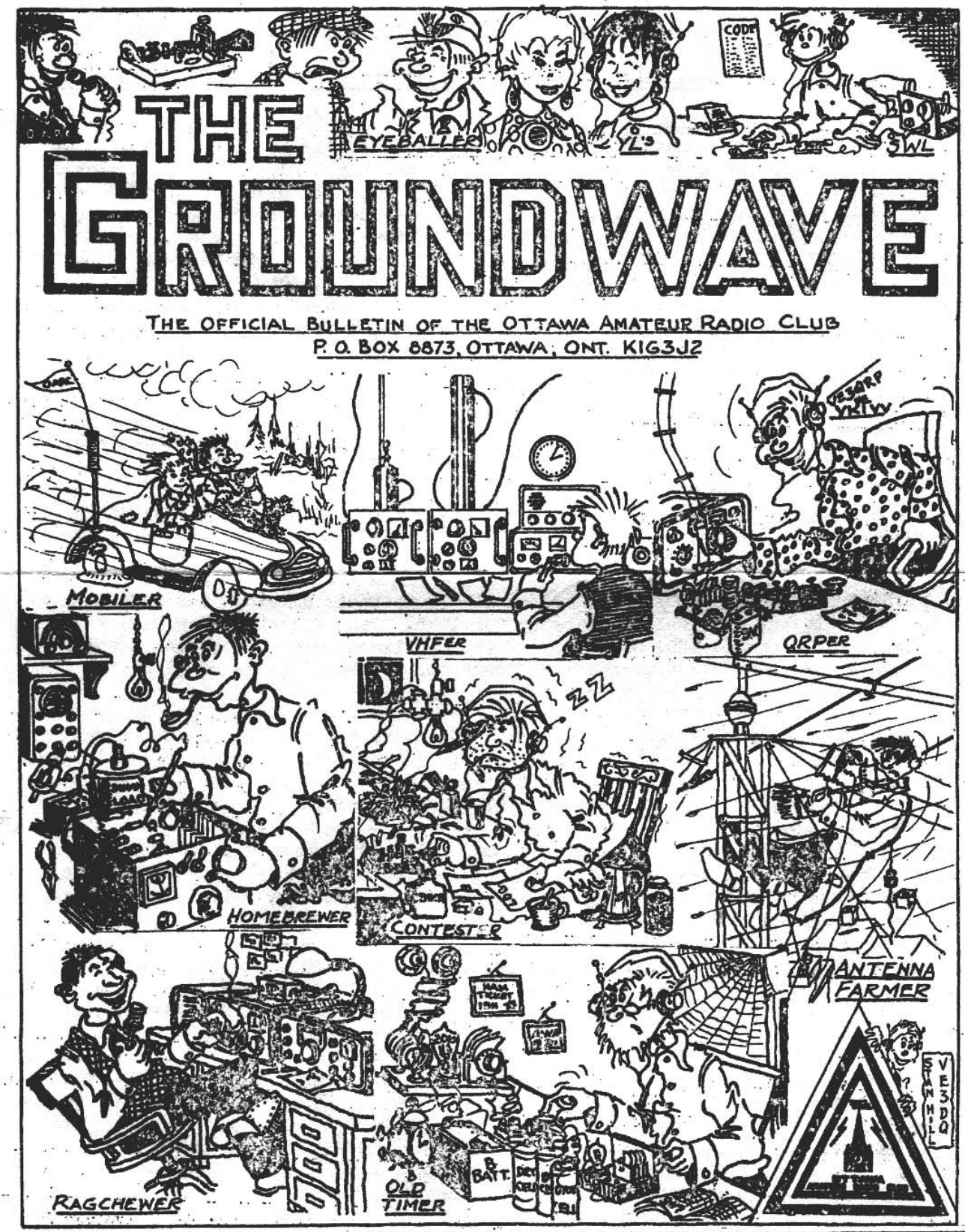
APRIL '75



THE GROUNDWAVE

THE OFFICIAL BULLETIN OF THE OTTAWA AMATEUR RADIO CLUB
P. O. BOX 8873, OTTAWA, ONT. K1G3J2

1975 RSO CONVENTION - SKYLINE HOTEL, OTTAWA - OCT. 3 & 4, 1975

THE GROUNDWAVE - OFFICIAL BULLETIN OF THE OTTAWA AMATEUR RADIO CLUB - - - APRIL 1975

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Material published herein does not necessarily reflect the official OARC viewpoint

THE NEXT REGULAR MEETING of the Ottawa Amateur Radio Club will be held at the National Research Council, 100 Sussex Drive, Ottawa, on Wednesday April 2, 1975 at 2000 hours. The main item on the program will be a talk by Bud Punchard, VE3UD, on his early days in Ham Radio and his first transmitter which he has recently rebuilt.

THE OARC EXECUTIVE MEETS regularly on the first Tuesday after the regular club meeting, in the Board Room at CFRA, 150 Isabella St., Ottawa.

THE RSO CONVENTION COMMITTEE MEETS regularly on the second Tuesday after the regular club meeting, in the cafeteria at CFRA, 150 Isabella St., Ottawa.

OPERATORS ARE NEEDED for memorial station, VE3JW, at the Museum of Science and Technology on an occasional basis. If you can spare a Saturday or Sunday afternoon every few months, get in touch with Ed, VE3GX, at 733-1721.

RENEW YOUR ARRL MEMBERSHIP through the OARC and save the cost of postage and a money order. The OARC also benefits by retaining $1.00 per subscription. Renewals are now $10.00 per year and may be made at any time. -----See VE3BR at any of the meetings---

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THE ANNUAL SPRING AUCTION of the Ottawa Valley Mobile Radio Club Inc. has been set for Saturday April 26, 1975, at EMO Headquarters, 495 Richmond Rd., Ottawa. Registration from 9:30 AM to 12:00. Auction from 13:00 to 17:00. Limit of 15 items per person.

