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TCA



The Canadian Amateur
Radio Magazine

La Revue des Radio
Amateurs Canadiens

JUNE 1984



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The R3 half wavelength design eliminates the ground radial system required by other verticals. Optimum current distribution gives more efficiency and low angle radiation for DX communications.

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THE CANADIAN AMATEUR

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TCA— The Canadian Amateur is published in Canada 11 times per year to provide Radio Amateurs, those interested in radio communications and electronics and the general public with information on matters related to the science of telecommunications.

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 the Department of Communications;
4. To promote the interests of Amateur radio operators through a program of technical and general education in Amateur matters.

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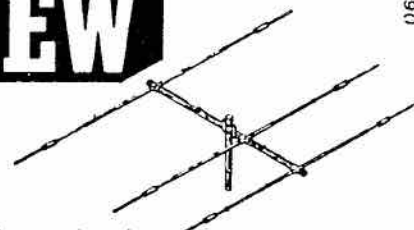
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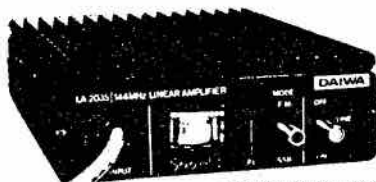
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Output connector: SO-239



GN-720(B)

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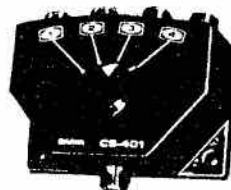
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CONNECTORS	SO-239		SO-239	N type	SO-239
DIMENSIONS (W x H x D mm)	72x72x95		180 x 85 x 120		180 x 120 x 130

CN-620B (1165W x 75H x 97D mm). CN-720B Can only

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POWER RATING	2.5kW PEP 1kW CW	
IMPEDANCE	50 ohm	
INSERTION LOSS	Less than 0.2dB	
ISOLATION	better than 50dB at 300MHz better than 45dB at 450MHz adjacent terminal	
CONNECTORS	SO-239	SO-239
OUTPUT PORT	2	4
	Unused terminals grounded	



CS-401
\$119

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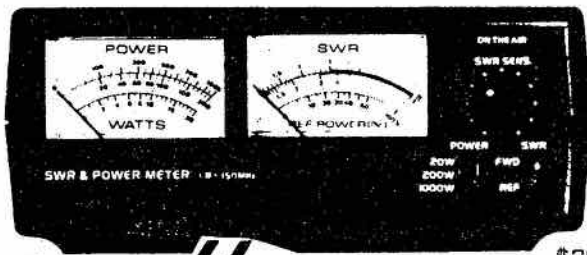


DK-200
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DK-210
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DK-200 not available until late fall of 1984, Sorry !!

SWR and POWER METER

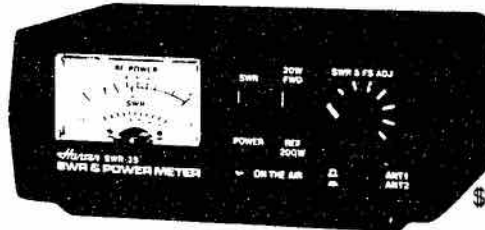


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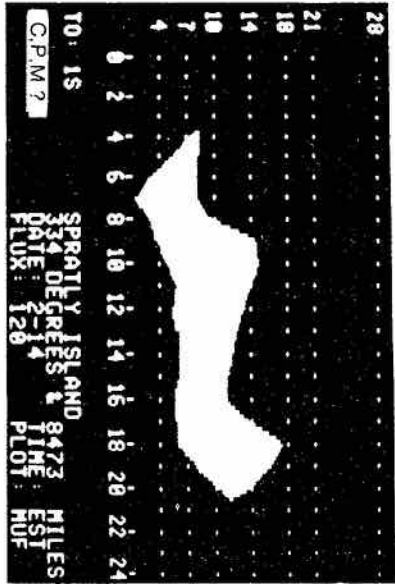
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3		R	152.585	"

PRICING

If the pricing is obvious, total the amount, add \$1.00 for First Class mail, and send in your money order, or cheque, with the order. If there is any doubt about the formula and/or price, send in the order without the money. We will price the order and inform you by return mail. In the meantime, your order will be made up and shipped on receipt of your payment.

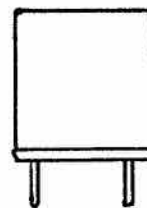
In the example, the amateur band crystals are \$8.00 each, and the custom or commercial crystals are \$9.50 each. The total is \$73.00 plus \$1.00 = \$74.00. Ontario residents add 7% sales tax.

1984 PRICES

	<u>HC-6U</u>	<u>HC-25U</u>
<u>AMATEUR</u>		
Amateur bands	8.00	8.00
<u>CUSTOM</u>		
6 - 55 Mhz	9.50	9.50
5 - 5.9	10.55	12.75
4 - 4.9	11.60	16.95
3 - 3.9	12.75	16.95
Below 3 mhz	16.95	-
55-100 Mhz 5th	12.75	12.75
<u>MODULES</u>		
Mocom 70		24.95
Mocom 35		21.95

REWORK MODULES to new frequency
Generally 19.95
Hybrids 29.95
MT500 MX300

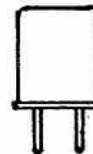
COMMON HOLDERS MIL Designations



Approximately
3/4 X 3/4 X 5/16
HC-6/U .050 pins

HC-17/U .093 pins

HC-33/U wire leads

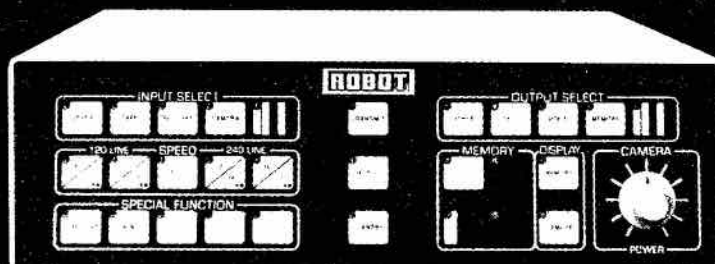


Approximately
1/2 X 3/8 X 1/8
HC-25/U .040 pins

HC-18/U Wire leads

The above holders accommodate the majority of requirements. Commercial customers should call for volume prices.

COLOR SSTV



Introducing the Robot 450C and 1200C Single Frame Color SSTV Converters

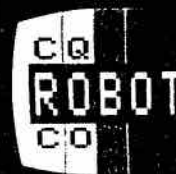
Robot's new color slow scan TV converters provide you with a whole new dimension of Amateur Radio activity. Now you can exchange color pictures of your latest DX QSL card, the best stamp in your collection, or even that terrific sunset scene you shot last summer.

Robot's microprocessor controlled color SSTV equipment provides a significant breakthrough in the transmission of single frame color images known as "Time Multiplex Color Component System" (TMCCS). This method was chosen as being faster, easier to use and more reliable than the cumbersome frame or line sequential systems now in use, as well as being black and white compatible with the thousands of slow scan stations already on the air world wide.

In addition to having fast, single frame color capability as with the Robot Model 450C, the Model 1200C also offers

sharp, high resolution color pictures that rival commercial broadcast television! With all their flexibility, interfaceability and dependability, the Models 450C and 1200C will be in the forefront of technology for years to come. Their new multi-dimensional SSTV standards will be the pace-setters in the industry.

There are even more features and capabilities too numerous to be listed here, such as computer interface, automatic fine tuning, multi speed operation and many more, so see your dealer today for literature and a demonstration, or write:



ATTENTION MODEL 400 OWNERS: Now you can have single frame color SSTV capability too by installing the Model 400C Update Kit to your unit. All necessary parts and hardware are included for an easy single evening installation.



Also introducing the new Robot Model 800C Super Terminal with color graphics capability when used with the new Robot color scan converters. Also has expanded memory with lithium battery back-up, and has both serial and parallel printer interface. A complete terminal for RTTY and Morse Code.

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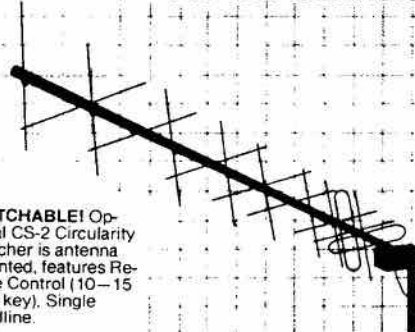


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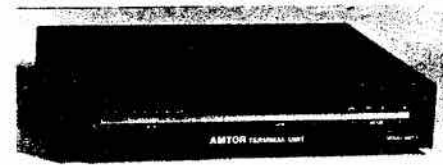
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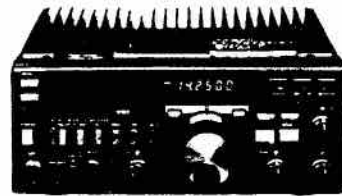
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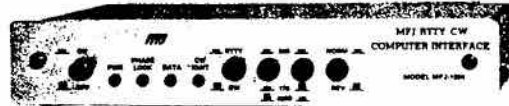
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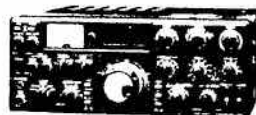
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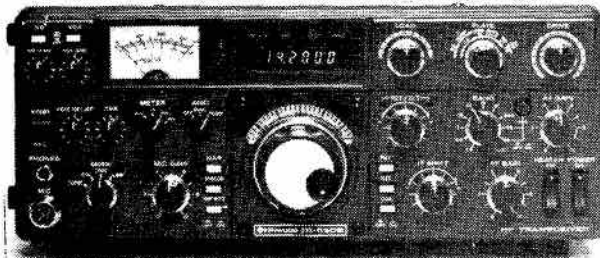


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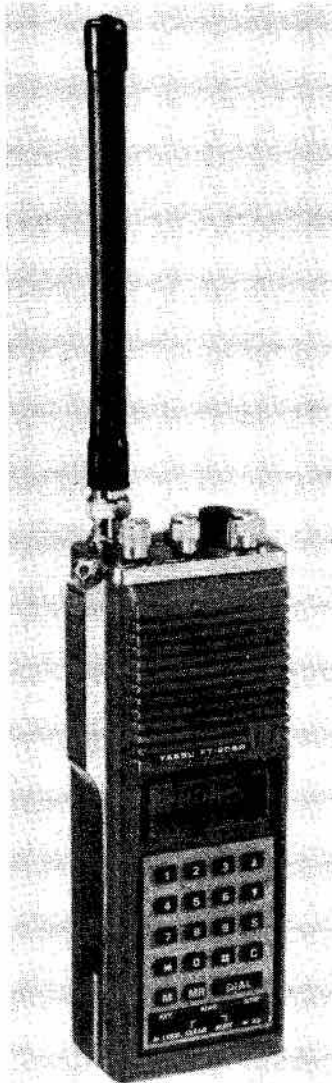
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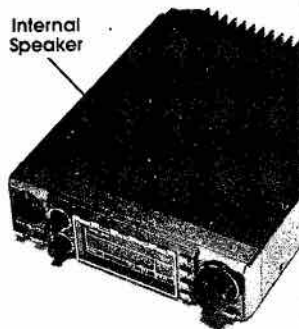
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Important breakthrough in two-meter mobile communications, the IC-27A. The smallest two-meter mobile available, the IC-27A measures only 38 millimeters high by 140 millimeters wide. As an added bonus, the IC-27A, through ICOM engineering, is able to contain an internal speaker to provide ease of mounting and make the unit one small compact complete package.

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25 Watts. In such an incredibly small package, the IC-27A is able to provide 25 watts of output power. And even though the IC-27A is the smallest available two-meter mobile unit, it has sacrificed none of the features found in fully featured VHF mobiles.



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Memories are backed up by a lithium backup battery, which will store memories for up to seven years.

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The IC-27A features a memory scan which allows scanning of memories or scanning of the band. Each memory may be scanned between programmable limits.

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Editor's Comments

by Cary, VE3ARS

I thought I would be able to get away without writing another editorial, however... a couple of loose ends to tie.

Several weeks ago, I received a request to look into the matter of the first Amateur contact with W5LFL in the space shuttle. It had been reported in both newsprint and radio that the first contact was made by a station in North Bay, Ontario, and had been so done on 20 metres. The CARF News Service reported that this station had been the victim of a hoax. Needless to say, some concern was expressed as to the validity of the report, and one Amateur in North Bay called and asked me to clarify the situation.

From the standpoint of Mission control, no such contact could have taken place. Neither Houston nor Marshall had the facilities to monitor 20 metres, nor would they have allowed the contact to take place outside of the times allotted for Amateur operation. Had it in fact taken place, then the breach in mission security would have been great enough to eliminate the possibility of any more Amateur participation in the Shuttle program. Perhaps because of this, no-one is now willing to admit that it had taken place. I can understand that. Other things must be considered. Owen Garriott's own log does not mention the Amateur in question. Had he made contact with him, he would have logged it. Confirmed contacts were to be made on 2 metres only. This contact was on 20 metres. The idiot fringe of Amateur radio was in full flower on 20 during this period, and I can attest to the fact that more than one hoax penetrated on the repeater frequency. The news media that reported the event have amnesia. They can't remember who confirmed the story, although they

say that they did have confirmation. Having worked in that field myself, I know that they will tend to support their story and their sources despite the obvious errors. If no-one raises an objection, who cares. Chuck Biggs KC5RG, chief P.R. man for the space shuttle, stated that one Ottawa radio station did check, but was told that no such contact did or could have taken place. Perhaps they mis-interpreted the information given to them. I quote from Chuck's note: "I have enclosed a complete copy of the contacts taken directly from Owen's tape. Note the first contact was WA1JXN at the beginning of the third day of flight. In the club station, W5RRR, we only receive (emphasis his) the mission audio and there are NO mikes to the spacecraft. I stick by the original story— someone just fooled your ham, or he heard Owen say something to the MCC here in Houston and thought the comment was directed to him. Your guess is as good as mine.

"Just talked to Dale Martin KG5U, club president W5RRR who was in the station during STS-9 lift-off. He said they were not in two-way contact with any stations because we normally transmit the audio from the spacecraft from minutes before the launch until after safe orbit... could not have received VE3-...."

I am sorry that the Amateur is disappointed, but it seems that he was the victim of a cruel hoax.

We are looking for a new Contests Column editor. If you know of someone who might be interested in taking over the job, let the new Editor know. Also an Emergency Communications columnist is needed. Existing columnists should contact the new editor and make arrangements to continue writing for TCA.

Deadlines for copy are known well in advance.

Now for the last bit: who is the new editor? Frank Hughes VE3DQB of Hawksbury, Ontario. I leave the final words in the June editorial up to him.

MORE EDITORIAL COMMENTS

By VE3DQB

Well, readers, you got a new editor. Me.

I'm VE3DQB; have been since 1952, with a few excursions as VE2 Ace Queen Jack, VE7AJH, and as /W8 and /W9. I'm not sure if the Guinness Book of Records is interested in the Longest Running Sked, but my father G3ILA (now, alas, a silent key) and G3KBH, my brother, and I have kept skeds continuously for 32 years of wandering about the globe. CW at first, then AM on 10 metres, now sideband on 10, 15 and 20.

Trying to psych myself into the job, I read over a few back numbers, and I was truly astonished at the steady progress we've made over the years. Volume 1, Number 1, January 1973, started out, believe it or not, in Latin— Magna est veritas et prevalabit (Great is truth and it shall prevail a bit). Twelve pages, two advertisements. Murphy struck there, too— the Post Office refused bulk mail when the first issue was published, there being a strike in Ontario at the time.

