-2167



YEMEN UPDATE

Readers who have been following the activities of Hans 4WOPA will have missed him from about mid-February to mid-March. We learn from *QRZ DX*, via OH2BH and PA3CXC, that Hans was down in South Yemen where the other half of his medical group is working. He is a doctor and has been assigned to the Yemen on a medical aid program sponsored by the Dutch Government. He plans to be in Sana, the North Yemen capital, for the next two years, so there should be plenty of opportunities to work with him.

At the moment his signal is not very strong, as he is only running an FT-747 barefoot into a 20 metre dipole. However, help is on the way from several quarters. The Northern California DX Foundation has allocated an additional transceiver and an amplifier for his use, Fritzel of Germany has provided a 3-element tribander while the Heard Island DX Association has volunteered to provide

QSL cards. It would be nice to report that he plans to operate from South Yemen as well but in view of the 'sensitive nature of his assignment' he is handling Amateur radio issues with extreme caution and has no plans for a 70 operation.

Last month I mentioned several VEs who had been skilled (lucky?!) enough to work Hans already. Needless to say these people are, at the moment, a tiny elite. Most of us are still scratching around trying to find 4W and if we do, fighting the pile-up that inevitably results from his appearance. Ken VE3OGM mentions two occasions when he heard Hans early in February. On the 5th he was in a list operation on 14.180 MHz, and on the 6th he was working split listening up to 14.200 from his frequency of 14.180 MHz. This was at 2015 UTC. Ken tells us that the first of these spottings was very frustrating due to deliberate QRM. This comment is echoed by Jack VE3BTQ.

This reminds me that I have not yet

devoted space in Cooper's Beefs to the problem of deliberate QRMing. It's hard to think of any Amateur activity that is more to be condemned than this one and how to stop these few mavericks from spoiling everyone else's legitimate activities on the bands is a tough one. Anyone got any ideas?

CORRESPONDENCE

Down in Barrie, Ont., Jack VE3BTQ writes with news of some of his recent successes on the HF bands. Cards arrived from SOIMZ, VK9YG, C9MKT, 5T5NV and 8P9AF. He mentioned the last one, not really a difficult place to work, because he has found it a tough place to get a card from! Another problem was his card to OY7ML which was returned... apparently Jack worked a bootlegger!

Some of his more interesting contacts on 15 metres included TK5BF, FH4EE, 9J2WS, JY7DK, UM8MTF, C9MKT, S83H, TR8RLA and TU2CJ. On 20 metres VK9ZM, VK8AV (in Alice Springs) and a long path contact with VK3CAT where his report was 59 + 10. His letter closed with a plea for information on QSLing VQ9GB. Apparently green stamps have been sent to his home QTH in the U.S. but so far no reply.

QSLs TO CHINA

A note from Hoppy VE7AHB with a photocopy of the DX World column in *Worldradio*. Of particular interest in the January column was a list of the QSL addresses of most of the currently active BY stations. With the improved band conditions we are now enjoying, BYs may be found on most of the HF bands including 10 metres. Since I know many readers are still anxious to work and confirm BY, I've included the 28 addresses in a box elsewhere in this column.

COOPER'S BEEFS

One of the many nice things about writing this column is reading the unsolicited magazines and newsletters that arrive here just because I'm known to have an interest in DX. For several years now I've been getting complimentary copies of the Northern California DX Foundation newsletter. It comes out three or four times a year and is full of interesting accounts of DXpeditions, letters to the editor, comments and so on, all on our favourite subject. The Winter issue is no exception but one item caught my eye that I thought really belonged in Cooper's Beefs. When you read it I hope you'll agree that it highlights some

Mainland China QSL Addresses

BY1BH	PO BOX 1656,	Beijing.	BY1BJ	PO Box 6111,	Beijing
BY1CKJ	PO Box 6207,	Beijing.	BY1PK	PO Box 6106,	Beijing
BY1QH	PO Box 2654,	Beijing.	BY1SK	PO Box 2916,	Beijing
BY4AA	PO Box 205,	Shanghai.	BY4AJT	PO Box 5221,	Shanghai
BY4ALC	PO Box 4043,	Shanghai.	BY4AOM	PO Box 227,	Shanghai
BY4AY	PO Box 5304,	Shanghai	BY4RB	PO Box 413,	Zhenjiang
BY4RN	PO Box 2405,	Nanjing.	BY4SZ	PO Box 51,	Suzhou
BY4WNG	PO Box 1827,	Nanjing.	BY5HZ	PO Box 804,	Hangzhou
BY5NC	PO Box 1033,	Nanchang.	BY5QA	PO Box 507,	Fuzhou
BY5RA	PO Box 730,	Fuzhou.	BY5RF	PO Box 209,	Fuzhou
BY5RT	PO Box 707	Fuzhou.	BY7HL	PO Box 105,	Changsha
BY7HY	PO Box 14,	Yueyang,	BY7KT	PO Box 1285,	Guangzhou
		Hunan.			
BY8AA	PO Box 607	Chengdu	BY8AC	38 Guzhongsi	St.Chengdu
BY9GA	PO Box 12,	Lanzhou.	BY0AA	PO Box 202,	Wulumuqui

Be sure to finish each address with the line:-

PEOPLE'S REPUBLIC OF CHINA.

While either IRCs or green stamps seem acceptable the preference
is for IRCs.

pretty selfish behaviour on the part of some DXers. I'm going to quote it verbatim and then await your comments! It's headed: "You're in good hands with..." and it's by Kip Edwards W6SZN.

"It's time for another survey of NCDXF members! The topic this time, hopefully suggested by the title, is 'insurance contacts'. I suspect there are very few, if any, who have not experienced the ultimate disappointment of getting a QSL back with 'not in the log' scrawled across it. How do you avoid this ignoble result? One way that most believe is beyond reproach is to work the station on another band or mode. Beyond this, it appears that different views are being put into practice on the bands.

"Computer analysis of the 3D2XX Rotuma log for 10 metre CW disclosed a duplicate contact rate of 12.4%! One chap, who out of compassion shall remain anonymous, worked us 11 times! I even had one station on SSB tell me that he had worked us on the same band/mode earlier and that this QSO was an 'insurance' contact!

"Please take a minute and send me your thoughts and experiences with this phenomenon of DXing. How often do you have cards returned 'not in the log' where you would swear the QSO was 'clean'? Does it happen more often on one mode or band than another? Can you safely rely on the DX operator to get it right? Are there things you can do during the QSO to increase the chances that your call sign gets into the log correctly? That the DX station can do? Your responses to these and related questions should make for interesting reading and provide some guidelines for the stations at both ends of the pileup."

WOODPECKER REPORT

There can't be any DXers who have not had good reason to curse the activities of the Russian Woodpecker. It usually seems to come on just when you are trying to pull a weak DX signal through and most of the time it obliterates large portions of the band often causing such frustration that we reach for the switch and go QRT. Remembering these many annoyances, it was interesting to read in *Long Skip* of a 1988 FCC study, during the week of Aug. 14, of this Soviet over-the-horizon radar signal. The FCC really did a thorough job taking about 400 observations. They reported that the signal had the following characteristics:

1. The pulse repetition rate was 11 to 11.5 per second.
2. The pulse width was constant at 4 milliseconds.
3. The lowest confirmed frequency was 7 MHz, the highest 19 MHz.
4. The signal bandwidth ranged between 20 and 800 kHz. The mean was

150 kHz, the median 75 kHz with a standard deviation of 207 kHz.

5. It was most frequently found on the following bands: 105 to 11.0, 12.2 to 13.0 and 16.0 to 17.0 MHz.

6. It was found the least on 9.7 to 10.5, 11.0 to 12.2 and 13.0 to 15.0 MHz... a small crumb of comfort for the 20 metre operator!

7. The airtime of the signal was: 7.7 minutes for the mean, 3.0 minutes for the median with a standard deviation of 12.4 minutes.

8. All the transmissions came from a single location near the city of Komsomol'sk in the Eastern U.S.S.R. not far from Manchuria and Northern Japan.

BITS AND PIECES

New DX Net— A DX Net that is new, to me anyway, is mentioned in the current issue of *QRZ DX*. JH1AJT is the convener and you will find him on 28.550 MHz at 2230 UTC every day. What is particularly intriguing about this net is the news that "...numerous rare Asian stations hang out on this frequency." I shall make a point of checking this net out regularly!

XW, Laos— At press time, mid-February, there were strong rumours of a group of Hungarian operators who were actually in Laos. If they manage to get on the air the call signs mentioned are XW8CW, XW8DX and XW8PP. No other details at the moment.

ZYOS, St. Peter & St. Paul Rocks— This is one of the three groups of islands off the Brazilian coast that have separate DXCC status. Karl PS7KM announces that the Natal DX Group will activate St. Peter & St. Paul Rocks beginning around May 3. The call signs will be ZYOSW (CW), ZYOSS (SSB) and ZYOSY (RTTY). The report in *QRZ DX* mentions that donations (via PS7KM) to help pay for the DXpedition expenses would be appreciated.

