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# XTAL

for the

# radio amateur

J. H. Doble, VES3ACC  
Aurora,  
Ontario  
2/50

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OFFICIAL JOURNAL  
THE CANADIAN AMATEUR RADIO OPERATORS' ASSOCIATION  
TORONTO, ONTARIO

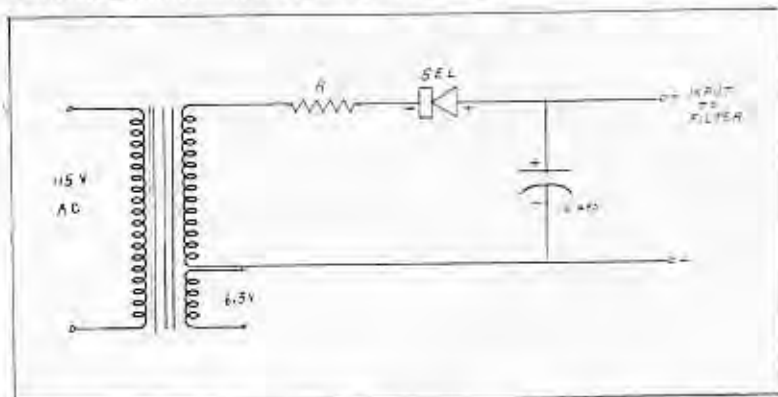
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## TYPEWRITER DOODLING!

We haven't the faintest idea of what is going to appear on this page. We were promised material but, alas, it failed to appear. We have chased it so much that we fear we have made a nuisance of ourselves. So, here it is — deadline and still no material.

We certainly cannot send out XTAL with a blank editorial page, even though some of you might think that would be an improvement over most of our editorial pages. So we are sitting at the mill doing a spot of doodling. What will happen between here and the bottom is anybody's guess and probably shouldn't happen to anyone — not even a VFO swisher.

Swishing VFO's. Now there's something. Must look up the criminal code and see exactly what is defined as justifiable homicide. We remember something about a story of a dog that said let others use the hand even though you don't. Must look that up, too.

Wonder why so many people insist on slaying before they go to church? Just when we are trying to hear at least part of what is going on in the Phone Club circle. All of which suggests that there is so much something or other from gadgets that are not of amateur radio that it seems to be the height of something for amateurs to cause themselves needless grief from wandering VFO's.

If that guy had only sent in that material. Ever try putting out a magazine in your spare time on a gratuitous basis? We'll bet the material would come in sailing if we were paid officials. We would have nothing to worry about and would be paid for it, but when we come up here after doing a day's job—everything happens to us.

Another thing we are not able to figure out is why people try to call CQ on a frequency that is busy with a net. Seems like an awful lot of queer things happen in ham radio. Maybe hams have to be so darn polite during the day when they are trying to earn a living that they get fed up with the "You first, my dear Alphonse," and just let the old hair down. That is one way of having the other fellow treat his hair in such manner that he will not long have any to let down.

How far is it to the bottom of this page anyway? TVI. Must really read all the dope that has been released in the past year. Heard of several locals who are blotting out the pictures. Like the fellow with the clipboard to clean out

— I must do that some day. Hope my TV neighbors don't mind waiting until I get around to that reading, and I hope, also, that the R.I. will understand that I really meant to read up and do things to things. Can't QSO many people during enforced silence!

We hear it is against the regs for anyone but a properly licenced ham to put the tail — or the head — to a QSO. In other words, the xyl can neither call CQ or the other station, or sign over to him.

Funny how empty the old noggin can get when you have a page to fill up. Looks like we are now at the south end of the page, so 73.

## AIR DISCUSSIONS

The Ontario members of CAROA Executive Committee meet in a round-table discussion of CAROA matters every Friday at 8 p.m. EST on 3815 Kc. Control station is VE3AZH.

The round-table is not confined to the executive. All who care to participate are welcome indeed, and each is given the opportunity of directing his comments, suggestions or criticisms to members of the executive.

The control station will arrange for copying members of the executive who are exclusively CW. It is possible that such stations will transmit on 3535 Kc. Control will probably arrange for an executive member to copy the CW station then give a report on his next voice transmission. In any event, some arrangement will be made so that members of the executive who are CW will have ample opportunity for a full measure of expression.