In issue No. 1, VE3BBQ, the editor, promised "Changes in layout, increased size as regular columns are added, and the eventual introduction of pictorial matter are all in the cards as a viable organization is gradually built up."

Volume 3, Number 6 still ran to 12 pages, but BBQ's promise was partly fulfilled— there were illustrations, half-tones and line drawings, including an entertaining

cartoon by VE3DQ, and three full-page advertisements, Peterson, Glenwood, and Heath. TCA owes its very existence to the determined and far-seeing support of these advertisers. There are columns, letters and a short technical column.

And now the April 1984 issue, Volume 12, Number 4, is four times the size of those early issues, 48 pages plus a cover. Of these 50 pages, 26 are editorial, the rest advertisements. So the magazine has fulfilled BBQ's promises to the letter.

So I'm lucky. I take over a magazine with the bugs ironed out. The printing troubles and late publication dates have been cured. The magazine is in excellent shape. If the Post Office will keep on improving second-class mail delivery, we'll be home free.

No two editors put out identical magazines. There will be changes with me at the helm, that's inevitable, but the only alteration I really have in mind is to consider the beginner rather more than has been done so far. They say the average age of the Canadian Amateur is getting higher. This may be partly due to the baby boom, I suppose, but is there enough done to keep our ranks at strength? I always have a soft spot for a youngster trying to get started, and having no idea how to.

I have taught Amateur radio classes. I have taught young'uns (and some old'uns) their first code and theory, and examination technique, and the gentlemanly habits demanded of those who share, as we do, a limited natural resource.

Teaching classes has been fun and rewarding. I recommend the activity to those of you who have time to spare. There's nothing more satisfying than to watch a youngster change from an aimless child to a self-directed, purposeful adolescent. Those few weeks during which you teach him can change him from an unhappy, frustrated individual to a young man with an aim in life, with all his inherent talent active. He gets himself a paper route to finance his

avocation. Dry, uninteresting school subjects spring to life as he sees a link between them and this self-set target.

Yes, and I've seen a few go out for jobs, and get them by showing a piece of equipment they have made.

They learn to work together, getting permission to use some public space for a clubhouse. They set up antennas, and buy equipment. They share responsibilities with a roster. They learn to become effective, reliable citizens. That's what this avocation of ours can mean.

A couple stopped me on the streets of Wausau, Wisconsin. "Are you Frank Hughes?" I admit to it. "You run those radio classes? Thank you so much for what you've done for our boy!" And I learn that from an idle ne'er-do-well, wasting his time listening to records and stuck in front of the television, to the detriment of his health, morals, and eyesight, he had become a son they could take some pride in. My own future had been questioned at his age, too, as indeed my grandmother told me that my parents had risked a

similar fate through indulgence in the phonograph and bioscope, and their parents in turn through over-addiction to the music-box and zoetrope.

I still get fun out of building odds and ends of equipment, though as far as I recall I never had a completely homebrewed station. My attitude to bought equipment is that stated long ago by W8YFS: every Amateur should be given a complete station, so that he can keep on the air while trying things out in the shack. I don't blame a photographer because he's using a Hasselblad instead of building a camera himself, so why should I complain when someone uses a Japanese transceiver?

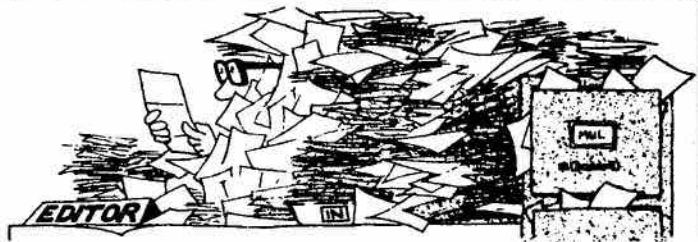
Yes, I'm taking over from Cary. I have watched the steady improvement in the magazine over the years, and I'm a little daunted with the prospect of having to keep us this high standard, but I'll do my best. It will surely be a hard job to improve it much more. Keeping up with advancing technology will be enough of a challenge!

DOC may abolish regulated phone sub-bands

As recommended by Amateurs at the last CARF National Amateur Radio Symposium in Halifax, the DOC is "considering" dropping the regulations and schedules which set out frequencies in which phone sub-band operation is permitted. This would be a welcome move to Canadian Amateurs who would then not have to ask DOC to change these regulated bands every time the U.S. moves down into our present phone bands. The original intent of regulating where phone stations could operate was to prevent the splattering AM stations of the good old days from lousing up commercial and government stations. As such these particular regs belong with the spark transmitter. Canada can then join the

other countries which, recognizing that modern transmitters are no longer a problem to commercial or government stations, do not have phone sub-bands set aside by regulation. Amateurs in these countries, such as those in Region 1, have worked out band plans which are observed on a "gentleman's agreement" basis and seem to work out well. This would leave the U.S. as one of a few, if not the only country, which would retain regulated phone sub-bands. It would be difficult for it to do otherwise because of its structured licence classes which are assigned various phone sub-bands. It looks as though it is time for Canadian operators to start looking at an HF phone band plan.

LETTERS



AMATEUR/COMPUTER GROUPS

I am writing to draw attention to two Amateur-radio/computer user-groups which may be of interest to your members.

RAMTOP— Radio Amateurs Microprocessor Techniques/Operations exist for all micros except the Sinclair range. A wide range of interests are covered including RTTY/ASCII/FAX, etc. and of course many other useful ideas for using the micro in the ham-shack. Four newsletters are published with monthly updates.

The Sinclair Amateur Radio User Group (SARUG) is for all ham-users of the Sinclair range. Recent projects include RTTY/ASCII on both ZX81 and Spectrum using a novel single-board interface, terminal-unit and AFSK; and news of an SSTV system for the Spectrum. SARUG shares material with organizations including BARTG, RSARS, Swedish ARTG, QZX (USA), ASCII (Germany), RAMTOP etc. and had readership in over 20 countries. A 16-page newsletter is published five times a year.

Both groups are true user-groups, and try to foster cooperation and self-help in the true spirit of ham-radio.

Your readers may obtain information about the user-group appropriate to their micro by sending a valid International Reply Coupon (it MUST bear the issuing office's stamp) to:

RAMTOP, Rev. R. P. Butcher G4NWH, Great Billing Rectory, Northampton, NN1 2BX, U.K.; **SARUG**, P. Newman G4INP, 3 Red House Lane, Leiston, Suffolk, IP16 4JZ, U.K.

I hope your readers will find this of interest.

Paul Newman G4INP
Leiston, Suffolk, U.K.

REPEATER DIRECTORY ADDITION

When you run the summer repeater list, please include a new repeater located in Williams Lake (located on Fox. Mtn.). The call sign is VE7RRB and the frequencies (from the point of view of the user) are:

Transmit: 147.920 MHz

Receive: 147.320MHz

Reg Beck VE7IG
Williams Lake, B.C.

The Post Office delayed this until it was too late to publish in the directory. Sorry

40 M NET FOR ATLANTIC CANADA

Congratulations to you and the many contributors on the March issue of TCA. It was a first-rate effort, and I feel now that after watching the growth of the magazine over the past few years it has really come of age. This issue contained plenty of news, both on items that Canadian Amateurs should be familiar with, and on others that they would find very interesting. For myself, on looking down the list of contents, I note no less than eight items of great interest, and several others also worth my reading.

Congratulations too on getting Canada Post Corporation finally to do the job properly by delivering the March issue to my QTH in rural VO land on Friday Feb. 24, providing me with some worthwhile reading for the weekend. This delivery date was a vast improvement over that of the December

1983 issue, which arrived the day after we got the January 1984 magazine! How do they do it?

While putting pen to paper, I should mention to readers the Sunday 40 metre net which covers all Atlantic Canada and beyond, every Sunday at 1400Z on 7.085 MHz \pm QRM. If any TCA readers enjoy a leisurely ragchew on a Sunday morning, please join me and about 30 others. We are finding 40 metres an excellent band at that time of day, and I noted an increased interest in this band here in VO land since we began this net. We have recently benefited from a first-rate news bulletin sponsored by the Society of Newfoundland Radio Amateurs, edited and read by Brian VO1IF, one of our 40m regulars, on the net, and we thank Brian for his efforts here.

So, Cary and others, keep up the good work with TCA. We look forward to receiving it here on the Rock. After all, it is exclusively our Canadian radio magazine, and a good one too.

Stuart Harvey
Lark Harbour, Nfld.

AMATEURS ON THE HIGH SEAS

As a sailor-navigator and long-standing member of the United States Power Squadrons (a national, educational boating fraternity with quite a few decades of meritorious service to its credit), I have greatly enjoyed your salty as well as 'sparky' sea-stories by worthwhile authors who obviously know what they are talking about.

I truly believe more licensed, serious Radio Amateurs should "go down to the Sea in ships" and would find it quite worth their while to

become more familiar with matters nautical as skippers and navigators might also want to become better and more thoroughly acquainted with the friendly ways and long-range telecommunication techniques available to licensed radio Amateurs and their capacity for carrying messages and communications far beyond the range and scope of ordinary marine mobile units.

We have so much in common! From azimuth bearings to Great Circle sailings; from 'homing-in' on navigational aids by electronic means to more sophisticated cross-bearing and direction finding techniques; from routine ship-to-ship or ship-to-shore communications and phone patches to crucial Mayday calls—and last but not least, the all-important capacity for determining one's position at sea at all times, under normal or adverse conditions, by a variety of electronic and other more traditional techniques.

Holding a sextant and 'shooting' some stars, the planets, the sun or the moon, and working up some sights for a 'fix' can be every bit as intriguing as chasing DX (which, of course, you can also do while at sea) or doing some sophisticated EME or satellite signal bouncing.

It's a great deal of fun and such a natural combination of both a hobby/avocation and some eminently useful, sometimes life-saving, skills that come in handy for the sake of one's self and that of one's shipmates while on the High Seas—or even in some protected coastal waters or one of the smaller freshwater 'puddles.'

Thanks again, and keep those good stories coming!

F. Paul Kosbab, NF4E
Tulsa, Oklahoma

A TRIBUTE TO THE MID-WEST

TCA has provided me with many hours of interesting reading, and I have referred to its pages many times for information about QSL cards, recent or up-dated

equipment, technical bits and its many articles.

This morning, upon awakening, it was my pleasure to spend an hour perusing the January TCA—and the Tribute to the Mid-West Provinces.

That issue has been here for two months now, Cary, but it's not an old issue to me. I was born on a farm near Moose Jaw and my first Amateur QSO's were made from my room in a farm house near Buffalo Lake where I was a school teacher. VE4NC was the call of my wind-powered station.

I just wanted to say thanks for your part and to all those contributors who have brought back to me, at least one individual, some fond memories and exciting up-dates from the areas of my origin.

Fred Green VE3IO
Ottawa, Ont.

A PERFORMANCE GRAPH

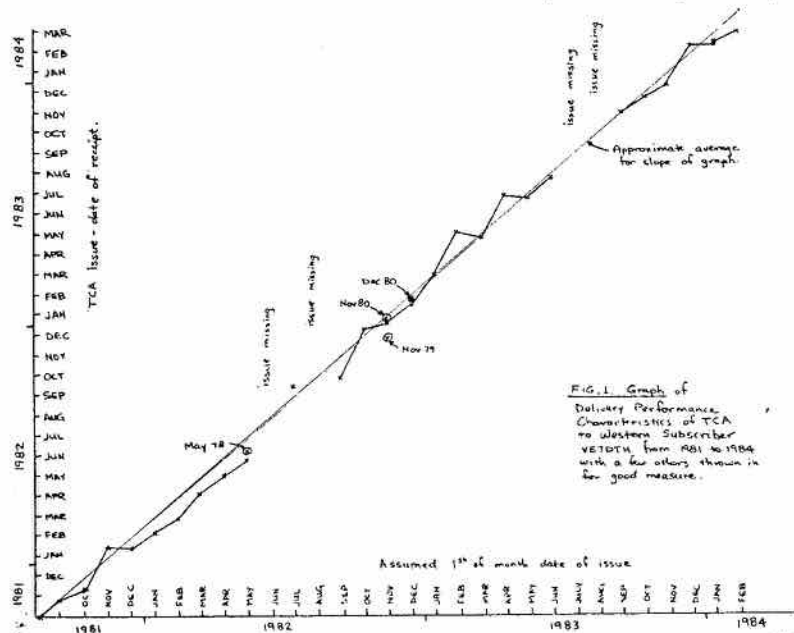
In a long past issue of TCA, which I am not going to bother looking up, I recall a statement to the effect "Hang in there you fellows out west, everything is being done to speed up the delivery of your TCA magazine. Won't be long until you too can benefit from all the info regarding DX, contests, hamfests, etc." and all those other nifty dated events.

Well, the time has come to publish the results of a 27 months (plus) study to see just how things have improved. Please refer to the graph Fig. 1. As can be seen, no significant improvement in the delivery of TCA has taken place in the past 27 months. In fact, 1983 looks rather dismal. In only four instances since October 1981 has TCA arrived in the same month as the date on the cover.

Also, I took note on Page 17, Jan 84, TCA, regarding the November issue going astray. With a great sigh of relief I found that I had received that issue, but the following issues have never been received: April 77, June 82, Aug. 82, July 83, Aug. 83.

I also entered the received dates for the following issues of TCA into the graph and found that no significant improvement in delivery has taken place in the past six years, May 78, Nov. 79, Nov. 80, and Dec. 80.

And now for the latest... that little squiggle at the top end of the graph. On Jan. 30/84 I received TCA for Jan. 84 and two issues for Dec. 83. On Feb. 1/84 I received a second issue for Jan. 84. And today, Feb. 20, I receive two issues for Feb. 84. No doubt this is being done in order to louse up my graph. The superfluous issues were passed on to a society which probably has



absolutely no use for them.

And the membership fees are on the increase?

Donald R. Boyle VE7DTH
Dawson Creek, B.C.

I am sure the recent TCA mailings have loused up your graph even more. We were early in most if not all cases since January. The fact that TCA is late in arriving in B.C. is not our fault, check the post office.

Social Events

June 2— Cent. Ont. Fleamarket and computer fest, 8am-4pm, Regal Hall, 340 Woodlawn Rd. W., Guelph. Admiss. \$2. Displays, refreshments, prizes. Info: Guelph ARC, Box 1305, Guelph, Ont. N1H 6N9.

June 30— Saskatchewan Hamfest. (Registration the night before.) Prizes, contests, displays, ladies program, banquet. For more details contact the Hamfest Committee at Box 6, Swift Current, Sask. S9H 3V5.

July 14— 10th Annual Ontario Hamfest at Milton Fairgrounds hosted by Burlington ARC.

July 14-15— International Peace Garden Hamfest, Boissevan, Man. Camping sites available. Info from WD0DAJ, Stan Kittelson, Box H, Dickinson, N.D. 58601.

August 4— The Beaver Valley Amateur Radio Club will be holding a Swap Fest beginning at 10 a.m. at the Cominco Arena, Trail, B.C. Talk-in on 146.84/24. For further info and table space reservation, please contact BVARC c/o 3798 Woodland Drive, Trail, B.C. V1R 2V7.

(If your organization is going to have a gathering of more than just local interest, such as an area flea market, auction, hamfest, convention, picnic or whatever, let us know and we'll publicize it. Notice MUST be received at least TWO MONTHS before the event to meet our publication deadlines. Write: Editor, TCA Magazine, Box 2610, Station D, Ottawa, Ont. K1P 5W7.

