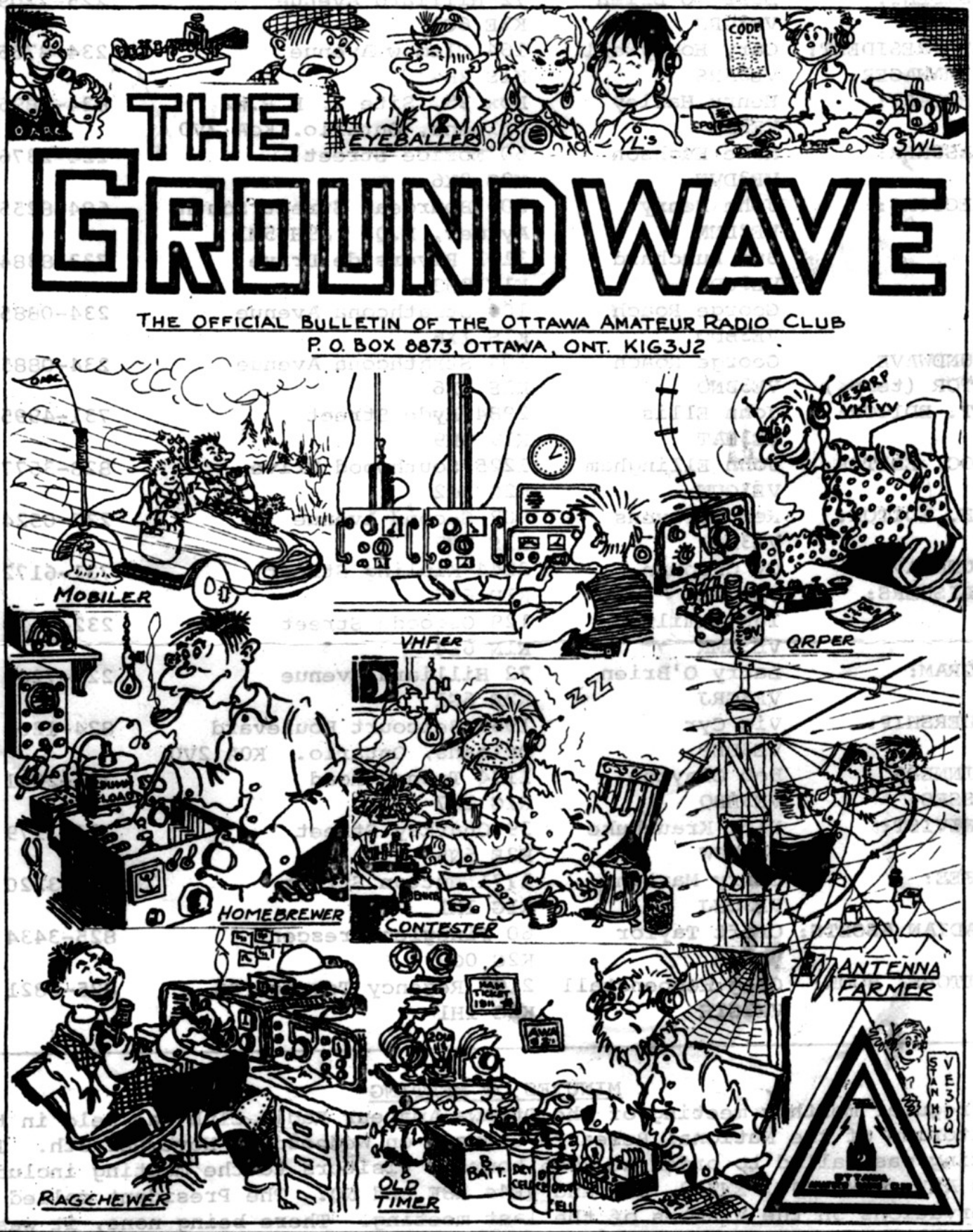
DEC 74




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

| | | | |
|---|---|---|---|
| PRESIDENT: | Larry O'Brien<br>VE3GRJ | 72 Hilliard Avenue<br>K2E 6G1 | 225-7209 |
| VICE-PRESIDENT:<br>NET MANAGER: | Cary Honeywell<br>VE3ARS | 164 Clemow Avenue<br>K1S 2B4 | 234-8765 |
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## MINUTES OF MEETING

