CARF

the canadian amateur

March 1977 No. 3

Illegal use of Equipment

Despite the fact that police monitors and radar receivers are not legal under the Radio Act and the Radio Regulations (unless they have broadcast band reception built into them) they are sold by the thousands.

The Ontario provincial government is considering an act to make the radar detectors illegal, apparently unaware of or unwilling to use relevant provisions of the Radio Act to initiate prosecutions.

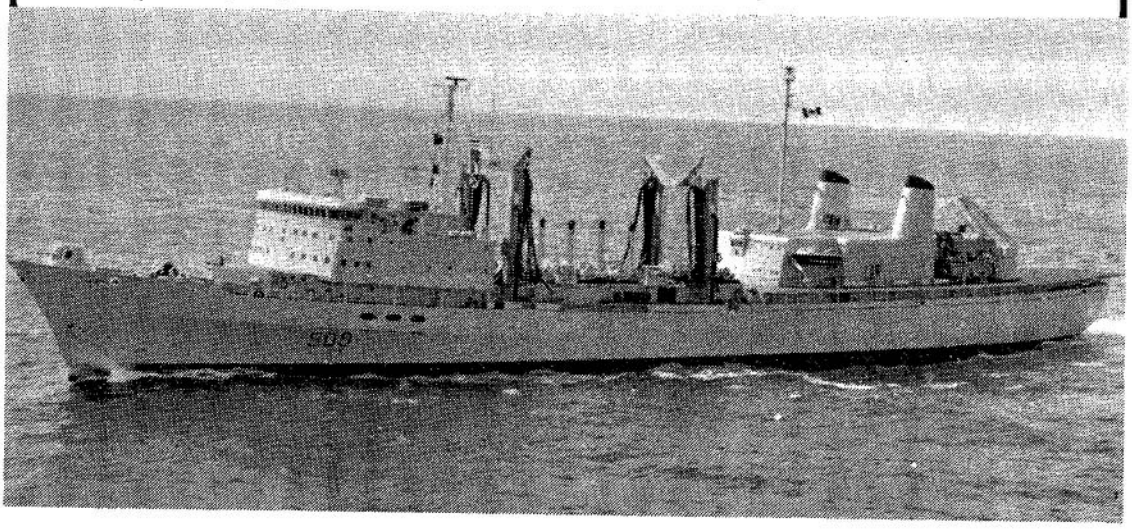
Last month in a Montreal court, a local citizen was sentenced to a day in jail and a $1000 fine for illegal possession of a receiver capable of monitoring police frequencies. However, he was

Continued on Page Three

Floating Classroom

From H.M.C.S. Protector, one of Canada's navy vessels, comes word that the station on board may soon have some more hands on the key and the mic. Chief Petty Officer Ralph Campbell, who is chief technical officer on the 'Protector' and who runs VE0ND, the ship's Amateur station, reports that he has a class of 15 studying for their Amateur certificates.

Ralph, whose home call is VE1QU, keeps in touch with shore by means of skeds with VE1YO and others who run phone patches for their crew. The usual frequency is 14.170 MHz.



The Canadian Amateur is the official monthly publication of the Canadian Amateur Radio Federation, Inc. It is distributed to members and is available to others for $7.00 per year. The Federation is incorporated and operates under a federal charter, with the following objectives:
1. To act as a coordinating body for Amateur radio organizations in Canada;
2. To act as a liaison agency between its members and other Amateur organizations in Canada and other countries;
3. To act as a liaison and advisory agency between its members and the Department of Communications;
4. To promote the interests of Amateur radio operators through a program of technical and general educations in Amateur matters.

Correspondence should be addressed to the Editor, The Canadian Amateur, Box 356, Kingston, Ont. K7L 4W2.

CARF

the canadian amateur

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Vol. 5 No. 3

TX to contributors

Many thanks to those who have submitted stories, technical articles and publishable letters. We hope that we can run all of them during the coming months. To those of our readers who would like to immortalize themselves in the pages of this publication with a contribution, we say: "Let's have em". It helps if they are double spaced and typed. If you are writing by hand, please use a black ball point or very soft pencil. It is quite often necessary to photocopy incoming stories and blue ball point will not 'take'.

We try for a wide variety of news each month and with limited space we appreciate articles which run no more than 1500-2000 words in order to reduce editing for space to a minimum.

Going to the US?

According to an Ottawa correspondent, although the FCC and the DOC are now moving to drop the necessity of obtaining reciprocal operating permits in each country, you still require a validated FCC Form 410 before you can operate in the United States.

Free QSL Service

Outgoing and incoming QSL Card service is FREE to all CARF members! Your cards will be sent FREE to other countries (except USA) and to provincial QSL Bureaux in Canada.

Sort your cards alphabetically by country and call and send along to CARF QSL BUREAU, BOX 66, ISLINGTON, ONT. M9A 4X1, along with a self addressed, stamped envelope (5" x 7" preferred) with your membership number in the lower left hand corner of both envelopes.

CLARA Convention

June 4, the Canadian Ladies' Amateur Radio Association is celebrating its 10th anniversary with a mini-convention including a meeting, luncheon, forum and guest speakers at the Sheraton Centre, Toronto, Ont.

For CLARA luncheon reservation, send name, call and address along with $6.50 for CLARA members ($7.00 for YL non-members) to: Ann Nutter VE3HAI 135 Weston Place, Waterloo, Ont. N2J 3W2 (Cheques payable to CLARA).

VE3DV awarded

Well known on traffic nets for many years and as an ARRL SCM, VE3DV, Holland Shepherd was presented with the ARRL Certificate of Merit for Outstanding Service to Amateur Radio.

The presentation was made by VE1SH Ron Hesler, ARRL Canadian Director at a meeting of the Ottawa Valley Mobile Club on Feb. 18. As an extra reward for his years of service and as a pleasant surprise to 'Shep', Ron presented him with the A-1 Operator's Certificate.

Agreement

Reciprocal operating privileges for Canadian and Japanese Amateurs are now in the negotiating stage. The agreement will permit Japanese operators to go on the air with their own stations in Canada, but Canadians in Japan will be restricted to the operation of club stations there. The large number of club stations in Japan, however, makes this less restrictive than it seems.

Radio in Russia

Due to the support and encouragement by government, the number of Amateurs in the USSR grew from 233,000 to 400,000 in 1975. Training programs and upgrading of competence are sponsored by the armed forces, the merchant marine, the ministry of education and sport societies.

Russian Amateurs in the past have had to build much of their gear but in 1976 the DOSAAF, the 'society for assistance to the army, navy and air force' approved a five year plan to bring out factory-built equipment. The 'commercial' gear will include automatic keyers, tri-band transmitters and receivers. The first transmitters and receivers were to be available in 1976 with the first transceivers appearing this year.