We hope these discussions will be productive of a more useful CAROA, an improved XTAL, and a better understanding all around.

Out west, Ray Brown, VE5RB, has been carrying on a similar activity for some time. It is hoped that the group of VE2 members of the executive will arrange something of the sort if band conditions do not permit them to join our VE3 round-table.

CAROA's new club secretary is Elton Culp, VE3AUQ, 67 Sherwood Ave., St. Catharines. Club secretaries are requested to send him their club bulletins.

# Gleanings from the Mail-Bag

"A few days ago I was QSO a man who said a speaker from headquarters told a club meeting CAROA is not in opposition to the League. Was he right? If so, you can count on 100% support from me."

Definitely, he was correct. CAROA is endeavouring to do what no other agency is doing, therefore, our objectives are not in conflict.

"... furthermore, when are you guys going to pull up your Sox and get XTAL out regularly and on time?"

Brother, our Sox never did slip. Surely you realize that every time XTAL is late there must be a reason for it. Circumstances over which we have no control dictate XTAL appearance. And don't forget that we get XTAL out in our spare time which is not too plentiful. Anyway, OM, it begins to look like we shall be back on a monthly basis very soon.

"Is there any reason why association headquarters should be in Toronto?"

None at all. The idea of a national association was conceived many years ago by a group of Toronto amateurs, consequently, the association office was located in Toronto. Headquarters cannot be moved periodically, but it need not be continued in Toronto. Some of us would be highly pleased if it moved somewhere else so that another group might be given the opportunity of performing the many routine duties that must be carried out from day to day by volunteer workers.

"Give us the technical dope on gadgets and supplementary equipment."

Several such articles have been promised us. If we receive them you will certainly read about them in XTAL.

"It seems too bad that so many clubs do not take advantage of XTAL to publicize themselves."

Clubs can cure that. Our space is available to them without charge for the reporting of club news.

"I have a lot of ideas for improving XTAL but I can't think of them."

!!!!

"Keep up the good work. XTAL will never take any prizes as a journalistic triumph, but it is OUR magazine and you boys down there at Hq. are putting it out for US. If you chaps don't, who will?"

Thanks, OM.

"I would like to commend all those responsible for publishing such a fine magazine. Naturally, it has room for improvement, but the hindrances you have had to face are many and you are doing a 'fine business' job. Please keep up the

good work, as I and many others enjoy reading every page of our magazine."

"You have been asking for technical articles. Who says we want technical articles in XTAL? Heck, ham radio literature has more technical articles than we need now. What we want in Canada is a newsy magazine. You know the sort of thing — as intimate as a family circle and just as gossipy. News of Canadians and lots of it, that's what."

"We can get oodles of technical articles by walking to the nearest newsstand — but we won't find interesting, personal news paragraphs on what our fellow Canadians are doing in the hobby. VE's are living souls, not resistors, condensers and things. Because they live and breathe; because they are active in the hobby, they make good news. Stories about them, pictures of them — that is where XTAL can shine. Anyway, that is what I think."

There are a lot of folk who seem to think as you do, OM. But now you see one of our perpetual difficulties — the difficulty of trying to please everybody. When our advertising support permits it, perhaps we can give you a bit of everything. Thanks for your thoughts, OM.

VP7NN is heard late at night on 3825 Kc, working from Grand Bahama Island, Bahamas. VE2's and VE3's have worked him.



VE3BCB  
AL PEARSALL  
Toronto.

# 1950 VE/W CONTEST

CAROA again sponsors the VE/W Contest. All the rules and times of operation will be found below. Good hunting!

Are you ready for the 1950 VE/W contest? Have you got all those QSL's for WAS or WAVE? If not, you had better get started and fire up that tired old 807 with the loose plate cap to see if it will still give out with the watts. Perhaps after last year's rat-race you decided that a 304TH would stand the gaff better and have made the necessary substitution. It may be only fair, however, to warn you that the 100-watt multiplier applies to plate power input, not filament power input.