1S, Spratley Islands— One of the wilder rumours flying around in early February was a possible operation from the Spratley Islands. Regular readers may remember that this rumour seems to surface about once a year, a case of wishful thinking on the part of the rumour spreaders, perhaps? This year's version talked of an operation around Feb. 17-18 with the call sign 1S1SU. As I type this on Feb. 22, I certainly haven't heard of any activity from 1S and I'm not really surprised. When you recall the tragic end to a German proposed DXpedition of three or four years ago that had their yacht sunk and at least one of their members killed, it looks as though Spratley is a most unhealthy place to mount any sort of Amateur operations.

The 'Strangers keep out' attitude of people stationed there relates very much to the fact that at least eight countries have put in a claim for this

remote set of islands and reefs in the South China Sea.

AP, Pakistan— It's long been a puzzle to me why there is so little activity from AP. Perhaps my 'Special Correspondent' in Pakistan's North West Frontier Province will enlighten me someday, but so far her voluminous dispatches are crammed with fascinating details of every aspect of life in Pakistan with the glaring exception of Amateur radio. Perhaps a note from the DX Editor will get her back on track? However, I'm digressing; back to elusive APS!

I consider myself lucky if I even hear one in a year, in fact to be honest I don't think I've heard one, let alone worked one, for more than five years. It's fortunate that we have the DX newsheets publishing activity reports for the various bands. Looking over the latest ones in *QRZ DX* and *Long Skip* shows that there is some activity. Twenty metres seems the band of choice with Amin AP2AU on 14.206 MHz at 0218, AP2HA on 14.017 MHz at 0257 and AP2SQ on 14.209 MHz at 0300 UTC. A ten metre sighting in W3 was AP2JZB on 28.480 MHz at 1448 UTC.

Thanks are due to the following sources for some of the material appearing in this column: *QRZ DX*, VE7AHB, *Worldradio*, *The IARL News*, VE3OGM, VER3BTQ, *Long Skip* and the *NCDXF Newsletter*.

VE3VCA

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

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By VE3IWF

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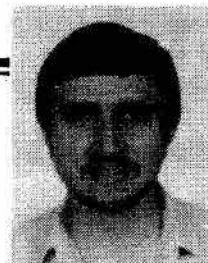
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Listening To The World

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



I have enjoyed the opportunity over the last few months to give a number of lectures to various Amateur Radio Clubs both here in Montreal and in Ottawa. It has given me the opportunity to meet in person those who are reading this column from month to month. I am happy to hear that the reaction to the column is generally positive. I continue to receive a number of letters with questions on various topics or letters requesting copies of the various books or information sheets which I have offered through the column.

COUNTRY OF THE MONTH

Our journey around the world this month takes us back to Europe for a look at one of the larger shortwave broadcasters in the world, Deutsche Welle, the Voice of West Germany in the Federal Republic of Germany. The studios of this world-renowned broadcaster can be found in the city of Koln (Cologne). The Deutsche Welle has been broadcasting their programming to the world since the mid-1950s. It has consistently grown to become one of the major shortwave broadcasters, transmitting programming in 34 different languages to all areas of the world.

Deutsche Welle covers the world with shortwave transmitters in many locations. Transmitters in Germany are located at Julich and Wertachtal. Foreign relay transmitters also exist in Malta, Rwanda, Antigua, Montserrat, Portugal, Sri Lanka and Brazil.

The Deutsche Welle is a very well-listened-to station. They were reported to have received over 330,000 letters from listeners in 1988 alone. That works out to almost 1000 letters per day. The three English language services of the Deutsche Welle were recently combined into one. The greatest emphasis of their programming has been placed on daily news and current affairs coverage. Each weekday broadcast begins with a full-length world news bulletin, followed by one of two 25-minute current affairs programmes, *Newsline Cologne* or *Morning Magazine*.

Transcription services of programming are available in 10 languages and full details of all programming can be obtained free of charge upon request. In fact, Deutsche Welle has recently issued a new listeners' magazine and programme schedule by the name of *Tune In*. It is very colourful and interesting. In addition to including all times, frequencies and language service listings, it also includes feature articles about West Germany and details special programming

appearing on the station during the next two month period.

The programming of Deutsche Welle is quite varied. In addition to the news and current affairs programmes, they also air shows on sports, science and technology, the arts and religion. Deutsche Welle airs a 'German By Radio' series of German language lessons for listeners. A text book for this course is available free of charge from the Voice of West Germany.

Here is North America, it is quite simple to tune into the broadcasts from Deutsche Welle in both English and German. The Deutsche Welle beams three daily broadcasts to North America in English. The second and third transmissions are repeats of the first transmission each day.

The times and frequencies of the three English broadcasts are as follows:
0100-0150 UTC- 6040/6085/6145/
9565/9735/11865/15105 kHz
0300-0350 UTC- 6085/6130/9545/
9605/11810/15205 kHz
0500-0550 UTC- 5960/6130/9670/
9700/11705 kHz

German language programming can be found at the following times on the following frequencies:

0000-0200 UTC- 3995/6075/6100/
7130/9515/9700/9760 kHz
0200-0300 UTC- 9545
0200-0400 UTC- 3995/6075/6100/
9735/11795 kHz
0200-0250 UTC- 9515/15270 kHz
0400-0547 UTC- 3995/6075/6085/
6100/9545/9605/9735 kHz

You can write to the Deutsche Welle for information, programme schedules or with reception reports which they will verify with a QSL card and perhaps one of their colourful decals. The address is Deutsche Welle, P.O. Box 10 04 44, 5000 Cologne 1, Federal Republic of Germany. The Deutsche Welle enjoys hearing from their listeners and I hope that you enjoy the quality programming.

DXING THE POLAR REGIONS

Some of you may have read with interest, the article 'Aurora and Radio Propagation' by Bill Richardson VY1CW in *The Canadian Amateur* of December 1986. Some of you have probably been lucky enough to communicate with Amateur Radio Operators working in the frozen reaches of the planet, be it the Arctic or Antarctic. Your most recent exposure to these parts of the world may have been in contacting and following the progress of the joint Canada/U.S.S.R. Skitrek to the North Pole.

You may have thought that these regions of the world were totally barren and void of radio transmissions other than these type of ham expeditions. Well, this couldn't be further from the truth. There are not only Amateur signals present from the Arctic and Antarctic regions, but a wealth of other types of transmissions which you can tune into on the shortwave radio bands. Let's take a look at some of the things you might come across.

Ships:

There are a number of coast guard and ice-breaking vessels operating, particularly in the Arctic, which can be monitored on shortwave. Many of the transmissions are in CW and originate from Canadian vessels operating in the Canadian North. Ships traffic, though, is also audible from the far reaches of Scandinavia and the U.S.S.R. There are a number of RTTY and FAX transmissions from these areas as well. Many listeners have picked up ice charts and maps from some of the vessels.

Air Traffic:

Many of the European-bound flights coming from the U.S. and Canada travel the polar or northern routes crossing places like Cambridge Bay, Greenland and Iceland as well as those heading west and communicating with Anchorage, Elmendorf and Fairbanks in Alaska and Whitehorse and Yellowknife in the Canadian Northwest. Numerous Air Canada, Lufthansa, KLM and other flights can be heard in USB communicating with ground stations in the far north.

Science & Weather Stations:

There are base stations, either military or scientific in nature, operating from both the Arctic and Antarctic; on voice USB, CW, RTTY and FAX. Stations such as McMurdo and Molodezhnaya have been heard passing weather info and phone patches. Northern stations in Iquauit, Resolute, Arkangelsk and Murmansk in the U.S.S.R. have also been monitored in different modes with different types of traffic. Even broadcast stations on shortwave such as Gronlands Radio in Greenland, Iceland State Radio in Reykjavik, American Forces Antarctic Network Station AFAN-McMurdo and Radio National Arcangel San Gabriel at Esperanza Base in the Argentine Antarctic have been heard from time to time on the shortwave bands.

There is so much activity in all modes of transmission audible from these polar regions of the planet that the

Continued on next page ▶

LOOKING AROUND

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



Voltage regulation is essential to power solid-state circuits and devices and the trend today is toward the use of small, low-cost, fixed-voltage or variable integrated circuit regulators which require minimal heat sinking, few external components and possess built-in protection. Most simple, low voltage and relatively low current (1 to 5 Amps) power supplies used in Amateur radio now use the three-terminal voltage regulator IC to produce the required output voltage and current, sometimes with external pass transistor(s) to produce higher

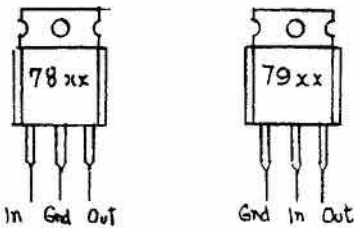


FIG. 1— TERMINAL CONNECTIONS 78xx & 79xx REGULATORS

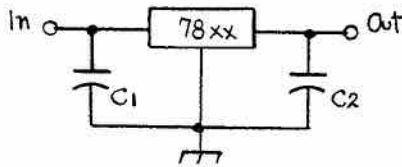


FIG. 2— STATIC REGULATOR

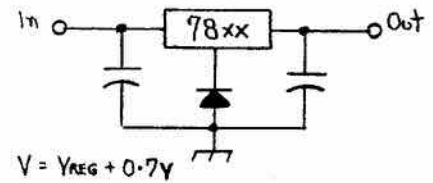
currents than the regulator IC can handle.