New RTTY QSL Card

CARF QSL Cards now feature a new, special design for RTTY stations. Send a stamped, self-addressed envelope for a sample or send 25¢ for a complete range of sample cards. Cards are now available with either English or French text. Delivery is about four to eight weeks from date of order. Prices are 200 for $10.00, 300 for $13.50 and 500 for $20.00. Ontario residents must add sales tax. Shipping charges are extra at $1.25, $1.75 and $2.25 for the three quantities respectively.

Write to CARF QSLs, Box 356, Kingston, Ont. K7L 4W2.

Illegal...

Continued from Page One

nailed under the 'Privacy of Conversation Act' which came into force in 1974 and under which he was found guilty of knowingly being in possession of a radio "mainly useful for the clandestine interception of private communications".

Oddly enough, a Hamilton man charged with almost the same offense in July 1974 was acquitted.

As a final note, the Minister of Justice at the time said that the 'Privacy' Act was not intended to ban the interception of radio "broadcasts" whether Amateur, police or otherwise.

It must have been of small consolation to the Montreal man, sadly contemplating his mesdeeds in a Montreal hoosegow and writing out a cheque for one grand.

In both cases, it might have been more appropriate to hit them under the Radio Act. (For the legalistically inclined, dig out your Radio Act, see paragraph 3(3)(b) and section 6(2) of the General Radio Regulations, Part II, as amended in 1976 by SOR/76-500. See also The Canadian Amateur for September 1974.)

CRAG Canadian Repeater Advisory Group

Due to an unexpected adjustment in the deadline for this month's issue of THE CANADIAN AMATEUR and a number of other associated problems, the regular CRAG column is not available.

Enduring these unforeseen problems, the column will appear next issue.

Joining the craze

Guess who has joined the CB craze?

Not to be outdone by the wife of a U.S. President, the Minister of Communications, Mrs. Sauve, has recently had a CB rig put in her office, according to our Ottawa informants.

No better lobbying for more CB spectrum space could be devised!

More on GRS

DOC notes in a recent bulletin that:

"GRS licensees making use of the new 17 channels after April 1 should be aware of the fact that this spectrum is presently occupied by licensees in the private Commercial Land Mobile Service. Although encouraged to apply for new frequency assignments, they have been given the option of remaining on their present assignments until they find it convenient or necessary to re-locate. Inter-service interference protection will not be provided by the Department. In the interim period, GRS licensees using channel 23 and above are requested to co-operate where possible with existing licensees on these frequencies.

"The Department will continue to monitor the growth of the General Radio Service and its impact as a source of interference to broadcasting and other radio services with a view to the application of more stringent technical standards should they become necessary."

GRS licensees might also note that the spectrum from 28.000 to 29.700 MHz is occupied by licensees in the Amateur Experimental Service on an exclusive basis. The unrestricted sale of Amateur transmitting gear has tempted too many GRS and unlicensed operators to 'slide' into this Amateur band. A forthcoming article will deal with the problem as it is raising its ugly head in this country and some solutions to it.

Amateur courses

Your Federation would like to inform DOC as to how many courses are being offered in Canada which lead to Amateur certificates of proficiency. Individual members and affiliate clubs and groups could make this possible by dropping a line to CARF, Box 356, Kingston, Ont. K7L 4W2 and letting us know what courses are being offered in their areas and whether they are club courses, credit courses tied in with high school or community college electronics studies or night school adult education or extension courses.

COMMENT WELCOMED...

The Canadian Amateur Radio Federation welcomes comment from the readers concerning the content of The Canadian Amateur. This type of feedback is the basis for the future course of this publication ... be it roses or thorns!

THE CANADIAN *Contest Scene* Peter Dreissen VE7BBQ

This month's column features the CQ WW WPX SSB contest to be held March 26 and 27 for the full GMT period (48 hr.)

In this contest, the multipliers are prefixes instead of countries, so even in North America alone there are lots of multipliers to be worked. The all time Canadian records in this contest are listed below, so that you can know what you are up against.

entry class	station	year	score	QSOs	mult
multi-multi	VE5NN	1976	383,075		
multi-single	VE7WJ	1976	2,300,000	2246	331
single op all band	VA2UN	1972	1,342,965	1732	291
single op 28 MHz	VE6APJ	1972	38,927	273	67
single op 21 MHz	VE7LB	1970	657,324	1160	228
single op 14 MHz	VE7SV	1971	1,021,585	1352	295
single op 7 MHz	VE3ENM	1976	68,306	144	119
single op 3.8 MHz	VE3KZ	1976	283,240	394	194
single op 1.8 MHz	VE3FFA	1976	31,416		

Some of these scores will be hard to beat in 1977, but there are some weak spots: A major multi-multi effort has never been made from Canada in this contest. The 28 MHz record is low, probably because nobody was active during the days of good ten meter conditions.

One would expect the 7 MHz record to be higher than the 3.8 MHz score, which in turn would be higher than the 1.8 MHz record. However, the 7 MHz record is less than a quarter of the 3.8 MHz score. Why? Part of the reason no doubt is that Canada is currently not allowed to operate phone in the DX phone band 7050-7100 KHz. Only stations in North and South America can operate in the current Canadian phone allocation 7150-7300 KHz. All other countries can only operate in the Exclusive Amateur band 7000-7100 KHz. As a result, countries outside North and South America cannot be worked transceive, and hence the contest score suffers. Many countries can be heard working each other in the DX phone band, but the Canadians are left out. Perhaps the fact that we are not allowed to operate in the DX phone band on 40 meters explains the lack of popularity of 40 m phone as compared to 20 or 80 meters. The fun of working on 40 meter phone disappears rather quickly when you can hear lots of DX below 7100 KHz but are not allowed to work it. Allowing Canadian phone in the DX phone band 7050-7100 KHz would make 40 m a much more enjoyable band, and would help to greatly improve Canadian contest scores.

A NEW CONTEST replaces the ARRL Bicentennial Celebration held last July. This ARRL contest will be replaced by the IARU Radiosport Championships to be held July 9-10, 1977. Tentative rules: 1 point for contacts with your own country, 5 points for contacts with other countries. Exchange RST plus ITU zone. Multiplier is sum of ITU zones worked on each band.