This year's contest will be conducted very similar to last year's with the exception that, in an endeavour to get more stations on the air at the same time, the contest period will be confined to a total of 30 hours, out of which each station may operate 20 hours or less. A point which should be stressed is that it is required to send your QTH as well as the A.R.R.L. section in which your QTH is situated.

Certificates of Merit will be awarded to the leader in each A.R.R.L. section. The complete rules along with an example of the type of preamble to be used are printed below. Be sure you understand the rules and don't be afraid to read them over twice. So, here they are, and we'll be seeing you in the contest.

## Rules

Any station located in any A.R.R.L. section as listed in QST is eligible to enter.

All contacts must be made during the contest period 6:00 p.m. EST, May 13 to 11:59 p.m. EST, May 14, with a total of no more than 20 hours operating time for each entry. Times on and off the air must be clearly shown in the contest log.

Messages preambles such as the following must be exchanged and be fully reported in the log entered:

(1) Number of contact; (2) your call; (3) RST report given; (4) location; (5) A.R.R.L. section; (6) time sent; (7) date sent. Example: NR 1 W3KMN 569 Silver Spring Md Del DC 602P May 13.

One point may be counted for each preamble sent and acknowledged. One point may be counted for each preamble received. No more than two contest points may be counted for contacts with any one station, regardless of frequency bands in use. VE stations will multiply the total points by the number of W A.R.R.L. sections worked. W stations will multiply the total points by the number of VE A.R.R.L. sections worked and also by 8, there being 8 times as many W sections as VE. Stations using a power input of less than 30 watts will receive an additional multiplier of 2, and stations using a power input of less than 100 watts will receive one of 1.5. The final score consists of

"total points", multiplied by "sections" (times 8 in case of W stations), multiplied by the "power multiplier."

Each entry must be accompanied by the following certification: "I hereby state that in this contest I have not operated my transmitter outside the frequency bands as specified by government regulation, and also that the log submitted is correct and true."

All entries shall be sent to the Canadian Amateur Radio Operators Association, 46 St. George Street, Toronto, and must be postmarked not later than midnight May 20, 1950.

## CAROA EXECUTIVE COMMITTEE MINUTES

Minutes of Executive Committee Meeting held in the Board of Trade Room, Kerby Hotel, Brantford, Ont., on Saturday, Feb. 25, 1950.

1—Meeting called to order by President Bob MacDonald, VE3APS, with the following in attendance: Members: VE3AZH, AUQ, ANO, BMG, YS, MJ, RG, ZE. Visitors: VE3AOT, LU, Hank Ellis.

2—Art Frazer was requested to record minutes in absence of the secretary.

3—President reported minutes of the emergency meeting of Dec. 18, 1949, unavailable. Minutes of November meeting read and adopted.

4—Letter of resignation from the secretary VE3RH, read and accepted.

5—"As the treasurer was elected contrary to section 5 of the constitution he is not able to fulfill the requirements as laid down by the constitution. It therefore is moved that he be relieved of his duties as treasurer, but remain on the executive committee, and be replaced as treasurer by a member of the committee who can fulfill the requirements of section 5 of the constitution."—Carried.

6—The report of the President, dated Feb. 25, 1950, was received.

7—President presented his August, 1949, memorandum for consideration by the executive committee.

8—That VE3AOT, VE3LU, and Hank Ellis be appointed a committee to investigate and examine representations and recommendations made to CAROA, with a view to them being presented to the membership at large. The committee will prepare any such recommendations for further presentation.—Carried.

9—That Elton Culp, VE3AUQ, be appointed under-secretary for clubs.—Carried.

10—Report on recent position of XTAL presented by VE3ZE and discussed by committee.

11—That VE3APS and VE3AZH be appointed as editorial board for XTAL with the power to add as required, VE3APS to be in charge of

(Continued on page 14)

# USE THOSE WAR SURPLUS RELAYS

By Alex. Velleman, VE3BTQ

**M**ANY OF US have about the shack a few of those "useless" 12 and 24-volt war surplus relays. It seems a shame not to use them, but then, it appears that unless a 12 or 24-volt DC supply is available, they just cannot be operated in the way the ham wants to. Let's look into the matter, and give it a bit of careful thought.