REFUNDS FOR FAMILY MEMBERSHIPS are available to those eligible for such membership and who have already paid full membership for 1975. See or contact the Membership Chairman, Vic, VE3DEP, at 824-1204 or at any of the meetings. See the regular meeting minutes this issue and the Executive meeting report for further details of this plan which is retroactive to January 1 of this year.

THE OARC NEEDS A SECRETARY Our elected secretary has been unable to fulfill his duties and what with the RSO Convention and all, this is one year we really need a secretary. Here is your chance to get with the action and make a name for yourself. See Pres. Ron, VE3AUM, at the next meeting, or better still, phone him right now at 746-2484.

DEADLINE FOR COPY for the May 1975 issue of the Groundwave will be Saturday April 19 for longer articles (upwards of a page or more) and Saturday April 26 for short paragraphs and announcements. Keep those articles and ideas coming, fellows. Response has been encouraging, but not overwhelming as yet.

AN ADVANCED AMATEUR COURSE proposed by Gerry King, VE3GK, has been temporarily postponed due to insufficient interest. If you are interested in taking such a course leading to an Advanced Amateur Certificate, get in touch with Gerry at 225-3428 and when sufficient interest is shown, Gerry will try to organize another one.

YOUR QSL BUREAU is still waiting for SASE's from a lot of Amateurs. See the last issue of Groundwave for address and particulars. The following list of VE3 calls can pick up cards from Doug, VE3CDC,(733-7108) at the next meeting.

GYK GSA GAU GFJ GJH GYZ GYP GBN GJG GJW FLE GIR GNU HGN FFA EYG AMO EDC EMU

OARC Affiliations: RSO CARF ARRL AMSAT

GROUNDWAVE ARTICLES and correspondence should be addressed to: Carl Everson, VE3BYX, Box #4, Osgoode, Ont., KOA 2WO, otherwise the time lag is too long.....

MINUTES OF THE OARC MARCH MEETING - The regular monthly meeting of the Ottawa Amateur Radio Club was held in the auditorium of the National Research Council on March 5, 1975. The meeting was called to order at 2010 hours by VE3UD, Chairman for the night.

The meeting opened with the welcoming of visitors, among whom were VE3CCT, Bill; VE3HCM, Tim; VE3HRR, Jim; VE3GFB, Art; VE3HRB, Dennis; VE1DH, Jim; VE3LC, "Doc"; VE3IO, Fred; VE2CV, Jack; VE3ETT, Millie; VE3EEK, Bob; VE3ERO, Penny; VE7VJ, Glen; VE3HRJ, John; and Ted Defeo, late of VE8RCS.

The Chairman congratulated the Club for its participation in the Ski Marathon, and proposed a vote of thanks for VE3CRX whose organizational efforts were in great part responsible for the success of the operation.

Bud also extended congratulations to Carl, VE3BYX, for his excellent job on the Groundwave.

Bud introduced Ted Defeo of the Canadian Armed Forces who recently returned from a tour of duty at Alert, NWT. Ted stated that the purpose of his visit to the Club was to make a formal presentation to the Ottawa members of TOPSTAR who had given unselfishly of their time in the past to the provision of phone patches for members of the Armed Forces in Alert. Ted made the presentations of plaques to the following: VE3PY, Vern McCourt; VE3DRC, Jack Belrose and Fred Green; VE3AUM, Ron Belleville; VE3ANT, Al Stinson; VE3DNH, Ron Haines; VE3LC, Doc Haycock; VE3CT, Charlie Grove.

Turning to regular business, the Chairman called attention to the minutes of the previous meeting as published in the Groundwave. There being no comments, it was moved by VE3SB that they be adopted, seconded by VE3DMC. Carried.

The RSO Convention Committee was called upon for their report. This was given by VE3BNO. George announced that there would be a meeting of all sub-committees chairmen with RSO representatives for the purpose of their guidance..

George also reported for the Repeater committee, stating that there would be some changes made shortly to the machine to eliminate some apparent faults.

Bob Clayton reported for the Beginners classes - he anticipated that three or four members of the class would shortly try their tests - he reported that the class had 23 members.

Vic, VE3DEP, reported for the membership committee. He stated that at the last executive meeting, it had been suggested that a family membership plan should be given some consideration. The idea would be to charge $2.00 each for a second or more amateur of a member's immediate family. The persons paying $2.00 would be full members except that the Groundwave would be omitted.

Vic then moved "That a new class of membership in the OARC be introduced, that this class be known as a family membership. In which case, only one member of a family is required to pay the full membership rate and will receive the club bulletin. All others of his or her immediate family wishing full membership may do so at a reduced rate but only one club bulletin per family". This motion was seconded by VE3AUM.

After some discussion, VE3UD amended the motion to read, "That the executive of the OARC be authorized to establish a family membership". The ammended motion was seconded by VE3AUM. The ammended motion was carried.

The Chairman called upon Cy Chapman, VE3CVK, to present the budget for the forthcoming year.

O.A.R.C. Proposed Budget - 1975

Estimated income		$2479.30
Regular membership	$ 25.00	
Picnic	$ 50.00	
Repeater	$100.00	
Executive & Misc.	$300.00	
Field Day	$ 50.00	
Groundwave & Directory	$800.00	
RSO Convention (Advance)	$900.00	
Total Expenses	$2,225.00	$2225.00
Net Gain		$ 254.30 #

Does not include convention profit/loss.

(Continued on page 2)

(OARC Minutes continued from page 1)

After some explanation of the foregoing budget, it was moved by VE3DIH that it be accepted. Seconded by VE3GRJ. Carried.

The establishment of a new repeater operated by the Ottawa Repeater Association was announced by the organizers of that group. It uses the call VE3ORA and operates on 28/88. Further details of membership, etc. will be made later.

