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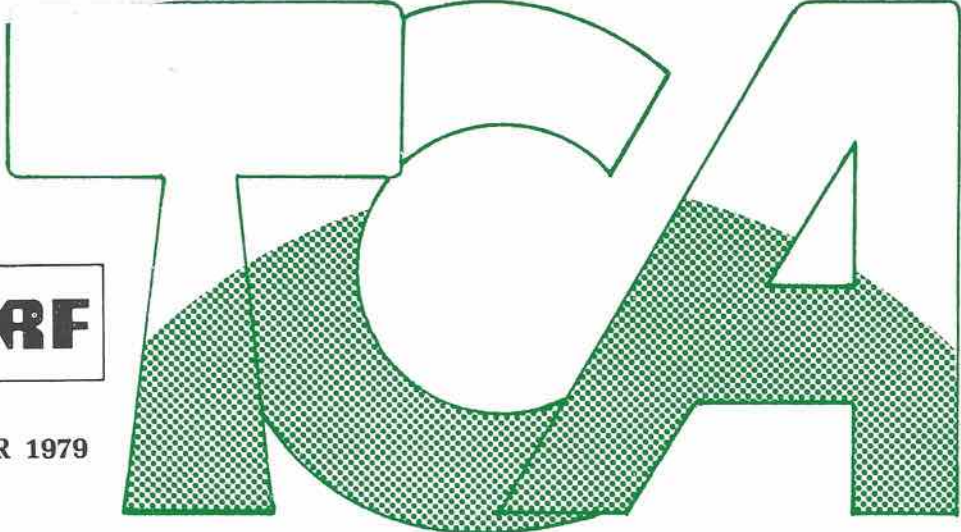
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THE CANADIAN AMATEUR

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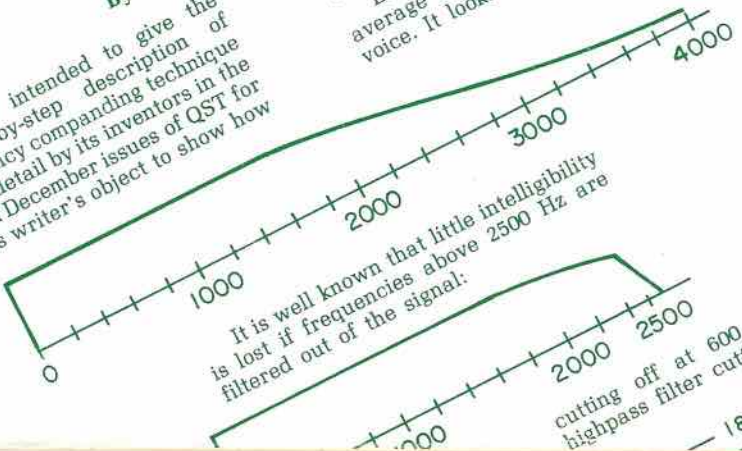
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**Narrow Band
Voice Modulation**

By John Bloomers VE7DAB

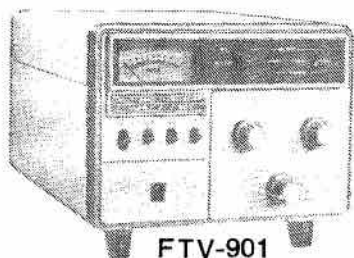
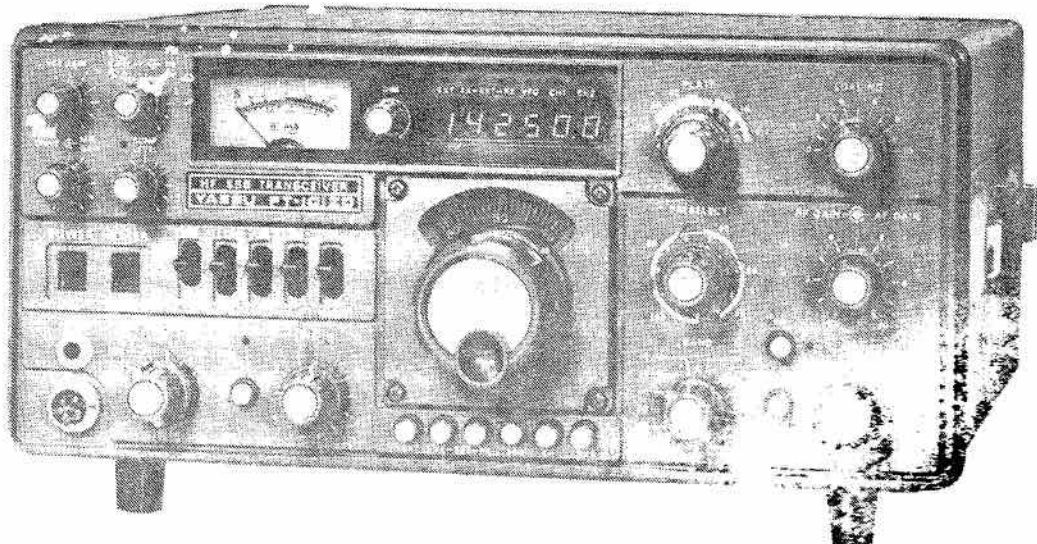
This article is intended to give the reader a step-by-step description of NBVM, a frequency companding technique first treated in detail by its inventors in the November and December issues of QST for 1978. It is this writer's object to show how

the voice signal can be manipulated to obtain a signal of approximately half the bandwidth. Let's begin with a picture of the average frequency content of the human voice. It looks something like this:

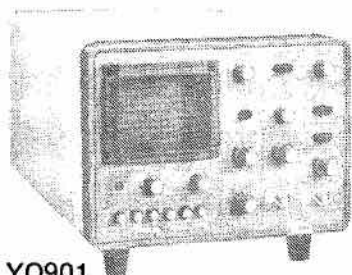


It is well known that little intelligibility is lost if frequencies above 2500 Hz are filtered out of the signal:

cutting off at 600 Hz, and another a highpass filter cutting off at 700 Hz:



FTV-901

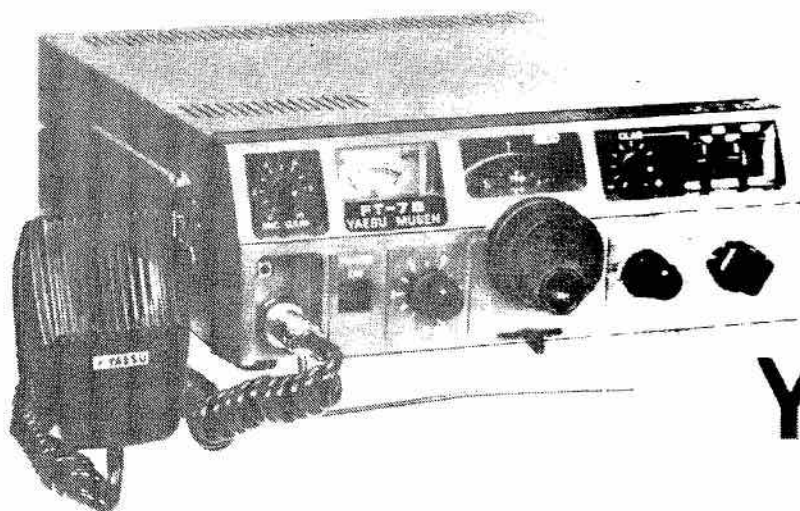


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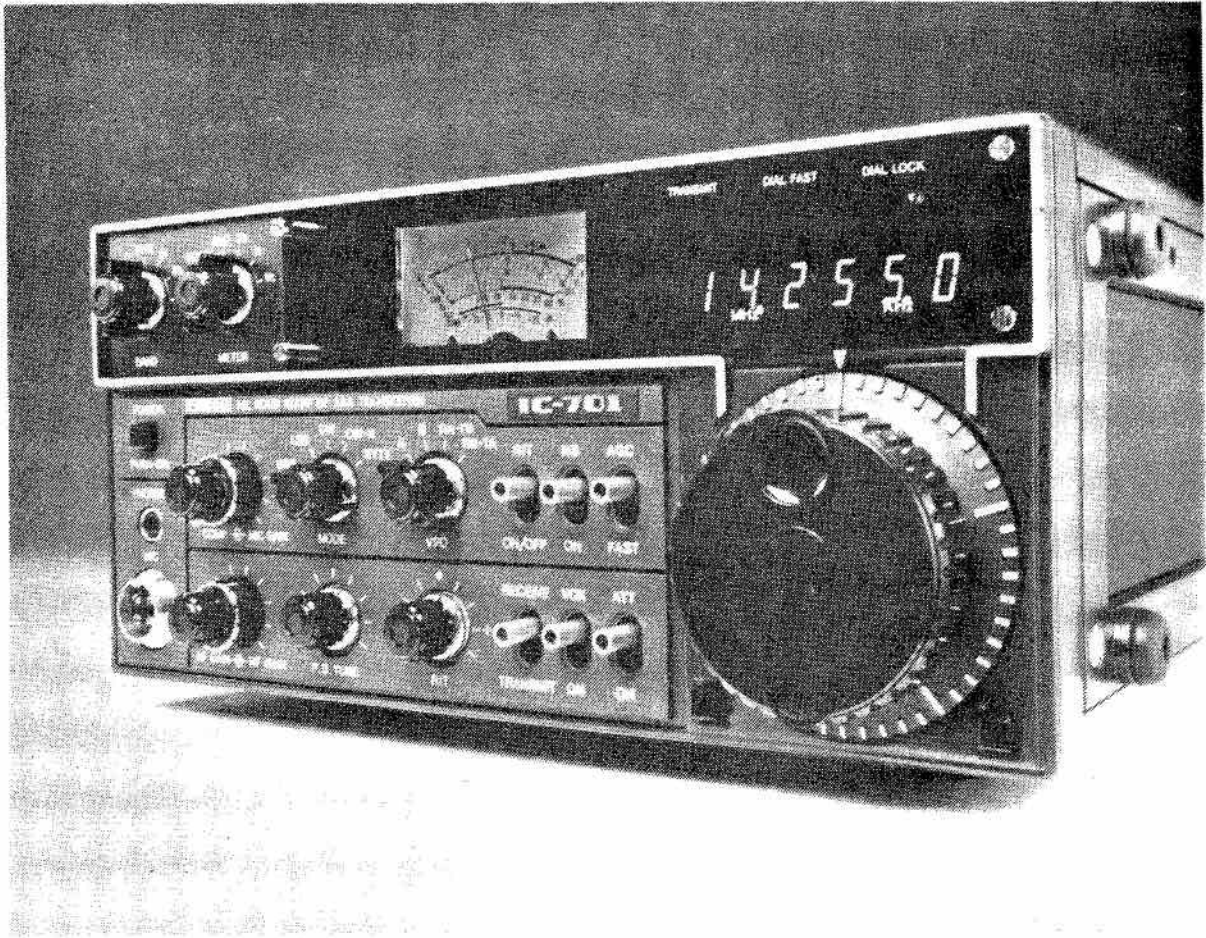
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This control shifts the channel frequency up 5 kHz.

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Bright LED display indicates last four digits of the operating frequency. State-of-the-art PLL channel selection.

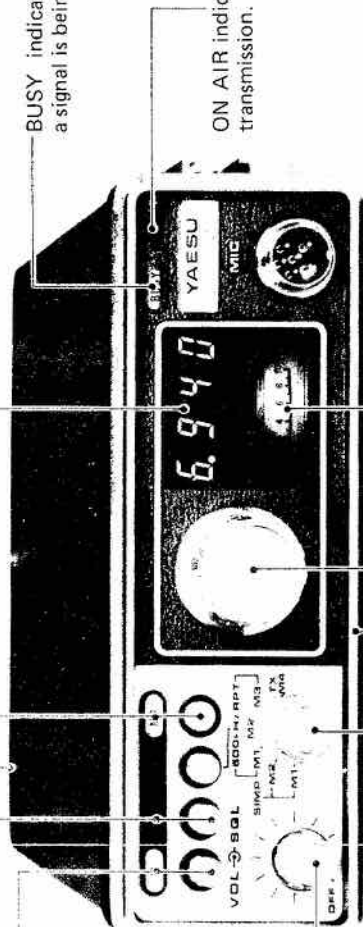
BUSY indicator lights up when a signal is being received.

ON AIR indicator lights up during transmission.

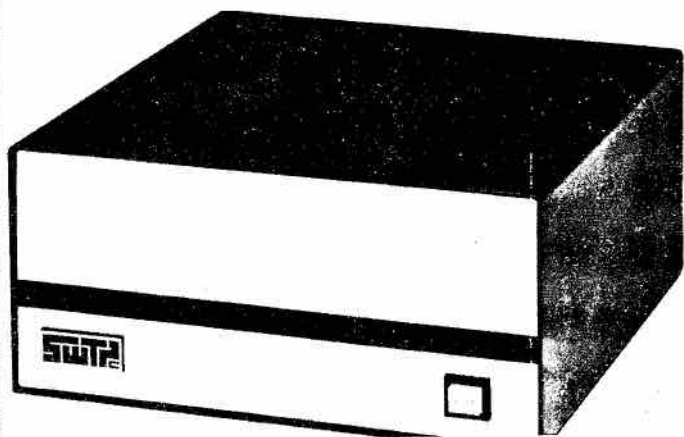
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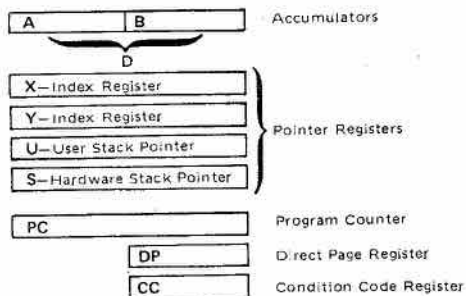
The MC6809 has more addressing modes than any other 8-bit processor. It has powerful 16-bit instructions, and a highly efficient internal architecture with 16-bit data paths. It is easily the most powerful, most software efficient, and the fastest 8-bit general purpose microprocessor ever.