The relays in ATR5/8, ATI/7, ATR/11 (A) and (B) are good examples. Either 12 or 24-volt, they have internal resistance of from 70 to 280 ohms, and most are either double pole, double throw or better, and a few are double pole single throw, or even double pole self-locking. The latter are for motor-generator starting, and are very heavy duty. In these relays we have a real wealth of value, if they can be used. Good uses would be antenna transfer, modulator supply plate switching, CW/tone relays, etc.—practically any job where a switch presents either too great a loss, or where switches just cannot handle the voltage.

In the first place, even though the relays are marked for 12-volt operation, remember they were to be employed in an aircraft, and had to be absolutely vibration-proof. As a rule, the 12-volt relays, with a slight slackening of tension on the return spring can be made to operate quite satisfactorily on 6 volts, and are ideal for use in mobile equipment. "Operate" current for the most of the relays is in the neighbourhood of 12 mills, and in some cases even less. In one piece of mobile gear, relays are used for the following purpose: (1) Change-over from broadcast to SW on the receiver, transferring the antenna to the converter, and placing high voltage on the converter tubes. (2) When transmit is desired, HT is removed from the converter, thus effectively muting the receiver. (3) A relay is used in the transmitter to transfer the transmitting antenna to either the converter or the transmitter. (4) A relay is used to feed the 6 volts from the source to the filaments, so that long lines from the trunk to the instrument panel and return are not required. (5) A relay is used to feed 6V direct to the motor-generator during transmit condition, and, as this relay carries heavy current, another relay is used to start it going. All of the relays so far mentioned are of the 12-volt variety, and come from ATI and ATR5 equipment.

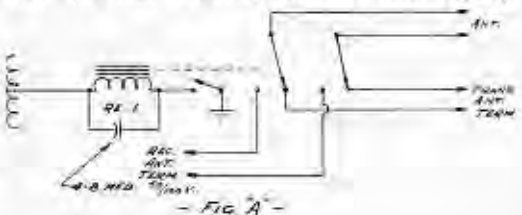
For mobile operation, you have either the car battery or another battery in the trunk of the car, to operate the filaments and the generator and even the relays, but how about the guys at home? Well, think about the operating current of those relays again. Let's say 70 ohms at 12 volts. According to Ohm's Law, that should be about 17.1 mills total required current. That should give you ideas. Now let's think of a use for a relay. The one relay that most hams need is to replace the switch that they all at one time or another forget to throw; the antenna changeover. Now most hams mute the

receiver when they go to "transmit". So they throw one switch anyhow. Well, let's put that switch to use. Normally this switch is in the center tap of the plate winding of the receiver power transformer. Through this switch flows about 65 mills.

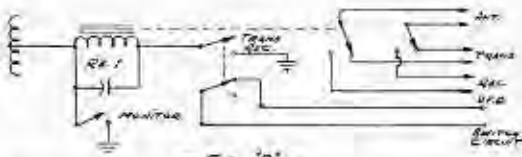
Normally it is desirable to monitor the transmitted signal, and to use the same antenna for receiving and transmitting. As well as this, it is desirable to have the entire transmitter operated from the one switch. First things first, however. Let's look into the possibilities of transferring the antenna from receiver to transmitter by means of the receiver muting switch. As was mentioned before, about 65 mills of current flow through the standby switch. If a relay were placed in series with this switch, it would be operated by the receiver current, and when no receiver current exists, the relay would connect the transmitter to the antenna through the upper or resting contacts of the relay.

When the receiver is operative, the antenna is connected to it, and the transmitter is disconnected. This is fine, and works, as is shown in Fig. "A".

It will be found, using a relay as shown in Fig. "A", that the relay tends to hum slightly,



- FIG. "A" -



- FIG. "B" -

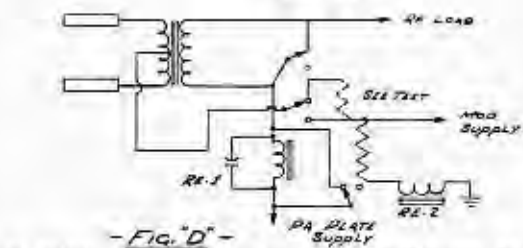
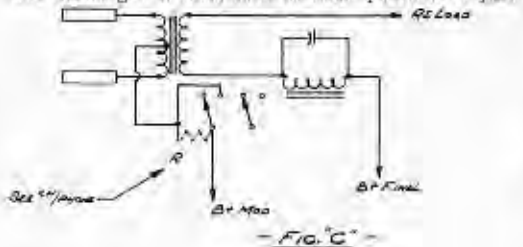
due to the AC component flowing through it. To reduce this, a 4 to 8 mfd condenser shunted across the coil is sufficient to make this inaudible.