At this point, the Chairman introduced the speaker for the evening in the person of VE3KF, Jim Swail. Jim is a very active and knowledgeable white-caner who works at the National Research Council. Jim had a splendid array of electronic aids for the blind, many of which he had a principle role in the design and construction. His talk was most interesting and revealed many of the difficulties to which the blind are subject and how some of these difficulties are being aided by the developement of electronic devices. The appreciation of Jim's talk was reflected by the resounding applause he received at the conclusion of his talk.

Art Stark, VE3ZS, expressed the club's thanks to Jim for his talk.

VE3DEP announced a proposed hidden transmitter hunt on 2 meters, to be held on April 20, between 1300 and 1500 hours local time using 146.94 MHz. Further details will appear in the next Groundwave.

A white caner, Mr. R.W. Farley, has requested some assistance from a club member volunteer to enable him to qualify for his Amateur license. Contact will be VE3UD.

There being no further business, it was moved by VE3DEP that the meeting adjourn. Seconded by VE2BMH. Carried.

The meeting adjourned at 2155 hours. Henry Harley, Acting Sec'y. VE3BR

AREC NOTES - from Larry Bradley, VE3CRX, EC, Ottawa.

The Ski Marathon is over (Praise be!) and was a great success. Over 500 formal messages were originated (and, we hope, received) by Marathon personnel during the 37 hours of net operation. The equipment was very reliable, as there was only one failure among the 25 or so rigs used. The whole exercise was another example of the ingenuity and resourcefulness of Amateurs. Thanks fellows!

I think that an exercise such as this is much more valuable as training than a contrived exercise such as the annual SET, although contrived events are sometimes necessary to check out some aspects of our operation. In particular, the EMO people, for whom we would be working in the event of a disaster, want to hold an exercise sometime just to see how things will work. They would also like us to check out communications from all the hospitals to some central location, since providing communications for the local hospitals during an emergency will be one of our responsibilities. I will announce such a test in the near future, perhaps on very short notice to see how well you can respond to something without having a week's notice. So be prepared! Do you know where all the local hospitals are? For example, the Perly Hospital? Or St. Vincent's?.....

THE SPEAKER FOR THE NEXT CLUB MEETING on Wednesday, April 2, 1975, will be Bud Punchard, VE3UD. He will be talking about getting into ham radio back in 1925-26 and the trials and tribulations of those days. Transmitting parts were particularly hard to find and were relatively expensive to buy. Most hams made components and operated with very simple equipment.

Bud has recently rebuilt a replica of one of his early transmitters used in 1927. It uses the original UV202 which was first manufactured about 1921 or 1922. He will have it at the meeting and will talk about its design concepts, construction, and performance, and incidentally, how he "found" the 20-meter band. With an output of 6 watts, this little transmitter has recently worked 8 countries on 20-meter CW - while wiping out channel 4 for blocks around! (I knew someone would eventually find a cure for all that dribble emanating from the one-eyed monster - Ed)

MANY THANKS TO 73 HOTLINE for running verbatim the main part of the Groundwave article on the Ski Marathon in their issue of March 7. This is up-to-date reporting of Amateur activities - too bad the credit for the source of the article got lost in the shuffle.....

THE PRESIDENT'S MESSAGE

I consider it a distinct and privileged honour to be the newly elected President of the Ottawa Amateur Radio Club and I assure you that I will do my utmost to continue the excellent work performed by the Past President.

Carl Everson, VE3BYX, has taken over as Editor of the Groundwave and is doing a fine job. Articles for the bulletin would be greatly appreciated as well as your comments and constructive criticisms.

This promises to be a great year for the Club. Many activities are planned, the RSO Convention this fall will be our number one priority and will require a great deal of work and assistance from all the members, so be prepared to help.

Let us plan to increase our membership and then the work load can be shared by many rather than by just a few and let us all enjoy our wonderful hobby.

On behalf of the Executive, may I extend sincere wishes for a great and successful year.

See you all at the meetings, 73,

Ron Belleville, VE3AUM
OARC President

THE CANADIAN AMATEUR RADIO FEDERATION held an Open Forum in Toronto on March 1, 1975, to discuss the proposal of the CARF Executive to shift voting from corporate-body to individual memberships. This is an attempt to get "grass-roots" input to the Federation as well as to give individual Canadian Amateurs a direct voice in their national organization. It must be emphasized that this is only a proposal of the Executive as yet and must be approved by the full CARF membership. The meeting, chaired by Len Sumner, VE3DOR, was deemed a success, with well over 60 Amateurs present as well as all CARF directors from coast to coast. Several briefs were presented, the main ones being from the Hamilton ARC and the Radio Society of Ontario. These touched upon the proposed voting change, the future of The Canadian Amateur magazine, the relegation, by CARF, of its attempt to obtain membership in the International Amateur Radio Union to a low priority, the concentration of effort mainly toward the national welfare of Canadian Amateurs, and other topics. Those present were confident that CARF could stand on its own feet and do the job of adequately representing Canadian Amateurs. It was announced that CARF has been accepted as a member of the Canadian Radio Technical Planning Board, a non-political, non-profit organization which advises the federal government on the development and regulation of radio services in Canada, and that, also, the DOC has asked CARF for input to the preparatory committee set up to study proposals and recommendations in preparation for the forthcoming World Administrative Radio Conference in 1979.

Basically an Ontario Ragion Forum, similar meetings are planned for other regions in the near future. In the meantime, if any individual or organization wishes to contribute ideas or make its wishes known, contact your local CARF Regional Director, or write to Canadian Amateur Radio Federation, Box 356, Kingston, Ontario.