Words from the Prez

This is a note of thanks to all of those Amateurs who took the time to write or call me about my article in the April TCA concerning my suggestions for an eventual union of CARF and CRRL. It was not possible for me to answer each of the numerous letters I got, so I hope that this will adequately express my thanks and satisfaction at the response to my ideas.

Continuing along this line of thought, it should be noted that CARF is working along with CRRL, provincial and local clubs on the problems posed by municipalities getting into the act of tower restricting legislation, despite the fact that jurisdiction over transmitting stations is a federal responsibility administered by the DOC.

Some years ago, CARF established a Tower Rights Committee in conjunction with the CRRL and effected liaison with a U.S. outfit dedicated to meeting the tower problem, the Personal Communications Foundation, of California. Chairman of the Tower Rights Committee is Al Law VE3LAW, and over the years Al has built up a file of information on the question which is available to clubs or individuals having a tower problem with local governments. Bill Wilson VE3NR, whose many years of experience as a senior DOC official has given him an excellent insight into the problem, has prepared information packages and advice for a number of Amateurs and his most recent one, a brief to the North York municipal authorities, was copied to the DOC. It was most encouraging to find that the Department was sufficiently impressed by that brief to send me the following letter:

Department of Communications
Legal Service
300 Slater Street, Rm 1754
Ottawa, Ont.
Dear Mr. Slater:

On behalf of Michel Héту (DOC Senior Legal Counsel, Ed.), I am writing to thank you for furnishing this office with a copy of your letter of March 19, 1984 to Mayor Mel Lastman of the City of North York concerning proposed amendments to North York's By-law 7625.

From your letter and attached correspondence, it is evident to me that CARF has invested a great deal of time and energy in efforts such as the North York campaign where proposed municipal legislation threatens to jeopardize the pursuit of Amateur radio as a pastime through controls imposed upon antenna height and location. As someone familiar with the constitutional law principles governing radiocommunications in Canada, I can understand the frustration that CARF and its members must at times experience in grappling with the "municipal by-law" issue. Nevertheless, your letter is an excellent example of the positive approach which CARF seems to advocate in instances such as this where the interests of its members are at stake.

Please be assured that this office, through the DOC's Regional Office in Toronto, is monitoring the events in North York. We share your hope that the city will indeed resolve its objectives without consequent ill effects to your members and to Amateur radio in general.

Lorne Abugov
Legal Counsel

Cushcraft

OSCAR SATELLITE ANTENNAS

Satellite communications for more hours a day with the OSCAR Phase III in orbit... that's exciting news for hams around the world! And Cushcraft is right there with BOOMER antennas to provide greater performance and more enjoyment at your station.

NOW is the time to get ready for OSCAR with Cushcraft's all new high performance 416TB 16 element 435 MHz BOOMER, featuring our new insulated elements, T-matched driven elements, built-in balun, special phasing harness, rear boom mount, and stainless steel hardware. This amazing antenna has true circular polarization right or left, and 12.5 dBd gain to give an extra margin of radiated power to the satellite.

The two meter antennas have been proven in many thousands of ham satellite stations. They feature excellent performance plus ease of assembly and installation.

	10\$109	20\$155	16\$129
MODEL	Element A144-10T	Element A144-20T	Element 416TB
Frequency, MHz	145.9	145.9	435
2:1 SWR			
Bandwidth, MHz	>2	>1.5	>3
Forward Gain, dBd			
3-dB			
Beamwidth, deg	52	38	34
F/B Ratio, dB			
Boom Length, in (m)	70 (1.8)	130 (3.3)	80 (2.03)
Longest in	40	40	13.3
Element, (m)	(1.0)	(1.0)	(.34)
Wind Area, ft² (m²)	.74 (.07)	1.42 (.13)	.5 (.046)
Weight, lb (kg)	3.5 (1.6)	6.6 (3.0)	4.9 (2.2)
Max Mast OD, in (cm)	1.50 (3.8)	1.50 (3.8)	2.0 (5.0)

OSCAR MOUNTING BOOM \$55

You can mount 2 meter and 70 cm twist antennas on the A14T-MB mounting kit. It has a 4.2 ft (1.3m) support boom with mount plate for the U100 elevation rotator. The easy way to a complete OSCAR station.

OSCAR PACK

AOP-1 Your complete OSCAR antenna system in one easy-to-use package. This is the convenient money saving way to a superior OSCAR signal.

\$289/309 \$8 S&H

OSCAR Pack includes 416TB (435 MHz uplink) and A144-20T (145 MHz downlink) Boomer Twist antennas plus the A14T-MB mounting boom. It contains the U100 rotator plate plus all hardware for antenna and mast mounting.

OSCAR Pack is your key to enjoyment of the latest phase of worldwide amateur satellite communications. Model AOP-1 \$289/309 S&H \$8

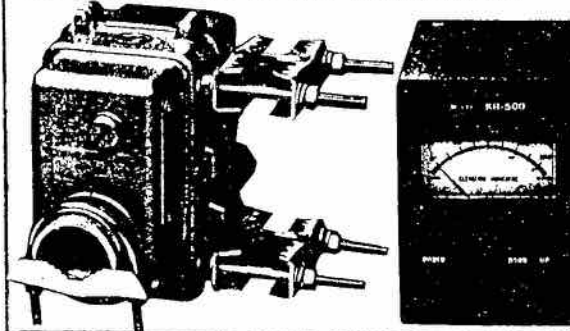


PRIVATE PATCH II - SIMPLEX AUTOPATCH
CONNECT SYSTEMS INC. - NOW AVAILABLE
from ATLANTIC HAM RADIO LTD. CALL!!

KENPRO KR-500 ELEVATION ROTATOR

\$249.00

Don't compare this one to the inexpensive TV rotors turned sideways. This is a full fledged rotator. Control box 4" x 6" x 6". Rotor is slightly larger, pictures below are to scale. Allowable mast size is 1 1/2" to 2". Rotation torque 715 in-lbs. Control cable is 6 conductor. Brake torque 3575 in-lbs. (Dealer inquiries invited)



Inns S&H \$6 per antenna.

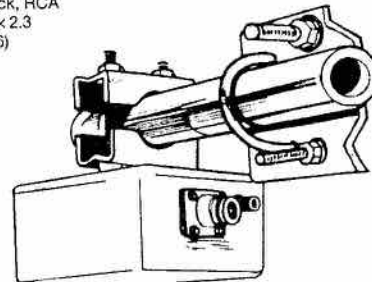
NEW OSCAR POLARITY SWITCHER PS4 \$129/145

Oscar operation will be more fun with this remote polarity switch mounted on the 416TB. You will access satellites having either circular left or right polarization.

Frequency, MHz	430-440
Input Impedance	50 Ω
SWR	< 1.5:1
Power Handling Watts, cw	100
Coaxial Connector	N female
12 volt DC input	Phono jack, RCA
Size, in (cm)	4.6 x 3.6 x 2.3 (12 x 9 x 6)
Boom Mount	U-bolt
Weight, lb (kg)	2.5 (1.0)

NOW AVAILABLE !!

ROBOT 800C TERMINAL
ROBOT 450C SLOW SCAN



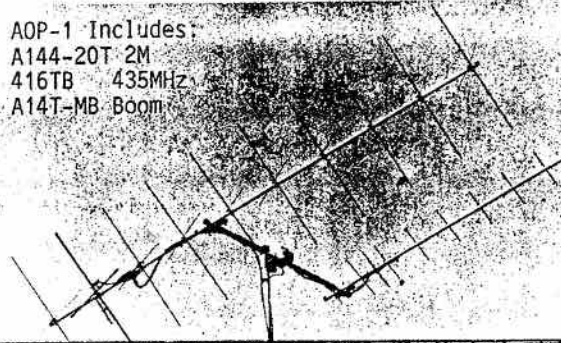
Remote Switching

PACKAGE SPECIAL !!

AOP-1 Oscar Pack
Kenpro KR-500
PS-4 Switcher

\$599 S&H \$12
No PS-4 \$499

AOP-1 Includes:
A144-20T 2M
416TB 435MHz
A14T-MB Boom



AEA Computer PatchTM Interface

SPECIAL ON COMPLETE PACKAGES (ends July 16th)

CP-1 Interface with MBA-TEXT for Vic-20 or Com-64 \$339/\$349

MICROPATCH 64/2 with built-in Software for the Com-64. Capable of CW, RTTY, ASCII, and AMTOR - A truly great buy at \$299 - Get onto AMTOR NOW !! !!

MBA-TEXT Software for either the Vic-20 or the Com-64 \$129.00

IC-02AT
140.000-149.995MHz

ICOM's new top-of-the-line IC-02A and IC-02AT compliment its existing line of popular handheld transceivers and accessories. The new direct entry microprocessor controlled IC-02A is a full-featured 2-meter handheld.

Some of its many features are: scanning, 10 memories, duplex offset storage in memory, odd offsets, 32 keyboard selectable PL tones which store in memory, and internal lithium battery backup.

Keyboard entry through the 16-button pad allows easy access of frequencies, duplex memories, memory scan, priority, dial lock, PL tones and DTMF in the IC-02AT.

An easy-to-read custom LCD readout indicates fre-



ICOM'S NEWEST
SUPER SPECIAL

NEW IC-04AT for

KANTRONICS IN
NEW UNIVERSAL
Computers with
NEW !! NEW !!
for Vic-20, C-

STANDARD HAMSOFT - AP-

STANDARD HAMTEXT - VIC-

UNIVERSAL R
CW COMPU

Lets you send and receive com
all shifts and all speeds. Copie
filter for 170 Hz shift and CW
TRS-80C, Atari, TI-99, Com
MFJ, Kantronics, AEA softwa



IC-271A \$899, IC-271-

CALL FOR YOUR LOW CHE



2 Meter FM/CW/SSB IC-

IC-

For the ultimate in 2-meter communications, ICOM presents the IC-271H transceiver with a high dynamic range receiver and a 100 watt transmitter. Operating from the IC-PS30, IC-PS15, or the internal IC-PS35 (optional), the IC-271H brings all the advanced functions of the latest CPU controlled radios to the ham shack. Standard features include 100 watts of

The 20 Metre Amateur Band

By George Scuthe VE3CUR

Question: What is ever-changing, sometimes capricious, often surprising, generally challenging and frequently rewarding?

Answer: The 20-metre band.

Just over 60 years ago, when Radio Amateurs were experimenting with wavelengths down to 100 metres, there were startling demonstrations of unsuspected DX characteristics when contacts were made across the Atlantic and were followed by two-way communication across the Pacific. With suddenly expanded commercial interest in the short waves, the United States Government established harmonically-related bands of frequencies for Radio Amateurs, including 14,000 to 16,000 kc/s. Thus was originated the '20-metre band.'

An international radio telegraph conference held in Washington in 1927 redefined the 20-metre band as extending from 14,000 to 14,400 kc/s, and in 1929 the Federal Radio Commission opened the segment above 14,400 kc/s to radio telephone operation. In Canada, Amateurs were authorized to use 14,000 to 14,400 kc/s for type A1 emissions (CW) with a power limitation of 500 watts. Most Amateurs operated with powers well below 100 watts.

A survey in the mid-1930s indicated that 18% of Amateur Radio activity was taking place in the 20-metre band.

The upper 50 kHz of the pre-war 20-metre band was lost to Amateurs after the Second World War. Today, the band from 14,000 to 14,350 kHz is authorized for radiotelegraphy by Canadian Amateurs holding Advanced Amateur certificates, who may also use radiotelephony from 14,100 to 14,350 kHz.

Holder of Amateur certificates may use CW but do not have the phone privilege.

In the United States, privileges on 20 metres depend upon the class of licence held. Novices are not permitted to use the band. 'Extra' class licence holders may operate CW from 14,000 kHz upward, and 'Advanced' and 'General' class, from 14,025 kHz upward. 'Extra' class may operate SSB from 14,150 upward; 'Advanced', from 14,200 upward; and 'General', from 14,275 upward.

Twenty metres is essentially a daytime DX band, although at the peak of the propagation cycle it may be 'open' throughout the 24 hours of the day. At the bottom of the cycle, the band opens around sunrise and 'goes out' soon after sunset. There may be aberrations in the pattern when the alert and patient operator will find DX when the band appears to be 'dead'.

In the past year, there was daytime propagation to most parts of the world during the spring, autumn and winter—sometimes good, sometimes not-so-good. July and August were disappointing; good months to be away on vacation. Late night propagation was good in May and June, especially in the direction of New Zealand and Australia. Some late night activity was possible from November to February as well as pre-dawn operation, although conditions were generally spotty. Long-path signals from Oceania and the Indian Ocean were sometimes heard in the afternoons.

Propagation may be judged by listening for the beacons operating on 14,100 kHz. Eight beacons located around the world transmit

in sequence every ten minutes, progressively reducing power from 100 watts to one-tenth of a watt.

Strong signals only rarely emerge from the 'skip zone' extending from about ten miles to about 500 miles from the operating position. Accordingly, the ham across town may be very weak while far-distant stations are booming in.

A directional antenna is highly desirable on 20 metres, both for directing your signal to the station you wish to work and for minimizing QRM on other bearings.

If you are a DXer, you will find that Dxpeditions and many of the 'rare prefix' stations tend to transmit on CW between about 14,020 and 14,035 kHz, generally specifying calling frequencies 'up' from their transmitting frequency. On SSB, they tend to transmit between 14,180 and 14,200 kHz and indicate listening ranges above 14,200, such as '14,210 to 14,230.' To call on top of the DX stations is a blunder that can trigger curt and uncomplimentary interjections by 'policemen'—usually self-appointed guardians of the sanctity of the DXpedition's transmitting frequency.

Apart from DX, 20 metres is used by 'special event' stations and for regional celebrations, generally around 14,065 kHz on CW and 14,280 kHz on SSB. Contesting, particularly at weekends, may extend over wide segments of the band, often to the dismay of non-participants. As CW and SSB contests are not usually held concurrently, non-participants may wish to change to the mode of operation not in use in the contest.

ARRL bulletins and code practice from WIAW are transmitted daily on 14,080 kHz. DX bulletins

are sent weekly, one from the Southern New England DX Club by W1AW, and another from the Northern California DX Club by W6TI on 14,003 kHz.

A number of fraternal groups use specified frequencies for promoting QSOs among members. FOC (First Class Operators' Club) members are frequently heard around 14.025 kHz; Royal Navy Amateur Radio Society members use 14,052 kHz and Royal Signals Amateur Radio Society members, 14.065 kHz as world-wide calling frequencies.

RTTY stations are usually found between 14,080 and 14,100 kHz. SSTV stations use 14,230 as a calling frequency. Various networks may be found across the band, the U.S. SSB nets concentrating in the upper 50 kHz, 14,300-14,350. There are traffic nets, DX nets, County-hunters nets, and, indeed, nets for special interests of many kinds.

This is necessarily a cursory sketch of the characteristics and the use made of the 20-metre band. While it is primarily a daytime DX band, it provides for a varied range of Amateur radio activities, whether working across Canada or working around the world. Rag-chewer or rapid-fire DXer, you will find 20 metres an exciting band.

EXAM CHANGES PROPOSED

DOC proposes to tidy up the exam to bring them up-to-date with current practice and in accord with some changes worked out with CARF and CRRL last summer. The proposed amendment will add the punctuation marks, figures, emergency and 'Q'signals to the Advanced code receiving test, to legalize the requirements in the DOC TRC-24 bulletin. TRC-24 outlines the Amateur Service exam requirements. The change will revoke the redundant requirement for oral and practical examinations and the drawing of schematic diagrams, for the Amateur class ticket.