If it is desirable to monitor the signal, a switch shunted across the relay coil and muting switch will serve the purpose. This switch will cause the antenna relay to remain inoperative, and thus cause a reduced signal to appear at the headphones or speaker. A slight adjustment of the volume control is all that is required for perfect monitoring. For control of the transmitter, an additional section could be added to the relay switch, and wired to the VFO, so that muting the receiver would cause the antenna to be transferred to the transmitter by the relay, and the other section of



the switch would turn on the VFO, and make the carrier appear. If it is desired to monitor the signal, the monitor switch could be thrown closed, thus causing the receiver to operate, but because the antenna is still on the transmitter, and not on the receiver, the signal would appear at the phones or speaker at a greatly reduced strength. This complete diagram is shown in Fig. "B".

In the average ham transmitter, to change from phone to CW, the modulator plate supply is switched off, and the final plate current is still drawn through the modulation transformer. This causes a slight lag, but is hardly noticeable at speeds of less than 35 w.p.m. The main disadvantage is that a loss occurs at this point, due to the DC resistance of the winding of the modulator transformer, and because the transformer is designed for continuous current, and not great changes of current interrupted at great speed, the transformer breaks down. A switch at this point is not satisfactory, because of the high DC potential as well as the audio component that would be present at the switch. It is also highly desirable to make some provision for switching off the DC applied to the modulator tubes during stand-by condition, so that the tubes get a rest, and to save power. A pair



of relays, operated by the plate supplies can be made to do the complete job, at the cost of 17 mills of modulator current. If you have this to spare, you can do the complete job. If you never go CW, you don't even need the 17 mills.

For phone operation only, a relay inserted in the plate supply of the final will do the trick, but only if the final stage is normally biased to cut-off, or perhaps beyond cut-off. Fig. "C" shows the set-up for the phone rig, and will operate satisfactorily if you do not intend to key the rig.

Now for the CW/phone man, it is desirable to switch from phone to CW and vice versa with only one switch. Let us assume that a separate plate supply is used for the modulator. Knowing the amount of current that is required to operate the relay, and knowing the voltage that it takes, measure the loaded voltage of the

supply, and calculate the value of the resistor that it will take to drop this voltage to that required for the relay. Then measure the voltage that exists at the supply without load, and with this figure, and an additional 10 per cent at least for a safety factor, calculate the wattage of that resistor. With the relays hooked up as in Fig. "D", switching off the plate supply for the modulators will short out both the modulation transformer, and the relay in the plate lead. With the switch closed, RE2 closes, which removes the short from across the coil of RE1, allowing it to operate when the final draws current, which in turn removes the short from across the modulation transformer, and at the same time places plate supply on the modulator tubes. In certain modulators, where large capacity condensers are used on the modulator chassis, a lag will take place that will cause the audio to be withheld for a few seconds while the condensers charge. This can be avoided by placing across the lower contacts of the modulator relay RE1 a series resistor, which will maintain a small charge on these condensers. Better yet, if pentodes such as 6L6's or 807's are used as modulators, the screen voltage can be broken rather than the entire plate supply, and this will hold the stand-by current in the modulator supply to a minimum.

Don't let those relays sit idle — use them. You'll find it really handy to be able to operate break-in on phone, and to be able to switch over from phone to CW with a single switch, and yet do it efficiently.

## MESSAGE BLANKS

CAROA has produced pads of message blanks for VE traffic men.