These regulators are available in a variety of positive and negative voltages with current ranges from 100 mA to 5 Amps and maximum input voltages ranging from 25 to 40 volts. All include short-circuit protection, automatic thermal shutdown, on-chip pass transistors and internal references.

The most common types are the 78XXX (positive) and 79XXX (negative) series and these columns will discuss the use and operation of these types. The common package for a current range of 0.5 to 2 Amps is the TO-220, with higher currents using the TO-3 and lower currents the TO-39 packages. Note the difference for terminal connection between the positive and negative series. See Fig. 1.

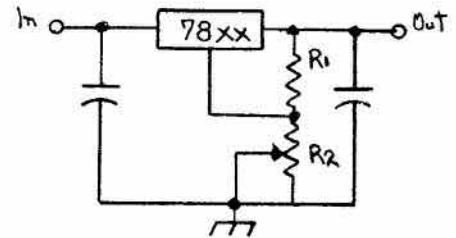
In this column we will discuss its use as a static and a variable regulator and, in the next column, as a current regulator and the use of series pass transistors.

Figure 2 shows the circuit for a static regulator. The regulated output voltage will be that of the regulator IC, providing that the minimum input voltage is approximately 2.5 volts above the voltage rating of the regulator (see previous column). The regulator chip contains amplifiers so C1 is added to bypass any feedback between the output and input— its omission can create a high frequency oscillation— and C2 is added to reduce transients. It is always advisable to



$$V = V_{REG} + 0.7V$$

FIG. 3— DIODE ADDITION



$$V_{OUT} = V_{REG} + \left(\frac{V_{REG}}{R_1} + I_A \right) R_2$$

FIG. 4— VARIABLE OUTPUT REGULATOR

check the output of any regulator, at maximum current desired, with an oscilloscope to ensure that there are no ripples, oscillations or transients in the output.

As the voltage output of the regulator is fixed, perhaps at 12 volts, you may want to increase this slightly to possibly 13.5 volts. A small increase can be readily made by the insertion of one or more silicon diodes in the Ground lead of the regulator as shown in Fig. 3. Each diode added will increase the voltage output by about 0.7 volts. A larger increase can be obtained by using a zener diode, with output voltage increased by the value of the zener voltage rating.

Another method to vary voltage output is shown in Fig. 4. We have used this method frequently either to set the output voltage on a precise value, or to make a variable power supply for bench use. In this latter use, try a 7605 IC that will produce a regulated output from 5 volts to 25 volts with no problem providing that the minimum input voltage is 2.5 volts higher than the maximum output (25 volts).

It is always advisable to use a clip-on heat sink with these regulators. These can be obtained from suppliers of electronic components at a minimal cost. If not available, use a 1" square piece of copper and bolt it to the chip, preferably with a smear of thermal joint compound (heat sink grease!) between the chip and the heat sink. ■

DX (cont'd)

Canadian International DX Club has been running a special column in their monthly publication entitled 'Arctic DX'. This column was created many years ago by Bob Curtis W1EXZ in Vermont.

The column has been edited in the last three years by John Reisenauer N9GPK/2 in New Jersey. The column each month includes loggings of stations from the Arctic and Antarctic, loggings of ham operators from these regions, together with articles and clipping of news items referring to activity in these regions of the world. The column is truly unique in the hobby and is very well-received by the membership.

The frequencies for all these stations appear in the Gilfer Publication Confidential Frequency List which is available from the CIDX club at my above-mentioned address for the price

of \$26. If you would like to receive a copy of the club bulletin, *The Messenger*, send \$2 to cover postage and printing, to my address. You will receive a sample bulletin which will include the Arctic DX column and allow you to see the exciting type of monitoring that can be found in these remote parts of the world.

This article is a little different from what I have included in the past in this column. If you enjoy this type of thing, let me know. I received a couple of suggestions for material for the column which will follow in the months ahead, such as articles on SWL DXpeditions and the use of specialized beverage antennas for medium wave reception. If you would like any information about a particular aspect of shortwave listening or if you have any questions in general about the subject, please write. I always enjoy receiving your letters and comments. ■

ARES AMATEUR RADIO EMERGENCY SERVICE

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



It is hoped that this column, which is being submitted to both The Canadian Amateur and to QST Canada, can become an ongoing source of news and information for members of both organizations on ARES activities across Canada. ARES members and particularly ECs are invited to send along information on what they are doing and on any developments they would like to share with other ARES groups. Yours truly will pull this together in future columns, all with the objective of increasing our collective ability to serve our community and our nation, should disaster strike.

CANWARN EASTERN WEATHER SERVICE

Most ARES groups across Canada meet periodically, usually on VHF, to give members experience in net

operations and to exchange information on emergency communications. A continuing challenge for many ECs is to find ways of making their nets more interesting and meaningful to all members on a continuing basis. The Hastings-Prince Edward ARES group have perhaps accomplished this by the establishment of a daily weather information net known as CANWARN Eastern. The net manager and co-founder of this net is George Elliott VE3GTF in Picton, Ont. We asked George for some information on this net and he replied as follows:

"There is a group of radio Amateurs in the five Ontario counties of Hastings, Prince Edward, Lennox & Addington, Northumberland and Frontenac who assist the Weather Forecast Centre at CFB Trenton. They have formed an

organization called CANWARN Eastern Weather Service which sponsors a 2 metre weather net meeting at 0830 hrs each morning on repeater VE3KBR, on 145.385/146.985 MHz. This effort is considered an integral part of the Hastings-Prince Edward ARES, led by John Lester VE3MB the EC.

"The CANWARN Eastern Net would be activated in most emergencies and any Amateur station can call up the net. The net controller collects reports of weather conditions existing at the QTH of each check-in, makes a synopsis, and passes it to the Forecast Centre in Trenton. Each check-in reports his weather using terminology and standards laid down by the centre. The five counties have been divided into 15 minute grids by the Forecast Centre, so the CANWARN Eastern net controller



George Elliott VE3GTF, Net Manager, CANWARN Eastern Weather Service.

can give conditions in each of the grids when he reports.

"The CANWARN Eastern Amateurs obtained the idea from two Essex County (Ontario) newspapers which carried stories and pictures on the success of the Windsor Amateur Radio Club in creating their CANWARN weather service. This was done in early 1988, in association with the Windsor Weather Office of Environment Canada.

"The Essex Amateurs fashioned their weather reporting project after the U.S. weather spotter program called SKYWARN. Their objective was the establishment of an Amateur radio communications reporting network that could be quickly mobilized, to tie in with the Windsor Weather Office during weather emergencies. During 1988, Windsor CANWARN was called up nine times to monitor severe weather conditions.

"In the Eastern Lake Ontario region, the nearest weather office is the Weather Forecast Centre at CFB Trenton. This Centre is responsible for all military weather forecasting in Ontario and Quebec. It is one of three similar Centres in the Canadian Forces across Canada. It is a modern, automated and efficient weather unit serving a wide range of Canadian Forces operations in Canada and around the world. The Centre also provides weather information to the general public and is tied in to the Atmospheric Environment Service of Environment Canada.

"A group of Amateurs representing the five counties mentioned above, met with officers of the Forecast Centre at CFB Trenton to review the Windsor effort and see if it could be adapted to our region. In due course it was concluded that a daily 2 metre weather net, capable of emergency call-up, was appropriate for the Eastern Lake Ontario region. Thus CANWARN Eastern Weather Service was formed. It includes all five counties. The forecast Centre established the weather reporting format and provided each member with data folders containing weather recognition information and terminology.

"The CANWARN Eastern Net began daily operation on Feb. 10, 1989, and as of early March is averaging 16 check-ins (on an increasing curve) per day. Each county is represented. This net is called up at 0830 hrs local time and all reports are recorded by 0845 hrs. The synopsis is transferred to the Forecast Centre not later than 0900 hrs. CANWARN Eastern has received a letter from the Forecast Centre expressing their satisfaction with the net's initial weather reports. We are currently awaiting word from the Centre on our expected participation in their Severe Weather Program.

"CANWARN Eastern is the result of a

partnership formed between a private organization of Amateurs and the professionals of the Federal Government in order to serve the Forecast Centre and the surrounding community. Many of the hams participating in this effort say they have learned a lot about our weather since the program started. As CANWARN in Windsor and SKYWARN in the U.S. have already done in their areas, CANWARN Eastern hopes to install a permanent 2 metre transceiver with a roof antenna and fail-safe power supply in the Forecast Centre in Trenton. During a local severe weather alert or weather condition, a radio Amateur would make his way to the Centre and provide instant contact between the Centre and the CANWARN Eastern Net. The Quinte Amateur Radio Club have taken this equipment task in hand.

"The meteorologists at the Forecast Centre are employed by Environment Canada and are loaned to the Department of National Defence. Communication links are available in Trenton for collecting instant world-wide weather information to support CFB Trenton flights destined for literally anywhere in the world. A Canadian Forces Hercules pilot in mid-Atlantic can talk directly, using radiotelephone, with the Centre at Trenton. At least two meteorologists are on duty at all times. From CANWARN Eastern's viewpoint we can truly say we have round-the-clock capability to support any ARES weather information requirement in our area of jurisdiction.