CARF News Service

Canada Day Contest

The Canadian Amateur Radio Federation is pleased to announce the following contests:

Canada Day Contest 1984

0000z to 2400z 1 July

Canada Contest 1984

0000z to 2400z 30 December

These contests are open to all Amateurs. Everybody works everybody on the 160, 80, 40, 20, 15, 10, 6 and 2 metre bands in both CW and Phone.

Classes of entry: Single operator: all bands; single band; all bands, Amateur Certificate (for Canada); all bands, QRP; single band, QRP. QRP entrants must run no more than 5 watts output. Also, Multi-operator, all bands.

Contacts: All contacts between Amateur stations are valid. The same station may be worked twice on each band, once in CW and once in Phone. CW contacts must take place in the agreed CW-only parts of the bands. No crossmode contacts are allowed.

Exchange: Signal Report and consecutive serial numbers on each band. VE1 stations should also send their province.

QSO points: 10 points for each contact with a station in Canada. 1 point for contacts with stations in other countries. VE0 counts as Canada. 10 bonus points may be claimed for each contact with a CARF official station. These stations use the TCA or VCA suffix. (ie. VO1VCA, VE7TCA)

Multipliers: Total of Canadian Provinces and Territories worked on each band on each mode. The Provinces and Territories are: VO1/VO2 VE1-NB VE1-PEI VE1-NS VE2 VE3 VE4 VE5 VE6 VE7 VE8 VY1

Suggested Frequencies: 1810, 1840, 3525, 3770, 7025, 7070, 14025, 14150, 21025, 21250, 28025, 28500, 50040, 50110, 144090, 146520 kHz.

We suggest Phone during even hours, CW during odd hours, z.

Entries: A valid log must contain log sheets, dupe sheets, and a summary sheet showing claimed QSOs, QSO points, a list of multipliers and calculation of claimed score. Summary and multiplier checksheets are available for an SASE. Entries should be mailed within one month of the contest, with your comments, photos, etc. to CARF Contest, P.O. Box 2172, Stn. D, Ottawa, Ontario, K1P 5W4.

Awards: Certificates will be awarded to top-scoring entries in each class in each province, territory, USA call area and DXCC country. If scores are close, second and third place certificates will be awarded. Additionally, trophies will be awarded to top-scoring entrants in some classes, courtesy of the following sponsors:

Single op, all bands: Both contests: CARF. Single op, all bands, Amateur: Canada Day Contest: Atlantic Ham Radio Ltd., Canada Contest: C.M. Peterson Co. Ltd.; Single op, single band: Canada Day Contest: Dollard Electronics Ltd./Icom of Canada Ltd.; Canada Contest: Editor of TCA. Multi op, all bands: Canada Contest: Glenwood Trading Co. Ltd.

Results: will appear in TCA, the Canadian Amateur Journal. Non-members of CARF may wish to include an SASE with their entry for a copy of the results.

CANADIAN CALL BOOK

CARF has been receiving orders for the 1984 Canadian Call Book but the book is published by a private company, Pen Publishing. Pen informed us that hopefully it will be off the press by now. Books will be shipped by CARF as soon as a supply is received.

CARF News Service

Early Canadian Amateur Call Signs

By George F.W. Reynolds VE4AJ

The call sign is an intensely individualistic part of Amateur radio. As an identifier, it is used more frequently than in any other branch of the radio service.

The article by Art Stark VE3ZS in the March 1984 TCA gave an overall view of the current system of issuing Canadian Amateur call signs, but there was a time when a totally different method of station identification was used.

Let's go back to the very beginning of radio regulation in Canada. In 1905 parliament passed the 'Wireless Telegraphy Act', an act "to provide for the regulation of wireless telegraphy in Canada." Section 6 authorized the Minister of Marine and Fisheries to grant licences to applicants "who wished to experiment in wireless telegraphy", i.e. Amateurs. 1906 saw the formation of the Radiotelegraph Branch, a division of the Department of Marine and Fisheries.

On May 4, 1910, the Department of Naval Service took over the administration of radio from Marine and Fisheries. According to the Annual Report of the department for the year ending March 31, 1911, the first Amateur to be licensed in Canada was Frank Vaughan of St. John, N.B. He was not, however, issued a call sign.

Canada had been assigned several blocks of call signs, including the block XAA-XGZ, by the Berne Bureau, the forerunner of the International Telecommunications Union. The XAA-XGZ calls were reserved for Amateurs, with one or two exceptions, by the department. In the year ending March 31, 1912, the allocation of call signs began. Ten in all were issued to Amateurs

located across Canada, in the Maritimes, along the St. Lawrence, in the lower Great Lakes region and on the Pacific coast. The calls ran from XAB to XAO with a few letters missing.

Next year, 27 Amateurs were licensed with call from XAB to XBG. Just prior to the shut down of Amateur activity when World War I broke out, a total of 79 Amateur licences were in good standing in Canada, the last call issued was XEB. Included in the final list of calls were Frank A. Anderson, the first Amateur to be licensed in the three Prairie Provinces, and Miss M.S. Colville XDD, of Bowmanville, Ontario, Canada's first YL.

The pre-World War I period was a virtual paradise for the Amateur. There was, of course, no BCI or TVI. The D.N.S. adopted a laissez faire attitude toward the Amateur provided he did not interfere with marine traffic. Spark was the only mode of transmission. The D.N.S. report for the year ending March 31, 1912, said, "Any interference (by Amateurs with ships and coastal stations) which might arise, has been overcome by strict enforcement of the licence clause in the Wireless Telegraphy Act and a judicious selection of the wavelength and power used.

"It is readily understood that a drastic suppression of such (Amateur) stations would be a great detriment to the art of wireless telegraphy in this country." (Italics are the authors).

The D.N.S. licence limited Amateurs living near shipping lanes to a power input of ½ kW and restricted operations to below 50 metres. Remotely located Amateurs could use a maximum of ½ kW and

any wavelength below 200 metres.

Naval Service had neither the staff nor the budget to supervise Amateurs in all parts of Canada. The only radio inspector between Toronto and the Pacific coast was an official who functioned on a part-time basis at the Lakehead during the shipping season.

Amateurs in isolated districts could apply direct to D.N.S. HQ in Ottawa for a conditional or C licence which would give them a call sign. They must agree to take the operator's exam whenever they could appear before an R.I. As an alternative they could operate unofficially using a call sign issued by a local radio club or they could choose their own call sign.

Winnipeg was a good example of this type of situation. The only commercial stations in Manitoba at that time were two 10 kW Marconi sparks on 1.800 metres. They were in Northern Manitoba at The Pas and Port Nelson, far removed from any possible interference from Winnipeg hams. The first Amateurs in the city were a group of students at the Central Collegiate Institute who, in the fall of 1909, started using home-made or Model T Ford spark coils for transmitters. The hobby got a great stimulus when Dr. Lee de Forest, the inventor of the three-element radio tube, visited Winnipeg. De Forest had come to the city to deliver a series of lectures and to demonstrate his system of radiotelephony. His radiotelephone broadcast on April 19, 1910, was the first by that medium in Canada. He spent considerable time with the hams explaining technical details of his apparatus. De Forest was president of the New

York-based Radio Club of America. He encouraged them to get together and form a club so they began holding informal meetings to discuss the project. By February, 1911, their plans were complete and the Canadian Central Wireless Club was organized. Available records indicate that this was the first Amateur wireless club in Canada. The club issued call signs to its members having a letter and a number. Unfortunately, like so many of the club records, the list of C.C.W.C. calls has long since disappeared. A rather murky picture of the equipment owned by the club president, Alex V. Polson, shows a card on the wall labelled A7, possibly his call sign. When WWI broke out, the club had 43 members.

The state of affairs in the Toronto Amateur fraternity, pre-WWI was so unusual that it merits close examination. The Wireless Association of Toronto had been formed in 1912 and immediately began issuing call signs to those enrolled. The original W.A. Toronto calls circa 1912 consisted of two letters, usually the initials of the holder, e.g. G.W. Shepard, GS, but they sometimes had two unrelated letters, e.g. A. Miles, DK.

The W.A. Toronto calls circa 1913 had three letters. The first was X, the second was the surname initial and the third represented the sequence of issuance to that surname group. An example was the above G.W. Shepard, now XSC, his call being the third call (C) in the S surnames.

The 1913-1914 list of the W.A. Toronto had 107 names. It is probable that there were other Amateurs on the air who, for one reason or other, did not join the club. All the 107 members were on spark. One had 1 kW power, 17 ½kW, 36 ¼kW with the rest using spark coils.

Although there was a radio inspector on duty in Toronto, the final (1914) D.N.S. file showed that there only six legally licensed Amateurs in the Toronto area. A few Toronto hams had two calls, e.g.

F.L. Elliott of 27 Gough Avenue was XEA courtesy of the W.A. Toronto and XDM as licensed by the Naval Service. In his report to the D.N.S. for the year ending March 31, 1914, the General Superintendent of Radio said that there were a large number of unlicensed Amateurs in Toronto and that they were causing severe interference with marine traffic. He recommended prompt action against these illegal Amateurs but there is nothing in the record to indicate that there were any prosecutions.

In June, 1913, the Radiotelegraph Act became law superseding the Wireless Telegraphy Act. The regulations under the new act did not significantly alter the status of Amateurs. But the R.T. Act had a section which did not appear in the old act. Section 10 read, "The Governor in Council may make regulations for... the control... of radiotelegraph signals in case of actual or apprehended war... or civil disorder."

On August 2, 1914, Canada declared war on Germany and an order in council was immediately published decreeing the cessation of all Amateur activity for the duration.

Let us see what happened on the Canadian Amateur call sign scene in the post-WWI period. Order in council No. 888 brought the news the Amateurs had been eagerly awaiting: "His Excellency the Governor General in Council is pleased to order that the order in council of the 2nd of August, 1914, be cancelled as from April 15, 1919, and that on and after that date the pre-war regulations with regard to the licensing of Amateur experimental stations be resumed."

The D.N.S. reiterated its policy towards Amateurs saying that, "The government is anxious to accord all possible privileges to Amateurs compatible with non-interference with commercial services." It should be emphasized that the reference was to ship and coastal services— radio broadcasting

was still some three years in the future.

Naval Service began issuing calls in the former XAA-XGZ series as of May 1, 1919. Incidentally, U.S. hams were not allowed back on the air until October 1, 1919. By January 10, 1920, it had become apparent that they supply of calls in the XAA-XGZ block was rapidly being used up. The decision was therefore made to completely revise the Amateur call sign procedure. Canada was divided into five districts, the new type of call was to consist of a single figure (representing the district) followed by two letters, the precursor of today's system.

X calls did not totally disappear with the introduction of the figure plus two letter calls. As late as 1922, some technical and training schools had XE calls. One of these was XEY, Kelvin Technical High School in Winnipeg; another was XEM, Central High School in Chatham, Ontario. Later, when the numeral 6 was allotted to this class of station, Kelvin became 6AB.

As of June 14, 1922, the radio service was transferred back to Marine and Fisheries from Naval Service.

Prefixes and interval signs of intermediates are another interesting development of this era. The new Canadian calls were similar to those in the U.S.A. When trans-border contacts became common, it was obvious that further identification was necessary. By early 1923 an unofficial scheme was agreed upon by the hams in the two countries: Canadian calling Canadian would use the interval sign *v* instead of *de*.

Canadian calling American would use the interval sign *fm* instead of *de*.

American calling American would continue to use *de*.

American calling Canadian would use the interval sign *aa* instead of *de*.

Things really got complicated when transoceanic contacts became everyday occurrences. In January,

1924, a different system was introduced. The Amateurs of the various countries came up with a home-made set of prefixes without the blessing of the authorities. Some examples: Australia *a*, Argentina *r* (phonetic), Spain *S*, Canada *c*, France *f*, Great Britain *g*, U.S.A. *u*, New Zealand *z* and so on. The prefixes were used as in interval sign or intermediate instead of *de*.

Thus a Canadian calling a New Zealander would transmit:

2KA 2KA 2KA *zc* 4NI 4NI 4NI *k*.

Just as everybody was getting used to the new system, Great Britain threw a monkey wrench into the works by insisting that under U.K. regulations, all British stations must use the interval sign *de* when calling or working any domestic or foreign station.

Within two years, so many new countries had come on the air that the single letter prefixes were all in use. The International Amateur Union therefore devised a system of two letter prefixes referred to as 'IARU intermediates'. The first letter represented a continent, for example, *n* for North America, *s* for South America, *o* for Oceania and *e* for Europe. The second letter represented a country, as before. Thus Canada became *nc*, Australia became *oa*.

Canadian calling an Australian would transmit:

7LX 7LX 7LX *oanc* 5KP 5KP 5KP *k*.

In effect, a four letter intermediate.

All this changed when the Washington Radiotelegraphic Convention became law on January 1, 1929. Under the Convention, all subscribing countries, including Canada, would designate distinctive Amateur prefixes to indicate or interval sign *de* and abandon the four letter IARU intermediates.

Amateur calls were to consist of "4 or 5 letters with a figure inserted." The Convention granted Canada the exclusive right to all calls beginning with the letters VA,

VB, VC, VD, VE, VF, and VG. Canada allotted the prefix VE to Amateur experimental stations. Why the specific prefix VE was chosen for the Amateur service in preference to the other possible V's is a mystery—no clue can be found in the Annual Report of Marine and Fisheries.

The prefix VE became official for Canadian Amateurs with issuance of licences processed after April 1, 1928, in anticipation of the coming into force of the Washington Convention.

Information in this article on Amateur call signs and licences is from the Annual Reports of the General Superintendent and/or Director of Radio for the Department of Naval Service and/or Marine and Fisheries for the appropriate year. Data on laws, rules and regulations are from the Canada Gazette. Information on the Canadian Central Wireless Club and on De Forest is from the files of the Manitoba Free Press and on the Wireless Association of Toronto from bulletins in possession of W.F. (Bill) Choat VE3CO.

Halifax club establishes NARC committee

The Halifax Amateur Radio Club, under president John Perkins VE1FH, established a New-to-Amateur-Radio Committee in January, 1984. Serving on the committee are Tom Fullerton VE1CES, the executive member and Jim Cleveland VE1CHI, chairman.

The purpose of this committee is to encourage an interest in Amateur radio with those now casually interested and to encourage those studying for the quarterly examination by assisting them in any way possible. So far, the committee has met with the HARC-sponsored Amateur radio class conducted by Mike Pothier VE1UG, and has invited the students to make ham shack visits with local Amateurs. A number of Amateurs volunteered during the January meeting—the first such meeting for the new executive.

A recent February 2nd visit with Brit Fader VE1FQ, proved to be very informative for Rick Lowe, exam candidate, and the committee chairman. Brit answered many questions from both of us and reminisced about the 'early days' of Amateur radio in this area. We had a chance to admire the wallpaper as well as look at rare old photos of

equipment, hamshacks, and reunions here in the Maritimes. It was a fascinating evening for both of us. A special "thank-you" goes to a special guy, Brit Fader—a man who has done just about everything in Amateur radio, and continues to do so today.

In the future, the committee hopes to offer assistance with code practice, conduct public displays in shopping malls promoting Amateur radio, and produce a video tape on the Amateur radio hobby. In addition, we ultimately intend to reach the high school students interested in radio and ensure that they are aware of the pleasures of Amateur radio as a hobby.

Jim Cleveland VE1CHI

8th ANNUAL SYMPOSIUM

Western operators will have the opportunity to meet and discuss Amateur problems with DOC head office and Regional officials at the eighth annual CARF National Amateur Radio Symposium. The Orchard City ARC will host the event in Kelowna, B.C. early in October. Written input from clubs and individuals from across Canada is solicited for inclusion on the agenda. Write to CARF, Box 356, Kingston, Ontario, K7L 4W2.