A 30% INCREASE FOR AMATEUR RADIO STATION LICENCE FEES was recently announced by the DOC. We look at other countries and we see a range of fees anywhere from "token" amounts to those many times what ours will be, and we must ask ourselves, "What are these people getting for their money?", and "What are we getting for ours?". Is our government adequately lobbying in International circles in the interest of Canadian Amateur Radio, and is the Amateur Radio Spectrum administered and policed internally to our satisfaction?

A large portion of the Amateur Spectrum is very sparcely populated and is viewed with envy by many other services, yet it is kept open for the experimentation of those who do occupy it. True, there have been some outstanding achievements, but we are more prone to be appliance operators and button pushers than we are to be Experimenters. If one is so fool-hardy these days as to build a VFO, or grind his own crystals,for two meters, he is looked upon as being some kind of nut by his fellow Amateurs - a far cry from the days when all Amateurs were looked upon as being nuts.

This has turned into a far digression from the $3.00 fee increase we started out to talk about but lets face it, over a quarter of a century, even with compound interest, this amount would still not buy a decent all-band transciever with even just a few knobs.

THE ART OF CIRCUIT BOARDING (Part III) (For Parts I & II, see GW Nov. & Dec. 1974)

Because of present tradition in drawing schematic diagrams for publication, it is often necessary to "flip" parts of such a diagram in order to convert it to an approximation of the physical symmetry that is desireable in a circuit board. Generally such schematics have all connections external to the circuit itself located at the bottom of the diagram, and, in preparing the schematic for conversion to the board, it is often a simple matter of moving one set of external connections, typically the B-plus voltage connections to the top of the diagram. To illustrate this process, we will utilize a general purpose VFO design that appears on page 191 of the 1971 ARRL Handbook, a unit which this writer has constructed at least five different times in different circuit board configurations--and always with great success. Contrary to the impression made by the text of the piece, the range of the VFO is about 2-13 MHz--although it can be made to oscillate way down into the AM broadcast band; beyond these parameters, it is sometimes difficult to obtain adequate oscillation. In Figure 3A, taken from the Handbook, it will be noted that several leads connected to the B-plus common strip cross the lower section of the diagram where we want the common negative copper strip to eventually appear on the circuit board. Specifically, the B-plus is taken first to a zener diode that is grounded, through an RF choke-resistance combination to the collector of Q1; similarly, connection to the base of Q1 is made through R1, which crosses the C12-Q2 coupling capacitor; finally, connection to Q2 is through R9, which branches to the base of Q2 through R7, and directly to the collector of Q2, which is bypassed by C9 to ground. Now, several components of each stage (Q1--C3/R3, C1/R2, R6, R8) are grounded, and a common strip is the likely physical solution to this part of the circuit. However, the presence of the B-plus lead in several instances makes such a common ground impossible--the strip between R6 and R8, for example, would have to cross the B-plus connection if we followed the diagram as it is. It should be noted, moreover, that the draftsman has reversed the usual symbol for Q2, with the emitter appearing at the top and the collector at the bottom--and we can play with the symbols in a similar manner in order to achieve the desired two-sided configuration. Simply, the entire circuitry of the B-plus connection is "flipped" to the top of the diagram. The symbol for Q2 is returned to its usual position, with the result that the problems associated with the collector-emitter of Q2 are eliminated. These changes are indicated in the diagram of Figure 3B. With this solution, all B-plus leads appear at the top of the diagram, and all common negative connections at the bottom of the schematic. But two more problems appear, namely, how do we ground the zener and bypass capacitors C9 and C10? The obvious solution is to bring the commononegative strip to them, utilizing the akility of the output capacitor (C8) to "bridge" the copper strip as the "trick" here. Finally we wish to mount L1, C7 (the frequency adjust capacitor), and C5 (fixed mica frequency set capacitor) on-board, and we must therefore make provision for the circuitry of this tank circuit on the circuit board. C6, the frequency tuning capacitor, is to be mounted off-board. The resulting circuit board design is given in Figure 4, and is one that has been in use at K8EEG/0 for over two years with very good performance and stability, and a clean note to boot.

In my design, parts included a T-50-2 toroid for L1, a miniature Elmenco 404 60pf trimmer capacitor (C7), a subminiature Miller 1mh RF choke, and ¼-watt resistors at R4, R5, and R7, with R8 mounted vertically on the board. The holes shown however, are proper size for ½-watt resistors throughout. Otherwise, components were of standard sizes, and a compact, yet uncrowded, layout was achieved. Since everything but the frequency tuning capacitor is mounted on-board, a very stable physical setup is possible. One further note about this VFO and transferring it to a circuit board. In one experimental setup, I attempted to miniaturize to the ultimate degree. Using subminiature parts throughout and a &-37-2 toroid, the entire assembly was fit into a space about 7/8th inch square, with C6 and C7 mounted off-board. The VFO performed satisfactorily up to about 12 MHz, but keying tended toward the "mushy". Other than that, which was not entirely objectionable, no problems were encountered, although output was decreased just a bit. Such a setup is not adviseable, nonetheless. (Continued on Page 5)

(The Art of Circuit-Boarding is reprinted from The Milliwatt, the national journal of QRPp, Vermillion, SD.)