"While it is still too soon to say that CANWARN Eastern is here to stay, we believe it will survive, to provide continuous public service as well as to supply local weather information to the Forecast Centre. Most CANWARN Eastern participants are members of radio groups in Trenton, Picton, Belleville, Napanee and Kingston. CANWARN Eastern appears to have created a secondary benefit in that it is bringing these groups closer together. We are advised that the net is being monitored by non-Amateurs, using VHF scanners, in order to obtain very local weather conditions.

"A new 2 metre microprocessor-based repeater is on order to replace the existing Picton machine, VE3RAA. It is expected to be fully operational during June with 100 watts on a new frequency pair of 146.13/146.73 MHz. This new repeater will have this region's weather conditions, updated daily, available by entry of appropriate touchtone access codes. In addition, weather alerts and weather emergency warnings can be programmed for automatic transmission on the quarter hour, half hour or hour. Also, the new Picton repeater will be connected to the VE3ULR 2 metre linking system, thus giving VHF

coverage over most of Southern Ontario.

"The machine will have automatic power supply back-up in the event of a power failure. Coupled with its new autopatch and reverse autopatch, it is expected that the new VE3RAA will be a true all-condition ARES machine and an integral part of the CANWARN Eastern communication system. The new set-up is owned by the Prince Edward Radio Club and is being funded by the New Horizons Program of the Federal Department of Health and Welfare.

"CANWARN Eastern is grateful to the officials and personnel of the Forecast Centre at CFB Trenton for their encouragement, help and direction. Any ARES group wishing further information should contact John Lester VE3MB or George Elliott VE3GTF."

Our congratulations and best wishes go to George and his group for this fine initiative. There are other areas in Canada which could profit from the creation of a similar CANWARN weather service. ■

TRANSPROVINCIAL NET 7.055 MHz (LSB)

DAILY 10 a.m. - 3 p.m.

I have seen nets come and go over the years. But a few like 'ONTARS' and the 'TP Net' have survived through thick and thin, still going strong. I am sure there are many newcomers to the Bands who wonder when and why these nets started.

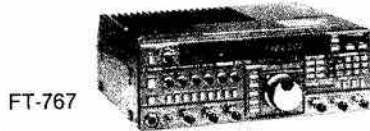
Concerning the TP Net, well, six years ago back in 1983, it was ascertained that many of the outlying locations simply could not be contacted during the daytime on the 75 metre frequency. Bill VE3EFX launched a Net on 40 metres to fill the gap and it has been going strong ever since. It was an extension of the famous ONTARS net and is now known as the Transprovincial Net'. Many stations in the extreme East, West, and Northern Ontario regularly join in the fray, even DX like Bermuda.

Hats off to the many regular Controllers who contribute greatly of their time every day to make this possible. How often do you hear a station calling 'CQ' on 75 or 40 metres? Quite common back in the 'AM' days, but I detect the Net doing a fine service. Why not support the TP Net by filling a vacancy for an hour as a Controller? You'll be doing a great service.

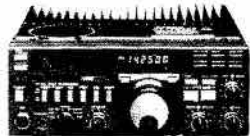
The present Net Manager is Denny VE3EUI of the 'Soo'. He'll be happy to hear from you. Why not call him on 7055?

— G. Ross Snyder VE3CUV
P.O. Box 392, Meaford,
Ont. NOH 1Y0

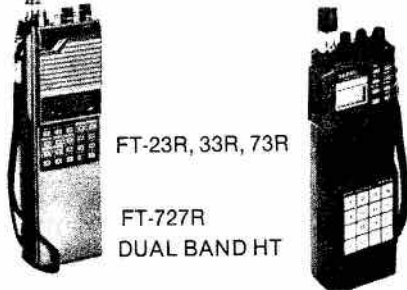
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Antonio Salvadori VE3NXQ, 17 Colborn St., Guelph, Ontario N1G 2M4

The CARF Computer Survey

This month marks the anniversary of this column and by the letters that arrive it seems to have been well received. Many have written to me and many more have sent in the computer survey which we asked you to fill in last year. Well here are the long awaited results and what a surprise!

Let me give you the raw statistics first. Sixty four people replied. The computers owned by the respondents, together with some percentages, are shown in Table 1.

Computer Type	Number	%
IBM or IBM clone	29	45.3
Commodore 64	11	17.1
Tandy Coco	4	6.3
Apple IIe/II+	4	6.3
TRS 80	3	4.7
Commodore Vic 20	3	4.7
Tandy 1000	3	4.7
Atari 130XE	2	3.1
Atari 800	1	1.6
Atari 1040st	1	1.6
Commodore 128	1	1.6
Microkit 8/18	1	1.6
Tandy Coco 3	1	1.6

TABLE 1: COMPUTER USAGE BY CANADIAN HAMS

It is somewhat surprising to see the IBM clone dominating the Canadian scene. It seems that the benefits derived from using a very versatile computer far outweigh the price tag of around \$1000+. The inexpensive Commodore 64, which I thought would have been the runaway winner, came in a very distant second with a little over 17% of respondents. Several hams said that they had switched from a C64 to an IBM clone due to its far greater capacity. In the long run they felt that price-wise the IBM clones are a far better deal and actually work out cheaper. The rest of the pack was in single digit numbers with Tandy, Apple and Atari sporting several models.

It was very interesting to see a lone ham with the Microkit machine. I expected hams, being the experimental types, would have had many more homebrew computers. Anyhow those are the figures and you can interpret them as you like. Some people may feel that the sample was too small and that many hams did not respond. This may be so, but it is up to you to supply the necessary information, so please respond this year to the CARF survey

which we shall continue to conduct on a yearly basis.

Another very surprising fact was the secondary storage which Amateurs invested in. Table 2 shows the results of the disk capacity and as a result the data may be incomplete.

All but one IBM clone user had a hard drive. I assume that one of the reasons to buy an IBM is the option of being able to add a 20/30/40 Megabyte hard drive for about \$500. With this amount of storage a lifetime's work can be easily saved (although I have managed to fill up 29 MBs in a little over three years!). The other numbers speak for themselves. Most people seemed to have at least one floppy.

The final statistic pertains to the software/application for which the computer is used. The questionnaire was not specific enough and as a result a variety of answers were received. These are summarized in Table 3.

Disk Type	Number
Hard Disk	28
Floppy drives	
3	1
2	27
1	17
0	2

TABLE 2: THE DISK CAPACITY

Computer Usage	
Basic programming	28
Word Processing	17
Spreadsheet	6
RTTY	5
Packet	4
Satellite tracking	3
dBase III	2
Contesting	2
C - language	2
Amtor	2
Modem - BBs?	2
Label/QSL printing	2
Assembly programming	1
Administration	1
Paradox	1

TABLE 3: COMPUTER USAGE

Here it was not too surprising to see that BASIC programming and word processing dominated the survey. The rest were pretty much as expected although I was surprised to see rather sophisticated data base systems such as Paradox being used. Terrific, keep on computing!

I hope you are as fascinated as I was in receiving this data. Now to this year's survey. As you can see I have made it much more comprehensive. From the results we will be able to get a much better insight into our readership's needs and therefore make the column much more interesting for all.

Please complete it by circling the answers that apply to you and fill in the blanks. Please do it as soon as possible and send it to me— even if you sent one to me last year. I urge ALL OF YOU to please take the time to do it. We are the only association doing such a survey and it would be terrific if we got 100% of our computer readers to send it in.

If you wish, you can make a photocopy or just jot down the information on a sheet of paper. You can send it to me direct, or to Box 356 when you renew your membership or via the Bureau the next time you send in your cards to Box 66 in Islington or via the air if you hear me or by whatever means you choose, but please get it to me!

CORRESPONDENCE

Thanks to CN8VE (VE6AHT), CN8YL, VE2EDS, VESACE for their letters and comments. VE2PJ and all others who sent me QSL cards for contacting me in the CARF Canada Contest last year. (As you may have seen in the March TCA, I did better than I expected, a big thank to you all.) Hopefully you all got my card via the bureaus as I QSL 100%.

Terry VE3PJ, who received one of my QSL cards, want to know what I use to print my QSL labels. I use my GEM RADIO system which was written up in the February issue of *The Canadian Amateur*. I will write a column about QSL label production in the future, Terry.

Continued on next page

MOVING?

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

Call: _____

Computer: _____

TO: VE3NXQ

Number of floppy Drives: _____ 3½" _____ 5¼" _____

Do you have a hard drive? Y N Capacity? _____ Mb

Do you have a colour monitor? Y N CGA VGA EGA

Do you have a printer? Y N Make _____ A Mouse? Y N

A modem? Y N Radio/Computer interface? Y N Make _____

What is the main use of your computer: Radio Home Work Other _____

With respect to radio what do you use your computer for? Bulletin Boards

Logging Contesting RTTY CW Packet AMTOR Other _____

What languages? Basic Pascal C Fortran Assembler Machine Other _____

Do you use a Word Processor? Y N Make _____

Do you use a spreadsheet? Y N Make _____

Do you use a Data Base Package? Y N Make _____

What other packages do you use? _____

Suggestions for improving the column? _____

The 1989 CARF Computer Questionnaire

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The 'Polar Bridge' Award

Issued by 'SPUNIK', International Youth Travel Bureau of the U.S.S.R. and Komsomolyskaya Pravda newspaper publishers, in order to commemorate the successful Joint Soviet-Canadian Transpolar Ski Expedition of 1988. QSOs are valid from Feb. 15, 1988 until June 1, 1989. No dupes, but all bands and modes are permitted.