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# CAROA NATIONAL REPORT

## VE5

Madolyn Sinclair, VE5YF, D.R.  
411 33rd St. W., Saskatoon

Well, boys and girls, how are you enjoying the screwy band conditions? Never a dull moment. The Saskatchewan 75-meter fone net have been having fun trying to pass traffic and I guess the same holds true of all the nets. 5LL is a new net member, making the total 43 answering roll call. 5IC has consented to act as P.A.M. for another year, with 5MA as assistant. These boys have also taken on the job of OO stations. Better check up on your regs, kids. 5DN of Regina is now O.B.S. with 5IC and 5EE doing the honors in Prince Albert and Saskatoon respectively. 5FY and 5UC are busy building an emergency set-up in Saskatoon, while 5EV and jr. op 5SE are experimenting with emergency equipment at Herbert. We'd like to see a good live emergency net in operation. If you are interested in any of these A.R.R.L. appointments, send your name into our SCM, 5DW, Regina.

Recent visitors to Saskatoon were 5BI, Lloydminster and 5AB of Star City. Albert is enjoying his Hammond beam and getting good results 28 mcs. 5OB had an interesting experience on ten meters when he contacted W3QET, who was operating in a classroom at Benjamin High. Carl ended up teaching a geography lesson and received a "thank you" letter from one of the co-eds. 5EE got tied up in a coast-to-coast round table working all Canadian districts including a VE8 and a VO station. Not bad for 75.

5ER has been calling in on the coffee club and whaddya know? Some of us can still read CW. Nice to hear 5NG on phone. 5JG is working ten meters and QRMing my poor little 16 watts right out of the picture. Heard Mel on 75 dispensing words of wisdom to a few disgruntled "hams". 5PS has recovered from his bout in a Winnipeg hospital and is back in Saskatoon with a new bride. Good luck, Bob. 5RJ is back at work and doing nicely and 5FL is back on ten. 5WS is heard lamenting the fact that she just can't find enough time to work ten. 5CD seems to find the time and is still dragging in the dx. 5MQ is moving to Clinton. We'll sure miss you, Jack. Get the junk heap set up soon so we can talk to you. We hear that someone used 5UQ and his panel truck for target practice. Bill fared better than the truck.

We hear that 5QB is on 160. Would like to talk to you on 75, Jostie. 5DT is on 75 and active on the net. 5FB is getting results with his little portable combination running 6 watts to a 6L6. 5RB is organizing discussions on 75 meters every Sunday afternoon at 3 p.m. MST to discuss CAROA affairs and exchange views. Just had one little report this month, so please get your news in.—73—Madolyn.

## VE6

W. R. Savage, D.R.  
329 15th St. N., Lethbridge

NP is operating portable at Churchill Bay on 20 CW. SE and IS are located at Cardston and must be active, as they are expecting a card from KL7H. Hope to meet you Stan and Evelyne one of these days. SR is busy but gets the odd QSO in between times. AB has changed his location to miss the QFM, but he didn't get an antenna or his rig up for the dx contest. I bet you were chewing your finger nails, Johnny. DY is talking beams now. IB is heard on 20 CW and working out fb. OF was out the other night chasing down radio interference. IP, we understand, has been putting a nice fone signal into the electric organ of the church next door. OO has his rig built into a rack and panel job, even his receiver included. KO just about has his 10 mtr bodile rig finished. MA is very busy with local ham club work and also gathering news for the club's paper. PC is in hospital for a spell; hope you get out soon. Ray, and get that rig going. PD is still not very active. MN is working hard for that DXCC. PL is getting parts together and it shouldn't be long before he is on the air. ZI, WZ, DY and HJ all came in for the party held by the Lethbridge Amateur Club. Thanks to all you fine gals and guys for helping to make such a fine evening. AC is planning another trip to the sunny southern part of the province. TM has a nice new Tecno all-band transmitter. He also has a mobile rig in his car which works out nicely. GD now claims WAZ and AO needs only one zone to complete the trick; nice going, fellows. ZM is planning a new vertical 40 mtr antenna. DK has built an electronic key but his xyl PF sure can make code with the gadget. JO has a fine new rig, pair of 810's in the final, three element beam with indicator, pandaptor, and Sonar exciter unit with NBFM. Thanks to both Joe and Kay for a wonderful visit. FK is operating on 20. OD has put an overload relay on his rig and is working on a TA-12 for a low-power job. LT has just finished his 10-mtr fone job; it is really a fb piece of work and it sounds just as good on the air. HB is heard on 75 fone. LA is very busy on the air talking about planting crops. Well, that's a good way to compare notes with the other fellows. Bill, MP has been burning the midnight oil on 75 fone working VE3's. DN gets lonesome unless he gets in some QSO's every night. LZ now claims 2231 QSO's. Keep it up, Al, you will soon be up to the 10,000 mark. WB is busy keeping skeds so his friends can talk to their relatives. EV and OF just about have their transmitter ready to put the juice on. It is supposed to work on all phone bands and is equipped with speech clipping and all the other gadgets.—73—Bill.