THE ART OF CIRCUIT BOARDING

PART III (cont)

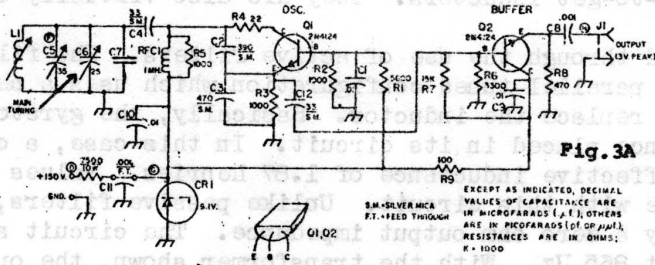


Fig. 3A

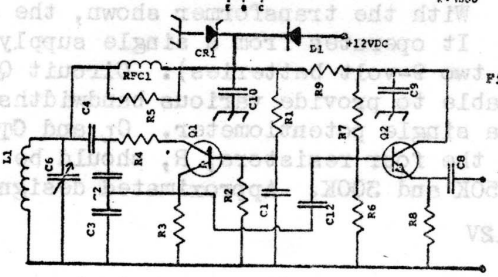


Fig. 3B

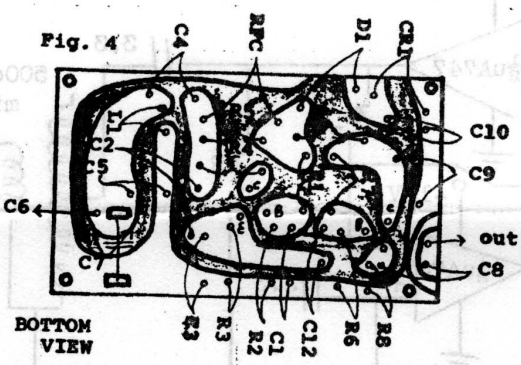


Fig. 4

Now then, let us proceed to a more complex circuit involving several R.F. stages with tuned tank circuits. The schematic for a transmitter for 40/20/15 meters designed here at K8EEG and used for two years with excellent results is shown in Figure 5. Input to the buffer stage was from the VFO circuit discussed above on 7mHz. For 7mHz operation, the tank circuit of Q1 is simply detuned by opening the switch connected to the 100pf capacitor. For operation on 20/15 meters, the switch is closed and the trimmer capacitor adjusted for best harmonic output to Q2; the first stage then operates as a buffer on 7mHz, and a multiplier stage on 14 and 21mHz. Q2 operates as a driver on all three bands, with the shunt capacitors (390pf and 50pf) and the 60pf variable tuning L4 respectively to 7 and 14mHz; the SP3T switch remains open on 15 meters. A double pi-net output circuit is used with separate inductances for each band so as to insure optimum conditions for high efficiency on all bands. C6 is a 480pf trimmer capacitor mounted on board (Elmenco 429), while C7 and C8 are mounted off-board. As is clear from Figure 5, the schematic is designed for direct transferral to a circuit board. In approaching the design of an R.F. stage circuit board, several important but often overlooked factors should be taken into consideration. The major and minor current loops of each stage should be examined with an eye toward the shortest possible physical distances for each loop. Efficiency often depends closely upon such short physical distances in an R.F. stage, particularly in regard to the base-emitter path of an amplifier stage. If you refer to Figure 6, the board design, it will become clear that the method used to achieve these physical conditions involved a "wagon train" strategy, with the three stages encircling a single central area of copper. With this configuration, it is possible to connect R5, RFC1, and the cold end of L5 directly to the same point, and hence, the minor current loop of the final amplifier is kept as short as physically

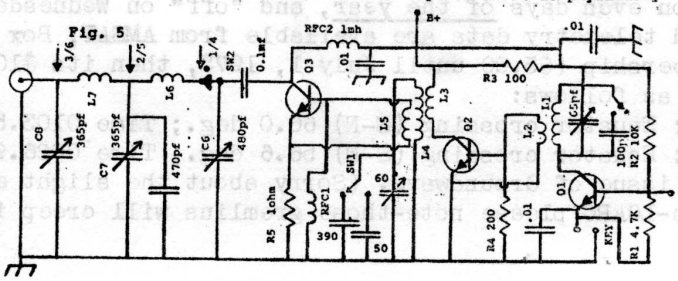


Fig. 5

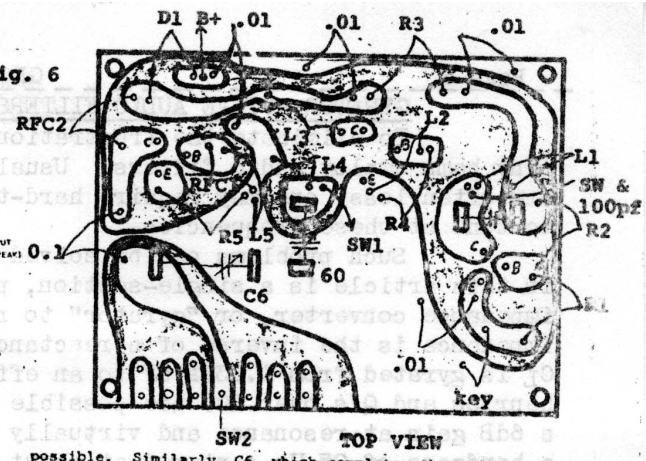


Fig. 6

possible. Similarly, C6, which completes the major current loop of the final, is grounded or completed at nearly the same point. Hence, both major and minor current loops of the final are completed at the same physical point through extremely limited physical paths, a condition that is highly desireable in the interests of high efficiency.

In similar fashion, the major and minor current loops of the second stage are completed as close as possible to the emitter lead of Q2. The cold end of L2 and R4 are grounded at practically no distance from the emitter of Q2, and the ground end of the 60 pf capacitor tuning the major current loop of Q2 is connected at nearly the same point. In addition to these considerations achieving optimum considerations for high efficiency, the very short physical paths minmize the effects upon the circuit of stray capacitances and inductances represented by copper strips and wire leads. In practice, these inductances and capacitances may resonate in the VHF/UHF regions, causing TVI. Such stray resonant circuits in a solid-state design are an invitation to transistors to take off on their own, as they sometimes do, and generate considerable harmonic energy. By keeping physical leads and copper strips as short as possible, this undesireable tendency of transistors is thwarted. And in practice, this was born out in this transmitter, which emitted a quite clean signal, despite the lack of proper shielding--no TVI was experienced on the lower bands, and minimal interference was noted on 15 meters.