The greatest impact of the Motorola MC6809 undoubtedly will be software related. Ten powerful addressing modes with 24 indexing sub-modes, 16-bit instructions and the consistent instruction set stimulate the use of modern programming techniques. Such as structured programming, position independent code, re-entrancy, recursion and multitasking.

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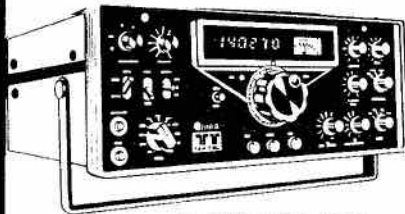
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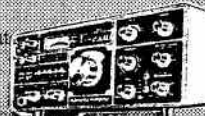
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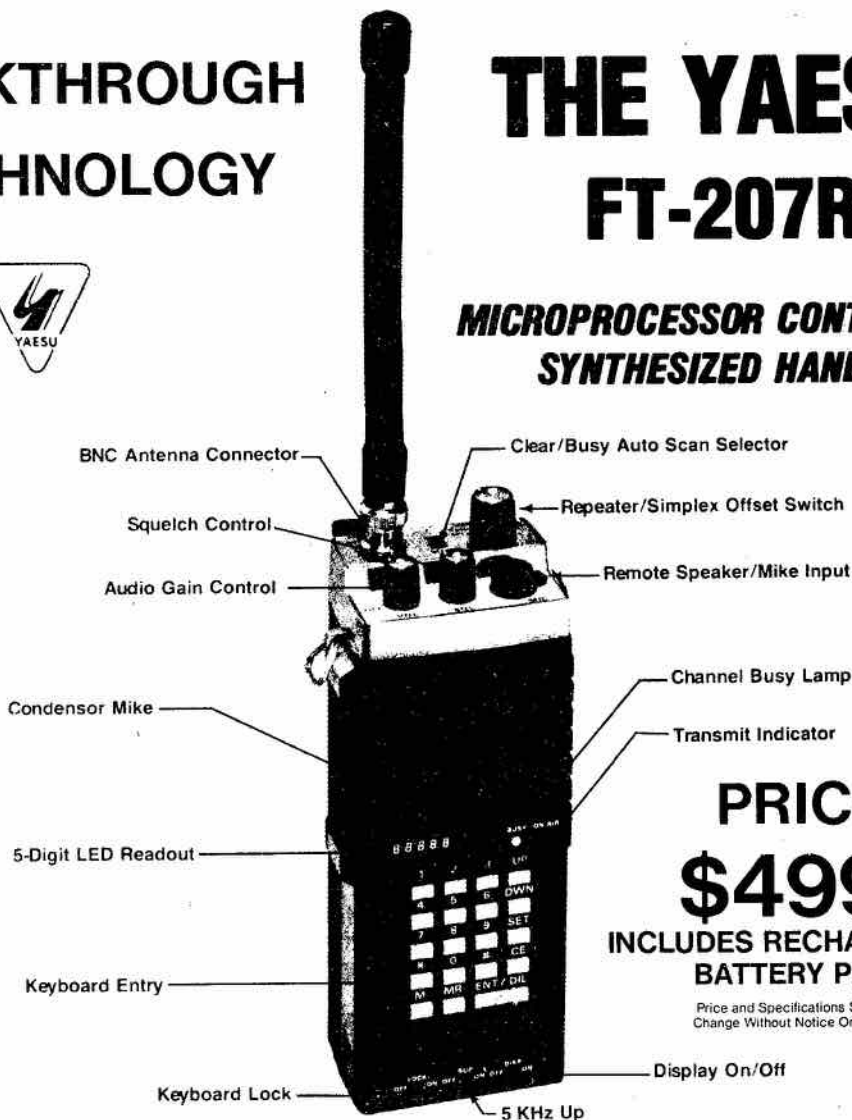


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- 10 KHz Steps
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Medium Duty and Heavy Duty Ham Towers

Sections

DELHI DMXMD and DMXHD towers use the larger and stronger sections of the 68 foot, eight section, Model DMX-68 TV Tower. DMXMD towers have a DMX2T top section. DMXHD towers have a DMX3T top section. Both top sections have heavy duty rotor plates and a No. 244A cast aluminum mast clamp installed on the top plate.

Each section is 8 ft. long and has beaded channel legs riveted together with "X" braces. Legs and braces are all steel, heavily galvanized before fabrication. Rivets are solid heat treated aluminum. Sections fit accurately together and are joined by heat treated nuts and bolts. The uniform tapered leg design together with evenly spaced "X" braces give the tower greater strength and reliability.

ANTENNA LOAD LIMITS

DMXMD Medium Duty Towers are designed to support an antenna load up to 6 square feet wind area. This is equivalent to two large TV/FM antennas or one large CB beam or one small amateur beam or one large VHF collinear.

DMXHD Heavy Duty Towers are designed to support an antenna load up to 9 square feet wind area. This is equivalent to a very large CB beam or CB stacked array or a large amateur beam.

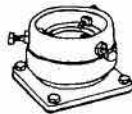
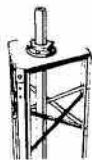
Guy wires must be used if larger loads are required or cross mounted antennas, or if greater height using straight sections is needed.



Unglue beaded channel leg resists bending



244A Cast Alum. Mast Clamp



BBMB Ball Bearing Mast Bearing

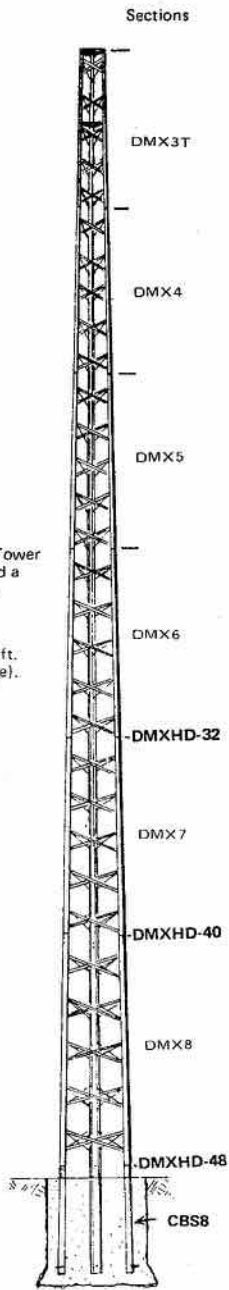
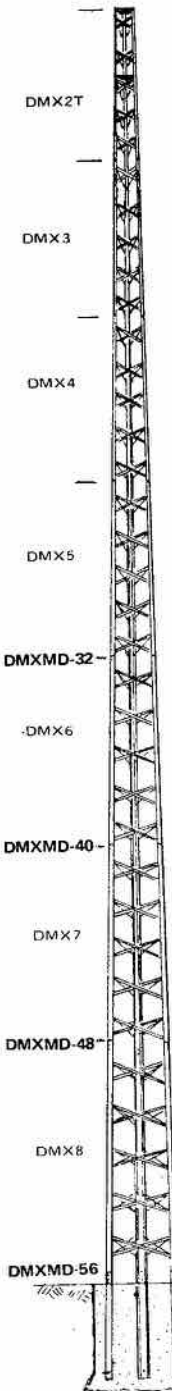


Top section of a Ham Tower with a rotor, mast and a Model BBMB installed.

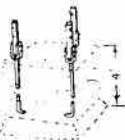
NOTE: DMXMD and DMXHD towers are shipped complete with the following: 8 ft. tower sections, top plate with cast aluminum mast clamp, rotor plate, three 4 ft. concrete base stubs, special nuts, bolts and washers. (No mast is included in package).

Specifications:

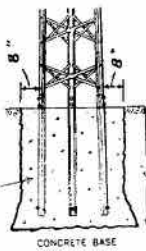
Model No.	Height without mast	Tower Sections Supplied	Weight in lbs.
DMXMD Medium Duty Towers			
DMXMD-32	32 ft.	DMX2T, DMX3, DMX4, DMX5	152
DMXMD-40	40 ft.	DMX2T, DMX3, DMX4, DMX5, DMX6	200
DMXMD-48	48 ft.	DMX2T, DMX3, DMX4, DMX5, DMX6, DMX7	272
DMXMD-56	56 ft.	DMX2T, DMX3, DMX4, DMX5, DMX6, DMX7, DMX8	351
DMXHD Heavy Duty Towers			
DMXHD-32	32 ft.	DMX3T, DMX4, DMX5, DMX6	170
DMXHD-40	40 ft.	DMX3T, DMX4, DMX5, DMX6, DMX7	241
DMXHD-48	48 ft.	DMX3T, DMX4, DMX5, DMX6, DMX7, DMX8	314
Items which may be ordered separately.			
CBS3	Three 4' Concrete Base Stubs for DMX3		13
CBS4	Three 4' Concrete Base Stubs for DMX4		13
CBS5	Three 4' Concrete Base Stubs for DMX5		13
CBS6	Three 4' Concrete Base Stubs for DMX6		13
CBS7	Three 4' Concrete Base Stubs for DMX7		20
CBS8	Three 4' Concrete Base Stubs for DMX8		21
HUB3-6	Hinge-Up Base for DMX3 to DMX6		20
HUB7-8	Hinge-Up Base for DMX7 or DMX8		24
DM Mast	1-1/2" O.D. x 16 Ga. x 8' galv. steel mast		6
HD Mast	2" O.D. x 12 Ga. x 8' galv. steel mast		18
TMCA	Two Mast Clamp Assemblies with sleeve bearing		2
244A	Cast Alum. Clamp for up to 2-1/2" O.D. mast		2
BBMB	Cast Alum. Ball Bearing Mast Bearing for up to 2" O.D. mast		2



Compact Tower Package



Hinge-Up Base
HUB3-6
HUB7-8



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CBS8

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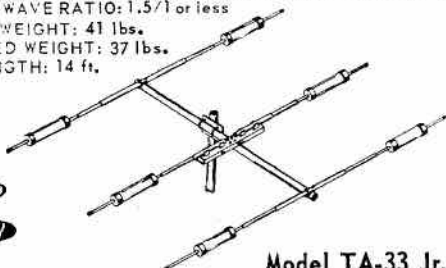


MOSLEY ANTENNAS

Model TA-33 for 10, 15, and 20 meters

The Mosley TA-33 three element beam provides outstanding 10, 15, and 20 meter performance. Exceptionally broadband - gives excellent results over full Ham bandwidth. Exclusive Mosley trap design offers resonant frequency stability under all weather conditions. Element center sections are of double thickness aluminum to reduce sag. Boom requires no bracing. Heavy duty universal mounting plate fits masts up to 1½ inch O.D. Antenna handles full KW AM/CW or 2 KW P.E.P. SSB input. Feed with one coax line, RG-8/U recommended. The TA-33 may also be used on 40 meters with TA-40 KR conversion. Complete with Hdw.

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 : 5.7sq. ft.
STANDING WAVE RATIO: 1.5/1 or less
SHIPPING WEIGHT: 41 lbs.
ASSEMBLED WEIGHT: 37 lbs.
BOOM LENGTH: 14 ft.



Model TA-33 Jr.

Mosley TA-33 Jr. has quality and performance found in the TA-33. Rated to 300 watts AM and CW, - 1000 watts P.E.P. on SSB. Complete with Hdw. The Junior may be converted to MP-33 with higher power rating with MPK-3 Kit. Shipping weight 28 lbs. Assembled weight 20 lbs.

TA-33Jr.	239.00	
TA-33	329.00	
CL-33	369.00	
CL-36	459.00	
Mpk-3 pwr. kit for TA-33jr.		\$85.00
MM-144 mobile c/w trunk mount and coax		\$47.50

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ATB-34	349.00
A-14-3el 14 MHz Yagi	229.00
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ARX-2 Ringo Ranger	\$52.95
Also Hy-Gain antennas available	
Optoelectronics OPTO-7000	
500 MHz counter kit	\$149.00
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TS-520S



KENWOOD Transceiver TS-520S
160 thru 10M

KENWOOD

Ts-520S	\$1149.00
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TS-820S	1695.00
R-599D	859.00
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With any purchase of above receive a Shure #444 mic and a SP-820 N/C value \$155.00

TS-120S	\$1049.00
TS-180S	1659.00
TR-7600	599.00
TR-7625	659.00
Midland #13-510 2 mtr 800 channels 25 watt	\$589.00

SEPTEMBER SPECIALS

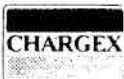
HAM III rotor	Reg. 199.00	Special \$179.00
Mosley MD-1 mobile 10-80 mtr, antenna	Reg. 169.00	Special 129.00
Mosley MY-144-9 el. 2 mtr beam	Reg. 53.50	Special 43.50
Mosley RV-4C and RV-8C 80-10 mtr vertical	Reg. 179.50	Special 149.50
Kenwood TR-7500 2 mtr mobile	Reg 439.00	Special 389.00
Kenwood TR-2200A portable	Reg. 369.00	Special 329.00
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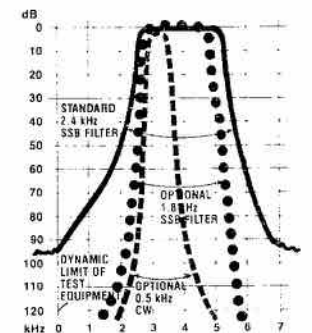
The 1.8 kHz crystal ladder filter transforms an unreadable SSB signal in heavy QRM into one that gets the message through. The 0.5 kHz 8-pole filter provides extremely steep and deep skirts to the CW passband window which effectively blocks out even the very strong adjacent signals.