The regular monthly meeting of the Ottawa Amateur Radio Club was held in the Auditorium of the National Research Council on Wednesday, November 6th. The meeting was called to order at 2005 hours. Visitors to the meeting included VE3s AHY, BTY, HJV, EWZ/3, HGX and VE4s RSE and NQ. The President called for observations on the Minutes of the last meeting. There being none, it was moved by VE3CVK seconded by VE3DEP that they be adopted. CARRIED. The RSO Committee, represented first by VE3BNO reported on their impressions of the recent convention held in Hamilton...Delegate Ron Bellville reported on it.

VE3CDC reported on CARF activities. First, he announced that a new edition of the CARF Regulations Handbook would be available next month.

Secondly, the price for the Canadian Amateur will go up to $5.00 January 1, 1975, and finally, he offered copies of the latest Canadian repeater directory.

Yung Kim from Korea gave a short talk on the availability of surplus equipment in that country.

The President introduced the speaker of the evening, Tom Atkins, who gave a very interesting talk on his fast-scan activities.

The meeting closed at 2140 after being so moved by VE3CRX and seconded by VE3FFW. The Nominating Committee, represented by the Chairman VE3DY, reported that they had candidates for each position on the executive, but stated that they were still looking for additional persons desirous of offering their services to the Club.

The Membership Committee reported that 40 members had registered for 1975.

The President announced that the speaker at the forthcoming Dinner Meeting would be the United States Ambassador to Canada, W3AAC/VE3. He then reported on the auction held in mid-October in the absence of the Auction Sale Committee. In answer to his request for constructive criticism, it appeared that the general concensus was that the restriction of a $1.00 minimum and the restrictive limit to the number of articles each one could offer, was detrimental to a good auction.

VE3CRX, ARRL AREC for the Ottawa District spoke on recent activities and announced a forthcoming job on November 10th.

It appears that the Editor of the Ground Wave is unable to continue in that capacity. The President spoke briefly and extended to Stan VE3DQ his appreciation of Stan's work on behalf of the membership. The Club expressed their appreciation in the usual manner. Stan's job will be taken over by VE3GUW and VE3EJP on a pro tem basis. (VE3GUW has since declined-ED.)

John Henry (VE2DNM) spoke briefly on ten meter activity and went on to explain his method of keeping track of Oscars fly-pasts.

<u>ALL MEMBERS OF THE OARC</u>

Renew your membership in the ARRL through the Club Secretary. Your savings will be:-

1. Cost of a money order.
2. Postage.
3. The time and trouble you will have to go to for the money order.

The rates if you renew BEFORE December 31st,1974 are $8.50 per year. Effective on January 1,1975 the annual rate increases to $10.00. Renewals may be made at any time during the year and Club coffers will benefit to the tune of $1.00.

O.A.R.C. SOCIAL DINNER

On vember 15, members of our Club and the Quarter Century Wireless Club joined in an evening of good cheer. The evening at the Embassy West Motor Inn started at 7 p.m. with brisk business at the bar, followed at 7:30 by a delicious buffet prepared by the new resident chef...the big complaint was that no doggy bags were provided.