CONTEST CALENDAR

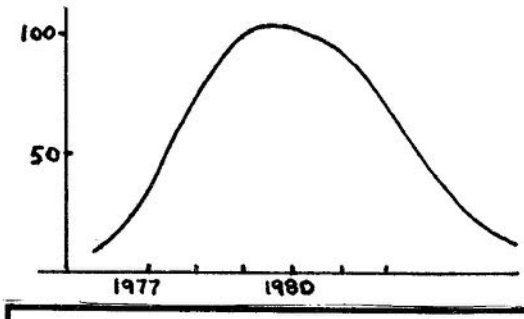
DATE	CONTEST
Mar 5 - 6	ARRL DX Competition phone
Mar 19 -20	ARRL DX Competition CW
Mar 26 -27	CQ WW WPX SSB contest
Apr 12 -13	DX/YL CW contest
Apr 15 -17	ARRL CD Party CW
Apr 16 -17	VP9 Bermuda Contest
Apr 22 -24	ARRL CD Party Phone , PACC Contest
Apr 25 -26	DX/YL Phone Contest
May	?
Jun 11 -13	ARRL VHF QSO Party
Jun 25 -26	FIELD DAY
Jul 9 -10	IARU Radiosport Championships

CARF QSL cards are now available with a French text. Send 25 cents to CARF QSL, Box 356, Kingston for a sample booklet.

The Canadian DXer

Peter Driessen, VE7BBQ

GOOD NEWS FOR THE DXERS: the sunspots will rise again! The evidence is beginning to show already - remember the excellent 10 meter conditions on the weekend Feb. 5-6? It was said that a European was worked on 10 m from the West Coast, something which has not been done in many years. A graph of predicted and observed sunspot numbers shows an encouraging trend. By this time next year, the average sunspot number will have more than doubled, and the peak will occur sometime near 1980.



FOR REAL UP_TO_DATE information, there are several excellent weekly DX bulletins available. These bulletins contain typically 10 or 12 pages densely packed with current DX news, every week! Reading these weekly DX bulletins is the only way one can really keep up with new developements on the DX scene. Frequently, expeditions to rare or new countries are announced only a few weeks in advance, and any monthly source of information such as QST, CQ, CANAD-X or this column simply cannot keep up with the news. Out-of-date DX news is not much better than none at all.

This writer will not pretend to be able to provide up-to-date DX news. Only the weekly bulletins listed below can do that.

Choose your bulletin according to your geographic area.

Long Island DX bulletin, P.O. Box 222, Levittown, NY, USA 11756.

DXers Magazine, PO Drawer DX, Cordova, SC 29039.

West Coast DX Bulletin, 77 Coleman Dr., San Rafael, Calif. USA 94901.

There are also weekly newsletters published by Ham Radio and 73, but these contain a much wider range of information and are not strictly devoted to the DXer. (If any bulletin was left out, please advise us and we will print the info.)

QSL INFORMATION: K5DB has compiled QSL information for hundreds of rare and semi-rare DX stations. Unfortunately, space precludes publishing this info in TCA. However, an SASE to CARF will bring you the complete list.

Awards

The Canadian Amateur Radio Federation, Inc. is pleased to announce the following awards available to all Radio Amateurs, worldwide.

CANADAWARD: A colorful certificate will be issued to any Amateur who confirms two-way QSOs with all Canadian Provinces and Territories. All QSOs will be on one band only. This Certificate is endorsed as to band. Separate awards are issued for each band on which the applicant qualifies. (12 cards per band - see list below). A Mode endorsement is available if all QSOs are made on the same mode (CW, SSB, RTTY, SSTV). Contacts made after Jan. 1 only will count for this award. Submit the 12 cards with one dollar ($1) Canadian or U.S. Funds or 10 IRCs plus sufficient funds for return postage. CARF members need send only funds for return postage.

5 BAND CANADAWARD: A special plaque will be issued to any Amateur who confirms two-way QSOs with all Canadian Provinces and Territories on each of 5 separate bands. (Total of 60 cards - 12 cards per band - see list below) Contacts made after Jan. 1, 1977 only will count for this award. Submit the 60 cards with $7.00 Canadian or U.S. Funds or 70 IRCs plus sufficient funds for return postage. All CARF awards are FREE to CARF members. CARF members need only send funds for return postage.

6 BAND CANADAWARD, 7 BAND CANADAWARD, ETC.: Special endorsemetns to the basic 5 Band Canadaward will be issued to any Amateur who confirms two-way QSOs with all Canadian Provinces and Territories on more than 5 Bands. Submit the additional cards with sufficient funds for return postage.

*

Mail all applications for the Canadawards to: P.O. Box 76752, Vancouver, B.C., Canada V5R 5S7.

LIST OF CANADIAN PROVINCES AND TERRITORIES:

VO1/VO2 Nfld.	VE4 Man
VE1 PEI	VE5 Sask
VE1 NS	VE6 Alta
VE1 NB	VE7 B.C.
VE2 Que	VE8 Yukon T.
VE3 Ont.	VE8 NWT

Note: VO2 Labrador is part of the Province of Newfoundland and counts for Nfld.

All Amateur bands may be used. Each distinct satellite mode (432 in/144 out, 144 in/29 out, 144 in/432 out, etc.) will count as a separate band.

Note: These awards do not conflict with the WAVE and WACAN awards sponsored by the Nortown Amateur Radio Club.

77 Convention Calendar

April 16 - The Chicken Junction Banquet at the Town and Country Restaurant, Toronto. The RSO semi-annual meeting will be held there the same day also, starting at 10.30 a.m.

June 2-5 - The ARRL National Convention in Toronto hosted by the Scarboro ARC.

July 1-2 - The SARL hamfest in Swift Current.

September 2-4 - The Maritime 77 Hamfest at St. Andrew's-by-the-sea, sponsored by the "All Saints" Radio Amateurs of Saint John, St. George, St. Stephen, St. Andrew's and the St. Croix club.

NOTE: If you want publicity concerning your hamfest, send details to the Editor, The Canadian Amateur, Box 356, Kingston, Ontaro, K7L 4W2.

—— The operation of CRTPB ——

(From time to time in these pages we mention the 'CRTPB'. Here is a short story on what it is and what it does .. Editor)

The Canadian Radio Technical Planning Board was formed in 1944 as a non-political and non-profit body to coordinate the efforts of all the organizations in Canada interested in the use of the radio spectrum.

Membership consists of associations and organizations, not of individuals. Most of the work of the Board is done in technical committees, the participants being nominated by the member groups interested in the specific work assigned to each committee - Broadcasting, Land Fixed and Mobile, Radio Relay (meaning major communications systems), Maritime, etc.

Temporary ('ad hoc') committees are sometimes formed for specific tasks (examples are 'Single Sideband Planning' and 'The use of 406-960 MHz'), and disbanded on completion.

At one time, people from DOC attended technical committee meetings as 'observers', but since the late sixties they have become active participants, and it became normal for the DOC writer of a Radio Standard Specification to explain and defend his draft. This has paid off well in the development of understanding on the part of both industry and government, and consensus has often been achieved in over-the-table discussion.