Both of these filters can be front-panel switched in series with the standard filter to provide up to 16 poles of filtering for near-ultimate selectivity. In addition, the standard CW active audio filters have three widths (450, 300, and 150 Hz) to give even further attenuation to adjacent signals. In effect, OMNI/Series B has six selectivity curves—three for SSB and three for CW. That's true state-of-the-art selectivity... that's ultra-selectivity.

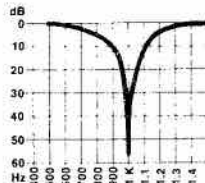
NOTCH FILTER. This new feature provides a variable sharp null to eliminate unwanted CW signals or carriers in the pass band. It replaces a previous feature, squelch. The notch filter is effective over a range of 0.2 kHz to 3.5 kHz. The curve opposite shows just how effective the control can be, diminishing the interfering signal by more than 50 dB.

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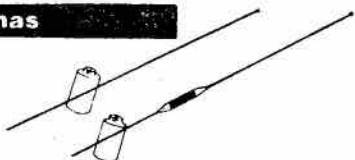
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antennas



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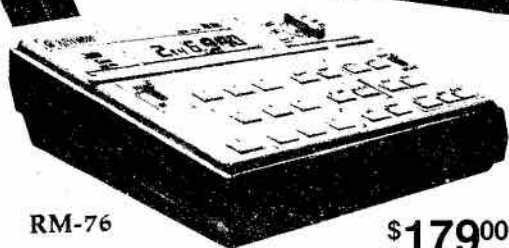
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TR-7600 (only)

- Memory channel...with simplex or repeater (plus or minus 600 kHz transmitter offset) operation.
- Mode switch for operating simplex or for switching the transmit frequency up or down...or for switching the transmitter to the frequency you have stored in the TR-7600's memory (while the receiver remains on the frequency you have selected with the dual knobs).
- Select any 2-meter frequency.
- Even without the optional RM-76, the TR-7600 gives you full 4-MHz coverage (144.000-147.995 MHz) on 2 meters; 800 channels; dual concentric knobs for fast frequency change (100 kHz and 10-kHz steps); 5-kHz offset switch, and MHz selector switch...for desired band (144, 145, 146, or 147 MHz).
- Digital frequency display (large, bright, orange LEDs).
- UNLOCK indicator...an LED that indicates transceiver protection when the frequency selector switches are improperly positioned or the PLL has malfunctioned.
- 10 watts RF output (switchable to 1 watt low power).

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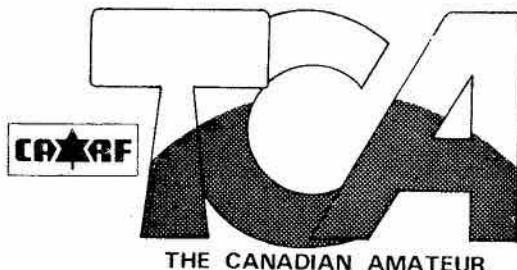
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LETTERS:

40 METRES

Reference official DOC Notice, published in Canada Gazette DGTR 00479 Apr 79 - Proposed amendments to Part II of the General Radio Regulations governing the Amateur Experimental Service.

Proposal number 6, allowing the Amateurs to use 7050-7100 kHz for phone (A3 emission) will enable Canadian Amateurs to work DX on 40 metres now enjoyed by all countries except Canada and the U.S.A., thus making a DXCC on 40 metres more possible and also be of benefit to contesters. This could allow a means of handling Trans-Canada traffic. Strong broadcast interference makes the present 40 metre band useless at night and split operation is not practical. This will not harm the CW operators as they will still have 100 kHz, the same as on 15, 10 and 20.

Elizabeth A. Duke VE7CIK
Coquitlam, B.C.

REGULATIONS PROPOSALS

I would like to make a comment on one of the new Regulations proposals.

I am very much in favour of amendment of Schedule V to permit phone endorsement on 1800-2000 KHz.

I think the 160 metre endorsement would help to increase activity on this band. There are very few on 160 metres in Saskatchewan.

Russell P. Cleave VE5CD,
Moose Jaw, Sask.

TUNING UP

We are two quiet 'amateurs', but recently we got into a hot and loud discussion about ways of tuning rigs. This happened when we noticed that we used different tuning procedure.

The first method (used by Roger) goes this way: peak ALC with the drive control; keep ALC reading at maximum permitted; adjust the plate control and load control, alternatively, to dip plate current just until it corresponds to manufacturer's recommendations.

september 1979 - 18

The second method (used by André) goes this way: peak ALC with the drive control; adjust the plate control to dip plate current to a minimum; adjust the plate control and load control, alternatively, to peak the relative RF power output reading to a maximum; with the carrier control adjust the plate current to the manufacturer's recommendations. (This is the manufacturer's procedure.)

We were puzzled, as there were differences in power output or distortion level. Using a dummy load and a RF wattmeter, we checked the two methods on different HF frequencies. We noticed an increase of 15-20% of power in the first method over the second, with the same plate current (working plate current recommended by manufacturer). We were not able to check distortion level.

We understand these data are a result of an increase in tube efficiency: increasing load impedance at the tube reduces power dissipation at the plate; but, if so, why do most manufacturers recommend the second method? Good power is RF into the antenna, not in heat!

We would like someone to comment on this. Maybe there is something that we overlooked.

Roger Coude VE2DBE
André Bedard VE2FNF
Alma, P.Q.

Can someone enlighten Roger and André? In the meantime, we'll lay it on our Technical Editor for a reply.

MORE ON AMATEUR EXAMS

I wish to protest the mentality indicated by some of the correspondents to TCA. If those certain Amateurs (ha!) wish to write an easier exam, or otherwise wish to have the exam requirements reduced, well ... they should have stayed on CB where they probably came from! Anyone who can complain that the exams are too tough believes everything should be handed to him on a platter...

One of your readers had the temerity, the outright audacity, to suggest that we

TCA welcomes Letters to the Editor. For speedy processing, send correspondence directly to Doug Burrill VE3CDC, Editor TCA, 151 Fanshaw Ave., Ottawa, Ont. K1H 6C8.

should return our radios to the manufacturer for repair, because that's the way things are today! "Why do we need technology to operate them?"!! Whew! Another suggested we reduce our speed requirement to 7½ wpm, 'cause all the 'pros' used 10 wpm. I wonder what the hell he might call 15, or even 18, wpm? I shudder to think.

You know the story: "Amateur radio as we knew it is passé... we must face the changes with a stout heart". Fine, but I hope that never means a compromise in the quality of our fellow Amateurs, nor in their respect and understanding of the traditions that are so important in our hobby. In fact, now that I think about it, that's probably what's wrong -- while we stress technology and code in our exams, we simply have missed out on the traditions and philosophy of Amateur radio; and because of this, newcomers and outsiders don't have a real feel for what makes and made Amateur radio tick. Haven't you noticed that 'fraternal' feeling isn't there any more? Pity.

Ed Sieb VE2BAQ
Cote St. Luc, P.Q.

CARF PUBLICATIONS

Please find enclosed membership fees for one year. We would be very interested in obtaining copies of your new study guides as soon as they become available, to provide the main text for our classes beginning in September.

After reading the complimentary copy of The Canadian Amateur that you sent us, we decided that it was the best publication to keep us informed of the current events in Canada.

Michael Ross, Pres.
Concordia University ARC, VE2CUA
Montreal, P.Q.

Readers may note that the brand new, revised copies of the Certificate Study Guide, Regulations Handbook and Advanced Certificate Study Guide are now in stock in Kingston. Send in Order Form at the back of this issue of TCA!

RUSSIAN INTERFERENCE

I have a suggestion regarding the stopping of this confounded interference by the Russians from their boats or boat in the Atlantic.

Why not get together with ARRL in the U.S.A. and tell the Russians in Ottawa that if it does not stop by a certain date that you people along with the ARRL will publish in your magazines and put it on the air in your bulletins that all radio Amateurs are to refuse to buy anything produced in any country controlled by communistic philosophy until this sparkgap type of interference now in the Amateur bands be stopped. Just don't threaten to do it, for they will call your bluff, so we must be prepared to back it up with action.

Will Phillips VE3FNM
Willowdale, Ont.

Original idea, Will ... boycotts have a nasty habit of working both ways; however, the U.S. 'Pave Paws' project may out-peck the Russky bird!

A MARCONI CHAIN

I'm thoroughly disgusted and disappointed.

Received a QSL card from an IY4 - via his QSL manager, an I4 - and along with the card was a 'Chain Letter'. Yes, a 'Chain Letter'.

It's ironic that in the same envelope there were printed instructions as to how to procure a 'Diploma Guglielmo Marconi'.

I'm sure Marconi would have had a good laugh if he had had the opportunity to hear the explanation of the principle of the 'Chain Letter'. Hate to see cheap tricks involving Amateur Radio Operators. My advice, "Don't bite", besides, my simple understanding of mathematics tells me that if I win then there's got to be up to 8,000 losers somewhere along the 'chain'!

Mel Lever VE1BSH
Dartmouth, N.S.

**TCA WANTS TO HEAR
FROM YOU!!**

WANTED - LICENCE PLATES

I would like to collect a set of Amateur licence plates. I have quite a number of VE6 plates that I would like to exchange for other plates.

If anyone is interested in exchanging or selling plates, please let me know.

Doug Holeton VE6AGV
VE6QSL Bureau Manager
4003 1st St. N.W.
Calgary, Alta. T2K 0X2

Traders, anyone?

VERTICAL 'J' ANTENNA

I was pleased to see my article on the vertical 'J' antenna for 2 metres in the July/August issue of TCA.

Unfortunately there is a misprint in Equation B, which is perhaps partly my fault since my original antenna factor k which was taken from graphs that I have made is the inverse of the k -factor usually shown in ARRL publications for example. So as not to lead to confusion I reverted to the usual definition for k in the rewrite of the article.

Correction:

To agree with text on page 23 Equation B should read:

$\frac{5904 k}{f}$ inches
MHz

John S. Belrose VE2CV
Aylmer (Lucerne), Quebec

MAY EXAM

No month's mail is complete without pro and con on the exam question but since they contain little that is new we will just say thanks to those who wrote in. Your remarks have been communicated to the official who makes up the exams. Here are a few extracts, just to show that there is still debate as to whether the exams are too difficult or not.

I wish to take this opportunity to express my various opinions on the May 9, 1979 exam.

I was not informed I would be in need of an Attorney to translate the multiple choice format of the exam.

The 62.5% given me for Regulations was not a surprise. I was quite clear on the Regulations; however, it was not explained to me that I was expected to know the Laws for **all licences** issued by the DOC when writing for the Amateur Certificate.

I have never been an expert at guessing
september 1979 - 20

when two of the choices seemed to be correct or none of the choices fit the regulation as written in the Act.

The Morse Code exam I felt was handled badly. I would have passed this exam if given a chance to (a) warm up (b) settle down.

George Lemere
Markham, Ont. L3P 3J5

"...the exams do cover a variety of theory but nothing beyond what is suggested in DOC publications. I do not think that DOC has made the exams harder as far as theory is concerned. They have kept pace with technology. The CARF handbooks are still quite adequate in helping to provide the groundwork..."

Mike Graham VE3KMG
Nepean, Ont. K2C 3H1

"...I was appalled by the physical conditions. Some 300 people jammed into one room does not make for an environment conducive to thought and relaxation ... the intricate and devious method chosen to pose the multiple choice regulations questions could only be classed as 'academically cute'. Why make it tougher with tricks of this nature? ... On surveying the theory portion I felt as if I had entered another world ... Many of the questions I would consider to be vague, too technical in depth or simply irrelevant points of an academic nature ... I have seen little in print from any of the organizations which criticizes the new exam..."

Murray A. Brown
Peterborough, Ont. K9H 7A7.

[Au contraire, Murray, there has been quite a bit in 'TCA' as to what CARF is trying to do about the examinations. A CARF meeting with DOC was postponed by the Department until it had received comments on this subject from its Regional office. In the meantime, through informal contacts with the people in headquarters there has been considerable discussion about the exams and we know from personal contact with the official responsible that the many letters and comments are being carefully studied in order to correct some of the faults pointed out in them.

As a result, the Department, as you will have noted in the last issue of 'TCA' is asking Amateur clubs to co-operate in making up questions for future exams.]