Plaques were awarded to the following amateurs for outstanding service to the Club. VE3's CNJ-Jerry, AMK-Ian, CVK-Cy, DQ-Stan, DEP-Vick and Nick-FFW. The Club is fortunate to have members that pull the whole thing together for us. Highlight of the evening was a talk by Bill Porter, W3AAC-American Ambassador to Canada. Bill was introduced by Bud Punchard, VE3UD and in his talk paid a tribute to the wives of radio amateurs; covered the Energy Crisis and some possible solutions; mentioned some of his experiences as chief negotiator at the Vietnam Peace Talks in Paris and reviewed some of his experiences as "rare DX". A most interesting talk. After a question and answer period, Bill was thanked by Ron "Rufo" Bellville, VE3AUM and presented with an "armchair critic" scroll. George, VE3BNO helped some lucky members to win a few prizes and somewhere in the wee hours, the bar closed on a very pleasant social evening. - Larry-VE3GRJ photos-Shep, VE3DV -

CANADIAN SKI MARATHON

Tonight (Nov 21) I attended a meeting with the Canadian Ski Marathon people on Communications and Safety. Yes, that's right they're at it already and I suppose that means we better start toning our Ski Marathon communications muscles. This year it will run the weekend of February 22-23 with our work starting on Friday, February 21 on the organization net. Last year's participants know that the Ski Marathon is to two metres what field day is to HF (except it's colder). Larry Bradley, VE3CRX and Graham Patterson, VE3ANM are coordinating this year's event. - Larry 'GRJ -

The following nominations are presented for offices in the Ottawa Amateur Radio Club for the year 1975, by the Nominating Committee:-

| | | | |
|---|---|---|---|
| President: | Ron Bellville, VE3AUM | Directors: (3 to be elected) | Larry O'Brien, VE3GRJ |
| Vice-President: | Larry Bradley, VE3CRX | | Mike Hughson, VE3DVH |
| | Bill Nottingham, VE3ARZ | | Bud Punchard, VE3UD |
| Secretary: | Tim Evangelatos, VE3EWE | | George Roach, VE3BNO |
| Treasurer: | Cy Chapman, VE3CVK | | Gerry Reasbeck, VE3GUX |
| | Ken Robinson, VE3GLR | | Lyle Ward, VE3CEZ |
| | | | John Henry, VE2DNM |

Committee: Gord Grant, VE3DY Larry O'Brien, VE3GRJ Ralph Hindle, VE2BMH
Dave Parks, VE3GSA Nick Krauchuke, VE3FFW.

Further nominations may be received from the membership, endorsed by five members in good standing, and the nominee, prior to the deadline for the Ground Wave for January.

JANUARY MEETING OF THE OTTAWA AMATEUR RADIO CLUB

This Election Meeting will be held on the SECOND Wednesday of January due to the Holiday Season. As this is the Election Meeting an inducement to attend will be the drawing for a solid state 2 metre receiver kit (value over $50) The draw will be for last year's members using 73-74 signed membership card.

Ron'CNM & John'CPY

Larry(Pres)'CRJ

Ron'AUM,Ken'LJ,& ?

George'DIH & Doreen'CGO

Yun Foo'DYD,Ed'GX,Cliff'FZX
Doreen'CGO & Eli'PI

Fran'HKG & George'BNO

Carey'ARS,DougCDC-John'ALK

Young Kim VE3HMP

Lyle'CDZ & Ralph'BMH

Ray'ARJ,Bill'GPR &YFs

Seen at the OARC Social Dinner


Bill Porter-W3AAC
Lyle-she's looking
George'DIH
Bill,W3AAC takes time for a friendly eyeball QSO with every one.
Larry'CRX &xyl
Shep'nw
Linda &Bill'AAC
Bud-VE3UD
Hal'QA
3 Lambs astray