About two years ago, however, in tune with the general government trend toward social and interest-group involvement, DOC started using the Canada Gazette as a means of soliciting comment from a broader public. Unfortunately, this has now often become a replacement for active over-the-table discussion instead of a supplement to it. The cut and thrust of discussion has been replaced by the submission of separate and often disparate views, with little opportunity for the changing of minds. The Board is now working on this problem of 'communication' with the DOC.

As in the radio industry as a whole, there are many radio Amateurs working with the Planning Board. Both the Canadian Amateur Radio Federation and the ARRL Canadian Division are members of the Board, and there are few committees that do not have active Amateurs participating. Not only is the Secretary an active DX Amateur (Hal Parsons VE3 QA), but from 1967 to 1977 there have only been three years when the President has not been an active Amateur, and there are occasions when a majority of the executive committee are holders of callsigns. The CRTPB annual general meeting looks as much like an Amateur convention as it does a planning board!

Most of the meetings of the technical committee are on subjects that have little or no impact on the Amateur service, but there are coffee and lunch breaks, and if something is in the wind about possible changes in the regulations for the Amateur service.....

This is the real value of the Board for the Amateur, as indeed for all members and for the government. The Board provides a meeting place where people can talk with each other and find common ground for agreement to everyone's benefit.

There is another side to the story, however. Your Federation in its three years on the Board has quite often contributed its expertise and comment on matters other than Amateur affairs. The CARF members, VE3ZS, Art Stark and John Henry VE2DNM contribute much to the committee meeting through their experience and professional telecommunication background.

New feature

The Canadian Amateur will feature a monthly review of recent equipment available in Canada, beginning with this issue. The reviews will provide some additional information to the detailed equipment specifications provided by manufacturers. Comments will be those of the reviewer and not of your Federation. Contributions are welcomed.

Equipment Review

A 10-WATT 432/28 MHz LINEAR TRANSVERTER FROM MICROWAVE MODULES

John M. Henry VE2DNM

Ever think of operating on 432 with the selectivity, sensitivity and stability of 10 meters? Well, among the many new transverters available is an excellent unit from Microwave Modules, Liverpool, England. With only a 2.5 dB converter noise figure and a 30 dB of gain, anything that the antenna can receive will be heard. Similarly, the transmitter reproduces a clean SSB, FM or CW signal as demonstrated by some six months of Oscar 7 mode B operation. The stable 404 MHz frequency for both the receiver and transmitter mixers is sourced from a stabilized crystal oscillator. The unit requires either 1/2 watt drive or, by internal strapping, a low 1 mW. Power requirement is 12 VDC at 2 amps (peak).

The unit is small, lightweight and very well constructed. The component layout on the two PC boards is excellent. All RF connectors are BNC. The unit requires a single 432 MHz coax antenna connection, a separate 28 MHz lead to the HF receiver and low power transmitter output, a 12 volt power connection, and finally a switching lead that is to be grounded by the HF transmitter during transmission.

This transverter makes UHF and VHF experimentation with the Oscar satellites or over the horizon communications very easy. Our occupancy of the UHF spectrum, excluding FM repeaters, is very low in Canada.

The author has both the 432/28 MHz transverter and the newer 144/28 MHz model. The operation of these units is identical. The manufacturer warns against operating into loads with VSWR exceeding 2:1 or at more than 13.0 volts DC. After losing two 2N5946 finals for not heeding this advice, the author concurs. Replacement of the final linear transistor involves removing completely the self-contained amplifier module. (an hour's job).

It is hoped that the manufacturer will soon provide a kit to include 435 MHz operation for use with the next series of Amateur satellites. This could be done by adding another crystal and some means of switching it.

The Microwave Modules transverters can be recommended as an excellent purchase. It is available directly from: Microwave Modules Ltd., Brookfield Dr, Aintree, Liverpool L9-7AN, England or from Dollard Sales, 7087 Victoria Dr., Vancouver V5P 3Y9, B.C. The export price, including shipping as of Jan. 1977 was 100 Pounds. Remember that British equipment is subject to a 12% Federal taxation.

CORRECTION

On page 11 of the February issue, column 2, paragraph 3, the word CARF should be added to the second line to make it read "...made known in the Canada Gazette and CARF asks for comments on the proposed amendment..."

review progress on WARC 1979 preparation, the Amateurs have been very much in evidence.

The DOC's first draft of the Canadian position should be ready by April of this year and during this Spring and Summer the hard work of negotiating trade-offs has to be done. This will be almost the last chance to get fundamental points incorporated into the Canadian proposals.

Sound tedious and long-winded? In some respects it is, but it is also very exciting for those who really dig into it, and if we want to ensure we have some useful frequencies to work on in the last twenty years of the century, we have to stay with it and just carry right on digging.

Key dates in DOC preparations for 1979 WARC frequency conference are: March 1977 - DOC's first draft of its proposals will be published for comment by users of the radio spectrum and by manufacturers. These will be reviewed in a joint DOC user meeting scheduled for April. Deadline for comments on the first draft is June 1977. DOC will then go to work to prepare a second draft which will be out in January 1978. Comments will again be solicited and will be closed off in June 1978. In November and December of that year special joint meetings of CCIR Canadian elements will be held. Canadian proposals will then be wrapped up and dispatched to the ITU in January 1979 in preparation for the actual conference which will run from September 24 through to December 3, 1979.

* available on request. Send a SASE (12¢) to CARF, Box 356, Kingston, Ont., K7L 4W2.

And still again....

With that usual lack of understanding of anything more complicated than a cigarette lighter which characterizes the non-technical press, a February issue of "Weekend Magazine", which arrives in hundreds of thousands of Canadian homes as a weekend supplement to local newspapers, burst into print with the hot news that CB radio is now a social phenomena.

The title will give you a clue as to the article's content... "Ham on Wheels". It proceeded to note that..."the department of TRANSPORT is reeling under the unexpected onslaught of license applications" and then regaled us with the information that the department has "given up trying to go after the estimated 30 per cent of CB buyers who fail to register their sets. 'I mean, just how much point is there in trying to catch a bersek elephant by the tail?' a harassed TRANSPORT department clerk asked..."

The article featured an interview with "John de Mercado, director-general of the Telecommunicatios Regulatory Service of the department of TRANSPORT". He is quoted as saying "Despite all the abuses going on at the moment, I still think GRS (CB) is a great idea". In view of his proposed "no-code" Amateur certificate that ain't exactly news to Amateurs but it may be news to the Minister of Communications that she has, according to the "Weekend" writer, just lost John and his officials to the Minister of Transport.