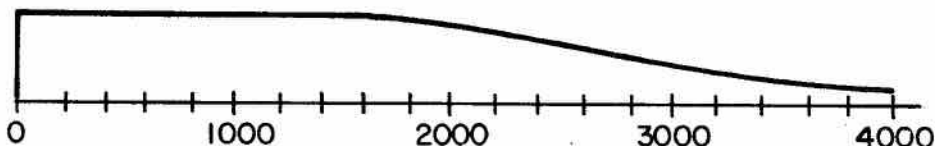
Narrow Band Voice Modulation

By John Bloomers VE7DAB

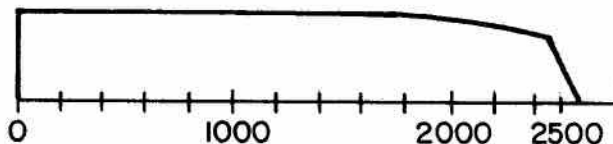
This article is intended to give the reader a step-by-step description of NBVM, a frequency companding technique first treated in detail by its inventors in the November and December issues of QST for 1978. It is this writer's object to show how

the voice signal can be manipulated to obtain a signal of approximately half the bandwidth.

Let's begin with a picture of the average frequency content of the human voice. It looks something like this:

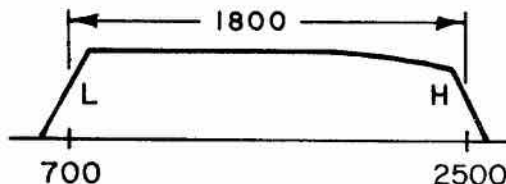
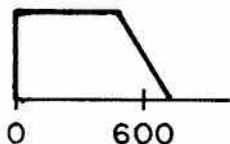


It is well known that little intelligibility is lost if frequencies above 2500 Hz are filtered out of the signal:



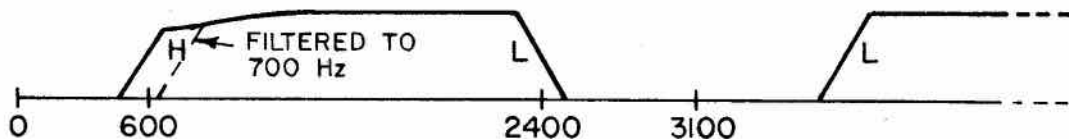
Let this signal be run through two separate filters, one a lowpass filter

cutting off at 600 Hz, and another a highpass filter cutting off at 700 Hz:



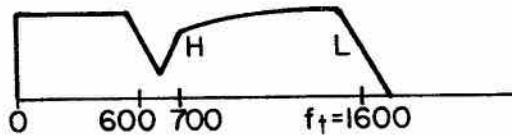
The high-frequency band is next mixed (in a balanced modulator, say) with a 3100 Hz sine wave to produce a folded spectrum (corresponding to the difference frequency

of 3100 Hz minus the high-frequencies) and a set of sum frequencies which are subsequently removed:



The folded spectrum is added to the original 600 Hz low-pass signal to yield a narrow band signal. This is filtered with

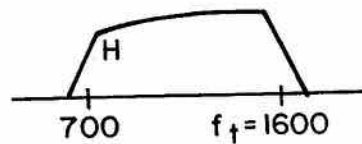
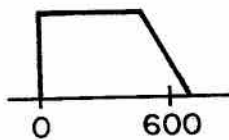
another low-pass filter to remove frequencies above frequency $f_t = 1600$ Hz:



As a matter of interest, the 0 - 600 Hz portion of the voice spectrum consists mostly of vowel sounds, while 1500 - 2400 Hz portion consists mainly of consonants. Anyway, the composite audio signal shown above is ready to modulate any carrier frequency using SSB or FM or whatever. Since it has half the usual bandwidth, transmitter power is concentrated over half the usual spectrum area, and the signal strength is thus doubled, giving an

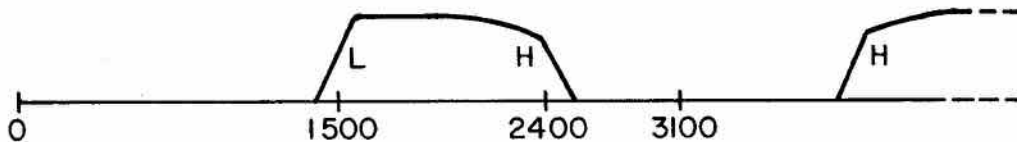
honest 3 dB of power gain.

At the receiver output, a replica of the above signal (plus some noise if Murphy has his way) will appear. That portion of the signal between 700 and 1600 Hz must be folded back to its correct place in the spectrum. To accomplish this, the signal is first broken down into two separate signals, one spanning 0 - 600 Hz and the other spanning 700 - 1600 Hz:



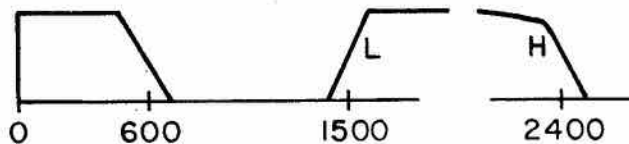
The 700 - 1600 Hz portion is mixed with a 3100 Hz sinewave producing sum and

difference frequencies. The difference frequencies are kept:



Finally, the 0 - 600 Hz portion is added to the unfolded high frequency portion, the result is lowpass filtered to 2400 Hz (thus

removing the sum frequencies created in the mixing above), and finally the audio is amplified to drive a loudspeaker:



Note that this signal has a spectral gap from 600 - 1500 Hz. It has been found that this gap does not degrade the intelligibility of the human voice significantly. Notice I said intelligibility, not fidelity.

(Reprinted from **Zero Beat**, the Victoria Shortwave Club publication.)

John Bloomers VE7DAB
401-1381 Pandora Ave.,
Victoria, B.C.

Save your Transceiver Tubes

By David Vail VE1AKQ

When any piece of electronic equipment containing vacuum tubes is first turned on, the cold resistance of the tube heaters is quite low, allowing a sizeable surge of current to flow through them, effectively shortening their lives. Commercial installations turn their equipment on and leave it turned on 24 hours a day, but most Amateurs would find this inconvenient for a number of reasons. One way to minimize the initial inrush of current is to apply half the rated voltage to the tube heaters for a short time, before applying full voltage, allowing the heaters to come up to operating temperature more gradually. In the power supply, the filter capacitors present a relatively low impedance when they are discharged, and gradual application of voltage should also minimize surge current damage to the power supply rectifiers.

My power supply is a Heathkit HP-23B, which has two primary windings on the power transformer. These windings may be temporarily connected in series to apply half-voltage to the rig, and, after a short time connected in parallel to apply full voltage. The switching circuit is very simple, requiring only one D.P.D.T. toggle switch. The original S1 supplied with the kit may be used, and its positions re-labelled 'Standby' 'Off' and 'Operate'. In the 'Standby' position the transformer primaries are connected in series, and in the 'Operate' position

they are in parallel. If you don't need the switchable 250/300 L.V. feature, the appropriate connections may be permanently soldered. If you wish to retain the switchable B Plus feature, then a S.P.S.T. toggle switch can be mounted elsewhere on the chassis, and wired to provide this feature.

Operation: To turn the rig on, move the toggle switch from 'Off' to 'Standby', and after about 30 seconds move the toggle through 'Off', to the 'Operate' position. In 'Standby', the tubes and dial lamps will come on dimly and when switched to 'Operate', they will come up to operating status in a few seconds. Anyone who does not relish the idea of manually switching from 'Standby' to 'Operate', could incorporate a time-delay relay, having D.P.D.T. contacts to do the switching. This way turning the rig on would automatically apply half voltage for the duration of the relay's time delay period. In either case, the remote On-Off switch on the rig's A.F. Gain control must be turned on.

Although this modification was made to a HP-23B power supply, it could easily be adapted to any power supply which has two primary windings on the power transformer. The only 'tricky' part of the re-wiring is to make sure that the primaries are connected in 'Series-Aiding' rather than 'Series-Opposing' when in the 'Standby' position.

Specific Instructions for the HP-23B Power Supply

1. Un-wiring: Remove the line cord lead and the two transformer leads (BLK and BLK-GRN) from lug 6 of terminal strip H. Remove the BLK-YEL and BLK-RED leads from lug 9 of socket A. Remove all leads from switch N, and lug 2 of the circuit breaker. Remove the white wire from lug 10 of socket A.

2. Re-wiring: Connect a jumper wire between lugs 3 (S-1) and 6 (S-1) of switch N. Connect the BLK-GRN transformer lead to lug 2 of the switch (S-1). Connect the BLK-YEL transformer lead to lug 5 of the switch (S-1). Connect a jumper from lug 2 of the circuit breaker (S-1) to lug 9 of socket A (S-1). Connect a jumper wire (NS) and the BLK-RED transformer lead to lug 10 of socket A (S-2). Connect the other end of the jumper to lug 1 of the switch (S-1). Connect the BLK transformer lead (NS) and a jumper wire, and the previously disconnected line cord lead to lug 6 of terminal strip H (S-3). Connect the other end of the jumper to switch lug 4 (S-1).

For Fixed Low B Plus Voltage

(No additional switch required).

For 250V: Connect the BRN-YEL transformer lead (NS), the banded end of

D-7 (NS) and the brown wire from lug 5 of capacitor K all together (S-3). Insulate the connection with tape or heat-shrink tubing. Cut off the bared portion of the BRN transformer lead, and insulate the end.

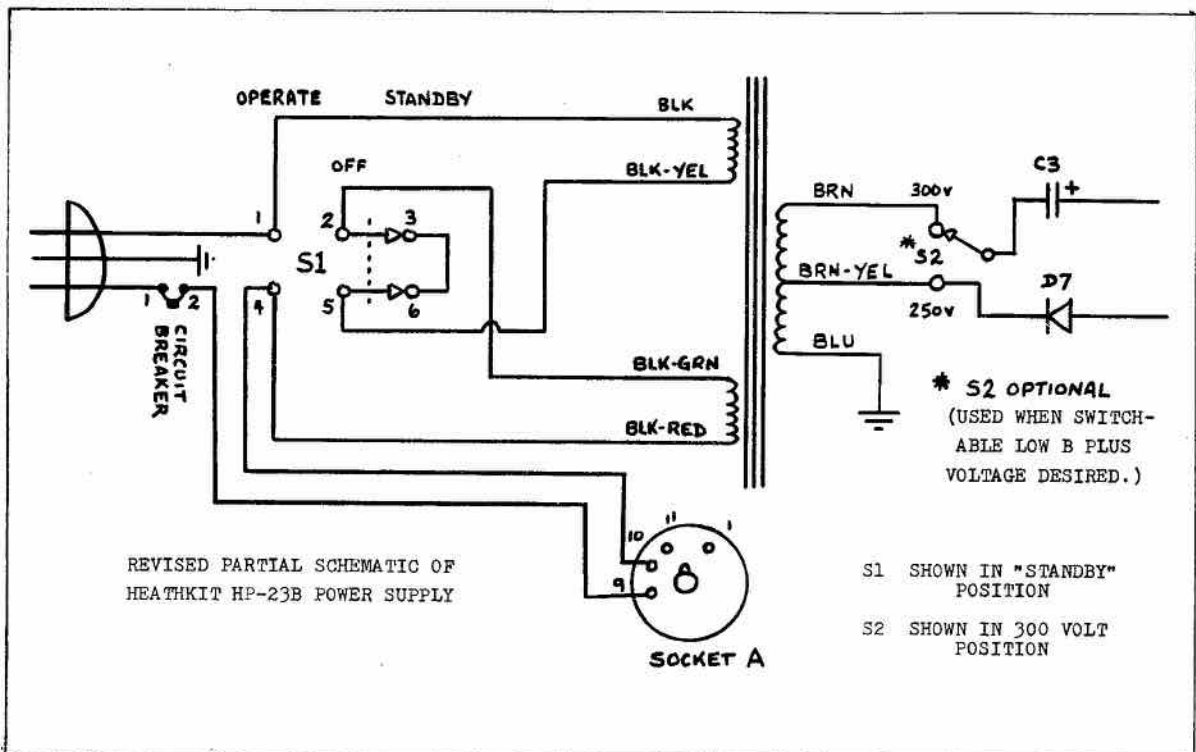
For 300V: Connect the YEL-BRN transformer lead to the banded end of D-7 (S-2) and insulate the connection. Solder the BRN transformer lead to lug 5 of capacitor K.

For Selectable Low B Plus Voltage

(Additional Switch Required)

Drill a hole in the center of the chassis apron on the end near terminal strip C, and mount a S.P.D.T. toggle switch in the hole. Connect the BRN wire from lug 5 of capacitor K to the switch's common terminal (S-1). Connect the BRN-YEL transformer lead (NS) and the banded end of D-7 to the 250V switch terminal (S-2). Connect the BRN transformer lead to the 300V switch terminal (S-1). Now all you have to do is re-label the D.P.D.T. switch STANDBY-OFF-OPERATE, and the S.P.D.T. switch 250V - 300 V.

David Vail, VE1AKQ
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Yarmouth, N.S. B5A 3P4



Vertical J Antenna

By John S. Belrose

If you read last month's TCA (Reference 1), you probably thought I had nothing more to say about vertical-Js but I do. In this article, I will describe a J constructed from 300 ohm ribbon, but the feed impedance, as before, is 50 ohms. The antenna may at first sight look rather unconventional, sort of like two transmission lines tied together, but don't be fooled. It really does work. And besides, for 2-metre operation, the antenna can be rolled up and put in your pocket. Drill a hole in the 300 ohm ribbon at the top end and attach a rope loop to it. In operational use, the antenna would be hung from the branch of a tall tree ... or in your hotel room one could remove a picture from the wall and hang the J-antenna there. When the antenna is used in the forest, it should be strung up as high as possible, since foliage attenuation at 2-metre can be appreciable. The J-antenna in this environment will provide as much as 20 db gain over the conventional handheld employing a rubber-flex antenna at ground level.