Since the transmitter was intended for multi-band switching operation with an on-board mounting of tank circuits and pinet inductances, it was decided to trade off efficiency for convenience in regard to the final on 15 meters by using the 20 meter output inductances on that band. Output on 15 was thereby decreased some 30% in comparison to coils designed specifically with 15 meter operation in mind. Evenso, 400 milliwatts on 15 meters goes a long way, as I discovered.

At the bottom left of the circuit board of Figure 6, seven strips will be found which are used to make connections of the double pinet output inductances to the 3PDT bandswitch. L6-L7 for 7mHz were stacked and connected to strips 1-2-3 on the board, and the stacked 20/15 meter coils were attached to strips 4-5-6 on the board. The 3 pole double throw switch was located immediately in front of the board, almost flush with the seven strips, so that leads of not more than 3/4 inch were necessitated in making the bandswitch hookup. Figure 7 illustrates the L6-L7 switching detail. Similarly, SW1, a single pole triple throw switch inserts the proper shunt capacitances for operation on the three bands.

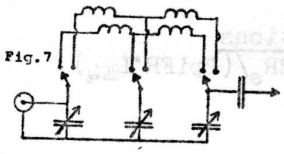


Fig. 7

Unfortunately, there was no way of keeping the leads to SW1 short, with the minimu distance being between the edge of the board and the switch. It was finally decided to mount a trimmer variable capacitor on the front panel to supplement the function of the 60pf across L4. The circuit thus was tuneable from the front panel. In general, the rig has performed quite well, and has worked over 45 states and a few DX stations.

To recapitulate, conversion of a schematic for transferral to a circuit board is often a simple matter of flipping the B+ common strip to the top of the schematic diagram. Similarly, the symbol for a transistor can often be reversed or flipped in order to aid in proper physical layout. In actually soldering the transistor to the board, its wire leads can be used to "bridge" underlying strips, and the transistor may be rotated or mounted backwards to achieve the desired physical configuration. In regard to bypassing, capacitors can be used as "bridges" and common negative strips can be brought to them. With care, it is usually possible to bypass directly to a point near the emitter of the stage in question. In working with R.F. stages, care should be taken to optimize physical layout for major and minor current loops so as to insure high efficiency and avoid harmonics that might cause TVI and other interference. A strip of conper on a a circuit board can represent a resonant circuit in the VHF/UHF regions, so care should be taken to keep strips as short as possible. When dealing with a bandswitching R.F. transmitter design, leads to externally mounted components such as tuning capacitors and switches should be kept as short as possible for reasons of efficiency and harmonic suppression. While the circuit board used as an example in this article was designed with all the theoretical considerations in mind, oftentimes a circuit board that directly transfers a schematic in a slung-out horizontal fashion will perform in an entirely satisfactory manner. But sometimes the difference between performance of an experimental circuit that has been bread-boarded, and its final circuit board version, is traceable to failure to take into consideration factors which effect efficiency.

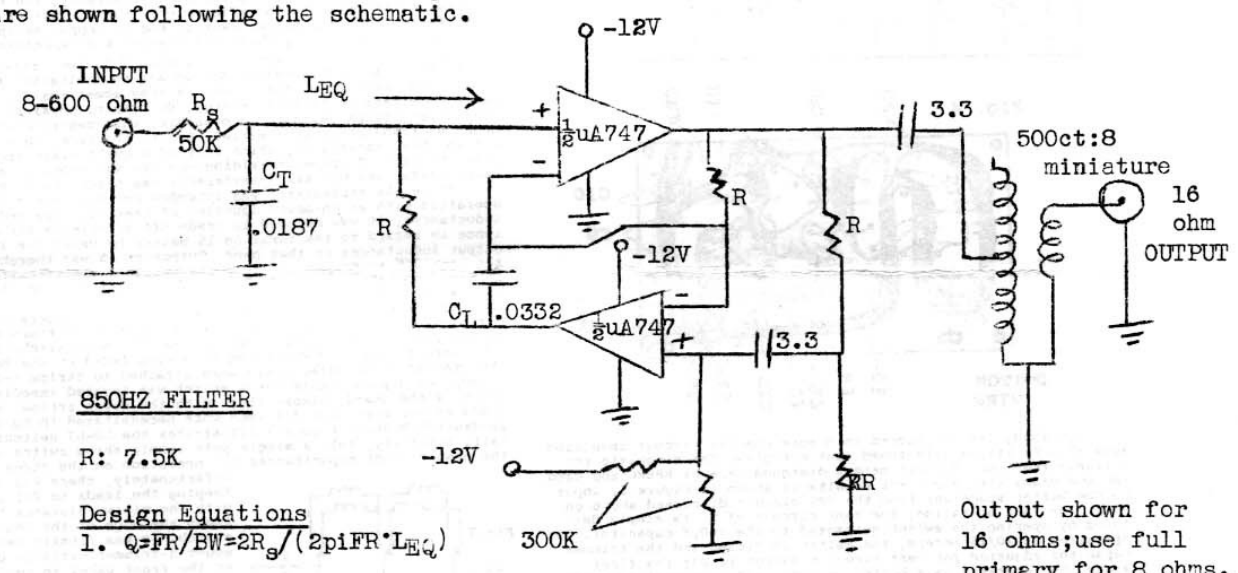
In the next part of this paper, we will get down to the business of making an actual circuit board. So, if you have a hankering in this direction, gather your materials and be ready to drill the first hole.

Ade Weiss K8EEG

GYRATOR ACTIVE AUDIO FILTERS - - by Neil Sipkes, VE3EXA

To eliminate the frustrations of QRM and avoid the high cost of crystal filters, many hams employ audio filters. Usually, these take the form of passive networks which are often lossy and may require hard-to-get inductors. They are also virtually impossible to tune at these frequencies.