The real laught was in a box on the third page of the article. After trying to explain the difference between CB and the Amateurs in one line, the writer went on to say. ."you can boost your range by adding an in-line (linear??) amplifier...but it's illegal and the police will confiscate it on sight. Police are also empowered to confiscate the CB set itself if you don't have a license to operate it".

Ho! Ho! Ho! Ho!

For the first reported case of such action your editor will nominate the informant for the Pulitzer prize for reporting the most improbable news event of 1977.

Note to members!

WHEN SENDING MONEY-SAVE TIME

Please be certain that your cheque is correct and complete for date, figures, and signatures. Name of month must be written, and any alterations on cheque must be initialled by signer.

Postal Money Orders should not be endorsed on the back by sender.

CARF QSL Bureau

With the increase in postage rates, Amateurs who regularly send QSL cards are happy to find the efficient (and, to members, FREE) QSL Service provided by the CARF QSL Bureau (Box 66, Islington, Ont. M9A 4X1).

Run by volunteers who cover all phases of the operation, the Bureau is financed by your Federation as a service for its members. Bureau manager Jean Evans VE3DGG is backed up by VE3CRL, Ken Rolison, VE3BVG Cam Gorman, Bob Gorman, VE3VPH Linda Jane France, VE3GSQ Gail Murray, and VE3BRE Shirley Pugh.

Cards are sorted as soon as received and all letters are checked. Mailing cards to members is done as the volume dictates, usually twice a month (but if necessary, three times a month), even if it's only one or two cards with a rare prefix. All files are cleared at the end of each month.

Jean says, "We try every means to get every card delivered before returning any one of them to the originating country's bureau as 'unclaimed'. We believe that it is better to have a card returned rather than for the sender to wonder why he has not received a QSL card in return. Each card so returned carries a note telling why it could not be delivered. Other countries do this for us, so in the interest of the Amateur spirit of goodwill, we reciprocate".

The questions most asked about the service are, according to Jean, "Is there any charge for this service?", "How do I go about using the Bureau?", "What size envelopes do you need?". Here are the answers:

The free service is available for sending your outgoing cards to other countries, including the USA through arrangements with independent US QSL Bureaux and to provincial QSL Bureaux in Canada. Sort your cards alphabetically by country and call. For Canadian cards, sort by VE or VO region number. Mail to the Bureau and put your membership number in the lower left hand corner of the envelope, as well as your return address.

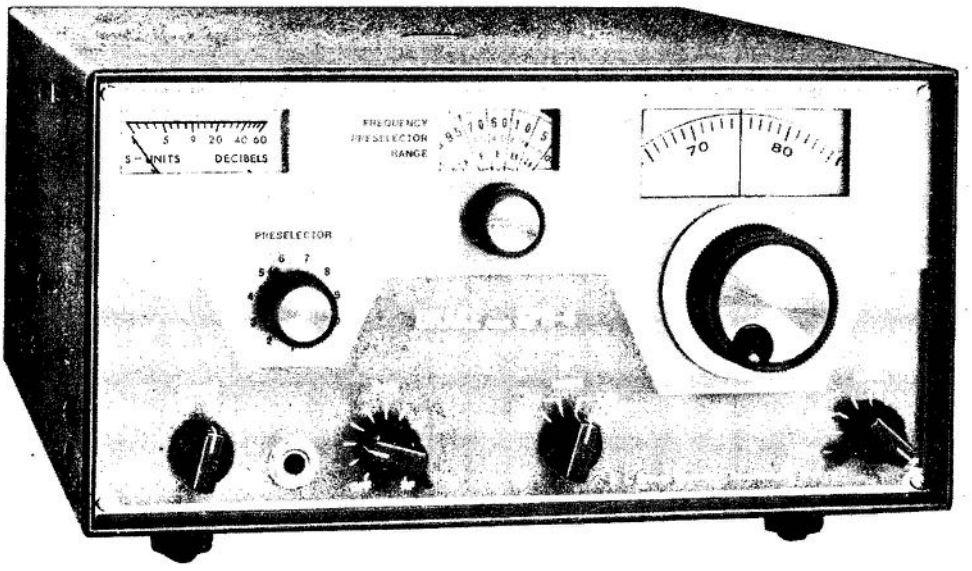
For your incoming cards, include in your outgoing package a stamped, self-addressed envelope (5" x 7" preferred) remembering to put your membership number on the envelopes. Don't forget that postal rates increase on March 1!

In order to keep operating costs at a minimum and keeping with the spirit of conservation, Jean says that wrappers, envelopes and even string are re-used whenever possible. File cards are kept by country and mailings and receipts are meticulously recorded.

For beginners

Heathkit is advertising an Amateur 'starter package' which includes the two CARF publications (the 'Study Guide' and the 'Regulations Handbook'), a code practice oscillator and key and code records or cassettes from $36.40. See the latest Heathkit catalogue for details.

DRAKE



SPR-4 RECEIVER

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Equipment for Radio Communications

AN AUDIBLE CONTINUITY TESTER

Peter Driessen VE7BBQ

The fabrication of Printed Wiring Boards (PWBs) is considered to be almost occult by many Amateur Radio operators. There really is no reason for this feeling. By definition, a PWB is an insulating board with conducting tracks and pads to mount components and result in a Printed Circuit Board (PCB). That's right, there's a difference between a PWB and a PCB. Here is a very simple project utilizing printed circuitry which gives you a very handy Audible Continuity Tester.

This unit will not measure resistance but allows you to test for continuity without watching a meter or lamp. It is especially valuable where it is important to watch the probes to verify that they do not slip off the test points. The main component is a 555V Integrated Circuit (IC). The basic material is a piece of printed wiring board. The circuit for the Tester is shown in Fig. 1.