There are at first sight two types of 300 ohm ribbon J-antennas: one is a dipole type and the second is a folded dipole type. These two types are illustrated in Figure 1. The folded dipole type has been described by G2CBX (Reference 2) who called the antenna a "Slim Jim". The name stems from its slender shape and the use of a J-type integrated matching stub (JIM) that facilitates feeding the antenna at its base,

thus overcoming any problem of interaction between the feeder and the antenna as we have already described using different words. It is the gap that makes the top part of the 300 ohm ribbon into a radiator. The wire that is not attached is so closely coupled to the fed radiator, that it radiates too as though it were fed in phase. In fact, there seems to be little if any difference between the two types, as one would expect from this reasoning.

Since the quarter-wave matching stub is constructed from 300 ohm ribbon, the velocity factor that should be employed is 0.80. That is, the length of the stub is 0.80 times the length of a free space quarter-wave at the design frequency. In this article, we will adopt the metric system of measure

$$\lambda = \frac{300}{f\text{MHz}} \text{ meters}$$

Since the currents on the radiating parts of the antenna (whether one employs the dipole or folded dipole arrangement) are in phase, the velocity factor for the twin-lead used is unimportant. The resonant length of it depends, as for the conventional J-antenna, on the diameter of the radiator and the method of feed. For a wire antenna, the k factor to calculate the length of the half-wave dipole radiator is about 0.94. That is, the length of the radiator is 0.94 times the length of a free space half-wave radiator. The table below gives dimensions for a 300 ohm ribbon J-type dipole.

Antenna Type	Design Frequency (MHz)	Length of $\lambda/4$ Stub (cm)	Length of Radiator (cm)	Tap Distance (cm)	Gap Distance (cm)
Dipole-J	147	40.8	96	2.75	0.6

In the sketches the coaxial cable is shown leaving the antenna at right angles. It can in fact be folded back and taped to the shorted end of the stub. For simplicity, for portable application, the balun which was said to be an important feature of the J-antenna in my earlier article has been eliminated. This is not necessarily desirable, since currents on the sheath of the cable could contribute to the radiation properties and the impedance of the antenna. With this in mind, the feeder cable for the 300 ohm ribbon antenna built by the author was made an integral multiple of a half-wave, to minimize detuning (a cable length of 2.69 meters was used which for RG58U co-ax is 2 wavelengths long). While the effect of this unbalance was clearly noticeable when using an impedance bridge to resonate the antenna, in practical application there was very little reflected power ... which was less than 1/10 watt for 10 watts forward power over the frequency range 145-148 MHz.

In this article, as in the previous one, we have given dimensions for 2-metre J-antennas. However, the antenna can be used at higher or lower frequencies by scaling the dimensions accordingly.

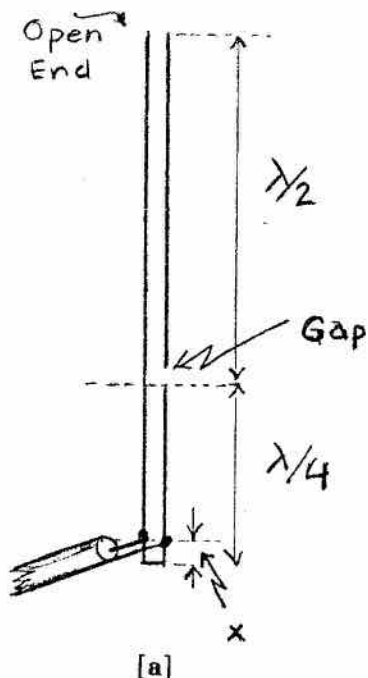


Figure 1a Dipole J-Antenna Constructed from 300 ohm Ribbon.

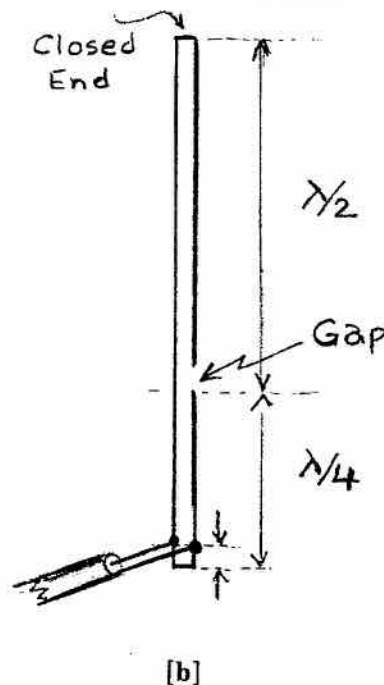


Figure 1b Folded Dipole J-Antenna.

The first vertical-J used by the author was one designed for the 10-metre band used in 1948-49 from a high location in West Point Grey, Vancouver (call VE7QH), during a period when solar activity really gave zest to the 10-metre operations. J-antennas constructed from 300 ohm ribbon for use on the 10-metre and 15-metre bands would be 7.07 meters (23.2 feet) and 9.63 meters (31.6 feet) long. Where the length is total height from the top of the radiator to the short at the base of the quarter-wavelength stub. Such antennas could be hung from the branch of a tree, or from a halyard strung between two trees for Field Day operation. If you heard the voice used on 10- and 15-metres at our Field Day site, Champlain Lookout, 300 meters (984 feet) above the floor of the Ottawa Valley.

References:

1. J.S. Belrose, 'The Vertical-J for 2-metres' TCA, July/Aug., 1979.
2. F.C. Judd, 'Slim Jim' 2-Metre Aerial, Practical Wireless, pp. 899-901, April 1978.

-John S. Belrose VE2CV
3 Tadoussac Drive,
Aylmer (Lucerne),
Quebec

ADD A

Polarity Switch

TO YOUR MULTIMETER

For years as a telephoneman I have been using meters with a reversing switch for troubleshooting. My multimeters did not have this useful function, which permits capacitors, diodes and transistors to be checked by merely flipping a switch instead of having to reverse the test leads.

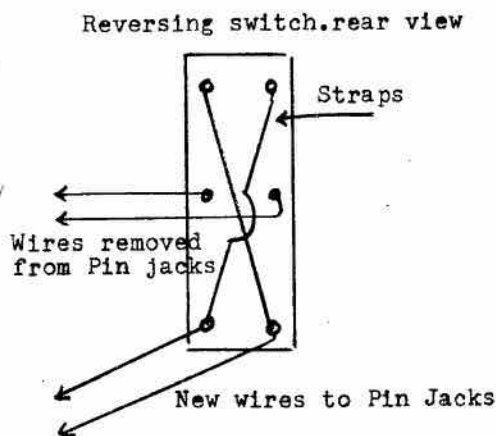
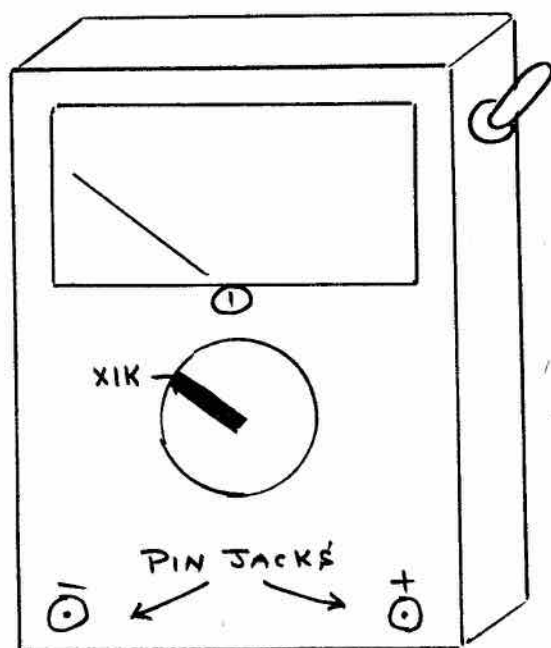
All you need is a small DPDT toggle switch, such as Radio Shack 275-8067 or 275-663, mounted on the side of the multimeter. I made the mounting hole with a hot soldering iron rather than risk cracking the case by drilling. To wire the switch, remove the wires from each of the two test lead pin jacks and connect them to the two centre terminals of the switch. Run two new wires from the test lead pin jacks to the outer terminals of the switch, which must have reversing straps (wires) as shown in the diagram. It does not matter which wire goes to which terminal, as the normal and reverse positions of the switch can be found by checking the polarity of a battery.

You can now check diodes and transistors for forward and reverse resistance, and measure currents and voltages of unknown polarity, by a flip of the switch. I use test leads with alligator clips to make it even easier. You can also estimate the value of unknown capacitors. Connect the capacitor across the test leads, choose a suitable resistance range, and note the size and speed of the 'kick' as you slowly flip the switch back and forth. Then find a capacitor of known value which produces about the same 'kick' on the same resistance range, it will have about the same capacitance.

Meters having separate pin jacks for the different ranges will require the switch to be wired between the DC common and the Kohms pin jacks. I would suggest wiring the switch experimentally before making a hole in the case. If it doesn't work, you can always put it back the way it was.



Bernie Burdsall, VE3NB
25 Mohawk Pl., Kingston, Ont. K7M 3K5.

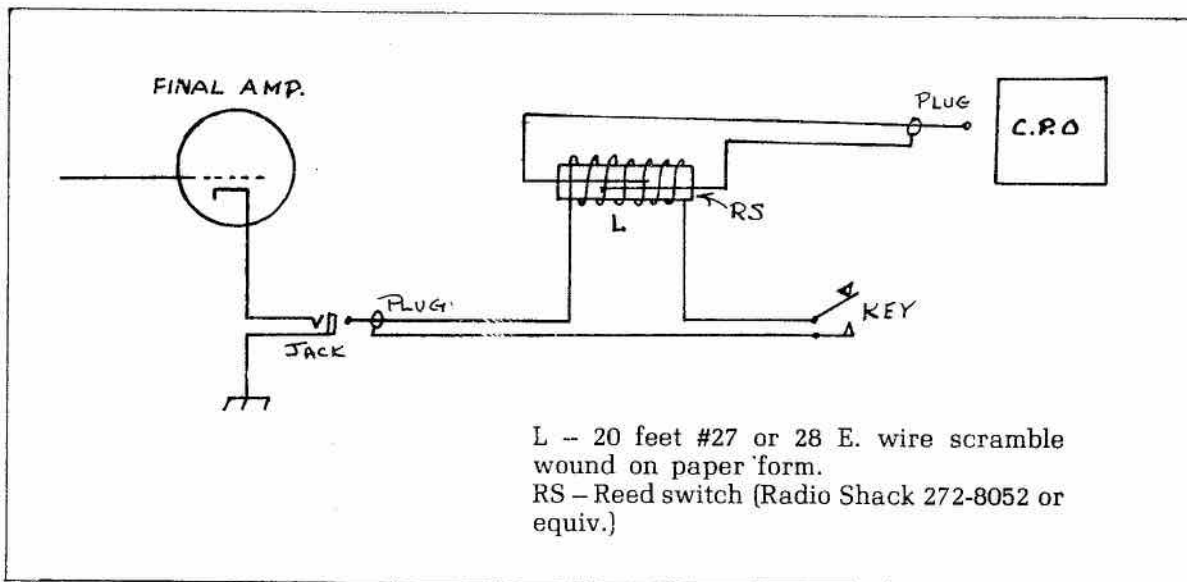


Monitor your CW

J.M. Fertich VE7BPN

The trouble with parasitic cw monitors is that most of them sound lousy. Usually the tone is fuzzy with RF at the best of times. If your rig is of the cathode keying

variety, here is a method which will provide monitoring on all bands. All that is required is a code practice oscillator, and what Amateur hasn't one.



CONSTRUCTION

The arrangement here was constructed to work in conjunction with a Heath Cheyenne transmitter. This rig draws approximately 140 ma. loaded. One of the small reed switches was utilized since they are cheap and easily available from Radio Shack stores. About 18 or 20 feet of #27 or #28 enamel wire was scramble wound on a paper form the diameter of the reed switch body. The switch is inserted after the coil is wound. The assembled coil and reed may be mounted on a piece of 'perf board'. After reed switch has been adjusted within

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coil L and operation is satisfactory, it should be taped into position; a more permanent solution would be to encapsule it in epoxy. Some transmitters may not draw enough current to close the switch so more turns must be wound on coil L. The total resistance of the coil does not exceed 1 ohm so no apparent change should be noticed in operation.

J.M. Fertich, VE7BPN
General Delivery
Montrose, B.C.
VOG 1PO

A First for Packet Radio

VE2PY in 'VE2TD Newsletter'.

On the packet radio front things are proceeding nicely. Our last problem has now been overcome. We successfully tested our MODEMS and they perform beyond expectations. Anyone listening to VE2REP late at night on July 2 would have heard the first high speed data exchanges by Amateurs in Canada, and perhaps the world. We sent data at 2400 bits per second (compare with Amateur RTTY at 45 bits per second) error free. We will schedule a demo "on air" one of these days soon for people who want to know what a packet sounds like. It sort of goes ZZZZZT for 0.3 seconds, and a line of characters appears on the screen of my video terminal. Each character takes exactly 0.00416 seconds to transmit. The data is going so fast that the two tones sent which are 2400 and 4400 Hz respectively, are inaudible as such. They switch so fast that you hear only a buzzing sound. Very neat! These transmissions took place on 220 MHz but were down linked to VE2REP on two metres for the benefit of anybody listening.