Such problems can be solved through the use of active filters. The filter shown in this article is a single-section, parallel-tuned configuration which uses a negative impedance converter, or "gyrator" to replace the inductor. Basically, the gyrator's input impedance is the inverse of a reactance placed in its circuit. In this case, a capacitor C_L is gyrated from 0.0332 uF to an effective inductance of 1.87 henries. Values up to 100 henries and Q's over 200 are possible with this circuit. Unlike passive filters, this has a 6dB gain at resonance and virtually a zero ohm output impedance. The circuit shown has a bandpass of 85 Hz centered at about 865 Hz. With the transformer shown, the op amp can provide plenty of volume to drive headphones. It operates from a single supply of 12 volts but can be used with a dual supply (eg, two 9-volt batteries). Circuit Q is controlled entirely by R_S, which may be made switchable to provide various bandwidths. Provision can also be made to tune the filter with a single potentiometer. C_L and C_T should be fairly high quality mylar or polystyrene, and the four resistors, R, should be matched to about 2%. Nominal values for R_S lie between 50K and 300K. Approximated design equations are shown following the schematic.



850HZ FILTER

R: 7.5K

Design Equations

1. $Q=FR/BW=2R_S/(2\pi FR \cdot L_{EQ})$

2. $L_{EQ}=R^2C_L$

3. $FR=1/(2\pi\sqrt{L_{EQ} \cdot C_T})$

Output shown for 16 ohms; use full primary for 8 ohms.

THE 1974 REPORT OF AMSAT indicates that 2854 contacts were reported to have been made via OSCAR VI over a two-year period. At this time, 87 countries had used the satellite and interest has increased greatly since the launch of OSCAR VII. Many of the 70 cm to 2 meter operators have been making the double-hop through OSCAR VII and then on 2 meters to 10 meters through OSCAR VI as well while the satellites have been within sight of each other. OSCAR VII is presently operating in Mode A (2-10 meters) on odd days of the year (ie. count one-up from Jan. 1, which makes March 31 an "even" day and April 1 an "odd" day, etc.), Mode B (70 cm - 2 meters) on even days of the year, and "off" on Wednesdays. Full details on times, frequencies, and telemetry data are available from AMSAT, Box 27, Washington DC, 20044, for a yearly membership ($5.00 until July 1, 1975, then its $10.00).

Current orbit information is as follows:

OSCAR VI : April 1, 1975; Orbit #11237; Equator crossing (S-N) 66.0 deg.; Time 0103.5 GMT.

OSCAR VII: April 1, 1975; Orbit # 1708; Equator crossing (S-N) 56.6 deg.; Time 0026.9 GMT.

and may be updated as per the February issue of Groundwave. (Sorry about the slight errors and wrong orbit number given last month-LCARC please note-those gremlins will creep in-Ed)

FROM THE EXECUTIVE MEETING - As Tim, VE3EWE, has not been able to act as Secretary and has not, to the knowledge of the Membership Chairman, joined the Club for 1975, his election to the position of Secretary is declared null and void under Article VII, para. 3 of the OARC constitution. Several members are being considered for the job and will be approached.- Gerry, VE3CNJ, tentatively offered to assume the job of Club custodian and Archivist - a discussion ensued regarding the disposal of more Club equipment such as the DX60, etc., - membership dues were set at "$5.00 for an individual and $7.00 for an individual and members of his immediate family residing at the same address" - the formation of a Public Service Committee was approved, Larry, VE3CRX, to be the chairman - a discussion ensued concerning the sponsoring of blind or otherwise handicapped would-be Amateurs, Ron, VE3AUM, to look into this more fully.

AREC NOTES POSTSCRIPT At the March Executive meeting, it was decided to form a Public Service Committee in the OARC, to co-ordinate the various activities that we get involved in. This committee will handle requests for communications from organizations, decide whether to undertake the exercise, and plan and execute the operation. The current AREC organization will be a part of this. The main purpose of this is to get all the activity under one roof. At present the AREC does some things, and the Club does others, and in all cases it is the same group of people doing the work. Also there will now be a real entity, the OARC, for people wanting services to talk to, instead of the rather nebulous AREC, which is really just an informal group of people.

Yours truly, VE3CRX, will be the chairman of the committee, and I would like about three other people to help me. The people I want are those who are very interested in this area, who will come out on exercises, and who think they have something to offer in the area of planning for emergency communications. If you are interested, give me a call. Larry Bradley, VE3CRX, EC Ottawa

THE RSO CONVENTION COMMITTEE have things underway and it looks like a really big weekend coming up in October. The individual committee Heads met,with RSO delegates on Saturday March 8.to correlate activities with what the RSO requires for this, their Annual Convention, and met again on Tuesday March 18 for their regular committee meeting. MORE HELP IS NEEDED! Get in touch with George, VE3BNO, at 234-0885 or 233-6241 and have your name put on the list of willing helpers. A tremendous amount of legwork is required. The sooner it is started, and the more people involved, the easier it will be to put on a really good Convention next October.

C O U N T D O W N T O T H E C O N V E N T I O N

As of today (March 24), 192 full days remain until Convention time.....

FIELD DAY 1975 - Although not yet officially announced, Field Day will likely be on June 22 and 23. Now is the time to start thinking about what you can do to enjoy this fun exercise. It needs the help and co-operation of many people dedicated to work at specific hours on specific tasks, such as set up tents, trailers, antennas, equipment, gas electric generators, etc., operating CW or Phone (there will be at least two complete stations similar to last year) and of course, packing up. The challenge of contest operation under field conditions is particularily exciting and a wonderful opportunity for new Hams to learn how this is done. We never seem to have enough operators and the load falls on a few stalwarts.