FIRST CLASS AWARD

(SWLs may apply as well): 9 QSOs with:
- 3 different Soviet stations north of the Arctic Circle.
- 3 different stations from the Northwest Territories of Canada (VE8)
- 1 Moscow station
- 1 Ottawa station
- 1 station of the Joint Soviet-Canadian Transpolar Skitrek (Feb 15 '88-June 15 '88).

Callsigns are: EKOAJH, AOC, CR, DR, GZ, KP, QCG; EXOAJH, AOC, AU, CR, DR, GZ, KP, PM, QCG, VE; EX3HR; VO1SA/UAO; 4K0DC, DCR, DGZ, DR, DX; C18AJH, C, CDX, COP, CPU, CR, CW, GW, GZ, HO, IH, QF, UA, XN.

SECOND CLASS AWARD

(unavailable for SWLs):

- 1 QSO with the Expedition's moving group enroute (EXOVE Feb. 17, '88)
- Apr 16 '88, C18UA Apr 27 '88-June 1 '88) or with stations operated from the North Geographical Pole in April 26-27, 1988 (EXOAJH, AOC, CR, DR, GZ, KP, QCG, VE; C18UA).

Fee: \$5 or 10 IRC. Free for Canadians. No QSLs, only applications to UK3KP, Polar Expedition, Moscow A-137, 125137, U.S.S.R. This address is also good for QSLs to Soviet members of the Skitrek.

Line of sight

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

GROWING ATV 'PROBLEM'

I had originally intended this month's column to carry on with the discussion about the 30-890 MHz review, but I am prompted by recent events to focus this month on Amateur Television.

Amateur Television, or ATV, is not the 3 kHz wide collection of funny sounds that you hear around 14.325. That's Slow Scan, its diminutive cousin. ATV is full colour, picture and sound, Fast Scan NTSC television—the same sort of signal you get at home when you watch the latest episode of Dallas or ALF.

The North American standard system is called NTSC. It operates with amplitude modulated video, with an upper sideband and a vestigial (part of) lower sideband. In addition, it conveys colour information in a 'sub-carrier' 3.58 MHz from the video carrier frequency, and sound information in an FM sub-carrier 4.5 MHz from the video carrier. All together, for broadcast television, this then takes up 6 MHz of spectrum for just one signal.

While some ATVers do, in fact, operate with vestigial sideband filters and limit their emissions to a 6 MHz bandwidth, many do not, and transmitted bandwidths often exceed 9 MHz. The PC Electronics ATV transmitter is often sold without the filter, although this firm will provide them. Essentially, without the filter, the ATV transmitter generates a double sideband signal. The primary reason that Amateurs don't use the filters appears to be cost.

Well, you can see why we can't operate television on frequencies below 430 MHz. None of the bands would be big enough to operate even one ATV signal. Amateurs realized, however, some 25 years ago or more that what we now call 70 cm (and which in those days extended from 420 to 450 MHz) was plenty big enough to accommodate several ATV signals.

In their wisdom, the bandplanners allocated three 'standard' TV channels, each 6 MHz wide. One from 420-426, one from 426-432, and one from 438-444. However, they also allocated 442-445 for FM repeater links and repeaters.

In the years since then, the bandplan has not really changed all that much. Oh, sure, we've added the satellite section from 435-438, and in Canada (and that part of the U.S.A. within about 75 miles of the Canadian border) we lost 420-430 entirely. And in the U.S.A., military radar, which is primary, prevents use of sections of the band for ATV.

In many areas, because of the lack of

ATV activity, and the increase in FM activity, the frequencies allocated to ATV and FM repeaters by the bandplan have been used for years. In many areas 442 to 444 MHz is heavily populated with repeaters and links, and the 438-444 MHz channel (with a video carrier of 439.25 MHz) has what would be intolerable interference to a video signal.

Consequently, across North America, in many densely populated areas, ATVers have chosen to operate with a video carrier at 434 MHz, and in Canada at 434.6 MHz. In most cases, this does not cause noticeable interference to 432 MHz weak signal enthusiasts or 435-438 MHz satellite users because the energy density of the ATV signal falls off rapidly away from the video, colour and sound carriers.

In Vancouver, for example, ATVers have operated for years at 434.6 MHz without any demonstrated interference between modes. However, the number of weak signal, Amateur satellites and ATV enthusiasts is quite small and widely dispersed.

In both Canada and the U.S.A., this operation is not permitted by the radio regulations, although many ATV repeaters are listed for these frequencies. In Canada, according to RIC 25, A5 or F5 video signals are only permitted between 434 and 450 MHz, although the DOC can authorize operation elsewhere.

In a recent letter to the Oregon Region Repeater Council, John Johnston, Chief of the FCC's Personal Radio Branch confirmed ORRC's view that using a video carrier frequency of 434 MHz for either a repeater input or output was contrary to FCC rules. It is not known at this time how this ruling will affect the many U.S. ATV repeaters operating at 434 MHz.

SOLUTIONS NEEDED

Amateur Television is an exciting and valuable way of communicating. It offers much potential in emergency situations and is a lot of fun to operate. However, as the 430-450 MHz band fills up with repeaters and links, more Amateurs come on the air, and interest continues to grow in ATV, there will inevitably be increasing conflict between ATVers and those operating other modes.

In order to avoid that conflict, we need to find spectrum now that ATVers can regard as theirs. Spectrum that will not be shared with other non-ATV compatible modes. Spectrum that will be available for ATV for the foreseeable



future, so that manufacturers will build equipment

430-450 MHz ATV SHOULD BE PHASED OUT

In my view, in the long term, ATV use of 430-450 MHz should be discontinued. I know this will be seen as unfair to ATVers, but there is no spectrum available on 70 cm that does not carry the seeds of potential harmful interference, both to and from ATV. And while it might be possible to squeeze the repeaters and links upward in the band by reducing the transmit/receive offset of 5 MHz, this would require all such links to extensively rework their antennas and/or duplexors to obtain adequate transmit/receive isolation. In addition, the readily available 450 land mobile duplexors (for 5 MHz splits) could no longer be used.

WHERE COULD ATV GO?

Probably the best band for future ATV work is 1.2 GHz. With 60 MHz of spectrum, present bandplans provide for 4 ATV channels. 1.2 GHz is more likely to be free of the new 'frigate' radar system soon to appear on both the east and west coasts. Some commercial equipment is now available for this band, made both in the United States and Japan. ATVers will, however, have to begin using the vestigial sideband filters to keep their bandwidths to the legal 6 MHz.

By the way, I'm not suggesting this will happen quickly. It may take a decade for this to happen and there may well be areas, like the Prairies, with little or no other UHF activity where ATVers could operate from 438-444 with no difficulty at all. Operation at 434.6 MHz could bridge the gap until newer and better equipment is available.

STUDIES AVAILABLE

I have also received several studies describing mutual interference between ATV and other modes. If you would like a copy, they can be obtained by sending me a stamped, self-addressed 8½ x 11 envelope (at least 74¢ in postage). Comments, flames or mail can be directed to me at:

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

CompuServe: 71370, 2032
Packet: VE7EMD @ VE7KIT
UseNet: unet@van-bc@ve7apu@smits or
ubc-csl@van-bc@ve7apu@smits

CONTEST SCENE

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

Apologies to all for missing last month's column. Despite rumours to the contrary, it was not a protest action against unwarranted editor's strokes—this time.

1988 CQ WPX CW RESULTS

The results were finally revealed in March CQ which arrived annoyingly late at my door, and the results reflect the rather poor propagation that marked that weekend. Scores were down due to a flare and the corresponding aurora, but while scores were down, some Canadians managed to put in very respectable performances.

The ever high-scoring John VE6OU/3 made his all-band mark with an 11th place performance. On 21 MHz, Gus VO1MP placed 7th, followed by Dave VE3BVD in 11th. Brian VO1QU (where is he now?) managed a sixth place performance among the 14 MHz single-banders despite a power outage which he fears he may have caused. Your humble scribe managed to place 1st on 80 and VE3PN took third place on 1.8 MHz.

VE6OU/3 and VO1QU took home the Canadian all-band and single band plaques. Although no Canadian records were broken, there was a good deal of Canadian participation, and at time of writing, in early March, things are shaping up very well for 1989 to be a record-breaking year for the WPX SSB Contest.

CQ WPX CW 1989

This is the contest of the month. One of the four most important contests, the WPX CW is just a little too far from the equinox to enjoy really good conditions, but despite this it is an extremely popular contest. The Canadian records table should have already taken a minor beating by the time you read this, but the table as it stood after the 1987 contest appears in Table 2.

As you can see, Yuri VE3BMV has

certainly left his mark, successfully holding every one of the single-band records. They are all good scores, but the 28 and possibly 21 MHz records look vulnerable. Notwithstanding the summertime conditions, the high levels of solar activity should make this the best WPX CW so far.