The next step will be to begin work on the single board computer. This will be a device costing about \$200 to build, which will be a dedicated computer which will convert any video terminal, teletype machine either ASCII or Baudot into a packet radio station (with the addition of a radio of course). I hope that we will be able to persuade the DOC to let us do this on two metres thus sparing people the expense of buying a new rig. Once this happens users will be able to take advantage of Packet Radio without spending a lot of money for a full-blown computer. You can think of it as sort of a glorified TV game in structure, as these latter are exactly what we want, i.e. a dedicated microcomputer.

As our development work nears conclusion, you will be hearing more and more weird noises on two metres and on 220.

VE2PY Bob Rouleau
6767 Cote des Neiges Rd.
Suite 207
Montreal P.Q.

LIFE SAVING DRUG DISPATCHED

Amateurs aid in emergency

In the early hours of July 27th, Don Boyington VE3IOR of Weston, Ontario heard emergency traffic on twenty metres involving a medical missionary, Dr. David Harms HR0DHX, YS4JSL and YS4JL Jackie and Dr. Jacobo in San Salvador City, El Salvador and some U.S. operators who were trying to locate a rare drug required to save the life of a 19-month-old child in that Central American city.

No supplies were available in Central or South America and administrative difficulties with U.S. regulations surrounding the dispensing of the drug made it unavailable to the child from sources in the U.S.

Don, in Weston, contacted Dr. Jay Keystone of the Toronto General Hospital' tropical disease unit and after a thirty minute phone patch between him and David Harms, things got going for dispatch

of the life-saving drug. Air Canada lifted it to Miami, where Don Kay K0IND arranged for its onward transmission by a local airline. The 60 day supply of the drug was in San Salvador by 6.30 that night.

Credit was due, Don said, to many other Amateurs in relaying some of the traffic and assisting in the search for the medicine, noting W4PEN and others on the twenty-metre Maritime Mobile net.

The whole operation was carried out with no charge by any of those involved... it was a fine example of the spirit and ubiquity of the Amateur service and the fact that charity, in its true sense, is still with us!

(The antenna Don uses for his Yaesu FT-200 is an unusual arrangement of a commercial CB 27 MHz vertical on a 40 tower, matched well enough to give it a 1:1 SWR. Don has been asked to write it up for our Technical Section. Ed.)



My apologies to the boys in Cape Breton ... really, I know it is not a separate country and you weren't deleted from the repeater directory intentionally! Thanks to Don VE1RI and Ian VE1BLP for reminding me.

From the West Coast, Larry VE7QF advises of two new repeaters on the air; VE7RSI on Salt Spring Island (147.93, 147.33) and VE7RSR in Victoria on 144.81, 145.41. (Editor's note: This is the first 'low band' repeater that I know of. Anyone else know of one below 146?

The real VE7OP says he doesn't know anything about the repeater VE7OP proposed on 147.90/147.30, so it can be scratched from your lists. Also, Larry says that he thinks the Masset, B.C., repeater is no longer active and will try to confirm it.

From Winnipeg, Mike VE4WZ sends a new 'up-to-date' Manitoba list that is quite different from the directory:

Brandon	VE4AL	146.13	146.73	AT
Brandon	VE4BDN	146.34	146.94	
Flin Flon	VE4FLK	146.34	146.94	
Gimli	VE4GIM	146.25	146.85	
Killarney	VE4KIL	146.25	146.85	
Miami	VE4HS	146.22	146.82	
Pinawa	VE4PIN	146.34	146.94	
Winnipeg	VE4WPG	146.46	147.06	A
Winnipeg	VE4MAN	146.01	146.61	
Winnipeg	VE4WDX	147.78	147.18	
Winnipeg	VE4RAG	147.84	147.24	
Winnipeg	VE4CNR	146.16	146.76	
Winnipeg	VE4AGA	52.76	147.12	
Winnipeg	VE4TTR	223.34	224.94	

The repeaters in Portage and Shilo are no longer on the air.

In Ottawa, the RCMP Amateur Radio club have a new repeater on the air, VE3CPC (Canadian Police College) on 147.75, 147.15. It is in a temporary location right now, but should be in a new permanent location soon.

For those of you in the east who will be attending the RSO convention in Ottawa, I plan to have copies of the current repeater directory available.

According to **The Emitter**, the Northern Alberta ARC publication, the boys in Edmonton are busy with an ATV (Amateur Television ... fast scan) and it is now in its final test stage. The video input is 427 MHz, audio input is 431.50. Output

is: video 439.25; audio 443.75 MHz.

VE3JBB in Ottawa has asked the regional repeater council for a pair in the 145 MHz band for a packet radio repeater.

VE1AHC

Here is a description of the sophisticated repeater facilities constructed and maintained by VE1AHC, Ron Mackay, who works for the CBC in Charlottetown. Doug Cormier VE1BCN passed it along to us.

VE1AHC is one part of a complex repeater system that began in the basement of VE1AIC one July evening in 1974. Since then it has blossomed into one of the most unique repeaters in Canada. 'Meadowbank International' as it is called by those who know the system, comprises repeaters VE1AHC, VE1UHF and VE1SPR.

Meadowbank P.E.I. houses the UHF repeaters, links, VHF receiver, and control systems. The VHF transmitter is located in Churchill, P.E.I.

The Springhill N.S. repeater VE1SPR is connected to the system through a UHF link that runs full time and is completely automatic with local override priority. This is still the only link hook-up in the Maritimes.

The UHF repeater VE1UHF went on the air in November 1978 and is used as another connecting link with VE1AHC as well as a full duplex repeater. To date this is the only UHF repeater in the Maritimes.

Autopatch experiments began in the fall of 1975 and the first home-brew digital autopatch was constructed in the summer of 1977.

The list of experiments goes on and on, building up a library of data available to anyone wishing help in the repeater business.

For those who have never worked the Meadowbank repeater here is a list of its frequencies:

VE1AHC in	146.07 MHz	out	146.67MHz
AHC-SPR link	448.30 MHz		443.30MHz
VE1UHF in	449.40 MHz	out	444.40MHz
VE1SPR in	146.40 MHz	out	147.00MHz

Ron's address is Box 118, Cornwall, P.E.I. COA 1H0;Ph: (902) 675-6118.



WARC UPDATE

By the time this edition is circulating, the World Administrative Radio Conference in Geneva will have started.

Opening on September 24, the delegates from 145 countries will start their negotiations on the slicing up of the radio spectrum for the next 20 years or so. Canada's delegation, like a number of those from developed countries, will have a number of members who have their Amateur tickets. The Canadian team has one delegate who is officially responsible for advising it on Amateur radio matters; Bud Punched, VE3UD, was asked to join the Canadian group some months ago and along with others from both government and industry, worked 12 hour-and-then-some days in last minute preparations. Bud, as part of his duties had to wade through all of the briefs presented by the 145 participating countries.

When WARC '79 was first announced,

three years ago, CARF asked the Minister of DOC to ensure that a well-qualified Amateur be included on the team to advise on Amateur affairs. CARF had asked Bud, in view of his long experience (since the 1920s) on the air and his standing in the telecommunications community, to head up a CARF working group to put together a brief to DOC for Canadian Amateurs. The CARF working group under Bud's chairmanship produced a number of papers and briefs for DOC and he also worked on one for ITU, explaining to member nations just what Amateur Radio is all about. Thus when the Department cast about for an Amateur expert for their delegation there could have been no better choice than Bud.

He hopes to work his own station from Geneva if he has any spare time during the ten week or so conference.

CARF

NET NEWS

New manager of the ONTARS 75 metre net is Bruce Carveth VE3BC, who founded the net. He will replace Dick Shunn VE3HFR, who has done an excellent job during his stint as manager. Bruce is looking for assistant net managers. Address is Apt. 408, 970 Eglinton Ave. E., Toronto, M4G 2L8. Residence phone is (416) 421-8554; office, (416) 485-9331.

* * * * *

COMSONT, the Ontario 40 metre phone net now operates 1000 hours Eastern Time on Thursdays and Saturdays on 7195 kHz. The net takes in Thunder Bay, Nipigon, Timmins, Toronto, London, Windsor, Kirkland Lake, Sudbury, Petawawa, Trenton and Sarnia stations at present. If the present proposals for putting phone on the lower part of 40 metres materializes, the net will probably move to 7075 or 7095 kHz and operate daily on a trial basis (Tx VE3AML).

VE3DEP, Vic Cyr, of Ottawa, was designated 'Net Control' Operator of the Year' for the Quebec Radio Net. Vic has been Thursday night controller for the ten-year-old net since its very early days (QRN, phone, 3.775 kHz 1930 Eastern time, daily. Vic was presented with a pen-and-pencil set by the founder, Ed Gareau VE2GA.

Awards

The Chilliwack ARC is sponsoring the 'Sasquatch Award'. The cost is one buck. For info: Chilliwack ARC, 317 Marshall Ave., Chilliwack, B.C. V2P 3J5. Although at this time of year it seems redundant, VE3HLL is still running a 'Ski Award' which requires working two stations from each major skiing area of B.C., Alberta, Ontario and Quebec. Info from Eric S. Walden RR 1 Gowanstown, Ont. NOG 1Y0. Price is \$2.00.



Regina ops meet tornado emergency

On August 8, within minutes after a 117 kph storm winds and two tornados left a path of destruction across Regina from the north-west suburbs through the downtown area and into the north-east industrial and suburban area, the Regina Amateurs were on the scene with two-metre communications, assisting local authorities. City Police and Regina Emergency Measures Organization were helped with traffic control and surveillance of downed power lines and the devastated industrial area.

Instrumental in maintaining liaison with the Regina City Police and Emergency Measures Organization, Tom VE5TH was assisted with two-metre base net control station and a number of two-metre mobile and portable units. Due to emergency commitments, the net control station changed hands three times throughout the evening but with no interruption in control, thanks to VE5GF, VE5RN, VE5ABK and VE5ACP.

Mobile and portable communications along with other volunteer duties were provided by VE5AAD, VE5ABF, VE5ABK, VE5ABN, VE5ACP, VE5CS, VE5FM, VE5GF, VE5OI, VE5RN, VE5SC, VE5TH, VE5WM, VE5ZZ with VE5AN, VE5BW, VE5DP and VE5TG on standby.

Once again the Regina Amateur Radio operators proved they were ready to move and move efficiently in the interest of Public Service.



Bill Munday VE5WM,
132 Shannon Rd.,
Regina Sask. S4S 5B1

[No word has been received on Amateur communications during the windstorm disaster in Woodstock in Southern Ontario which was devastated the day before the Regina emergency ... Ed.]

GRS REPEATER ON UHF GETS OKAY

CB to get share of 900 MHz band

The DOC is planning a new band for the General Radio Service (CB) and by the time readers see this the proposal will quite probably be up for public comment. The Department will propose a slot in the 900 MHz band but just where, is not known at this time. The Amateur allocation in this newly-opened band will be 902 to 928 Mz but whether the DOC will follow along the US idea of slot of a few megs from above 890 to 902 MHz is not yet known.

In the meantime, DOC "has granted approval in principle" to the establishment of a repeater for GRS purposes somewhere in the 900 MHz band. The repeater, according to Brian Brooks, the vice-president of the Canadian General Radio

Service Alliance, the national CB organization, will be a prototype for future commercial machines to service GRS groups.

The Director-General of the DOC's Telecom Regulatory Service, Dr. John deMercado said in an interview with a Toronto newspaper that as small computer technology continues its mushrooming growth, low cost switches can be designed to link two-way car radios with other radio systems and telephone lines. (Coupled with Dr. deMercado's interest in computer technology it's a good bet that this would mean the appearance of 'packet radio' on the GRS UHF allocation. Ed.)

Ontars: A Daily Service

The Ontario Amateur Radio Service (ONTARS), started on January 8, 1972, is on 3755 kHz, and operates every day from 7 am to 6 pm Eastern Standard Time or Daylight Time in Summer. It is controlled most of these hours by a small core of devoted Amateurs who take definite time slots, and by others who step in when a Controller is not available. During non-controlled periods there are usually several around the province who monitor the frequency. More Controllers are always welcome and your assistance will be appreciated. Advise any of the Controllers and they will pass it along to those who maintain the schedule.

It is basically a contact net for phone stations although CW will be accepted. Stations check in to the Controller: 1) to say they are available for their area, 2) to find another station or area that might already be on the net or which Control frequently calls for, 3) to report any emergency, 4) to give brief weather and road reports if the net isn't too busy.

Stations checking in should give their call only; then, after Control has called them in, give their name and QTH, their requirements or QRU. When two or more stations, make contact on the net they

should QSY at least 10 kHz off the net frequency so they won't QRM anyone else listening on the net. Regulations state that you must give your call when you check in and out of a net.

It is not a traffic or ragchew net so transmissions should be brief and to the point, thus allowing other stations including emergency and mobiles to check in without delay. It is important that you zero right in on frequency as the Controllers will not upset by changing their transceiver to pick you up. Good operators on a net only give their call, not 'Break' which is often used to indicate emergency or urgency. Stations on the net can often be helpful by relaying weak or distant stations to Control.

Controllers will frequently say the word 'ONTARS' so the net may be recognized quickly, particularly by newcomers.