At the next club meeting there will be a sheet on which you can indicate your preference for CW or Phone operation, or both, and times at which you will be available. Shortly thereafter there will be an organizing meeting at which plans for a bang-up effort will be made. Lets get the club behind this one and show what we can do under emergency conditions! -------- Bud, VE3UD, Field Day Chairman ----------

-------The man who can smile when things go wrong,
Has found someone else to blame it on----------

THE 1979 WORLD ADMINISTRATIVE RADIO CONFERENCE (WARC) will be of very special importance to the Amateur Radio Service and it is not too soon to think carefully about what should be done in preparation for it.

It will be the first time since 1959 that the members of the International Telecommunications Union will have had the opportunity to review all radio spectrum usage and radio regulations. There have been many conferences held since then. In 1963 and 1971 there were radio conferences on the use of satellite technology, in 1967 and 1974 on the maritime mobile service, and in 1964 and 1966 on the aeronautical mobile radio service. With the exception of the 1963 and 1971 conferences, all have been restricted to dealing within bands that were largely determined by the 1959 Administrative Radio Conference. In the 1979 review, the Members will take a careful look at the amateur radio service and all the other radio services, whether or not they will have been reviewed during the intervening 18 years, to determine how the spectrum should be reallocated to the various radio services. Until most countries have made their views known, it would be wise for amateurs to assume that there will be some readjustment of band limits throughout the spectrum and to prepare to compete for spectrum space.

In 1959, the United Kingdom, supported by the United States, successfully discouraged a major revision of the allocation table (established in 1947 by the Atlantic City Administrative Radio Conference) below about 30 MHz. Amateur allocations were protected from serious reduction as a result of acceptance of that position. However, since then, just about everything else has changed - people, countries, technology, economic development, status, etc. The 1979 WARC will be the first time that about 60 of the 149 member countries of the ITU will have to adjust or otherwise influence the whole use of the spectrum through revision of the allocation table and the international radio regulations. No doubt they will bring to the conference new ideas, needs, and pressures. It is a little chancy to forecast, this far in advance, what the 1979 Conference will do for amateur radio, especially when one looks back and notices that ITU Radio Conferences often bear little resemblance to each other and when one looks forward and sees that two Conferences (Broadcasting, Satellite, and Aeronautical Mobile) are to be held in 1977. Amateurs must bear in mind that many ITU member countries have not fostered or supported amateur radio or have little interest in that service, and must realize the nature of the conference environment in which the case for amateur radio will have to be presented, discussed, and decided.

The procedure to be followed is fairly clear. Canadian amateurs have to make up their minds as to what they want, and secure Canadian acceptance of it. This is no easy task, particularly when one realizes the wide range of views that prevail among amateurs and the problems of consolidating the salient points which have the greatest acceptance into a statement of what they want. Cooperation, collaboration, and communications between all clubs and associations are 'musts' if they are to be successful.

The Department of Communications is responsible for securing the rights of Canada in telecommunications by international regulation or otherwise. They will have to have amateur views in time to relate them to other Canadian needs and integrate them into our draft proposals for the Conference. DOC will want to put them forward in the inevitable preparatory discussions that will start soon between friendly groups of nations to resolve problems and gain as much support as possible for the Canadian views prior to the 1979 Conference. Once the Canadian proposals are known, amateurs will be able to seek support of them outside Canada.

The final and most important task will be to obtain acceptance of the Canadian viewpoint from those administrations who have not fostered amateur radio in the past, both before and at the 1979 WARC. (Ottawa, 28 February 1975 - Bill Wilson, VE3NR)

IT WILL SOON BE TIME to renew your Amateur station licence...The DOC prefers you to wait until you have received a renewal notice from them...This may mean that your renewal notice does not reach you in time to send your payment before April 1. Don't panic! Wait a reasonable time - even two or three weeks - before taking alternate action. In the meantime you may continue to operate your station. The DOC will not take action to cancel your licence or close you down if you are prompt with your payment once you have received your renewal notice. (Credit - The Canadian Amateur)

****** HIDDEN TX HUNT ******

Date: April 20, 1975

Time: 13:00 to 15:00 hrs. E.S.T.

The Hidden Tx will transmit Identification on 146.94 Mhz. commencing at 13:00 hrs. E.S.T. and approximately every 3 minutes thereafter (if 146.94 not busy) for the purpose of Direction Finding (D.F. ing)

Participants should not discuss progress on the air as the first mobiler to arrive on site of Hidden Tx will be declared the winner.

The Hidden Tx will continue to transmit I.D. until a second and third place finisher has been established or until 15:00 hrs. whichever comes first.

The decision of the organizers will be final.

Lets get out and make this a success. Further hunts will depend on participation and your comments. As we all know this could provide useful experience.

* ADDITIONS TO MEMBERSHIP LIST *

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THE OTTAWA AMATEUR RADIO CLUB
BOX 8873, OTTAWA, ONTARIO,
CANADA, K1G 3J2.

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FIRST CLASS MAIL

[redacted]

THE OTTAWA AMATEUR RADIO CLUB,		P.O. BOX 8873, OTTAWA, ONT, CAN. K1G 3J2	
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Vice-President	Larry Bradley VE3CRX	9 Chartrand Avenue, Orleans, Ontario. K0A 2V0	824-3753
Secretary	-----Any Volunteers-----?????-----		
Treasurer	Cy Chapman VE3CVK	2244 Kipling Street, Ottawa, Ontario. K1H 6T5	731-6172
Directors	Larry O'Brien VE3GRJ	Box 11072, Station H, Ottawa, Ontario. K2H 7T8	225-9760
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Beginners Class	Bob Clayton VE3HBQ	1174 Tawney Road, Ottawa, Ontario. K1G 1B7	731-2691
RSO Convention	George Roach VE3BNO	104 Strathcona Ave., Ottawa, Ontario. K1S 1X6	234-0885
Coffee	Ernst Meier	RR#1, Bourget, Quebec, Box #77.	487-2922