VHF in Europe

By Julian Baldwin G3UHK
& Kris Partridge G8AUU.

Here is an article of special interest to Amateurs who may be visiting countries on the other side of the Atlantic.

Channelized VHF FM activity began in Europe around 1970 but not until 1972 was a European FM channelization system standardized. The channel system is now (almost) the same from the north of Norway to the south of Italy and is based on a 25 kHz channel spacing. Since 1980, a small number of additional channels have come into use on the 12.5 kHz half channels. The European 2m band, which carries the vast majority of the FM traffic, is only 2 MHz wide (144-146 MHz) and only the 145-145.77 MHz sector is allocated to channelized FM (see tables A & B). Note that repeaters are known by their channel number rather than their frequency i.e. 'R1' not '025/625'.

Ch. No.	input	output
R0	145.000	145.600
R1	145.025	145.625
R2	145.050	145.650
R3	145.075	145.675
R4	145.100	145.700
R5	145.125	145.725
R6	145.150	145.750
R7	145.175	145.775
(R8)	145.200	145.800
(R9)	145.225	145.825

TABLE A (Repeaters)

S 8 - 145.200	Working channel
S 9 - 145.225	Working channel
S10 - 145.250	Working channel
S11 - 145.275	Working channel
S12 - 145.300	RTTY AFSK
S13 - 145.325	Working channel
S14 - 145.350	Working channel
S15 - 145.375	Working channel
S16 - 145.400	Working channel
S17 - 145.425	Working channel
S18 - 145.450	Working channel
S19 - 145.475	Working channel
S20 - 145.500	CALLING CHANNEL
S21 - 145.525	Working channel
S22 - 145.550	Working channel
S23 - 145.575	Working channel

TABLE B (Simplex)

In addition to the above eight repeater channels used internationally, France and Austria use additional repeater channels (8 and 3 respectively) which have been devised unilaterally due to historic and geographic reasons. At this point it is worth mentioning that there are still a few repeaters operating on two channels (R8 & R9), whose outputs lie in what is now the satellite sub-band (143.8-148 MHz). These are gradually having their channels changed.

The 70 cms band differs from that in N. America, being 430 MHz not 440 MHz. Not only is the band different but five different repeater offsets are known as this band (-1.6, +1.6, +4.6, +7.0, & -7.6 MHz). Unless you intend a long stay in any one country, the likely level of activity available means that the effort of modification to your UHF rig is probably not worthwhile.

From a linguistic viewpoint, the North American visitor to Europe must appreciate that his home language will not be universally understood throughout a Europe tour. While English is fairly widely understood in many countries, many Amateurs with a limited knowledge of the language may be reluctant to demonstrate this on the air. Your knowledge of French will be invaluable in France, Belgium, Monaco Luxembourg. Visitors to Italy and the Iberian peninsula will find a knowledge of the local languages to be highly desirable. In central eastern Europe, if you do not speak the local language you may find that a knowledge of German and/or English will get you QSOs. In Scandinavia and north west Europe, you should find no prob-

lem in making QSOs in English if you do not speak the local language. Be tolerant of the 'dialect' of English that you will meet on the air (even in England!).

As a result of the limited number of repeater channels available and the high density of the Amateur population, the coverage area of most of the European repeaters is smaller than is common in North America. (Most repeaters run no more than the International Amateur Radio Union recommended 25w ERP). A consequence of this is that many long distance QSOs take place on SSB using high gain antennas. SSB activity is almost exclusively on horizontal polarization whereas most FM activity uses vertical. The limited number of VHF channels also usually results in there being only one or two VHF repeaters serving a particular area, though large metropolitan areas may have three or four. There is, therefore, a much higher level of FM simplex activity than is experienced in North America. This activity level also results partly from the fact that nearly all European countries have a VHF/UHF code-free licence class. In the case of the United Kingdom, about half the Amateurs hold this class of licence.

European Amateurs have established a single FM calling channel 145.500 MHz (known as S20). QSOing on this channel is frowned upon, and in this way S20 is quite different from the North American '52' National Simplex Frequency. An exchange of call signs and QSY arrangements is all the traffic that should take place on S20.

The use of CTCSS (PL) tone

controlled squelch on European repeaters is almost unknown. On the other hand, the use of tone-burst access is very widespread and in many countries it is obligatory. The universally-used tone frequency is 1750 Hz and generally a 500 ms burst length will suffice. All Belgian repeaters and a number of other individual machines require a minimum of 3 seconds of tone. Use of all repeaters is open to ALL Amateurs— there are NO closed private repeaters. Autopatch is not available through European repeaters, nor is any interface to the Public Telephone network permitted. Linking of repeaters is not common.

Having decided that you like the idea of operating on your trip 'round Europe, you will need to make application for temporary operating permits to each country individually. You should first check with your National Licensing Administration or your National Society to see if the countries you are intending to visit will issue you with a permit to operate. Most will, but almost without exception there will be a fee payable for the issue of the permit. In nearly all cases the application has to be made on a special form and these are available from the Licensing Administration of the country in question. Make sure that your present licence will be valid for the period of your trip. All applications will require a photocopy of your licence. We recommend a total lead time of three months to obtain, complete, return and await processing of the application. No two Administrations seem to have the same requirements and there are wide differences in the magnitude of the fees demanded and the methods of payment required. Dollar bills are not usually acceptable.

Customs formalities for your gear are generally not a problem provided that you hold a valid operating permit for the country you are entering. An exception is France, where additional paperwork is required. The United Kingdom

requires a special permit for equipment which is capable of operating between 26.1 and 29.7 MHz.

To guide the visiting Amateur through the jungle of paperwork and to provide comprehensive maps and lists of repeaters in most European countries (and beyond) the authors of this article publish a regularly updated book entitled *The International VHF-FM Guide*. In it will be found details of the requirements of each of the individual countries that you will be visiting, including the address of the country's Licensing Administration, details of the information required, the advance notice recommended, the fees and charges and the Customs formalities (where relevant). Maps show the position of each repeater and listings give callsign, channel, power, talkthrough time etc. The UK has a special domestic

edition of the book which is recommended for visitors to the UK. This edition contains an additional section which gives expanded details of individual UK 2m repeaters. The book may be purchased from a number of outlets or directly by mail from:

Julian Baldwin, G3UKH, 41 Castle Drive, Maidenhead, Berks, SL6 6DB England (Tel. (0628) 37837)

The cost (by airmail to North America) of the current 6th edition is:— Basic Overseas ed £2.10 = US \$3.50 = Can \$4.00

UK Domestic ed £3.50 = US \$5.50 = Can \$6.50

Acceptable forms of payment are: British currency, Cheque, M.O., cash

Canadian currency, Cash.

U.S. Currency, Check, M.O., Cash.

Odd fractions may be sent as IRCs.

Two VE3 Cable TV ops dump Channel 18

With cable TV QRM looking as the next major problem facing Amateurs, there was interesting news from the Ontario town of Pembroke where local Amateur action over a period of two years has resulted in one of the offending channels, Channel 18 or E being discontinued. Pembroke Amateurs went the political route with the assistance of the local member of parliament and co-operation by DOC, rather than try for an intervention in any CRTC hearing when the cable system applied for a change or for a licence renewal.

Ottawa Cablevision, an Ottawa cable system, has ceased to use the 144 MHz band Channel 18 because the CRTC wanted it to eliminate its duplication of the system's programming which is on both channel 18 and 4. It is not known what the eventual outcome may be as the company is making plans to 'clear up' Channel 18 problems. The company is having problems with a

local TV station signal leaking into one of their channels. It was not known at press time whether or not Channel 18 may be re-activated at a later date.

CALL COLLECTORS' CORNER

Confirmed information from DOC HQ is that the Jacques Cartier commemorative calls will be VY0V for a special event station in Quebec City, VA1 and VA2 for V01 and V02, CZ1 for VE1, VY for VE districts 2 to 8 and CK1 for VY1. This rare mixture of calls will have DXer's searching their files from June 20 to August 20. DOC is also considering a request for a special call for the papal visit, CZ2PP. It may be presenting protocol problems for the Department as the visits of other heads of state, such as Amateurs King Hussein and King Carlos or the Queen have not been so marked.

CARF News Service

'X-Pro'— A 10 GHz Project

By Frank Merritt VE7AFJ
in the Nanaimo ARC 'Static'

In the world we live in, everything has to have a name: so why not 'X-PRO'. This term stands for X-band PROject. As it turns out, X-band refers to the Amateur Radio (in this case) bands at 10,000 to 10,500 MHz. To relate this to the Amateur bands the wavelength is in the order of 3 cm! This area of the spectrum was first referred to as 'X-band' during World War II for security reasons. The term remains today as an easier way to express the band than struggling through 10,000 MHz or 10 GHz. Obviously 1 GigaHertz (pronounced jiga-Hertz) is equal to 1,000 MHz.

Just to provide a bit of perspective, some historical notes will be of interest. In 1897, Guglielmo Marconi demonstrated a 1.2 GHz microwave link to the British Post Office. Taking a step backward, it is noted that Oliver Lodge demonstrated waveguides to the Royal Institute in London in 1894. In fact, Heinrich Hertz in 1888 used a parabolic mirror for focusing 420 MHz spark-gap generated RF energy on a nearby dipole antenna with a spark-gap detector.

After World War II, vast quantities of 2K25 Klystron tubes were available as power sources for X-band. Amateur Radio operators have been using Klystrons for over 25 years but the development of this area of the spectrum lacked that something 'special'.

This special something came with the creation of the Gunn diode. The Gunn diode is a tiny diode that can be used with a low voltage (in the region of 10vdc) to generate X-band energy. To make a long story short, the Microwave Associates firm has developed a Gunn oscillator cavity that makes

the generation of X-band power simple. In fact, they have taken the technology one step further with the development of a ferrite circulator that can be used with the Gunnplexer cavity to complete the RF requirements of a transceiver at X-band.

To help the situation along, *The Gunnplexer Cookbook* has been written by Bob Richardson W4UCH, and this volume reduces the rather exotic technology of X-band to a practical and simple state-of-the-art.

It is of considerable interest to note that a X-band regular coaxial cable exhibits a great loss to the point that coax is useless. The waveguide has been developed as a transmission line to efficiently couple microwave energy in a system. In its simplest concept, a waveguide can be thought of as a two-wire transmission line with an infinite number of resonant stubs above and below the wires. Waveguide takes the form of rectangular tubing.

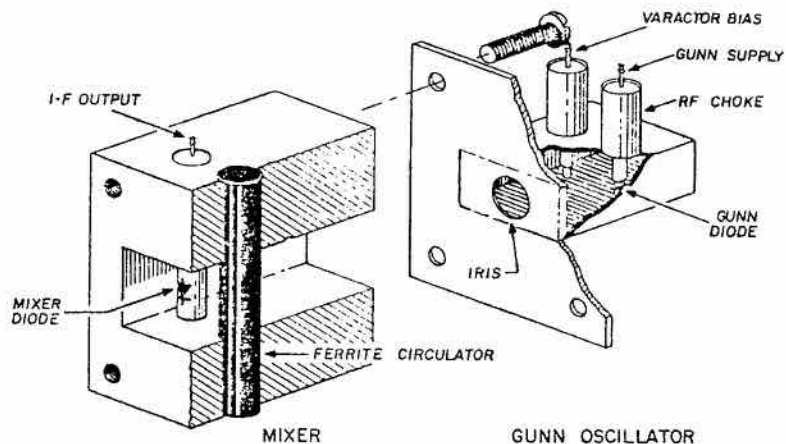
The Gunnplexer cavity and ferrite circulator is mated with the mixer diode. The result is that if a signal is detected from a received

signal the Gunnplexer functions as a local oscillator. The Gunnplexer power through the circulator element provides the transmitter power. This is utter simplicity.

The next element of a communications system that must be dealt with obviously is the antenna. The Gunnplexer transceiver a 17 dB antenna. Yes, that's right— a 17 dB antenna. The antenna is referred to as a 'horn' antenna and that's just what it is.

The Gunnplexer can be a simple and highly portable communications system. Author Richardson is shown in the book with two Gunnplexer transceivers, complete with 'dish' antennas. It should be noted that the 'dishes' are actually metal Snocoaster children's snow 'saucers'. Used as 25-inch parabolic dishes they provide a gain of 30 dB.

Now the 'bottom line'. What is proposed is that the Nanaimo Amateur Radio Association begin an X-band Project that will eventually have national and international implications. A good deal of the hardware is presently on-hand to begin with. One system can be made with a 2K25 Klystron and the



second system will be made with a purchased Gunnplexer assembly.

Two systems are needed for the obvious reason that to have a system two stations are required. Since a Klystron and Klystron power supply are on hand, only one Gunnplexer assembly is needed. This is proposed as a club project to involve a number of NARA members at many levels of proficiency and ability. In no way is the project to become an activity for 'the few'. Help is needed to do elementary construction, machine work, electronic assembly and of course people are needed for 'mountain topping'.

Challenge is where the imagination is. Shortly the challenge of just 'doing it' wears thin. This is why after system testing it is proposed that the group should become involved in DX records. On the Amateur band at 10 GHz the international record is now over 1100 miles and was done in Italy! It is proposed to throw the gauntlet of challenge open to other Canadian groups to develop a Canadian DX record on X-band and hopefully eventually to challenge the international record.

At the last Association meeting it was voted to procure three copies of The Gunnplexer Cookbook for NARA members use. This has been done and the volumes should be here soon. It is proposed we should begin X-PRO at once. Financially, this involved procuring one Gunnplexer assembly at the cost of about \$400 US. All other supplies are either in-hand or will be shortly.

The cry is immediately heard that, "That stuff is too complicated!" This is not the case. Author Richardson has done an exceptional job of reducing the technology to the point that an 'average' experimenter can get involved. His book details the hardware that is involved and it is merely a matter of Doing It.

The expansion of horizons, or challenge is the name of the game. Why does the mountain climber

climb the mountain? That is the challenge. X-PRO— why not? It merely remains for us to Do It.

As well as this short-term goal of getting a system going, it is proposed that NARA do some real pioneer-

ing and stimulate X-band interest across the entire country. We have a national organization in CARF, and 'TCA' can be used to 'spread the word'.

U.S. lifts 160M curbs CARF asks DOC to do same

For a number of years, the navigation system known as LORAN A, used by ships and aircraft, has shared the 160 metre band (1,800-2,000 kHz) with the Amateur Service in North America. To obviate the possibility of interference to the LORAN A system, Amateur Service station transmitter power and mobile operation were both restricted under Section 43 and Schedule X of the General Radio Regulations, Part II.

The LORAN A system has, however, been gradually phased out, giving way to a more modern radio navigation system utilizing a frequency band other than one allocated to the Amateur Service. The last three stations of the old systems were recently closed down, thus rendering the Section 43 restrictions to the Amateur Service redundant. In the United States, the Federal Communications U.S. Amateurs but at press time, Canadian Amateurs were still stuck with them.

Section 43, however, has provision for the Minister to waive the power restrictions under its subsection 43(3)(b) if an individual Amateur applies for a waiver on them and if the DOC is satisfied that such a waiver will not result in harmful interference to "radio determination stations"; specifically, the now defunct LORAN A system stations.

As the reason for Section 43 no longer exists, the Federation has asked that Ministerial authority be

exercised to rescind or waive all of the Section 43 restriction to Amateur station operations in the 160 metre band, including both the one applying to transmitter power and the one applying to mobile operation on 160.

This action would not only correct the obvious redundancy of Section 43 but would have the advantage of eliminating the current two year lag in the amendment process as well as the time and effort in processing the individual request for waivers which can be directed to DOC.