PROGRESSIVE LICENCING FOR CANADA - By Earl Andrews VE3ECJ

It should be quite obvious to many that our hobby is no longer attracting enough beginners from the ages of 12 to 25. The following statistics taken from the 1973 D.O.C. questionnaire illustrates this trend:
Under 25...424. 26 to 35...892. 36 to 45...995. 46 and over...2,948.
Mr. Bill Loucks, VE3AR, after examining these figures had the following comments: "Amateur Radio is an old man's hobby and to continue to be a viable hobby we must take a more active role in encouraging young people to take up the hobby." This is a quote from the 'President's Message' in the September 1973 issue of The Ontario Amateur.
When you consider how our society is youth oriented today, these figures seem to indicate a definite problem which might be a threat to the future of ham radio in this country. Since the Amateur Radio Licence is the "key" to our hobby, and because it plays such a dominant role to determine the numbers and characteristics of our ham population, I believe this should be our first consideration. Bearing this in mind, I would now like to share with you my reasons for suggesting a Novice or Beginners Class Licence be included in our present licencing system.
1) Many countries in the world including the Unites States have such a system for recruiting new Amateurs. It is a proven method.
2) At present our licence qualifications are biased towards those people who have some background in electronics or have had some previous training with the morse code. There is nothing wrong with this whatsoever, but what of a young person who is just starting out and wants a hobby where he can learn something, experiment, and have enjoyment. He will have to work much harder in order to achieve the necessary qualifications to join the hobby. OK, you could argue that he's learning something useful and a little hard work never hurt anyone, but what I am saying is that while he is working hard to bring his code speed up, which is a lot more difficult off the air, perhaps his responsibilities to his school work might suffer. It is one of the Amateurs' Codes that the Amateur is Balanced - he never allows his hobby to interfere with the responsibilities he owes to his home, school or community. Should we not take this factor into consideration?
3) Training classes for Beginners would be easier to establish because of the reduced time and effort necessary to get a person initially licenced. Thus smaller clubs or organizations such as scouting, etc., could institute Beginners or Novice Classes much more easily.
4) It gives the Beginner incentive to learn. Unlike our present system, there shouldn't be a one year minimum before one could upgrade, why should a person who is ambitious have to wait a year before obtaining Advanced privileges, if he is both capable and knowledgeable enough to upgrade?
5) Beginners learn CW much faster, with more vigour, and more enjoyment if they are on the air talking to people.

Our present system tries to shove it down their throat all at once like medicine. What often results, is you turn the person off.

6) Often social causes and/or school responsibilities take up a considerable amount of a young person's time, so he cannot put in the necessary consistent training for his licence. If we had a special licence like the Novice Class he could get involved in our hobby, and stay involved by working towards advancement in a more gradual manner as time permitted.
7) In remote areas it would be easier to become a licenced Amateur because the examiner would be an Advanced Class licence holder. As well, he would not have the benefits of an organized Beginners' training class like those sponsored by Radio clubs in urban areas, so he would have to study on his own.
8) Because of his limited power and due to the often extreme crowding in narrow band segments, the beginning ham soon learns to cope with adverse conditions. In fact, he is forced by his environment to become a skilled operator.
9) Novices learn CW at a steady rate with people who can tolerate mistakes, are eager to learn, and generally more patient with newcomers. Perhaps this is a main reason why so many beginning hams in Canada use the Novice bands initially. I know I did.
10) The Novice operator gets exposure to many operating activities like: Formal Traffic Nets, contests; Field Day, and the annual novice roundup, as well as the usual ragchewing and DXing.
11) Not only does Amateur Radio have competition from CB but also there are many other hobbies which provide an outlet for those who like to experiment with electronics.
12) Under our present system the Beginner does all the hard work outside the institution, whereas the Novice goes through the learning process while on the air and in the institution. The major difference is that the Novice learns a lot faster and can have more fun. Also since he is in the institution, he is less likely to get bored and perhaps take up CB.
13) As it now stands, the beginning ham has so many different directions he might take. For example, phone on VHF and 10 metres. This tends to take away from the development of an HF operator.
14) Some individuals find it difficult to learn the code. This is often the case with senior citizens. They would benefit from this form of licence I'm sure.
15) From my own personal experience from working hundreds of US Novices, I can honestly say that this system does encourage good CW operators and some of them I talked to, particularly the younger ones, could send and receive over 30 wpm. Why? Because of concentrated practice. CW is the only mode they are permitted to operate, and because they are new to ham radio, often they are very enthusiastic and active operators.
16) This from of licence tends to encourage young people to take up ham radio often at quite an early age. I've worked some Novices who were 11 years old as well as quite a few in their teens. Besides the youngsters, there are plenty of older people even some who have taken up the hobby in retirement years.