TABLE 2
CANADIAN RESULTS
CQ WPX CW

CANADA					
VE6OU/3	A	4,106,793	2014	661	
VE5UF	A	1,067,384	1212	436	
VE3BXV	"	312,674	383	254	
VE6BS	A	304,434	623	234	
VE7XO	A	153,648	289	198	
VE3CZU	"	81,801	199	149	
VE7HAM	"	52,578	171	127	
VE3NBE	"	38,255	125	115	
VO1AW	A	24,795	110	95	
VE3VCM	A	22,352	106	88	
VE6BMX	28	67,137	238	139	
VE3VET	28	10,500	73	60	
VO1MP	21	2,564,617	1865	583	
VE3BVD	21	1,579,725	1308	525	
VE3HO	"	1,037,390	918	457	
VE2EW	21	66,768	182	156	
VE1ZJ	21	44,896	236	122	
VE30TK	"	40,625	153	125	
VO1QU	14	3,276,840	2041	664	
C18C	14	1,339,763	1115	479	
(Op. VE3ICR)					
VE5RA/6	14	1,101,849	987	497	
VE7EK	14	977,500	1008	425	
VE2ZP	3.7	1,008,844	666	358	
VE1DX	3.7	164,304	240	168	
VE3PN	1.8	34,596	150	62	
XOSFX	MS	3,384,000	2710	576	
VE5QST	MS	2,480,768	2067	553	
VE1DX	MS	1,795,982	1319	523	
VE6WP	MS	812,760	997	390	
VE6SF	MS	699,896	870	356	
VE3VOW	MS	180,297	330	207	

ARRL DX CONTESTS

Conditions appeared to be quite good for both contests. The only score I have heard reported is 81k by Alan VE2AEJ/3, who was on his favourite band, 28 MHz.

COMMONWEALTH CONTEST

Alan, in his other identity as VE3HX, reported that he is planning to send a 61-QSO 28 MHz log for this one, which by the standards of the BERU, is a fairly

thick single-band log. Most notable, John VE6OU/3 again appeared to be gunning for first place with well over 500 QSOs at contest end, with Lee VE7CC hot on his heels. The battle for first may be between John and 6Y5HN.

This is a fun contest, where you may reasonably be expected to be called by ZD8JP or 5NOBRJ as Alan was, or by similarly exotic Commonwealth DX. I was laid low by a cold. It seems year after year, some trick of fate trips up my plans to enter this one.

DUPESHEETS

In January, I solicited your ideas for good old paper dupesheets. The silence was deafening. George VE7EIK sent along his comments on some software by NT5X that he is very pleased with, and I'll pass George's comments on in the next column. That response may in itself be enlightening. Either everyone else is as dissatisfied with their present system as I am, or I am the only antediluvian still using pencil and paper.

RADIOSPORTING

Once again, I appear to have spoken too soon. I think Uri VE3BMV's problems are still preventing him from getting things going in first-class order, there has been no sign of issue #31. Watch this space for further developments.

Finally, you may notice that the number of typos appearing in this column will fall dramatically. My old printer seemed to require one ribbon per character. The new one does a much better job, so from here on in the call signs you read will bear some resemblance to the activity on the bands. ■

RADIOLYUBITEL

A major step toward international ham harmony was achieved during 1988. Soviet stations of any category are now allowed to communicate with any country in the world.

They also have the right to receive foreign QSL cards at their home address and can include their photographs on their own QSL cards.

'Radiolyubitel', radio Amateur in Russian, is actually translated as 'radio lover'. Apparently the American word 'Amateur' started life in Latin as amator, 'lover' and 'amare', 'to love'. Amateurs worldwide do things for the love of it.

— W5YI Report via
Moncton Area ARC

TABLE 1 CANADIAN RESULTS 1988 CQ WPX SSB

		Score	QSO	Px	
A	XL7CC	3,398,598	1901	567	1986
28	VE3BMV	113,412	317	156	1980
21	VE3BMV	1,534,669	1263	461	1981
14	CY3BMV	2,341,680	1627	528	1983
7	VE3BMV	1,489,950	797	385	1984
3.5	VE3BMV	311,080	364	202	1985
1.8	VE3BMV	43,428	149	77	1986
MS	VE1DXA	3,728,256	2147	584	1983
MM	CY3PCA	4,977,819	2703	611	1983

PACKET RAP

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

ASSEMBLING A PACKET STATION

Many Packet Rap readers indicate that they require basic information about packet. In this vein, I will attempt to describe what you need to assemble a packet station.

The Radio

You will, of course, need some type of radio such as a 2 metre FM unit capable of transmitting on 145.01 MHz. Depending on your location, you may find that local traffic is on another frequency close to 145.01 MHz. Don't overlook acquiring an older crystal radio as you seldom need more than two frequencies when operating on packet.

These 1970 vintage radios normally sell for around \$100-\$150 if they are in good working condition. If you are the only ham in your area, you may have to begin your packet radio experimentation on HF. The KA-Nodes are on 14.105 MHz, WORLI type BBSs on 14.107 MHz and others on 14.103 MHz.

You will require a very stable rig as well as some type of tuning indicator on your Terminal Node Controller (TNC) to properly tune in stations.

The TNC

The Terminal Node Controller or TNC is required to convert the analog signals of the radio into digital format required for packet radio use. The TNC also has a program which speaks the language or protocol used by packet radio stations. The protocol is called AX.25 and is a formal set of rules required to achieve error free data communications.

There are basically two types of TNC units. There are 'generic' TNCs which are completely self-contained and there are add on units or boards that plug into a computer. One of the most popular generic TNC units is known as the TNC-2. This unit was originally designed by TAPR, the Tuscon Amateur Radio Club.

TAPR has licensed the design to various companies such as MFJ Enterprises. A popular 'add on' TNC is the PK-64 unit that plugs directly into a Commodore 64 computer. If you already have a Commodore 64, you may find this an ideal way to get into packet radio. Check your local swap net or flea market as many packet enthusiasts may be upgrading their station and you may be able to pick up something at a very reasonable price.

What type of device you choose really depends on several factors. In many cases, price is the factor. If you want to get an allmode device that supports Packet, AMTOR, RTTY, CW, Slow Scan TV, etc., you probably will want to evaluate the PK-232 from Advanced Electronics Inc, the KAM from

Kantronics Inc, or the MFJ-1278 from MFJ Enterprises. These multimode devices even have the ability to capture satellite weather pictures and print them on a low cost dot matrix printer. Expect to pay several hundred dollars more if you want all the bells and whistles!

The Terminal

To be able to send and receive messages via packet, you will need some sort of terminal. The terminal must be capable of sending codes encoded in a format called ASCII. Most terminals use the ASCII code but beware that there are many other types of terminal codes and formats out there. If you are at a flea market, the best way to test a terminal is to jumper pins 2 and 3 on the RS-232 connector and run the terminal in local echo mode. If you type a character and see two copies of the character on the screen, then chances are the terminal is working.

Hard copy terminals can also be used (as long as you can afford the paper). Pay no more than \$75 for an older terminal. The terminal should be capable of displaying 80 characters across the screen. Many of these 'oldies' are now over 15 years old and parts may be a real problem. Volker-Craig terminals and old VUCOM 2 and VUCOM 3 terminals still abound. Make sure you test any used terminal as outlined above, before paying for it.

Another way to get the capabilities of a terminal is to use a computer with a program that emulates a terminal. Popular terminal emulator programs include KERMIT and Procomm. These programs are freeware and run on a variety of computers such as the Apple II, the IBM PC, the Macintosh, etc. Many computers have a computer terminal program already built in.

PUTTING IT TOGETHER

Once you have assembled all the pieces, you will have the joy (frustration maybe!) of getting all the pieces to work as a whole. Your best bet is to elicit help from a friend or someone who already has a packet station running. You will probably need an RS-232 cable and some various connectors. Your best bet is to read the manual that comes with the TNC several times before hooking anything up. Digital devices are quite fragile and hate to be wired backwards, zapped with 50,000 volts of static electricity, etc. Normally you should not blow up anything even if you improperly wire the RS-232 cable, but anything is possible. See the March 1988 Packet Rap for a detailed overview of the RS-232 specification.

INFORMATION ON KA9Q's NET PROGRAM

The KISS Protocol

Once you have mastered the basics of running a packet station you may want to experiment with the NET software as mentioned in previous Packet Rap columns. Some of you have already requested copies of the NET code. One thing that may cause you some difficulty, is the requirement to run the KISS code in the TNC. Older TNCs did not support this protocol and will need a new EPROM with the latest firmware release. For anyone with access to an EPROM burner, I can send them the latest TAPR code (1.1.6), which has both KISS and regular TAPR code, as a hex file on an IBM 5¼ inch diskette. Barry VE3JF can burn a copy of the firmware for you if you provide the 27256 EPROM. Remember to send the appropriate SASE. If you send an EPROM, please package it appropriately and remember to include sufficient return postage. If you want the code via diskette, don't forget to include a diskette mailer and a blank diskette. you may also obtain the firmware from TAPR. Their address is P.O. Box 12925, Tuscon, AZ 85732 Phone: (602) 323-1710.