ONTARS can help you meet new and old friends. It will be counted upon heavily in event of emergency in the province. Do help to make the service even more worthwhile to one and all by checking in and, if possible, spare a little time as a Controller to help your fellow Amateurs.

Net Manager is Bruce Carveth VE3BC.

VE3FXT globetrots again

Last heard from on the Isle of Man this summer, globetrotting George Collins VE3-FXT and his wife Jem VE3COA were to leave Ottawa at the end of August for a two-year stay in Thailand, arriving there September 1.

They will take language training in the northeastern city of Khon Kaen's University. Jem VE3COA will be teaching English as a second language to science students and George will be teaching geology and experimental geophysics.

In the words of George: "We should be on the air singing 'O Canada' on 21225 kHz and 28400 kHz as soon as we have the HS3 call which we have been told will be issued." (There was a HS3 in Korat which is not far from Khon Kaen.)

Operation will be exclusively on 15 metres and 10 metres; VE3WT Howard

Cowling supplied a 4 element beam with a 9.5 dB gain. Equipment to be used will be a Kenwood 120-S 100 Watts with a 120 tuner to load up the wires for the other bands. The immediate project in the area will be putting up antennas for all-band operation.

George hopes to cover all the adjacent Commonwealth countries and may be heard from other places using his British call G3WNE. His wife's U.K. call is G3YXT.

Note for DXers: Don't send an IRC. For minimal support, green stuff or equivalent will elicit a confirmation. QSL to VE3DPB, Box 89, Lynden, Ont. Canada L0R 1T0. VE3DPB's number two son Peter is handling all the QSLing.

Rowland Beardow VE3AML
1899 Lakeshore Rd.
Sarnia, Ont. N7T 7H6
september 1979 - 33



Better late than never...

More than five years ago, when the US Federal Communications Commission proposed allocating a portion of the 450 MHz Amateur band to the U.S. Emergency Medical Service, CARF added its strong protest, through DOC, to those made by U.S. Amateurs, and the FCC dropped the proposal.

A major U.S. organization, The American Radio Relay League, has recently reciprocated the 1974 action and arguments of CARF by registering a protest with the FCC against the DOC allocation of 420 to 430 MHz to commercial service in Canada. It is hoped that this protest may add to the weight of that in the CARF brief to DOC two years ago and its comments filed in early 1978, even though the U.S. organization's action is more than a year after the comment closing date set by DOC. As well, the DOC, after two or three years extensive consideration of the domestic allocation of the spectrum between 406 and 960 MHz has already published its decision and the 420 to 430 part of the 450 MHz Amateur band was allocated to commercial users. The fact that implementation of the change has been delayed by DOC until further consultation with industry may give the ARRL's comments some chance of being considered ... if the FCC relays them to Ottawa.

In case it doesn't, CARF has informed DOC of the ARRL request of the FCC and the opinion of both organizations that mixing U.S. Amateur and Canadian commercial users can well create difficulties for both services because the majority of Canadian population is within UHF radio range of the border.

All of the arguments may well be academic, however, because at press time DOC had stated its intention of promulgating new Amateur regulations in the Canada Gazette before the end of August. These would include the changes

on which comments closed July 28 and which are based on the results of the 1978 CARF National Amateur Radio Symposium. The changes will embrace a new format for the regulations and simplified frequency schedules for the various grades of Amateur certificate holders. According to a DOC spokesman, the new schedules will show the 450 MHz band only as 430 to 450 MHz and will, as a trade-off, show an allocation of 26 MHz to Amateurs (shared with the Fixed Services) from 902 to 928 MHz. An indication of how locked-in the loss of 420-430 MHz is at press time is the fact that the free coloured spectrum charts available from DOC have these changes shown on it.

Exam credits good for one year

Many of those who wrote the July 11 exams have the good news that they qualified for their Certificates and those who only passed one part of the paper are happy to find out that DOC, beginning with the July set, is giving credit for parts of the exam passed. Credit for morse code, theory or the regulations portion of the paper will be valid for one year.

Those who missed the theory or regulations part can try again on October 17th at the earliest although some offices are permitting morse tests once a month.

The new ruling should take some of the pressure out of exam writing and probably will put up the success rate over a period of time. The last application date for the October 17th exam is September 19th.

Third Annual CARF Symposium

The 1979 CARF National Amateur Radio Symposium will be under the auspices of Radio Amateur du Quebec Inc., the VE2 provincial organization (RAQI) and planning is going forward to hold it in Montreal with a tentative date of November 3-4. It was previously reported in error that the Valleyfield Club would host the event. It was apparently only a proposal and, in any event, the Valleyfield Club will not be the host club. (Editorial apologies to those involved!)

The Federation is still seeking briefs and papers from clubs and individuals for consideration at the symposium. This is the chance for Canadian Amateurs to bring their ideas and problems to the attention of the regulating authority ... DOC.

The tentative agenda is:

1. Antennas - the powers of municipalities vs. those of the Federal Government (DOC & MOT) to control or prohibit Amateur antennas.

2. Interference - the need for susceptibility standards for non-Amateur consum-

er radio, TV and other electronic equipment and the application of Regulation #48 in cases of interference with commercial stations.

3. Packet Radio - the review and updating of the technical characteristics of digital/packet radio and the establishment of protocols.

4. Examinations - the improvement of training of prospective Amateurs and of the examination and review procedures as well as the possible assistance of clubs in the conduct of exams.

Thoughts on whether Canadian Amateurs should be allotted more prefixes would be interesting, inasmuch as some operators find that the coveted two-letter call signs are now scarce and some Maritime Province ops would like to see separate prefixes for each of the Atlantic provinces. (Canada now allots VE, VO and VY prefixes to Amateurs.)

Papers should be sent to CARF President Bill Wilson VE3NR, 1427 Cavendish Rd., Ottawa, Ont. K1H 6C1.

news briefs

DOC PROPOSAL

A DOC proposal for a GRS (CB) allocation of 5 MHz somewhere in the 900 MHz band between 890-960 MHz is now up for public comment. Closing date is November 10. Briefs are invited on sophisticated features such as selective calling, paging, automatic transmitter identification, repeater networks, data and digital voice communication.

Comments are also invited on channel plans and on what portion of the 900 MHz band should be developed.

Proposals for various uses such as hobby, emergency, business, etc. are also invited.

CANDIDATES

With elections for the American Radio Relay League's Canadian division in the offing a number of Amateurs are throwing their hats in the ring. Two confirmed aspirants for League blessing as candidates are Bill Loucks VE3AR for director and Fred Towner VE6XX for vice-director.

Social Events

October 12-14 - Radio Society of Ontario convention, Skyline Hotel in Ottawa. Hosted by the Ottawa ARC. Info from Ottawa ARC Convention Committee, Box 8873, Ottawa, Ont. K1G 3J2. The club is sponsoring an award to publicize the event. The National Capital Award starts May 1 onward for contacts with VE3NCR. Highest number of contacts from May 1 to July 31, 1979 is eligible for prizes at RSO Convention. Details for SASE to the Committee.

October 28 - London ARC 'Swap and Shop' flea market. 8 to 4 pm. Lord Dorchester High School. Admission \$2, tables \$2. Displays, prizes. Talk-in 78/18. Info: London ARC, Box 2, Terminal B, London, Ont. N6A 4V3.

November 3-4 - Third Annual CARF National Amateur Radio Symposium. To be held in Montreal under auspices of Quebec provincial organization, RAQI. Details in October issue and CARF Newsletters.

CARF Tariff Committee Report

Barc Dowden VE3TT, Chairman

The Tariff Board of the Federal Government recently held hearings in several cities across Canada to determine if changes to customs duties should be recommended to the Minister of Finance in connection with antiques, collectibles, and hobby equipment.

Four individual Amateurs, nine Amateur Radio clubs, the Radio Society of Ontario, the Canadian Division of the American Radio League (CRRL), and the Canadian Amateur Radio Federation, as well as non-Amateur organizations provided submissions to the Board concerning radio hobby equipment. Quite naturally, all Amateurs would like to see the removal of duties on "ham gear".

Those of us in CARF who took part realized that the Board would ask, - "What is Amateur equipment?" We boiled answers down to two possible definitions:

1. Equipment that is useable in Amateur frequency bands only.
2. Any equipment bought by a licensed Amateur intended for use in his Amateur station.

We finally rejected the second definition (as attractive as it seemed) for the following reasons:

a) It's almost impossible for Customs officers to identify which of hundreds of items apply to this Amateur "end-use".

b) Who would provide a selected and continually up-dated list of the items in order to get around the problem in a)?

c) Amateurs would be importing, duty-free some items that non-Amateur hobbyists (e.g. GRS) would have to pay duty.

d) Complicated re-sale regulations and restrictions would be required because of c).

We concluded that the second definition wouldn't fly. CARF's President Bill Wilson therefore presented at the september 1979 - 36

Board's Ottawa hearing a submission which proposed that items described as:

"Radio transmitters, receivers, transmitter-receivers (and accessories provided with these units) intended for use in the Amateur Experimental Service bands only," should enter Canada duty free.

About two-thirds of the Amateur submissions supported the second definition (and use). ARRL Canadian Division (CRRL) proposed the first definition primarily, with "end-use" as an alternate submission. The only submission from a GRS group came from a radio club that represented both Amateurs and CB and it proposed "...lowering tariffs on GRS and Amateur equipment..."

As of this issue of TCA the Chairman of the Board, Pamela McDougall, has submitted her recommendations to the Minister of Finance suggesting an early release of the information. However, it is likely that there will be no release until the Minister of Finance presents his findings to Parliament this fall.

By the way, during one of the earlier hearings on 'collectibles' there was talk of increasing the required age for some duty-free 'collectors' items to greater than 50 years. On hearing this, your representative made a verbal appeal to the Board to retain the 50 year age for radio equipment since radio was relatively young.

Customs officers collect the duty according to the applicable tariff item rate based on the invoice or 'fair market value' in Canadian dollars, and, **also collect a 9% Excise Tax on the sum of the invoice value plus the duty.** If you buy used goods outside of Canada keep a record of the year they were made, their working condition, and a copy of the advertisement (if applicable) as well as the invoice for presentation to

Tariff Board proposes duty-free entry!

As a result of representations by CARF and other Amateur organizations, the Tariff Board recommended that the 15% duty on transmitters, receivers and transceivers designed for Amateur use be rescinded and free entry be accorded such imports, now dutiable under the British Preferential Tariff and Most-Favoured-Nation Tariff headings. The Board also recommended that the elimination of duty be effected in two stages over one year. Also included in the Board's rec-

ommendation is dropping any duty on antique radio sets or parts produced more than 30 years ago. The recommendations will be tabled at the first session of the new Parliament which hopefully will take the necessary legislative action to implement them. In the meantime, interested parties are invited to comment on recommendations in the Board report and the government will consider them in its review of the report.

customs people, otherwise 'fair market value' could be based on the price of recent new equipment. (This is also a good idea if the equipment is mounted in your car and you cross the border into the USA. Before going over you make out a 'green form' to allow your gear to enter duty-free on your return - Ed.)

The table below shows tariff items and rates most commonly used for Amateur equipment. If the hearing results in a

change to the rates we will print the details in TCA.

In the following table:

BPF - British Preferential Tariff, (Commonwealth countries e.g. U.K.* Australia, Singapore)

MFN - Most Favoured Nation (most other non-commonwealth and non-communist countries, e.g. USA* Japan, Germany, France, Hong Kong.)

GT - General Tariff (Communist countries)

Tariff Item	Description of Goods	BPF	MFN	GT
44533-1	Radio and television apparatus and parts thereof. (includes transmitters, receivers, transceivers, antennas, video equip., crystals, printed circuits boards, etc.)	Free	15%	25%
44546-1	Apparatus for the receiving and transmitting of photographs, weather maps and charts, by wire; parts of the foregoing.	Free	Free	30%
44542-1	Electron Tubes	Free	15	25
44544-1	Transistors and other semi-conductor devices (Integrated circuits: IC's)	Free	15	25
			(See Note 1)	
44579-1	Transistors and other semi-conductors for in manufacture of electric and electronic goods (This includes IC's, mini or micro for 'manufacture' by Amateurs for home use.)	Free	Free	25
44536-1	Microphones	7½	7½	25
44514-1	Transformers	15	15	37½
41415-1	Calculating machines and complete parts thereof. (This includes complete computers or kits) (See Note 2)	Free	10	25
69315-1	Articles produced more than 50 years prior to the date of importation under regulations required by the Minister, such as proof of age. (Antique radio gear.)	Free	Free	Free

Note: 1. An Order-in-Council is now in effect which changes the 15% to Free in this item.

2. A new tariff item will become effective 1980, if passed by Parliament, covering electro-data processors (EDP) and computers which will considerably reduce the tariff rate.



news briefs

MARITIME CONVENTION

Maritimers and those exiles who for two years, have missed the annual four-day rite of the Maritime Amateur Convention will be happy to learn that Sydney, N.S. will host one in 1980. The Navy Communicators' Reunion in Halifax stood-in for a Maritime convention this year. The event, held in July attracted a large number of Amateurs among the 300 who arrived for the three day bash.

CARFNET

The CARF-sponsored teletype net has changed its name from TRANSCAN NET to CARFNET in order to prevent confusing it with the Trans-Canada phone net. CARFNET operates for traffic 2000 Z Saturdays on 5 level and 2000 Z Sundays on ASCII 110 Baud (8 level). Frequency is 14.077 MHz.