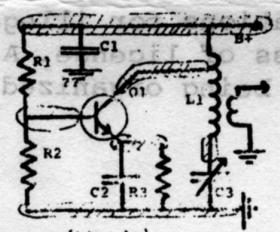
These are my reasons for supporting a Beginners type licence for Canada. No doubt you have reasons of your own why this is a good or bad idea. If so, let them be known. The Novice or Beginners type licence I have described is for the development of HF operators. For the development of our bands from 10 metres up we need a separate scheme. I also have some ideas on this and will let them be known later. The R.S.O. has recently set up a Committee to review our licencing policy in this country. Why not participate. (73 Earl)

## The Art of Circuit Boarding, Part II

The second step in a circuit board construction project is the preparation of the board itself, and involves several individual processes. The first process is the conversion of the schematic diagram of the circuit and its component symbols to the actual size of the components themselves, and visualizing the positions of the copper strips that will connect the components. The basic purpose of this process is to arrange the components in such a way that all connections can be made by means of the copper strip and without unnecessary jumper wires and the like.

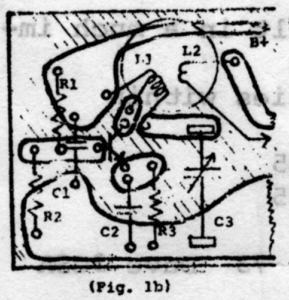
Basically, what we are attempting to do is convert the symmetrical logic of the schematic to the physical logic of the components and connections. Some schematics can be easily visualized because the draftsman had in mind the eventual conversion of the schematic into a circuit board application. This type of schematic is recognizable usually by the fact that it has two principle sides--all connections to the B+ are made at the top of the diagram, and all common ground and B- connections are made at the bottom. An example of this type of schematic is found in Figure 2a. However, some authors still prefer to make all connections at the bottom of the schematic, despite the greater ease of the two sided configuration. When dealing with this type of diagram, it is simply a matter of "flipping" one side to the top of the diagram before beginning laying out the components. When a schematic becomes very complex, as with an SSB transmitter or a dual conversion multiband receiver, the standard procedure is to break up the design into several modules or units, each of which is relatively easy to transfer to circuit boards. As with any specialized skill, there are many "tricks" to the art of circuit boarding, but all are merely ways of converting the symmetrical logic of the diagram to the physical logic of the board. For example, schematic diagrams usually indicate that two wires cross by dotting the cross point; other lines which cross without the dot indicate no connection. We obviously cannot have copper strip criss-crossing on a board, so common sense tells us to use the body of the component as a "bridge" to cross-over on intact strip. Similarly, parts may be inverted, rotated, leaned over, staggered, stretched out--anything that will maintain the electrical circuit.

The best way to illustrate the conversion process is with an example, the circuit of which appears in Figure 1a. The first step in the process is to superimpose a representation of the copper connecting strips upon the schematic itself. This is indicated by the lines enclosing the circuit diagram. What becomes clear from this brief exercise is that the schematic lends itself readily to circuit board conversion--with the important exception of C1, the B+ by-pass capacitor. There is no really simple way of grounding this component without some linear acrobatics, nor does it make much sense to extend the leads of C1 so that they reach from the top to the bottom of the schematic--after all, this is an RF stage, and by-pass leads must be kept as short as possible.