IP Addresses

If you have experimented with the NET program, you may want to get a formal IP address for your station. There are world unique IP addresses available for your station just for the asking. You will want a unique address for your station once your activities expand beyond your local area. Here are the IP Address co-ordinators for Canada— National: Dave Toth VE3GYQ @ VE3GYQ; Regional:

VE1: Dave Oldridge VE1EI @ VE1EI
VE2: Marcus Leech VE3MDL @ VE3JF
VE3: Marcus Leech VE3MDL @ VE3JF
VE4: Bill Bowman VE4UB @ VE4UB
VE6: Juergen Renter VE6JR @ VE6JR
VE7: Al Mar VE7DPM @ VE7KIT

Please send a message to your local co-ordinator and he will get you your very own world unique IP address.

PACKET ACTIVITIES

Here are the packet statistics for the Ottawa area. 138 different stations have logged on to the local BBS since Jan. 1, 1989. After removing the BBS calls and distant BBS DXers, there are about 75-80 active users using the VE3JF BBS. VE3JF runs on 145.07 and 145.01. How about your area?

Please send any information you have and I'll pass it on. Have a good month and get your antenna work done *this month* before the heat of the summer is upon us. ■

CLUB CORNER

By J.P. LeBlanc VO1SK/VP9LA

Before we get into some of the interesting activities some of the clubs have been involved in, I would like to comment on a topic I feel is very important to a club—the Club Bulletin.

The club bulletin plays a very important part in our hobby of Amateur radio as it helps bind the club and members together. It's also an excellent way of keeping members in touch who are unable to attend meetings. Let's face it, being in a hobby where we communicate most of the time, we have a lot of worthwhile information to pass along. So what better way than through the medium of a club bulletin. Some of it is old news, but to the new Amateur it can be quite enlightening.

Going through some of the various club bulletins, from which I get most of my information on the club scene, I have come across some interesting ideas which could help your club bulletin. First of all, it takes a person's most precious commodity—time. Bulletin Editors spend a lot of time putting together what they hope will be a very interesting product.

It helps to have a good variety of articles and this is where the membership can help out. For instance, one club I was a member of had a small bulletin. Since I was interesting in SWL and knew of a few more members with a similar interest, I volunteered to put together an SWL column for the club bulletin. I was amazed at the positive response I got from the members. This could be done for any topic. How often do you run across items which would be of interest to club members. Take a few minutes to cut them out and submit them to your bulletin editor.

The London Amateur Radio Club has a professionally done bulletin complete with high quality black and white photos, while the Charlottetown club uses both sides of one page and still manages to produce an excellent bulletin. It's quality that counts not quantity. The Moncton club sends out a combination meeting invitation and newsletter.

Of course I have to touch on another subject which always crops up—money. Yes, a club bulletin can be expensive. Notice I said CAN BE, but it need not be. So here are some ways that clubs have managed to keep costs down:

1) To save on postage, bulletins are given to members who attend meetings. Remaining bulletins can be mailed or better still, nearby Amateurs can drop copies off.

2) Advertising. I'm amazed at the

amount of advertising I have seen in some of the bulletins. The December 88 issue of the Calgary Club's *Key Klix* has no less than 34 advertisements in a 28-page bulletin. Try finding a sponsor who is willing to defray all or a part of the printing of the bulletin.

3) If items are a problem why not get in touch with another club and exchange bulletins. Many of the bulletins I have seen have items taken from other bulletins.

If you have any suggestions or have found some way to help make your club bulletin a success, drop me a line at CARF HQ and I will share them with our readers.

CLUB ACTIVITIES

The Loyalist City Radio Club in Saint John, New Brunswick set up a 'Santa Claus Network' at both the Regional and St. Joseph's Hospitals. The effort, under the leadership of Ed VE1EPW, was very successful.

Amateurs in Peterborough were once again busy providing the communications for the Santa Claus Parade. Taking part were Ron VE3CRT, Harold VE3NZL, George VE3AKS, Mel VE3ACD, Rick VE3IQZ, Gord VE3LKG, Bob VE3GEE, Ray VE3NUW and Larry VE3NTQ.

The Niagara Peninsula Amateur Radio Club in St. Catharines is alive and well. This fact was very clear during their annual Christmas Party—161 people were in attendance! Way to go.

The Kitchener Waterloo Amateur Radio Club held its first Christmas luncheon which was attended by 56 members and guests. During the luncheon, the Ted Welsman trophy was presented to Ted VE3CD by GARC President Harry Rispin VE3PTS.

The Oakville Club was successful in the distribution of Christmas Vouchers for the Oakville Christmas Bureau. Taking part were VE3AFS, JUZ, FII, RD, OK, MYF, HGI, FLI, PLS, AXA, TGH, FYR and HBM. Both the Red Cross and Christmas Bureau have expressed their thanks for this public service.

The Algoma Amateur Radio Club in Sault Ste. Marie did another excellent job of putting Santa Claus on the air for the children in the Plummer Memorial and General Hospitals. The group consisted of Robbie VE3APP, Denny VE3EUI, Bert VE3TNL, Ken VE3GWN, Garry VE3PHB, Ron VE3BVF and Roy VE3FOD. The group had fewer children than previous years, but that is good news in itself.

The Ottawa Amateur Radio Club organized the 1989 Canadian Ski Marathon which was held Feb. 11 and 12. The CSM is an annual cross-country

ski event which takes two days and covers 100 miles of trail. In order for the event to take place safely, a fairly complex network of communications is required. Skier bib numbers and times, as well as sweeps of the trails to ensure that no one gets left behind, are some of the tasks done by Amateurs. Since 1974, 167 Amateurs have taken part in this event. Carl VE3BYX holds the record for having attended every year and Art VE3ZA has only missed one year. Dave VE3GSA and Rick VE3HVA, 13 years; Ian VE3AMK, George VE3BNQ and Larry VE3CRX, 12 years; Grath VE3EOF, Frances VE3HKG, 11 years; and Mike VE2APT, 10 years. Now that's dedication!

I got a pleasant surprise on the afternoon of Jan. 24 as I was flicking through the channels on my television set. When I stopped on the French CBC channel, I realized that the host was interviewing an Amateur. The program was *Au jour le jour* and the guest was Prosper VE2AUD who did an excellent job of informing the public on what Amateur radio is all about.

Well, that is all for this month. Remember, next time your club has a special event or participates in a public service; bring a camera and send photographs to *The Canadian Amateur Club Column*. Where else can you get free exposure? ■

ALL NOVICES NOW 4Z9s

The last stage of callsign restructuring has gone into effect. Novices used to be 4X4N-, 4Z4N- and 4X6N- with the 'N' dropping out when they upgraded to Grade 'B' (General Class). For a few years the new novices got a 4Z9- call, the ones with UHF all-mode privileges getting an upgraded 4Z9- ticket. The Ministry of Communications has finally recalled the old Novices' N- calls, giving them a 4Z9 call instead. No assurance has been given to re-issue their old call (sans 'N'), thus prodding the old Novices to upgrade.

Prefix hunters find the 4Z9 calls on the Israeli Novice bands from 7.000 to 7.050 and from 21.100 to 21.150 MHz CW, as well as conceivably on Oscar Mode B, as Novice Enhancement here was given 25 watts output all modes on the 70 cm band.

— Hagal International
Israel ARC

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

TECHNICAL SECTION

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

Reducing the Risk of Electrical Shock to Radio Amateurs (and others)

By H.H. Wood VE2JD

A few summers ago, while driving down a suburban street, I observed a man cutting the front lawn with an electric mower. He was dressed in a bathing suit, bare feet and with a sprinkler spraying about 20 feet away. A TV technician was electrocuted while drilling through an inside wall in a home when his electric drill bored into the hot side of the 115 volt line. Recently, a Bell telephone installer did the same thing, but this time he melted the power line.

We might mention the barefoot boy who is vacuuming his car after giving it a wash, or the home-mechanic using an electrical power tool on a damp basement or garage floor. Also the handyman working on an aluminum ladder and last, but not least, the frequently lashed-up power-generators used at Field Day installations.

The three-wire power cord with its separate ground wire has increased the safety of electrical equipment when the installation has been done correctly. Leakage currents from the equipment or wiring will go directly to ground and prevent shock. However, I have detected numerous cases of defective grounds in industrial installations caused by oxidation of the contacts in receptacles. The ultimate was a new house where the owner had specified three-prong outlets throughout the house. A couple of years later he discovered that none of the outlets had a ground wire!

Enter the GFI (ground-fault interrupter). This device will detect leakage to ground and will switch open the line supply (usually in a fraction of a second). In the normal course of events, this should prevent a ham from becoming smoked meat.