Policy of the Federation regarding TRC-24

The policy of the Federation in regard to TRC-24 and examination questions used is to ensure that:

A. The Amateur candidate possesses sufficient knowledge to properly install and operate a station on the modes and frequencies specified for this class and to possess the theoretical background necessary to progress to the Advanced Amateur class.

B. The Advanced Amateur candidate possesses sufficient knowledge to use the modes and frequencies available to this class, perform basic maintenance to the equipment used and be able to interpret and use information contained in handbooks, articles, etc. related to Amateur Radio.

Packet Radio Lives!

By Paul Whittaker VE3IAC
in the Peel ARC News

Most of you have heard of packet radio, many have seen it in operation through technical demonstrations or at the RSO Convention. Some of you are even active packeteers. Whether or not you are involved in this new mode, it will affect you and the future of Amateur radio. I really am not in the position to predict what these changes will be. Meanwhile, this update of what is happening in and around the Peel area from the point of view of one not very active packeteer will have to do.

Last time I wrote about packet, it was about the digipeater that was temporarily installed at the same location as the analog VE3MHZ. The packet repeater did not stay there very long. It was moved from site to site gradually evolving into what it has become today.

VE3RPT, as it is now called, has a permanent site near Erin Mills Parkway and the Queen Elizabeth Way. The site was obtained on behalf of the Hamilton and Area Packet Net group (HAPN) by Bruce Cowan VE3GBC. An arrangement was made with the operators of that commercial site where VE3MHZ is located. The machine is made up of a VADGC TNC (the packet radio processor) which was put together by Hamilton packeteer John Vanden Burg VE3DVV. The radio is a mobile which required a very strange crystal combination for it to operate simplex. The power supply for the radio and Hammond rack cabinet for the repeater was donated by Jean Louis Major VE3FBF. The whole assembly was put together by Dave Kerr VE3FGK and was tested in a number of locations including the previous site of the repeater VE3RSO, Lloyd Fern's tower.

The repeater, operating on 145.65 MHz, cannot be subject to the 'thumpers' who invariably try to raise a new repeater, since it will only transmit packets. It is different from normal repeaters in that it is a store-and-forward device. It ignores everything but packets. Which is, I suppose, what it was intended to do. With this machine, I can have a QSO with W4UCH at Chautauqua Lake, on the New York Pennsylvania border, and can virtually 'connect' to any active packeteer in this area.

Perhaps I should look into the crystal ball— just a glance...

Soon, this digipeater will form part of a land network that will link the rest of the world. All this with completely accurate data transmission. No errors due to QRM, QRN etc, and the kind of data that can be transmitted is as various as that which presently constitutes Amateur radio communications the world over.

Back to what is happening now. A small group is presently working on a 220 MHz band digital radio. The radio should be able to transmit data at 48 Kbd or better and will be incapable of anything but data transmission. Looking at the outside of it one will see only a DB-25 connector, an RF connector and a power supply connector.

Why is this radio being built? Well you might ask. To maintain links (the network) is necessary to be able to transmit data at much higher speeds than is possible on two metres with its band width constraints, not to mention the crowded conditions it enjoys. The 220 MHz band is very quiet, and the DOC has reserved space just for this kind of transmission, even though no radio equipment of the type

required exists even now.

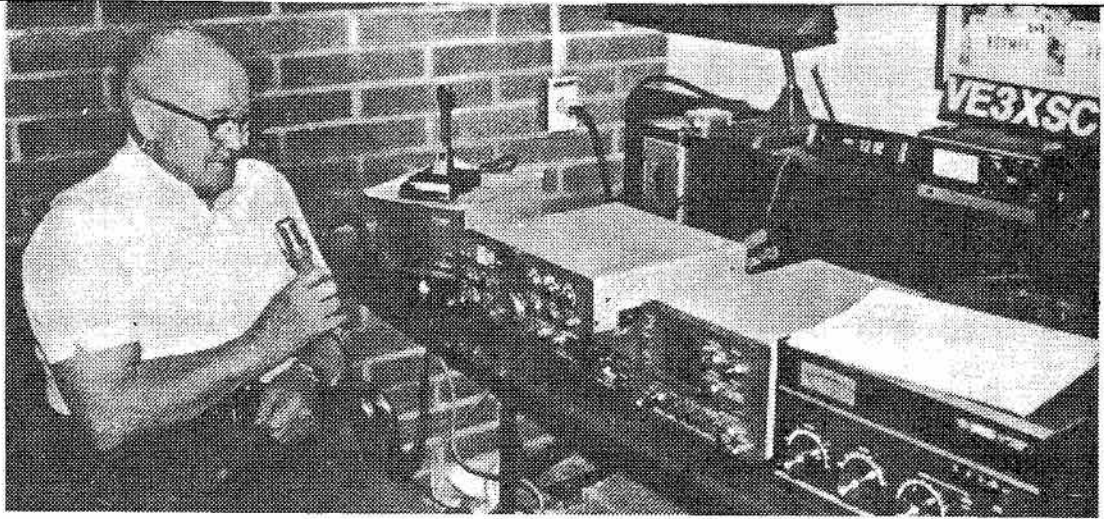
So far, the prototype IF strip has been built and tested and works very satisfactorily. Work is proceeding with the synthesizer portion and a modulator of sorts exists. There is much to do in this very complex and ambitious project, and any and all offers of help are actively solicited.

If you are interested in learning more about this new dynamic mode, and in range of VE3OD, join in on the packet net Monday nights at 8:00 p.m. on 147.735 MHz receive, down 600 kHz to transmit. Also keep in mind that you only require an Amateur certificate to operate packet, since F2 (at 1200 baud) on 2 metres is the mode currently in use.

(Editor's Note: Let's hear more from packet radio experimenters. We would like to publish articles on this fascinating facet of the hobby, which does not get much national exposure in print these days.)

Antique & Classic Amateur equipment

Antique and Classic Amateur Equipment of all kinds, as well as all sorts of other vintage radio memorabilia, will be on display and for sale at *Radiofest '84* June 21-23, 1984. Sponsored by the Antique Radio Club of America and hosted by the Antique Radio Club of Illinois, *Radiofest '84* will be held at the Elgin, Illinois, Holiday Inn, I-90 and Illinois 31. Amateur radio participation is welcomed; 146.52 talk-in will be active throughout the conference. Write Joe Willis, Box 14732, Chicago, IL 60614 for details.



VE3FRG honoured for his service

The following story appeared in the 'Oakville Beaver,' Dec. 9, 1983, and is their report on "Bill Gouthro Recognition Night," which took place on Nov. 28 at Extendicare, Oakville, Ontario.

To some people he's a VE3FRG; to others, he's known as Bill Gouthro.

But whatever you choose to call him, Gouthro is a very youthful 80-year-old Oakville resident who was recently honored for his years of service to the community as a member of the Oakville Amateur Radio Club.

Gouthro has been a member since 1968, when he visited the club to find out a little something about single side bands to aid his stereo and TV repair hobby.

"I went to find out something and stayed," says the spry Samford Place resident.

Over the years, Gouthro has held the positions of club secretary and treasurer, as well as serving on the Public Service Committee, however, it was for his work in spearheading the establishment of an Amateur radio station at Extendicare for which he was recently honored.

After an initial attempt at setting up a station in 1974, at Extendi-

care's urging, failed because of lack of interest, the club decided to resurrect the idea and with Gouthro's help, two residents obtained their licences so they could operate the ham radio equipment which Extendicare purchased with a \$2,500 New Horizons grant.

"We don't let go of an idea that easily. We're out for public service," explains Gouthro.

When the equipment arrived, Gouthro soldered the entire radio kit together while the two elderly gentlemen watched, "so I could give them a better opportunity to see what the inside of a ham radio looked like."

Extendicare's ham radio was in operation by 1976 and in 1981, with the aid of a supplementary \$5,800 New Horizons grant, they purchased "the best" equipment. Today, Gouthro, along with two other club members, Jim Goodman and Dick Lee, visits Extendicare twice a week to help out with the station's operation and educate interested residents, who currently number 10.

Gouthro obtains tremendous satisfaction watching the residents at the mike particularly those with speech problems whether a result of a stroke or disease.

"They are shy about talking

because they know they have this disability," says Gouthro. "But if they can talk to somebody who they can't see and who can't see them, it helps them become more coherent. It's therapy for them"

Being able to converse with people outside the residence has also been a deterrent to loneliness for many. The residents have made several friends via the radio, one in particular, a blind man in Dunville who severed his optic nerve in an accident and has become an avid ham radio operator. Not only do the residents converse with him via the mike, but they visit each other on occasion.

At home, Gouthro devotes several hours every week to his own ham radio equipment, talking with other operators throughout the province and holding regular conversations with an elderly man in Michigan.

Other than being involved, along with other club members, in relaying information during the Mississauga disaster in 1979, Gouthro operates his radio strictly for pleasure—his and other people's, when he distributes messages of goodwill across the country via various networks.

"Most of the messages are just routine, but the idea behind this is,

if any emergency ever came up, we'd be all set up to go," he says.

Gouthro settled in Oakville almost 30 years ago and worked for both Purolator and Torin Manufacturing Ltd. before retiring in 1971. Previous to this, he farmed in Antigonish for 10 years, worked for Ford in Detroit and as a coal miner in eastern Canada.

Although he officially retired 13 years ago, Gouthro doesn't really know the meaning of the word. Aside from his activities with the Oakville Amateur Radio Club, he has recently taken a computer course at Sheridan and purchased his own computer.

"When you're 80 years old, you're childish enough to do anything," he laughs.

News from Grenada

VIA VE3EUP/J3

Reciprocal licencing is now available to VE & W HAMS.

Write to Leroy Baptiste J39AI, President of Grenada Amateur Radio Assoc., P.O. Box 290, St. Georges, Grenada, West Indies. Enclose a photocopy of certificate of proficiency and of your station licence. Give details of arrival and departure and place of intended residence. Request a letter of authorization which you can show customs on arrival to get your equipment in. You will use your own call sign/J3.

Licences are issued to residents only: non-nationals from J37 AAA-ZZZ Block; and nationals from J39 AAA-ZZZ Block.

There is a 2M FM repeater operational 146.160/760 and it covers via link or direct access to 9Y4, 8P6, J88, & J6 that I know of. Call is J39AA.

Only charge is SAE & IRC(s) to get your reply and remember it takes three weeks for most replies.

CARF proposals on Cable TVI accepted by RABC Committee

On April 4, the Electromagnetic Interference Committee of the Radio Advisory Board of Canada met in Toronto and one of the items on the agenda was the CARF request, addressed to the Board in February, to have it study the problem of interference by cable TV systems to radio spectrum users and to recommend to DOC methods of meeting the problem.

CARF's representative, Art Stark VE3ZS, proposed that the RABC develop procedures acceptable to all radio services for reporting and resolving cable TV interference problems and for monitoring the effectiveness of corrective action. After considerable discussion, the EMI Committee of the RABC set up a working group consisting of DOC, CARF, CRRL and the Canadian Cable Television Association to study the problems and make recommendations to the EMI committee.

CARF's position and proposals were the result of collaboration between Art Stark VE3ZS, Barc Dowden VE3TT and Bill Wilson VE3NR and were coordinated with and agreed to by the CRRL representative attending the meeting.

CARF supports DOC's BP-23 (which limits the leakage from cable systems. Ed.) but wants its permitted leakage radiation limits to be enforced. Amateurs cannot however, accept a standard that would increase the leakage stated in BP-23.

CARF believes that other users (safety, police, fire, air traffic control and similar services) as well as Amateurs should be concerned and involved in developing appropriate procedures for reporting and resolving CATVE problems. The Federation suggests that a recognized procedure between all affected parties be established.

There should be some agreed way to advise a CATV company of a detected leak and of its severity, including all users of the 120-174 MHz and 216-300 MHz bands, not only Amateurs. There should be full co-ordination by CARF/CRRL in so far as Amateurs are concerned.

CARF recommends that the DOC record the number of complaints received concerning cable TV radiation in order that the Board can see how corrective action is progressing. It also recommends that DOC make sample checks in areas of severe leakage and report back to the CCTA, CARF and CRRL and any other affected RABC sponsor-members.

Later information is that the working group on cable TV QRM planned by the Radio Advisory Board of Canada's Interference Committee has evolved into a DOC committee, chaired by a Departmental Official. The proposed committee would have 2 members each from CARF, CRRL, DOC and the cable industry association, the Canadian Cable Television Association. The group was requested to meet before the end of April and to report back to the RABC by this month (June).

(The Radio Advisory Board of Canada, formerly the Canadian Radio Technical Planning Board, is an advisory body to government in radio matters. Membership consists of public safety organizations such as police chiefs' association, industry associations representing the electronic industry and spectrum users and senior DOC officials. CARF and CRRL are also member societies. Amateur comments and briefs to the Board are easily understood by the Board because, as can be imagined from its nature, a good number of the representatives are active Amateurs.)

VE3CDC

Call for aid for cyclist

Some of the cyclists in our ranks might remember Jocelyn Lovell, Canada's former top cyclist and gold medal winner. Last summer, Jocelyn was in a terrible accident that left him a quadriplegic. Any active person will tell you that his main fear is that of being left totally inactive. After having been forced into total inactivity for several months due to back injury, I can fully understand the agony that Jocelyn must be going through.

Last fall, I received a letter from Libby Stevens VE3IOT of Thornhill, Ontario. I highly recommend that all Amateurs support what Libby is doing. The letter is reproduced here in full.

Recently there has been a lot of publicity in Toronto newspapers and on TV stations across Canada regarding Jocelyn Lovell—Canada's former top cyclist and gold medalist. This past summer Jocelyn was hit tragically by a dump truck while on a practice-run for a coming event. As a result of this accident, Jocelyn, at the age of 33, is now a quadriplegic and is presently undergoing rehabilitation therapy at Lyndhurst Hospital for a period anywhere from two months to six months, at which time it is hoped that he will be able to return home.

Five days prior to this accident, Jocelyn and his young wife had purchased a new home in the Cawthra-Lakeshore Rd. area of Mississauga. Some time ago Jocelyn chose to remain an amateur cyclist for Canada rather than going Professional. Had he gone 'professional', funds would now be available to assist him with tremendous medical costs. Special contractors have already been called in to determine the costs of renovating the home for a quadriplegic; all door entrances to be widened to permit entry of a wheelchair, ramping at exterior entrances, modification of bathroom and goodness knows what

else. Jocelyn is paralyzed from the chest down, is able to raise each shoulder but has neither the use of his hands nor his legs. He will require an expensive type of electrically controlled chair. In addition, a van, especially equipped for a quadriplegic, will have to be purchased. Furthermore, he will require a full-time, live-in male nurse to attend to his needs 24 hours a day when he gets home. Obviously the future costs are horrendous!

So much for the background, now to get to the point of my letter. We were neighbours of the Lovell family when they lived in Willowdale and our daughter went to High School with Jocelyn, and so naturally we are taking a personal interest in him. My daughter visits Jocelyn and his wife in the hospital every week, and it was my daughter who wrote the enclosed letter to the Star.

The thought has occurred to me that perhaps I could approach several radio clubs and ask if any of the club members who happen to be Dominion Store shoppers would be so kind as to save their cash-register tapes and mail them to me from time to time when they have accumulated a substantial amount. Dominion Stores have a scheme whereby a wheelchair or other pieces of equipment can be purchased by a club for a needy purpose. I have received a brochure from Dominion Stores Head Office outlining the plan. More could be mailed out on request. One would need to collect a total of \$475 in cash tapes to equal \$1.00 toward a purchase. With help from a lot of Amateur friends, I feel that we could accumulate a quantity of tapes in a reasonable length of time. I have presented this idea to my own club, The Thornhill Radio Amateurs Club and plan to mail copies of this letter to other clubs.