(Fig. 1a)

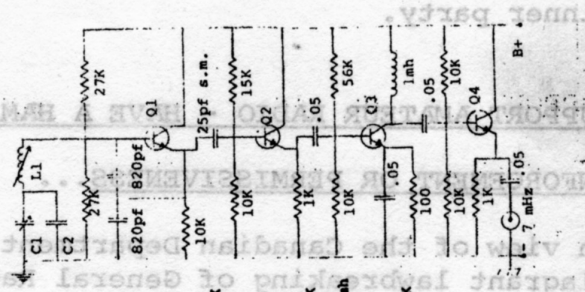
This is a case where the capacity of a component to "bridge" an underlying copper strip can be employed, in this instance, the strip connecting the base to its associated resistors. (See Figure 1b) Next, after determining the viability of the diagram for conversion, the actual size of the components are considered with reference to their positioning and the amount of space that they will require. Here again, the problem is converting from the symmetrical logic of the schematic (all parts are the same size and take up the same amount of space in a diagram) to the physical logic of the parts. The two parts we are most concerned with are the collector coil and the tuning capacitance; we have several alternatives: 1.) mount both off-board; 2.) mount the capacitor off and inductance on board or vice-verse; 3.) mount both on board. Let's work with third alternative, and assume that our inductance will be wound on an Amidon T-68-2 toroid core, and that the capacitance will be an Elmenco midget 365pf trimmer. The difficult part will be the inductance; since it is round, the $L_1$ winding will begin and end at nearly the same spot on the core, and the $L_2$ winding is specified to cover only one-third the circumference of the toroid, beginning at the B+ end of $L_1$. Thus, we will need three mounting holes fairly close together--but we need not crowd, since we can position these three holes at a comfortable distance from each other, and extend the coil leads as much as necessary. One other requirement would be good to honor--namely, connecting the ground end of $L_2$ as close to the emitter of the next stage as possible to achieve a low-resistance base-emitter path. The rough layout that achieves these requirements appears in Figure 1b.

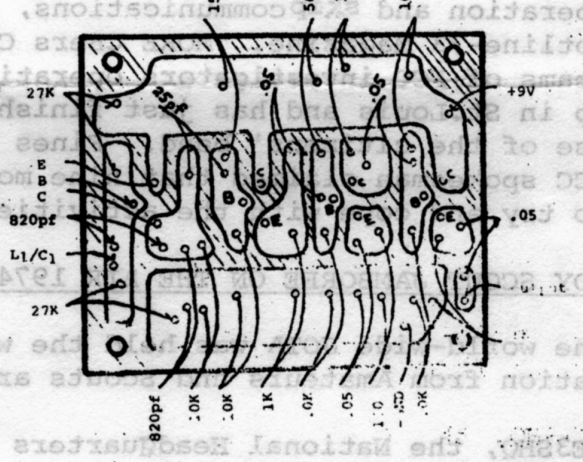


(Fig. 1b)

As you will note, the by-pass capacitor has "bridged" the base copper strip and very short leads have been achieved by "bringing" the common side to the capacitor, and "tilting" $L_1$ to bring the B+ to the other lead. The B+ end of $L_1$ and the collector tap merely cross-over each other in going to their proper holes; the $C_3$ end of $L_1$ matches up directly with its hole, and $C_4$ is soldered directly to the board by means of its lip. A copper strip accepts the "hot" end of $L_2$ and runs to the next stage; the ground end of $L_2$ is simply run across the board and mounted next to the emitter of the following stage. This rough first draft of the board gives us a good idea of what to expect. If you are not worried about space, the board will do fine as is; if you're a nut on miniaturization, the next step is compression--squeezing the parts as close together as you wish or can, and inking in small thin lines for the connecting strips. Similarly, you would attempt to substitute sub-miniature parts and turn to a small T-50-2 toroid core. The circuit undoubtedly could be compressed to less than a square 1-1/2 inch on a side, with vertical mounting of resistors and similar tricks. You stand the chance of losing efficiency by doing this in an RF stage, so beware. So much for single stage (for another example of circuit boarding this type of stage, see W9JIL, "A Beginner's Transistor QRPP Rig," The Milliwatt, Apr., 1970, p. 11, or K6EIL/2, "An FET 3-15 mHz Regenerative Receiver," The Mw., Oct., 1970, p. 11.) circuits, and on to something more complex.