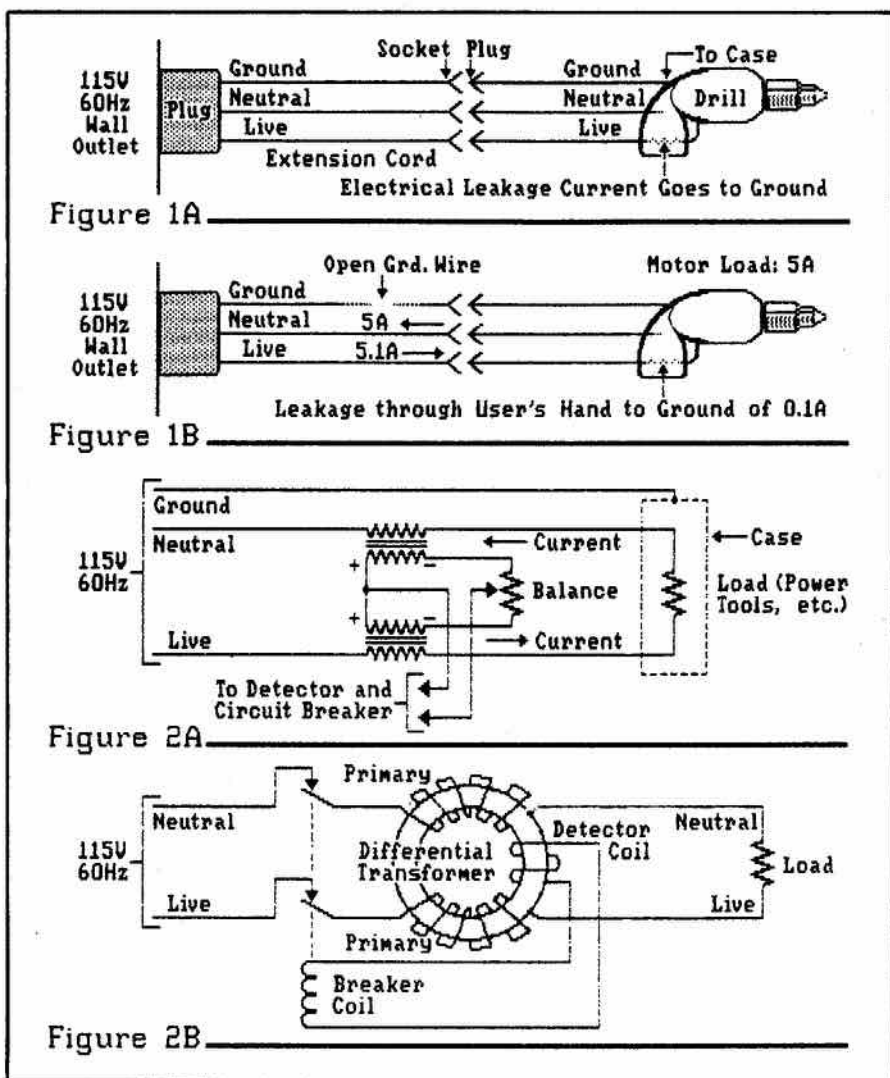
Figures 1A and 1B show how these electrical currents flow. Fig. 1A shows a standard three-wire conductor system (it could also be two-wire) with a metal-cased electrical drill plugged in. The neutral conductor is grounded, usually to the water pipe in the house. The other

conductor carries the power while the third wire is ground (or should be) and is connected to the case of the drill. Any leakage current in the drill from a defective switch or insulation will normally be taken directly to ground and can result in blowing a house-fuse.

If the ground is defective somewhere along the line (inside drill casing, poor

extension cord socket or plug, house plug, etc.) the full leakage current can now pass through the body. If the surface is dry sand, the current may be minimal, but if it is damp conductive soil we can easily get lethal currents, especially if the hands are sweaty.

Continued on next page ▶



SHOCK (cont'd)

Fig. 1B shows how the GFI operates. It depends upon a balanced system electrically. What goes up must come down—and what goes out should return via the other line conductor and not to ground. If we have 5 amps going out on the live conductor, the same 5 amps should be returning on the neutral conductor. If we have a leakage to ground from the live conductor of .1 ampere, we now have 5.1 amps going out on the live wire but only 5 amps returning on the neutral which creates an imbalance of currents. This imbalance will trip out the GFI.

Fig. 2A shows the basic principle of the GFI. This was actually a test unit which I built many years ago and bears no resemblance to the very compact units which are commercially available today. However, it illustrates the function very well. The secondaries of two identical transformers (amperes of current capacity) are connected in series with the 115 volt line—one in the live side and the other in the neutral. Phasing of the windings results in each 'detector' winding bucking the other so that no current flows.

The potentiometer provides a 'fine' balance control similar to a Wheatstone Bridge. With equal currents flowing in the 115 volt line, the 'bridge is balanced' but a leakage current to ground in the live conductor will produce an imbalance in the detector circuit and open the line.

Fig. 2B shows a commercial version GFI. A toroidal core takes the place of the two transformers shown in Fig. 2A. This is wired as a differential transformer and provides the same result.

Recently I purchased a GFI unit (Canadian Tire) which fits into a metal outlet box. This unit already has two electrical outlets built in, but I added another outlet box with two receptacles giving a total of four outlets which are useful when using several electrical tools on a job outdoors. Two 3-inch 10-32 bolts were bolted to the bottom of the outlet box containing the GFI.

The bolts project outwards and have been sharpened at the ends so that they can be pushed into the ground at the site of the work and thus give a little electrical ground insurance.

Note that the GFI does not strictly require a ground for its operation. It only detects the imbalance in currents; the ground is intended to ensure that the tool is grounded if at all possible.

This particular GFI was tested with loads of 100 watts and 800 watts. In each case the marginal trip-point was 22,000 ohms from live side to ground which is equivalent to a leakage current of about 5 milliamps. It should be noted that if the line output from the GFI is connected to a piece of equipment which may have RFI filtering or capacitor by-pass from the live lead to

ground that the capacitor reactance may appear to the GFI as leakage current. Capacitance of .1 microfarad or more may induce this effect.

Ventricular fibrillation results in loss of circulation and is probably the most common cause of death from electric shock. Experiments have indicated that the average 'let-go' current for men is about 16 ma and that the minimum 'let-go' current is about 10 ma. Currents in excess of the let-go current which pass

through the chest may produce collapse, unconsciousness and death. There are no absolutely safe levels of currents except perhaps below 10 ma. It will depend upon the person's body weight, physical condition, path of the current through the body, etc. And also remember, that a GFI will not protect you if you try to remove the plate cap from your final amplifier tube with the 'juice' still applied. ■



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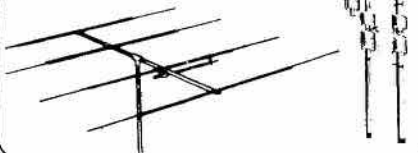
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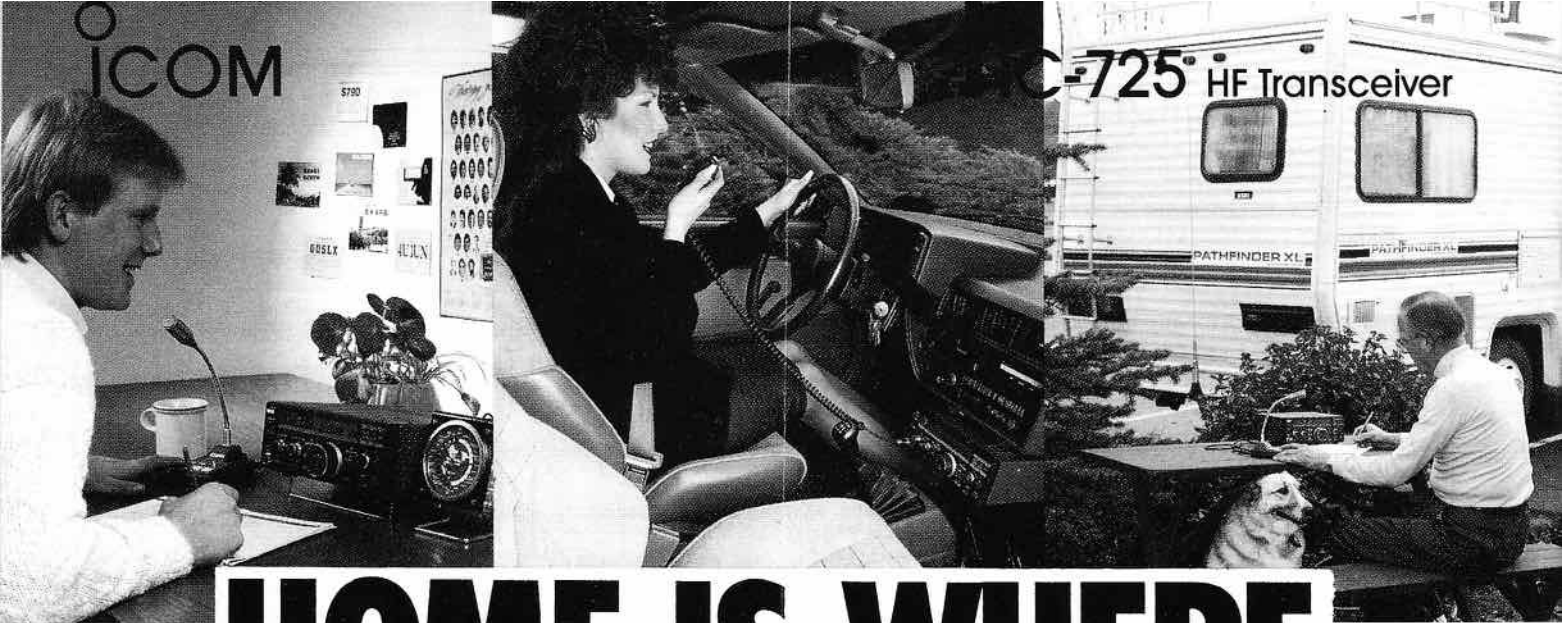
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