FUZZ BUSTS FUZZBUSTERS

Two Amateurs in Ontario have been nicked for having 10 GHz receivers in their cars. Charged under the Highway Act which makes police radar receivers illegal, the Amateurs maintain that they are legally licensed to receive 10 GHz signals. One case has been remanded from month to month, awaiting the outcome of an appeal to a high court being made by a manufacturer of the so-called 'fuzz-buster' equipment. Provincial and state authorities are getting tough with these devices and so far the lower jurisdiction authorities have overruled any defense based on federal control of radio.

COAST GUARD

The Coast Guard Auxiliary has given a mixed reception to offers of Amateur volunteers to assist in emergency communications. A tentative offer of assistance to the Halifax unit was turned down while the Bruce (Ont.) ARC reports that the group forming the Auxiliary in Kincardine is interested and for starters would like an Amateur 'shore' station to tie in with the base marine service station, the OPP and other authorities and agencies.

PACKET GROUPS

Packet radio groups are active in Montreal, Ottawa and also in Vancouver, where CARF director Peter Driessen reports that a group including himself are designing a packet radio network using HDLC protocols implement by an Intel 8273 communications controller chip.

BANNED COUNTRIES

A U.S. Amateur magazine recently carried an item that the FCC has announced that it no longer has a "banned countries list", and that U.S. Amateurs may communicate with other Amateurs in any country they wish. In discussion with CARF officials DOC has confirmed that Canada will continue to honour its commitments to the International Telecommunications Union (ITU) and the formal notification of certain countries that they do not permit their Amateurs to communicate with Amateurs in other countries. As such Canada will continue to issue a list of banned countries with which Canadian Amateurs are not permitted to communicate. (The list of Banned Countries appear on the 'Info section' page of each issue of 'TCA') VE3ZS

TONE ACCESS TO POLICE

The Hamilton ARC has a tone access system on its repeater which connects it to the police dispatcher. More than \$600 in equipment was donated by individual Amateurs to set up the system. It is part of VE3DRW repeater and is accessed by asking a control station for the police link which gives regional officers direct communication with an Amateur reporting a serious incident such as a motor accident with serious injuries.

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To make sure of not missing an issue of TCA any change of address or non-delivery complaints must be sent to CARF Inc. Box 356 Kingston, Ont. K7L 4W2, NOT to the Editor.

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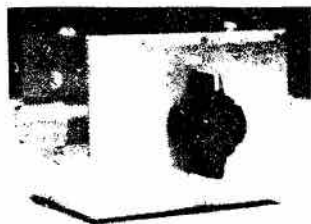
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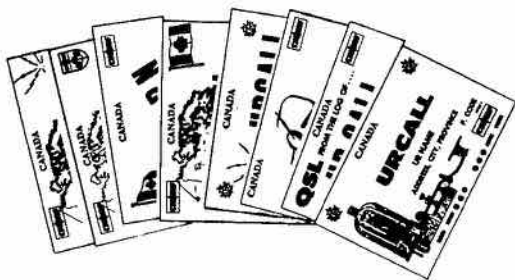
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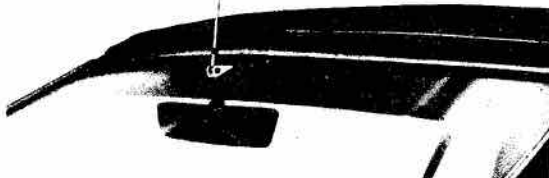
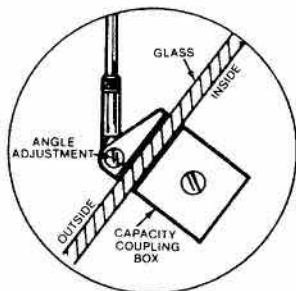
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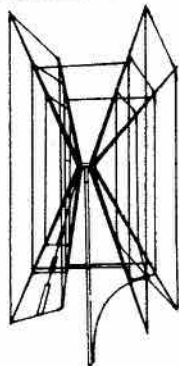


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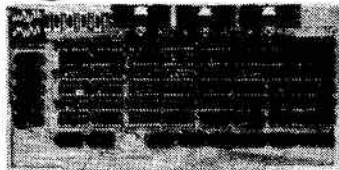
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Sable Island venture successful

With some 8,454 contacts in the log, Noel Funge VE4CF, Cal Shermerhorn VE4XG, Ted King VE1BPW, Bev Reynolds VE1TI and Doug McGill VE1AZW returned from fabled Sable Island with large smiles. After spending six damp days on the Island from August 3 to 9 Noel returned home in Winnipeg to find more than 500 QSL cards already waiting for the group. Sable counts for an ARRL DX country and QSLs may be had by sending your own plus a SASE (Canadian stamp or IRC) which will

fetch a direct card. Others will go via the QSL Bureaus. QSL to VE4CF, Noel Funge, 30 Mackie Bay, Winnipeg Man, R2Y 1V7. Using five different rigs and a variety of antennas but mainly relying on the FT-101, the boys worked all bands from ten to 160 metres and made contacts through the OSCAR satellite as well, using manual tracking. Best OSCAR contact was a California station. The expedition was financed by the Armed Forces as part of its 'Venture Training Program'.

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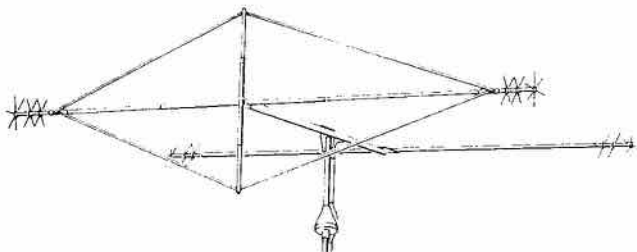
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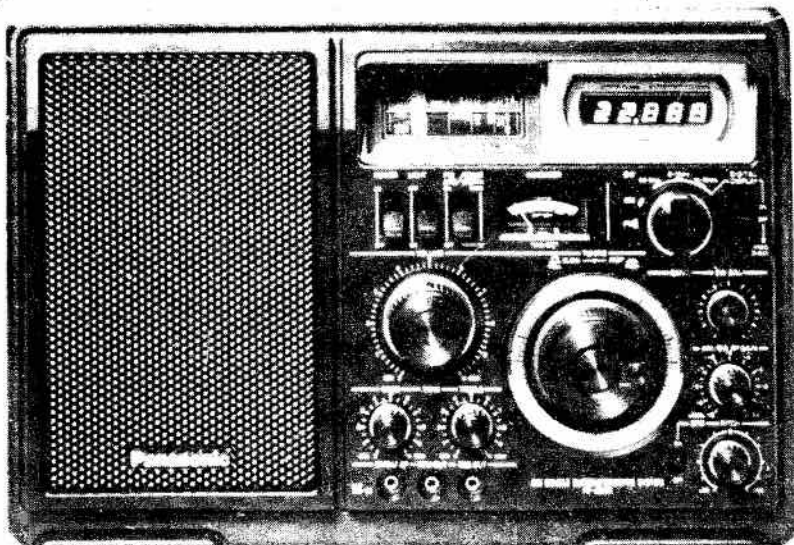
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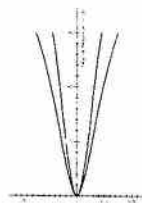
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1. To act as a coordinating body for Amateur radio organizations in Canada;
2. To act as a liaison agency between its members and other Amateur organizations in Canada and other countries;
3. To act as a liaison and advisory agency between its members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

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(If you want to contact the Federation, write or call a Director in your region or write to CARF, Box 356, Kingston, Ont. K7L 4W2.)

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Photos should be glossy black & white prints, although we can use colour prints. Written material should be typed, double spaced. Legible handwriting is acceptable. Finished artwork and drawings will add to the value, but sketches and rough drawings are acceptable.

Technical material only: Technical Editor, CARF Inc., Box 356, Kingston, Ont. K7L 4W2.

All other material: Editor TCA, 151 Fanshaw Ave., Ottawa, Ont. K1H 6C8.

New Publications available !!

The new editions of the **CARF Certificate Study Guide, Radio Regulations Handbook and Advanced Certificate Study Guide** are now in stock at CARF Administrative Headquarters, Box 356, Kingston, Ont. K7L 4W2 and ready for mailing! The new books have been revised, enlarged and updated to make them even more valuable to students and instructors in Amateur Radio courses, as well as first-rate reference manuals.

All three are printed in larger format and coil-bound for easy scanning and studying, and will also be available in Radio Shack outlets across the country.

CARF's new expanded Instructor's Guide will also be available, through the CARF outlet only, by the time you read this notice.

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If you are changing your address or renewing your membership, please send the change, cheque or money order to CARF, Inc., Box 356, Kingston, Ont. K7L 4W2, where CARF and TCA records are kept in the administrative offices of the Federation. Please do **not** send them to the Editor, who happens to live in Ottawa. Re-mailing means a delay in your change or renewal.

Infosection

CARF Bulletin Station sked

After a few months of operation, it has been found advisable to make some changes to the schedule of CARF News Service broadcasts over VE3TCA. Here is the schedule which will become effective as of June 30, 1979.

CARF Newsletters and News Bulletins will be heard over VE3TCA, the first official CARF News Service Station, utilizing the facilities of VE3OCU, Carleton University Amateur Radio Club in Ottawa on the following schedule:

Sundays

1745	SSB	14.140 MHz
1930Z	CW	14.077 MHz
2030Z*	RTTY	14.077 MHz
2200Z	SSB	3.755 MHz

Tuesdays

0001Z	CW	3.590 MHz
0030Z	TTY	3.610 MHz

* approx. time; follows CARFNET at 2000Z. TTY xmissions are 170 Hz shift, 5 level, 60 wpm, followed by ASCII 110 baud.

Carleton ARC repeaters using call VE3OCU will transmit the bulletins simul-

taneously Wednesdays at 0001Z on 146.86, 224.94 and 53.15 MHz.

Additional HF Bulletin Stations are: VE7TCA - Mondays 0230Z on 3618 kHz RTTY, 5 level and

Mondays 0245Z on 3755 kHz SSB after BC ARPS net.

VE5WM - Saskatchewan Phone Net nightly 0100Z on 3785 kHz.

- ARES Net Sundays 1530Z 3780 kHz (phone).

VE5GG - Thursdays 1830Z 14.077 MHz RTTY 5 level.

Also, a number of two metre repeaters serve local audiences. Regional coverage repeater newscasts are: VE7BBQ on VE7RPT 34/94 Thursdays 2000 hrs Pacific Time; VE5WM (regina) on 46/06 nightly at 0300Z.

Note: For the duration of Daylight Time, the 3.775 MHz SSB xmission on Sundays and the 3.590 MHz xmission on Tuesdays are one hour earlier Zulu (Z) time.

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1. Sort QSLs by prefix and stack face up in a single stack.
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3. Put your name, call, etc. in upper left corner
4. Put your CARF membership no. in lower left corner.
5. Send to CARF QSL Services, P.O. Box 66, Islington, Ont. M9A 4X1.
6. Do NOT register parcel. This causes delay.
7. Check with Post Office for requirements if sending by Third Class Mail
8. If receipt required, enclose SASE with cards.

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** Station XU1AA has been authorized to exchange communications with Amateurs of other countries. Note: The calls 70A to 70Z are assigned to the Peoples Republic of Yemen.

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Note: As a general rule, DOC will consider licensed Amateurs of Commonwealth countries for reciprocal privileges in Canada if the other country does the same.



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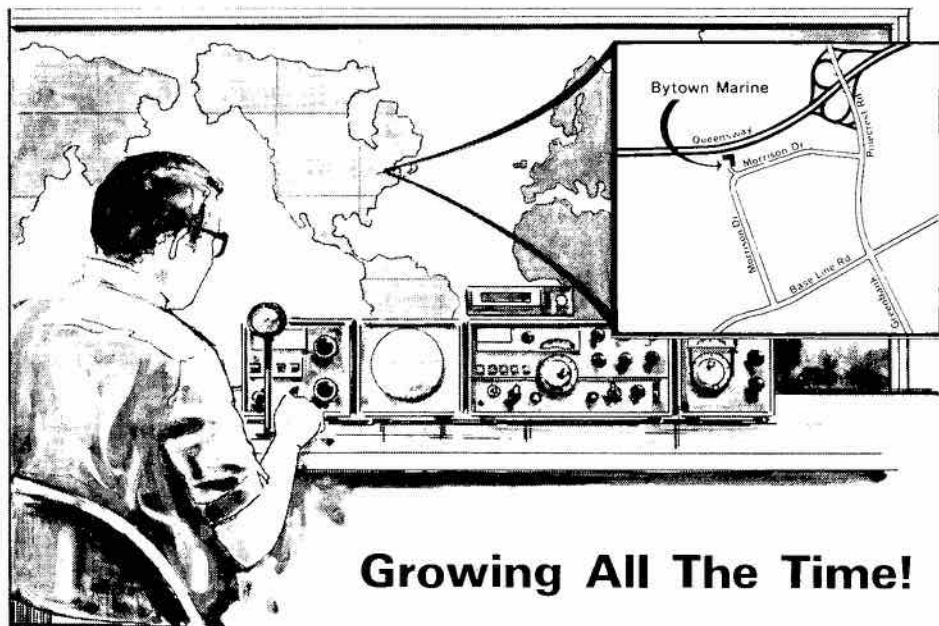
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