You may have read that a group

of 'friends' this past summer set up a trust fund for Jocelyn. The goal is \$450,000 and to date (Oct. 26) only \$37,000 has been reached.

For further interest in particular to club members—Jocelyn is a very sincere candidate for Amateur Radio. Radio was his first hobby before he went into cycling. Recently I talked to Jocelyn on 2 metres from Sunnybrook Hospital, courtesy of a Thornhill Club Amateur who was there briefly for tests. Jocelyn expressed a very keen interest in Amateur Radio and then made this comment: "Libby, it looks like my first hobby will be my last hobby."

I have contacted the DOC this week to ascertain the requirements for a disabled person to become licensed. They quickly dispatched the information by mail. For at least the next two or three months, I expect that Lyndhurst Hospital (Bayview-Eglinton area) will be 'working' Jocelyn very hard in order to teach as much independence as possible. After that time, I would expect that Jocelyn would be ready to get involved in ham radio. In the meantime I have made some enquiries about possible financing of radio equipment and am presently preparing a price-list documentation for a possible Service Club—hopefully. I have talked to Larry VE3FXQ, sponsor for the Sunnybrook Hospital ham station, VE3SBH. Larry has worked very diligently with disabled hams over the years.

Somewhere down the line, I will be looking for a volunteer to drop over to Jocelyn's home once a week (or whatever) to go over the necessary theory and regs with him. I suspect that with his electronic background it should not be a difficult task. It would be appreciated not only by Jocelyn and by myself but by many others close

to Jocelyn. It would not be necessary for him to learn the code in order to pass an exam— and, since he is unable to write, the exam would be oral. I am told that the DOC is very lenient under these circumstances.

Dominion tapes could be mailed to me at my address: Libby Stevens VE3IOT, 21 Ida St., Thorhill, Ont. L3T 1X4. If there are any willing volunteers to help this very courageous guy get a ham ticket, I would appreciate hearing from you, please. I monitor TTY (which has been moved to the Sheppard Centre at 401 & Yonge) or I could be reached thru my brother, Bruce VE3BC, on ONTARS.

Many thanks for your attention to this epistle and any possible assistance that might be forthcoming. Sorry for being so verbose, but I could not assume that everybody knew about Jocelyn.

Libby Stevens
VE3IOT

U.S. Phone Band Expansion—

Action this month

The FCC, according to the W5YI Report is "taking action" on U.S. phone band expansion by the end of this month. The proposed expansion on 75 metres for Extra class is down to 3750 kHz; for Advanced, down to 3775 and General down to 3850. On 15 metres the Extra drop is down to 21.200 from 21.250 megs, Advanced to 21.255 from 21.270 megs and General class to 21.300 MHz from 21.350. On 10 metres, all of the above classes will go down to 28.300 from 28.500 MHz when the proposal comes into effect.

CARF News Service

ANNUAL MEETING

The CARF annual general meeting of members will be held in Ottawa on Saturday, June 23, followed by the Board of Directors meeting. QTH is the Park Lane Hotel.



Ontario Bicentennial Award

Multi-coloured parchment
Sponsored by The Radio Society of Ontario Inc. Contacts valid only for Jan. 1 to Dec. 31, 1984.

VE3 Stations

Contact 200 different VE3 or portable VE3 stations. One point each.

Other VE, VO, VY

Stations contact 100 different VE3 or portable VE3 stations. Two points each.

DX stations including USA

Contact 20 different VE3 or

portable VE3 stations. Ten points each.

Any mode, band endorsed at your wish. Special seals for each 200 extra points. If VE3 stations are using special call or prefix, they count double.

No QSL Cards necessary

Send certified Log Data and \$1.00 or 3 IRCs to: VE3LSS, Bicentennial Project, Listowel District Secondary School, Geography Department, Listowel, Ont., Canada N4W 2M4

Questions! Questions!

CARF and CRRL will be meeting with DOC early in September to discuss current exam questions and to suggest amendments or changes to the question bank now in use. Clubs and individuals are invited to write their comments and suggestions or criticisms to CARF or to CRRL, or both, as the input to DOC will be coordinated.

CARF News Service

FCC PLANS CATVI BLITZ

In the U.S., the FCC is planning a "stepped-up flight" against leaky cable TV systems, particularly those that QRM aeronautical frequencies. Offending systems, says W5YI Report, can expect stiffer fines and inspections.

CARF News Service

ENFORCEMENT NOTE

The Ottawa Amateur who was allegedly operating out-of-band has been put off the air for 30 days while the Department considers its further action in the case.

CARF News Service

Technical Section

Hearing & You

By B. Viney VE3AZX

Ever get the urge to help the other guy?

Perhaps you know someone with a hearing problem? Like immediate results for little effort? Read on.

There are two major classes of people with hearing impairments. Deaf people, for all practical purposes, are unable to hear at all. Technically inclined people can help this group especially if you are skilled in teletype, digital data distribution and display as well as the operation of data type 'bulletin boards'.

There is also much to be done for the people who have impaired hearing but who are not 'deaf'.

Have you ever listened to an intercom system which has an outside station? Notice the background noise, cars, trains, wind effects, children playing, dogs barking? Yet if we go outside we don't notice these things. Instead we hear the speaker's voice.

Or maybe you have been at a meeting where a one-to-one conversation near you makes it difficult to hear the speaker?

Or maybe you have been in a busy restaurant and found that without moving your head you can 'tune in' on several adjacent conversations, one at a time?"

The point is that our brains have a digital filter which can be programmed to reject unwanted information. This function is lost when an electronic amplifier is inserted in the hearing path.

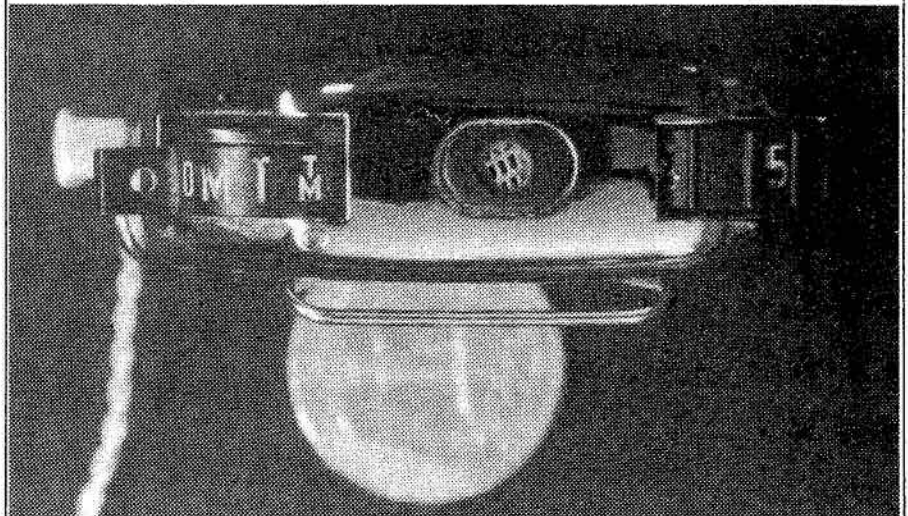
If you put all this together you can see that a person attending a

meeting using a hearing aid is in an almost impossible situation. If the gain is high enough to hear the speaker, the hearing impaired listener is snowed under with surrounding noise. This situation is so bad that there are some people who will not go out. No movies, lectures, night school, church

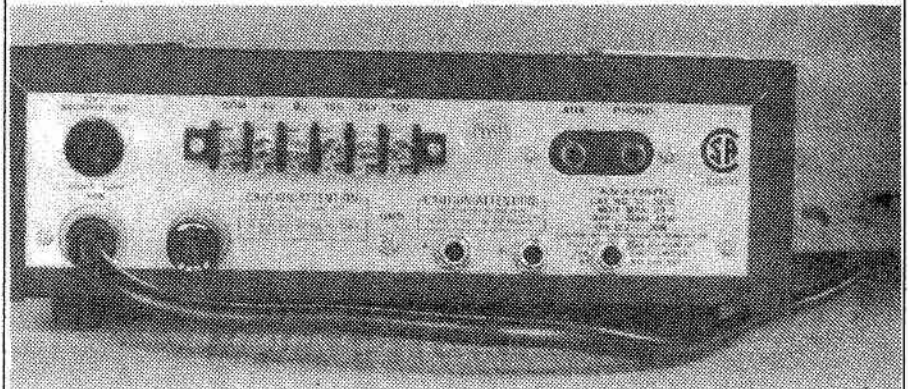
services or club meetings. Quite a loss.

Some work has been done on the problem. Solutions have been developed.

Why is more help needed? Because the solutions are almost all impractical. Sure they work OK sometimes. But take a look at these



Pocket size hearing aid. Telephone switch on the left has four positions, Off, Microphone, Telephone, and Telephone plus microphone. Volume control on the right, microphone in the center.



Simple but adequate Radio Shack amplifier. Added jacks bridge across screw terminals.

price estimates from a bulletin provided by the Canadian Hearing Society:

Induction loop	\$500
AM Broadcast loop	\$1300
FM Broadcast loop	\$350
Infra red	\$135 to \$2000

Not too many of us can afford that kind of money.

So where do you fit in? Easy, most of the information I have seen is from commercial suppliers or written by engineers. Neither have the let's-be-inventive-and-do-it-cheap approach of the home builder. There is lots of room for improvement on the known techniques.

In a nutshell:

1. There is a need for technically-inclined people to work with individuals or small groups to build, install and maintain devices already developed.

2. There is a need for new equipment, new designs, new ideas.

To give you a start, here are the requirements:

- The system must be low cost. Aim for not over \$100.
- It must be portable. Brief case size would be nice, one cardboard box maximum.
- It must be rugged. The people using it are not technical— keep it simple.
- Must not be hazardous to the user or anyone else.

To some degree the system will have to be individually tailored. Hearing loss is not only loss of amplitude but also selective frequency loss.

What works in one location or for one group is not good enough elsewhere or for another group.

Now let us get to the nuts and bolts:

Induction loops (usually called 'the loop system') requires an audio amplifier, regular PA type, connected to a coil of wire. The coil of wire circles the area where service is required. The users switch their hearing aids to 'T' (telephone) position. The audio signal radiates directly to the induction coil in the

hearing aid. Level is adjusted to individual requirements by the gain control on the hearing aid.

In some large buildings, these loops are buried in the structure. In addition, when they go in to trouble, how do you fix them? There could be a situation in a church or a house where you might find an unfinished ceiling in the room below the meeting room. This would be a good spot for a loop. But my main concern is the portable loop.

Figure 1 shows the basic set up. It is essential that the turns of the coil be connected in series aiding, not opposing. Only one of the five conductors is tinned, so not to worry about turn overs if you connect as shown.

Install phone jacks on the

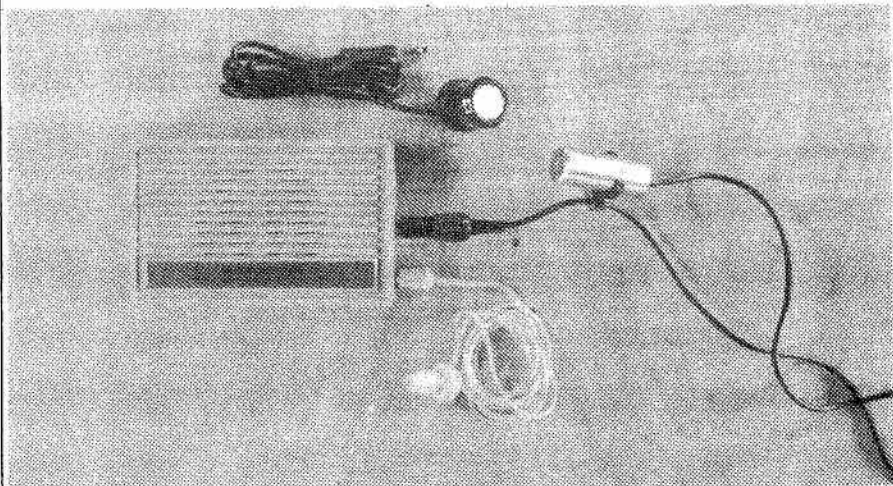
amplifier to provide easy connect-disconnect.

To verify your work, test as shown in Figure 2.

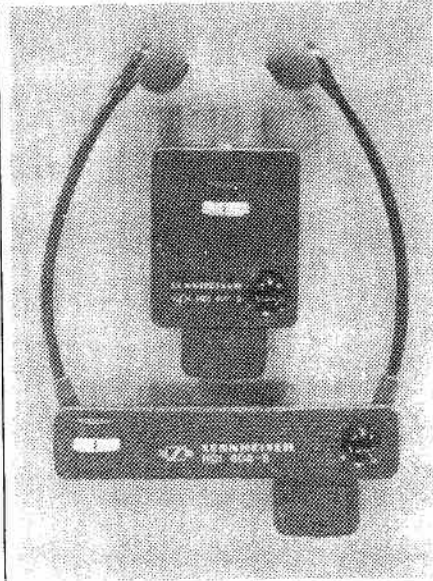
It would be nice to have a better resistance to inductance ratio (Q). This in turn would require heavier gauge wire, which would make the loop inconvenient. I did calculate a 16 gauge loop driven by the 4 ohm output and came up with 5 turns and a Q of 1.4. Not enough different to be bothered with. Maybe you can see a better way to do it.

In use the user runs the five conductor cable along the floor or along the desks or tables used by the conferees. Yes it is a hazard on the floor. Got a better idea?

Since the loop shape is not predictable and loop impedance



Simple system for use in the car. Small self-contained battery-powered amplifier speaker connects directly to the ear plug or through the inductive pick up to the hearing aid. Person with normal hearing wears the tie clip microphone.



Two infra red receivers. One is worn on the chest while the listener faces the transmitter. The smaller unit connects to an ordinary hearing aid and can be placed for best results, or held aloft in the hand.

therefore indefinite, 8 and 15 ohm outputs should be tried for optimum results. If the 100-foot loop is too big, double it over itself, series aiding, to provide a 10-turn 50-foot loop. Optimum results can only be identified by the person with the hearing impairment, using the hearing aid as a tester. Maybe a test set to measure inductive field strength is available. I don't know of any. All that really matters is user satisfaction.

Other systems:

The AM system also uses a loop around the room. This time it forms the antenna. It is necessary that the participants have a small AM receiver. Getting an interference-free channel may not be easy. Probably a doubt about legality—unless you get a licence.

Seems to me that with CB sets going at scrap prices, a CB system would be worth looking into. A loop would be unnecessary. Several participants could plug into one hand-held CB.

The FM system is similar to the AM, with a slightly better chance of getting a free channel. Now the participant requires a portable FM receiver. Many theatres are using the FM system.

The Direct system uses a long cord with numerous branches. Each branch terminates in a mini phone jack. Users plug in an inductive coil which couples to the hearing aid through the T connection. I would insist on inductive coupling. The danger of shock in the direct system would make it unacceptable, unless inductive coupling is inserted. Note that the output terminals of the amplifier are not isolated by the built in output transformer. Negative feedback forms a direct connection. An isolating transformer between the amplifier and the direct line might be a good idea.

The infra red systems come in several versions. Some of them are quite elaborate and use 'antennas' so that the signal radiates from several large areas thus blanketing

the area. Unfortunately this type is hardly portable— or inexpensive. There is a simpler infrared system which uses a beam like a burglar alarm system. This one requires that the user intercept the beam with an infra red receiver. Costs a couple of hundred dollars. Might suit a particular situation.