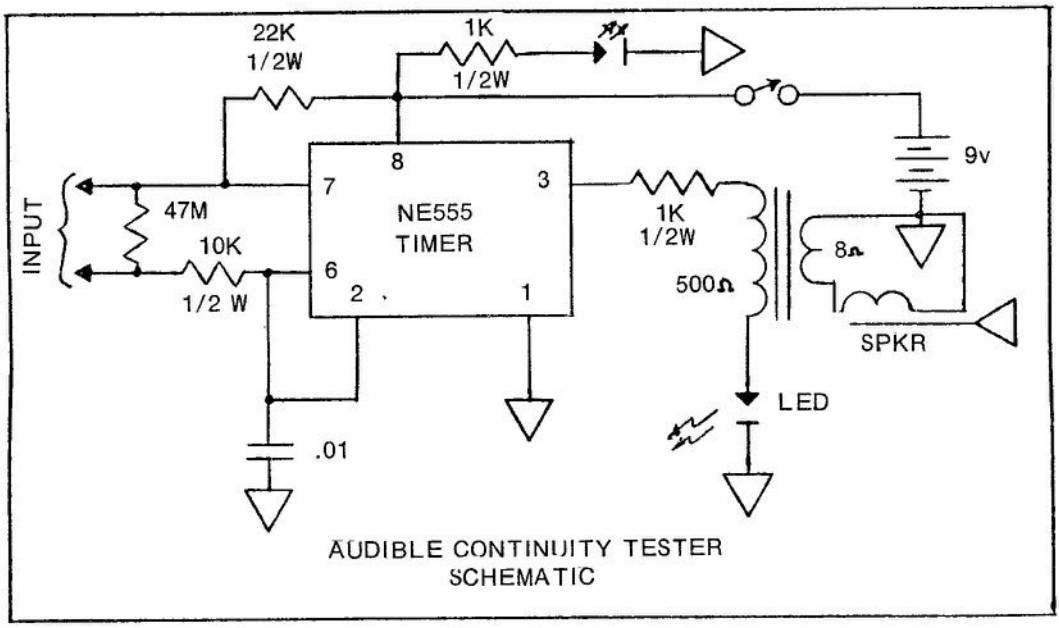

Figure 1

Little information is available dealing with the internal nature of the 555V. It is sufficient for our purposes that it does work and it is simple to provide the necessary interfacing to permit operation. The diodes with the lightning flahes in Fig. 1 are Light Emitting Diodes (LEDs). They are inexpensive and consume little power. The transformer is a small transistor-type 500 ohm to 4 or 8 ohm type. It may or may not have mounting tabs. If it does not have tabs, just use epoxy cement to mount it.

The 47Mresistor is unusual in that it provides an audible pilot lamp function. That is a mindbender at first but the concept is simple. A major problem with all small transistorized equipment, particularly those using a battery for a power source, is that of leaving the unit ON when not in use. The 47M resistor provides a low frequency tone that indicates that the power is on. It doesn't detract from the use of the unit because zero ohms resistance as measured at the probes results in a frequency of about 6 KHz. The speaker volume is adequate for normal situations.

Figure 2 provides the layout of the component side and the copper side of the board. It will be noted that these views are mirror images of each other. Layout

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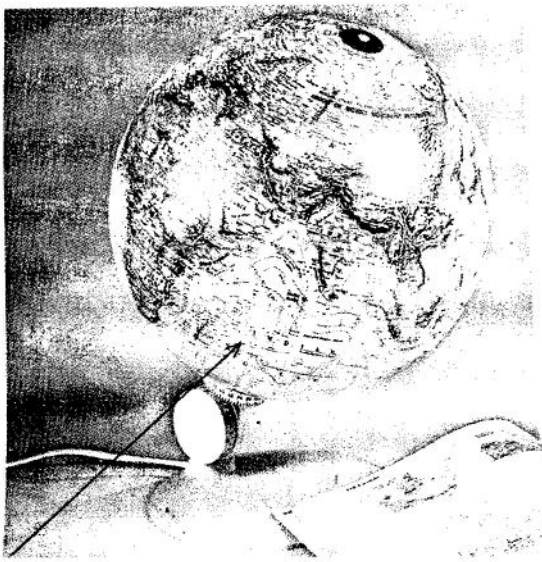

Franklin 24 Hour GMT Clock

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is simple. Cut a piece of PWB stock 2" x 2". Sand or file the edges of the board to be smooth. Clean the copper with a liquid cleaning agent. Trichloroethylene is best. It is available at your local drug store. Ether is satisfactory. Just about the least satisfactory agent that will do the job is isopropyl alcohol (rubbing alcohol). This step is important to remove all grease from the surface of the board prior to layout and etching.

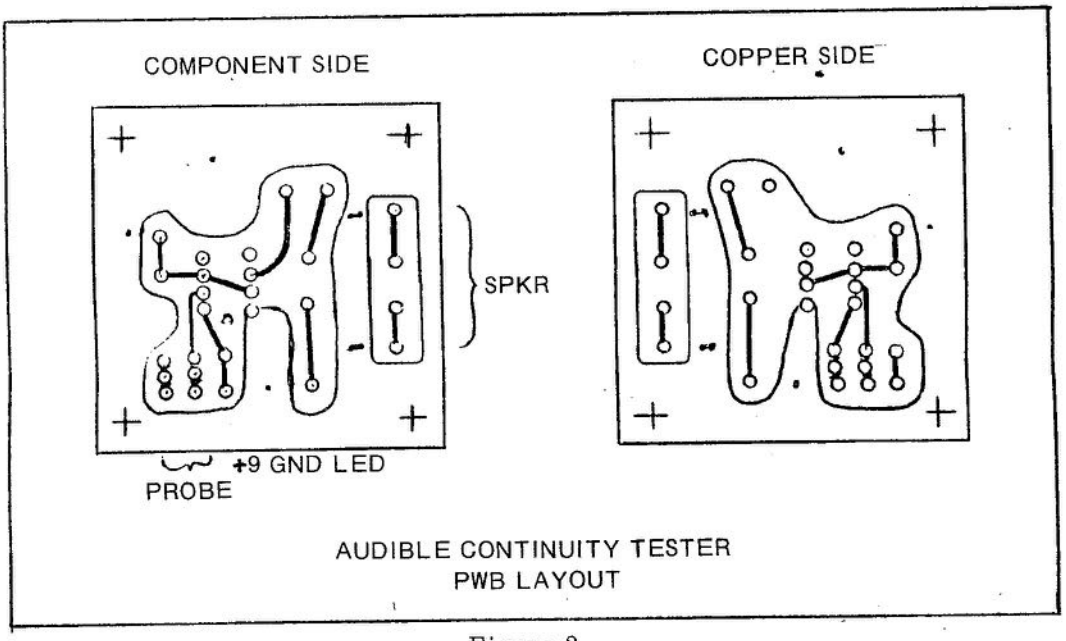

Figure 2

Carefully position the PWB below the layout of the copper side and centerpunch all dots and pads. An automatic centerpunch is best but is not necessary. The four crosses are for registration and also mounting holes. Use a DALO 33 Ultra Long Life Fineline Marker inhibit pen (J&J Electronics) and carefully make the dot pads. With the pen, interconnect the pads where required. The outer areas of the board are to be left as copper so the inhibit marker pen should be used outside the two areas with wiring on the board. After the inhibit ink is dry, go back over the inhibited lines, pads and areas and check for good solid ink coloring. Very carefully check all pads and lines to verify that there are no bridges or shorts. In case there are, don't panic. A sharp blade will clean up the problem in a jiffy. At this point let the inhibit ink dry for at least one hour and preferably more. This is important.

WARNING

Always use rubber gloves when working with etchant powders and solutions. Should the acid bath come in contact with the body, immediately wash the affected area with clear water. Protect the eyes when using acid bath.