A four-stage VFO design is shown in Figure 2a, and a board for the circuit designed by K6EIL/2 in Figure 2b. As you will note the schematic is a natural for circuit boarding, and the configuration of the board reflects its adaptibility. It is made simpler by the lack of any tuned RF tank circuits, and you will recognize that we have what are essentially four duplications of the same basic pattern.




This board requires no cross-overs, and the final layout of the parts approaches the symmetry of the schematic diagram. $L_1/C_1$-2 are mounted off board--they could as easily be mounted on board, with $C_1$, the frequency tuning capacitor being the only part off board. The type of 1 mh choke used by K6EIL/2, judging from the circuit board connections, either is a small one, or a normal size one mounted vertically. After you follow the combined schematic and board through once or twice, you will begin to get the "feel" of converting schematics into board configurations. You can practice on other designs. One note here: every ham has his own "feel" and the boards usually are unique expressions of a particular gestalt mentality, so don't be discouraged if you try to follow a board that comes along with a diagram in some magazine. It takes a little practice, but is easy once you get the hand of it.

In the next part of this paper, we will go on to more complex problems--"flipping" schematics, accommodating several tuned RF tank circuits on one board, and some practical examples.

Ade Weiss K8EEG

* * * * * * * *

to be continued

AREC NOTES

The Ottawa AREC provided communications for two events on Sunday, October 20. VE3's, FFW, CNJ, GPR and GUW kept the Telephone Pioneers' car rally running smoothly, with Nick as control station at HMCS Carleton, and the others at checkpoints near Munster, Almonte and South March.

VE3's LJ, EKS, CYM, BBM, HLU, AMK, and CPX assisted at high-speed car trials on a twisty track at the Orleans Proving Grounds for the Motorsport Club of Ottawa. Amateur Radio saved the day when the photo-electric timing device at the finish line failed part way through the event - the fact that a car had crossed the finish line was radioed to the timekeeper so that he could stop the timer manually.

The AREC communications for a car rally on Sunday, November 10 provided Amateurs who participated, with lunch and they were guests at a post-rally dinner party.

- Larry Bradley VE3CRX

SUPPORT AMATEUR RADIO - HAVE A HAM FOR DINNER (TFM Bulletin)

ENFORCEMENT OR PERMISSIVENESS...

In view of the Canadian Department of Communications proposal to reward the flagrant lawbreaking of General Radio Service Stations by allowing hobby operation and skipcommunications, it is refreshing to read this article in Hotline-73 Magazine. "MORE CBers CITED...One of the presently active four teams of FCC investigators operating out of Grand Island, Nebraska, turned up in St.Louis and has just finished issuing about 200 citations for illegal use of the citizens' band. Fines could run to $100 and loss of license. An FCC spokesman claimed that nine more special FCC units are being organized to try and cope with the activities on 11 metres." - Ed.

BOY SCOUT JAMBOREE ON THE AIR 1974

The world-wide JOTA was held the weekend of October 18 and 19 with participation from Amateurs and Scouts around the world.

VE3SHQ, the National Headquarters Station of the Boy Scouts of Canada was in operation for the weekend. As the ancient equipment owned by Scout Headquarters was not operational, two transceivers were borrowed from Ottawa area Amateurs and antennas were erected for 80 and 40 metres. Five hams operated for most of the weekend and contacted more than 40 JOTA participants mainly in Ontario and Quebec.

It is hoped that a current fund raising campaign will result in a much improved station in operation for JOTA '75.
Further information about VE3SHQ and Amateur Radio activities within Scouting are invited to contact: Bob Milks 224-5131
Glen Holt, 3GWY 225-7185
Dave Parks, 3GSA 232-6255

73 Dave 3GSA