Maybe you can add to this list, or come up with something better. Sure looks like an ideal area for some interesting experiments. Reminds me of the time when the hams were taken off the air. Some of them built big loop antennas and communicated by audio.

Remember: "Service is the price we pay for the space we occupy."

Inductive Loop Calculations

For the theoretically inclined, here is the way I see it:

If 100 feet of rotator cable is the practical limit, this gives up 500 feet of #22 gauge at 16.46 ohms per 1000 feet. So loop resistance is 8.46 ohms. If we use the 15 ohm output on the amplifier, the required Inductive Reactance is:

$$\begin{aligned} XL &= \sqrt{Z^2 - R^2} \\ &= \sqrt{15^2 - 8.46^2} \end{aligned}$$

$$XL = 12.39 \text{ ohms}$$

Reactance of coil required to give 15 ohm impedance is 12.39 ohms.

Assuming a frequency of 1000 Hz,

$$L = \frac{XL}{2 \pi f}$$

$$\frac{12.387}{6.28 \times 1000}$$

$$L = 2 \text{ mili henries.}$$

To find number of turns, assuming coil is air wound:

$$n = \sqrt{\frac{L(9a - 10b)}{a^2}}$$

$$\sqrt{\frac{2000(9 \times 15 \times 12 - 10 \times 2.5)}{(15 \times 12)^2}}$$

$$n = 10 \text{ turns}$$

Where:

L = inductance in henries

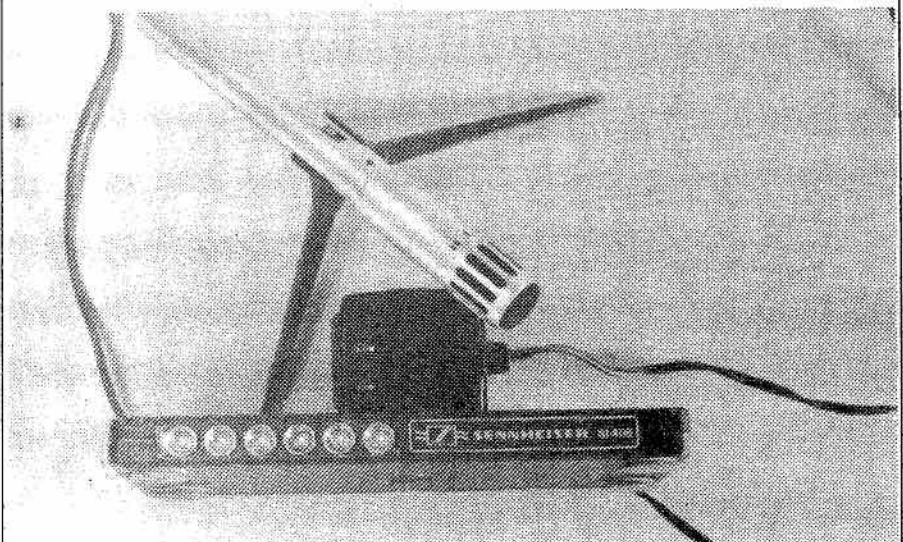
a = Coil radius in inches

b = Coil in length in inches

n = Number of turns

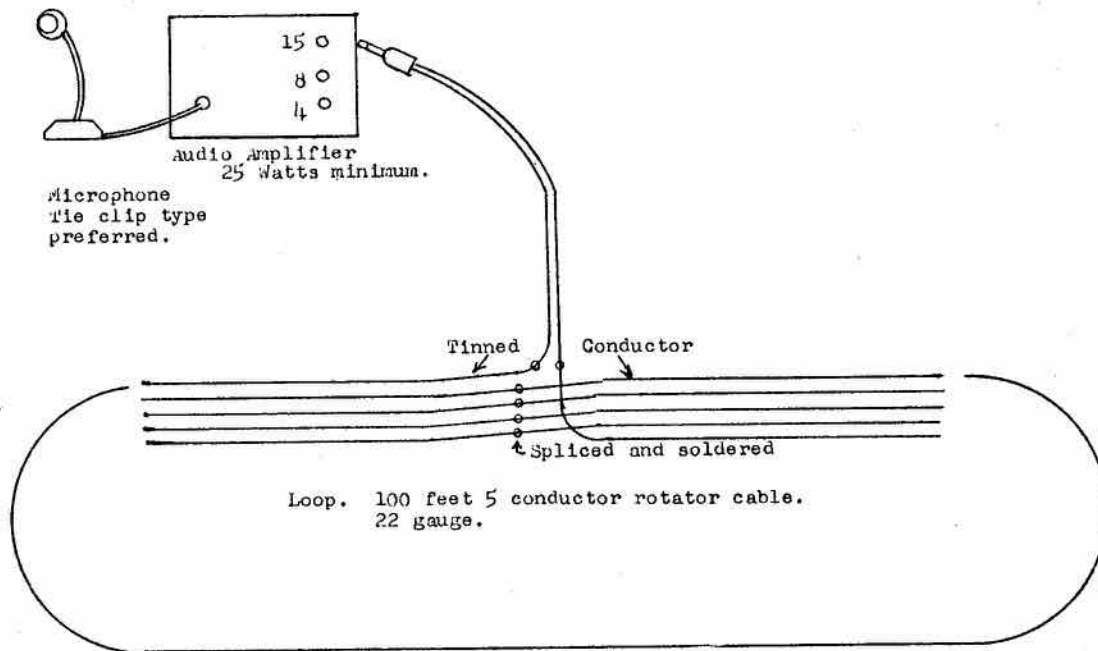
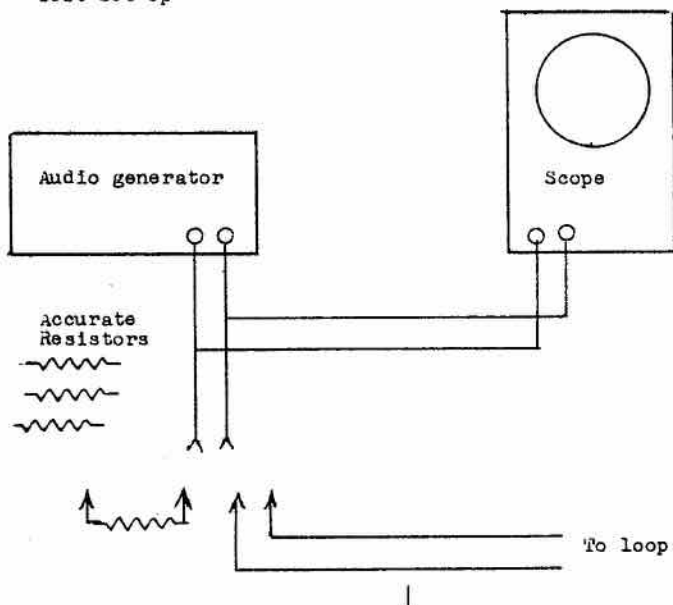
Procedure:

1. Connect loop to test set up. Adjust scope to give a convenient height.
2. Set generator to 100 Hz.
3. Disconnect loop and apply resistors individually and in



Infra red transmitter of the portable type. Note AC plug type power supply and desk type microphone.

Test Set Up



combination until the same amplitude of presentation is obtained.

Results:

Loop ready for transportation— 68 ohms

Loop spread out for use— 10 ohms

Note: If RF pickup is a problem, add .001 Mfd capacitor across loop terminals.

B. Viney VE3AZX

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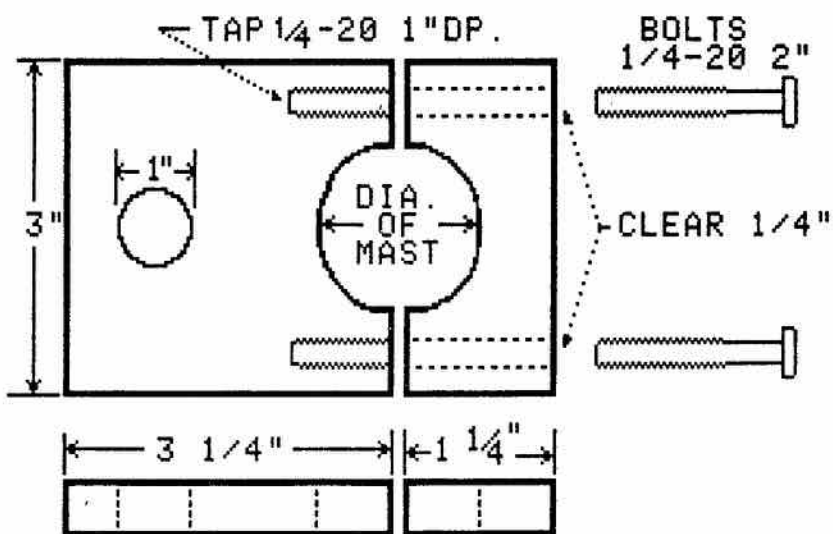
Antenna Raising— The Easy Way

By Ken Grant VE3FIT

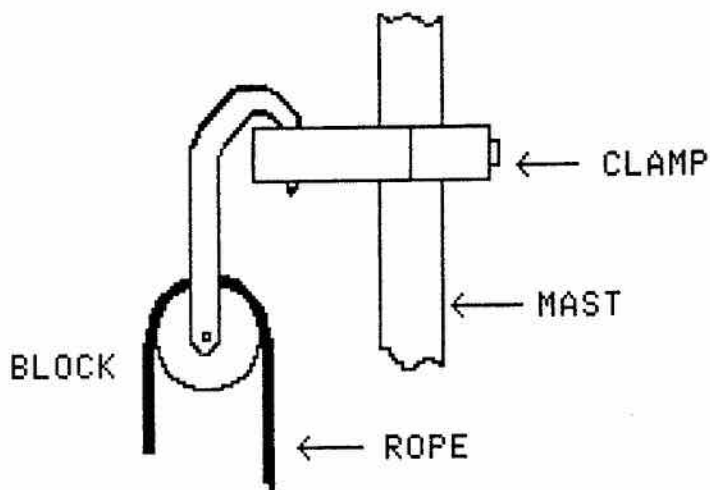
For most Amateurs, the worst part of raising a beam antenna into place atop a tower is the part where someone has to climb the tower while carrying this cumbersome chunk of aluminum which wants to sway in the wind. By the time you've maneuvered the antenna around any guy wires and actually have it at the top of the tower, you've probably considered something like flower arranging as an alternative hobby! Fear Not. I am about to describe a device and technique which should help immensely.

Basically, it consists of a clamp (Fig. 1) attached to the antenna mast above the point where the antenna is to be attached. A block (also known as a pulley with a hook) attaches to the clamp, enabling the antenna to be raised from the ground (Fig. 2). The clamp is made of steel or aluminium. The smaller hole accepts the hook, while the larger hole is bored to the same diameter as the mast you intend to use. The clamp is then sawed through the diameter of the larger hole. When the clamp is bolted together, the larger hole will be slightly smaller than the mast diameter and so will clamp securely to it.

After the antenna has been raised into position, the clamp may be left in place, if you wish. That's all there is to it. The clamp could be made in your local high school machine shop and the block seems to be a common sailboat item.



TOP VIEW (NOT TO SCALE)



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FOR SALE: Heathkit HW101 with CW filter, HP23C power supply, HS1661 Speaker, HDP242 Microphone, asking \$475; Kenwood TS830S with YK88C & YG455C CW filters, SP230 speaker, AT230 Antenna tuner, MC50 microphone, cost new \$1900, asking \$1450; Kenwood TR7730 2M FM, Mobile mounting bracket, up/down microphone, cost new \$450, asking \$350; Hygain 18AVT/WBS 5 band vertical antenna, cost new \$160, asking \$110. Contact: Al Haines VE3NYV, 358 Fairview Dr., Brantford, Ont. N3R 2X8. 519-756-2576.

The St. Joseph Island Repeater Association is looking for 450 MHz solid state gear to establish a repeater-link system along the north shore of Lake Huron. Receivers and low power transmitters are needed. Will accept donations but am willing to purchase also at reasonable cost. Contact Gord Woroshelo VE3EYW, (Custodian), P.O. Box 57, Manitouwadge, Ontario P0T 2C0.

FOR SALE: Yaesu FL101 transmitter, FR101 Digital Receiver includes FM board 2&6 meter converters and manuals \$675.00. Phone 306-561-2374 Jim VE5DX.

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FOR SALE: Icom IC-551D ssb, cw, am, fm 6 metre transceiver with built in VOX. IC-PS20 supply. 3

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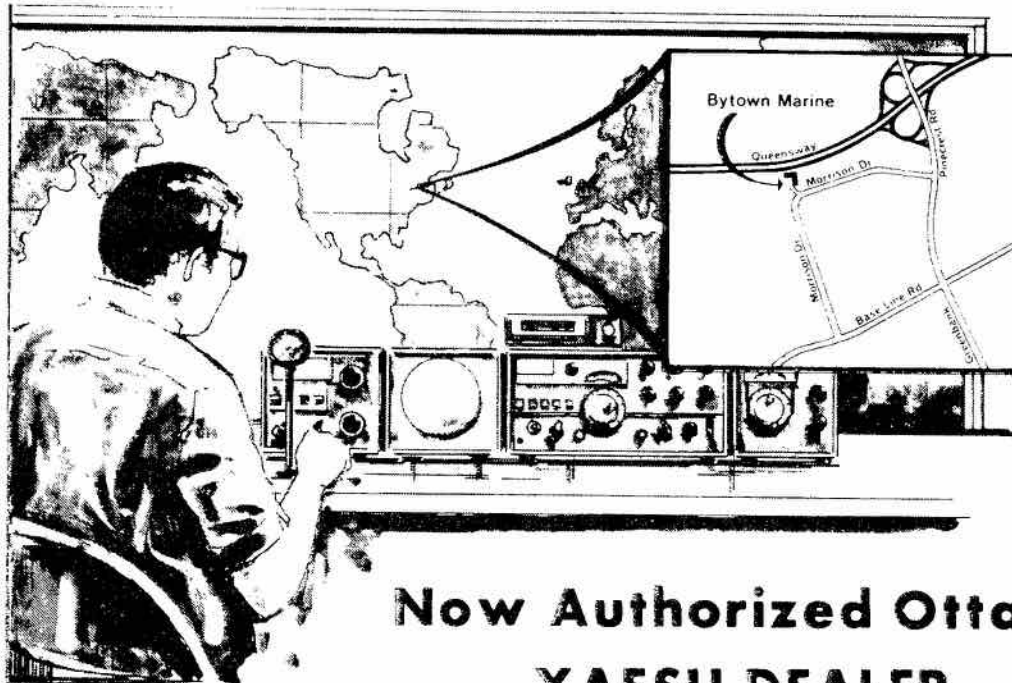
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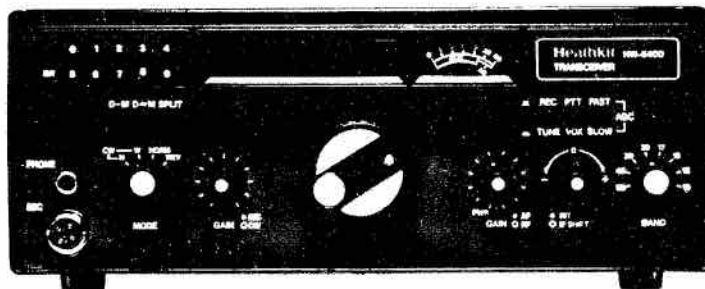
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