By means of example, the etchant as received from J & J Electronics is a powder (probably hardened) in a plastic container. The mixing of the etchant is a bit tricky. Due to the noxious gasses given off during the etchant mixing process it is best done outdorrs or in a well ventilated area. ALWAYS add the powder to the water and never the other way around. It is best to mix this solution in a pyrex container since the solution is exothermic. That means it gives off heat and the solution can become very hot quickly. With this in mind it is best to use cool water to begin the solution. A 16 oz. drug-type brown bottle is available from your local drug store probably on a no-cost basis. Due to the corrosive nature of the etchant solution it is very practical to melt a little sealing parafin and pour it in the cap of the 16 oz. bottle. This will help keep the corrosion of the cap down and also provide a better seal for the bottle.

The container used to etch the board should be considerably larger than the board to be etched. I use a coupld of pyrex dishes and label them NOT FOR FOOD. Prior to beginning the etching process I pre-heat the solution in the

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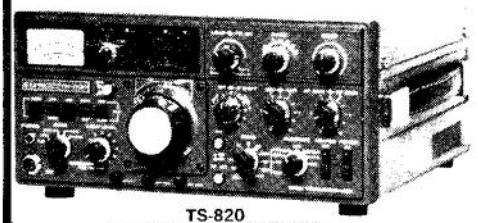
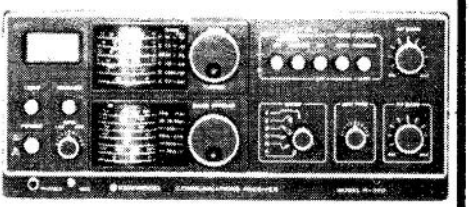


TS-820
160-10M TRANSCEIVER



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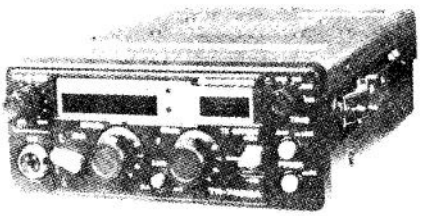

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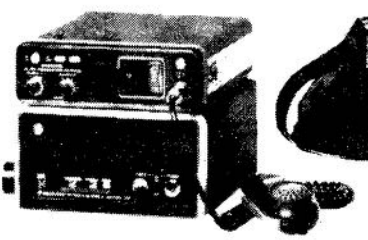
MC-50



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PS-5
AC/DC POWER SUPPLY

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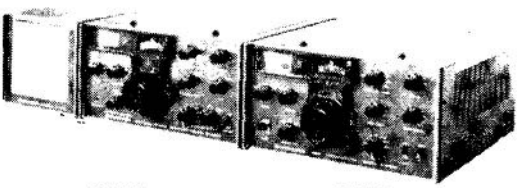

R-599D
160-10M RECEIVER

T-599D
160-10M TRANSMITTER

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dish for a few minutes to raise the solution in the dish for a few minutes to raise the solution temperature above room temperature. DO NOT heat the solution to the point that fumes are given off. (You probably noticed these fumes during the mixing process.) Drop the board to be etched into the dish containing the warm etchant and move the board around with a wood pencil. By this means all surfaces of the board are constantly exposed to fresh etchant and also you can monitor the etching process. When the etching process is complete, remove the board and wash it under a stream of water. The residual inhibit ink can be removed with the cleaning solution used to initially clean the board. As soon as the board is completely clean and is dry LIGHTLY spray the board with acrylic to inhibit corrosion of the copper.

As soon as the acrylic spray has dried the board is ready to be drilled. Special drills for drilling board stock are available but are very difficult to locate. While finding the proper drills purchase a couple of #60 drills at your local hardware store. Drill each pad and hole with the #60 drill. At this point, check each component to be mounted on the board for hole size and re-drill with a slightly larger drill where and if needed.

The components are installed on the component side of the board. It is considered to be best practice to use either a socket or Molex pins to mount the IC. This will facilitate repair or replacement if ever needed. However, the IC may be mounted directly to the board without a socket or Molex pins if desired. A small mark like a "u" will be noted on the component side of the PWB. This is for indexing the IC. A dot or indentation will be noted on the IC. This dot or mark should be used to orient the IC for mounting on the board. The probe wires and tips are only limited by your imagination. Rather than make it "too easy", the parts layout is not provided. Just use a little common sense and it will be obvious. The project may be mounted in a small box or speaker enclosure to suit the builder. The important thing is that you have built something with a PWB that you have fabricated yourself. Happy continuity-testing.

Technical Talks

2 METER COAXIAL ANTENNA

Kingston Amateur News

It is always a thrill for the two metre enthusiast to swing an array of double stacked, multi element beams and zero in on that weak station on the deep fringe that no one else in your area can even hear. This can easily turn into extreme frustration, however, when a 3 way QSO develops with two other people in entirely different directions. There you are left madly trying to swing the beam in all directions, then old man winter steps in and ices up the rotor in a direction where no signals are heard anyhow. This is when the coaxial ground plane steps in and takes over.

The following text and drawings give all the information required for building an antenna of this type. It is omnidirectional and has a gain of 4.5 dB over a quarter wave ground plane.

The antenna is fed at the point between the tip rod and the coaxial skirt, the centre conductor being joined to the tip rod, and the shielding joined to both the inner tube and the outer skirt. This configuration almost looks like a dipole so that the bottom of the skirt will be the high voltage point, hence the need for an insulator at this end.

The four ground radials are on a collar which is moved up and down the mast section to obtain lowest SWR. Best results can be obtained if the SWR bridge is inserted in the line at the antenna instead of being at the transmitter end.

The diameters of the mast (inner tube) and skirt (outer tube) can be varied to suit your own junk box by applying the characteristic impedance formula:

$Zc = 138 \log A/B$ where:

A equals Inside dia of skirt

B equals Outside dia of mast

The ratio A/B should be in the region of 2.303 for a 50 ohm impedance.

ASSEMBLY:

Assemble mast, skirt, insulated collar and ground plane collar, then feed coax through the centre. Cut about 2" of outer cover away from the coax, comb

2020

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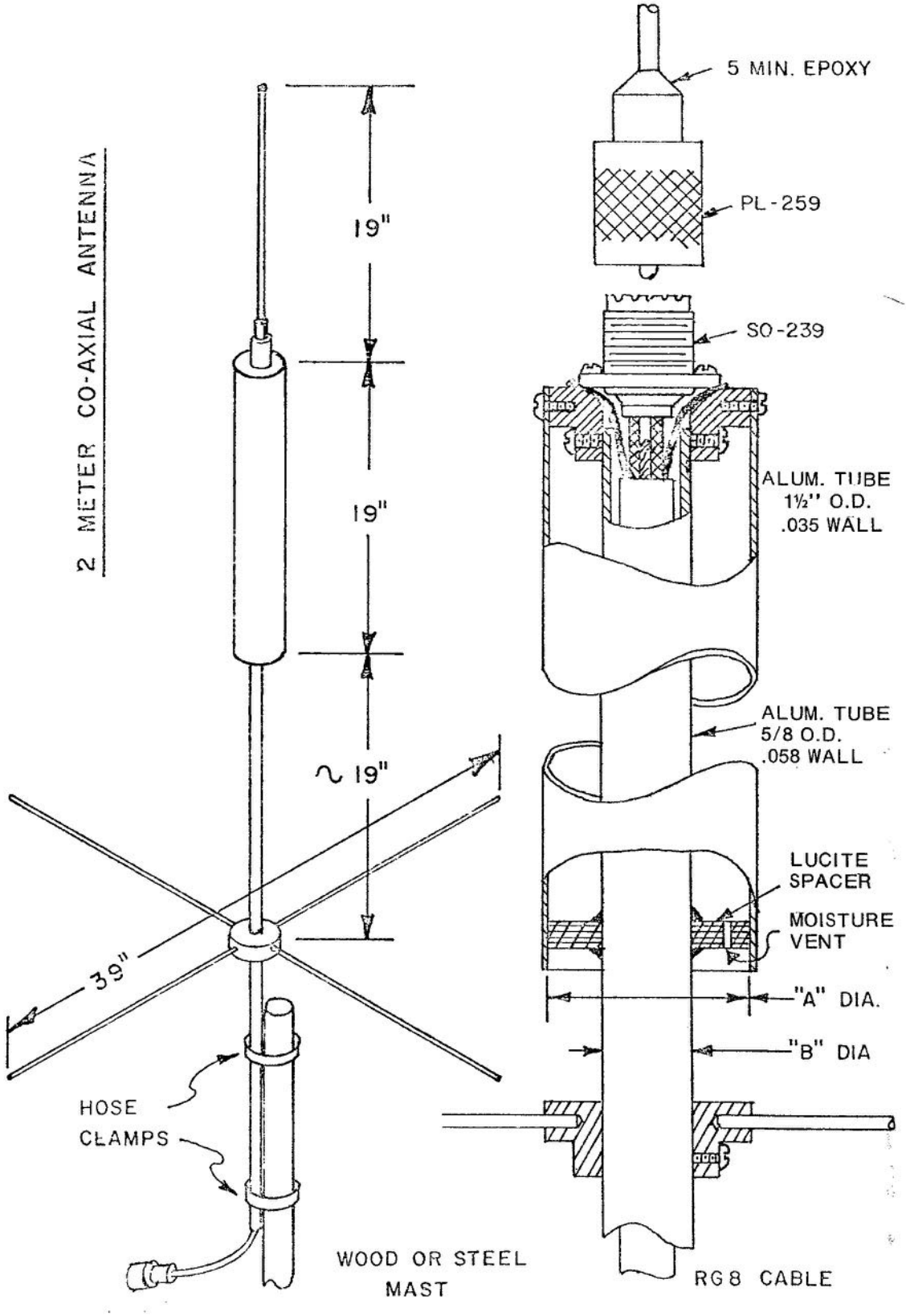
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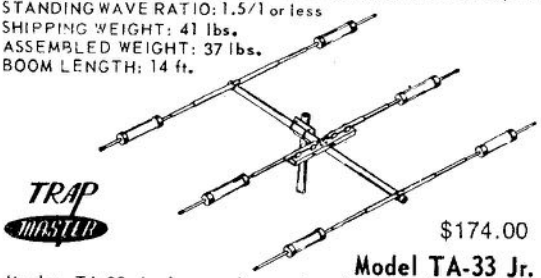
FORWARD GAIN: Up to 8 db. TURNING RADIUS: 15.5 ft.
FRONT-TO-BACK: 20 db. or better WIND LOAD: 114 pounds.
MAX. ELEMENT LENGTH: 28 ft. WIND SURFACE : 5.7 sq. ft.
STANDING WAVE RATIO: 1.5/1 or less
SHIPPING WEIGHT: 41 lbs.
ASSEMBLED WEIGHT: 37 lbs.
BOOM LENGTH: 14 ft.



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FRONT-TO-BACK: 20 db. or better on 15 and 20; 15 db. on 10 meters.
STANDING WAVE RATIO: 1.5/1 or better.
MAXIMUM ELEMENT LENGTH: 27 ft.
ASSEMBLED WEIGHT: 42 lbs. BOOM LENGTH: 18 ft.
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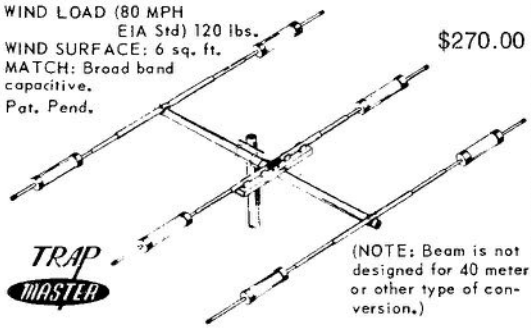

(NOTE: Beam is not designed for 40 meter or other type of conversion.)

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out braid and lay it back along cable. Cut centre conductor and dielectric about 3 8" long, then cut a further 1/8" off dielectric to expose centre conductor. Solder PL 259 in place. Make sure the centre conductor is well insulated. A piece of the discarded dielectric will do nicely, cut to length, slit down one side and slipped over as a collar. Comb back braid around socket, screw in place, then cut off excess braid. Leave about 12" of coax out of bottom end of mast and attach PL 259 plug.

Although VHF connectors have been used at the feed point in this case, it doesn't rule out the possibility of using BNC connectors or even a banana plug and socket.

Why not make a small dia lightweight unit fed with RG 58 that can be dismantled for field trips and another heavy one for the QTH that will withstand those winter ice storms.

There are the ideas, the rest is left to your own ingenuity. Who says Amateur experimentation is dead ?

Colin VE3CPK

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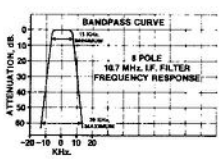
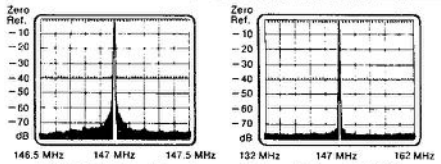


An 8-pole IF crystal filter greatly reduces adjacent channel interference.



Actual spectrum analyzer photos of the HW-2036 transmitter output operating at 147 MHz.

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