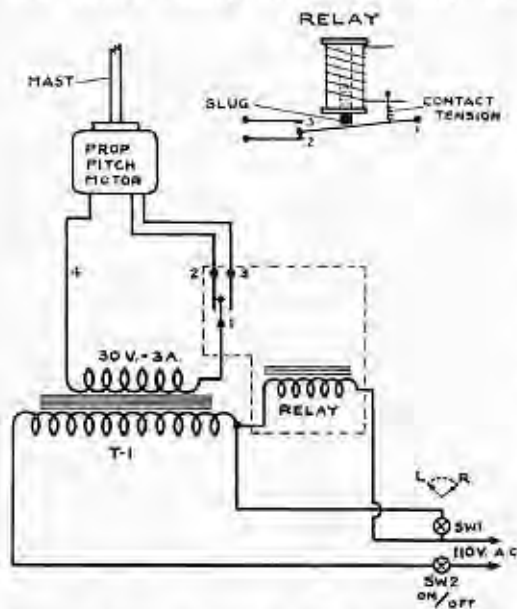
## TRY THIS SIMPLE ROTATOR ON YOUR BEAM

By A. Wilson, VE3AMB

To you fellows who have put off adding a rotatable beam to your station because of the many and various problems involved, or you others who are having difficulties with your present arrangement, here's a simple and inexpensive way of doing the job.

The use of the prop-pitch motor insures more than sufficient torque to swing even the heaviest beam. This means, of course, that the supply transformer for the motor must be located close to the motor so as to minimize voltage drop. This, in turn, gives rise to the necessity of using a relay to reverse the direction of the motor.

The transformer is a 100-watt power transformer with the secondary removed and a 30-volt, 3-amp winding added. The relay was



obtained from the control unit of an old Westinghouse refrigerator, and the solenoid was re-wound with 130 turns of size 18 S.W.G.

Operation is as follows: Switch 1 determines whether or not the relay coil is included in the primary circuit of T1 and decides, therefore, the direction of rotation.

With Sw1 and Sw2 closed, voltage is applied directly to T1 primary, by-passing the relay. With the relay coil not energized, the relay secondary contacts 1 and 2 are closed, applying voltage to the motor across terminals 2 and 4.

With S1 open and S2 closed, the relay coil is included in the primary circuit of T1, energizing the relay and closing the relay secondary contacts 1 and 3. This applies voltage to the other field winding of the motor and changes the direction of rotation. By first opening or closing S1 and then closing S2, the beam can be made to rotate in either direction.

## "WORKED ALL AMERICA" AWARD

The "Worked All America" (W.A.A.) Award has been instituted by Liga de Amadores Brasileiros de Radio Emissão (L.A.B.R.E.) to encourage interest in the American area.

The WAA Award for confirmed contacts with 45 or more countries in the American area is available to amateurs everywhere.

Confirmations must be forwarded direct to L.A.B.R.E. Headquarters, S.A., accompanied by a list of claimed countries.

All contacts must be made with amateur stations working in the authorized amateur bands or with other stations licensed to work amateurs.

All stations contacted must be "land stations" . . . contacts with ships, anchored or otherwise, and aircraft, cannot be allowed.

All stations must be contacted from the same call area, where such areas exist, or from the same country in cases where there are no call areas. Where a station is moved from one call area to another, or from one country to another, all contacts must be made from within a radius of 150 miles from the initial location.

Contacts may be made over any period of years, dating post-war (i.e., since November, 1945), provided only that all contacts be made by the same operator; contacts may have been under different call letters in the same area (or country) if the licensee for all was the same.

All confirmations must be submitted exactly as received from the stations worked.

A minimum readability report of 3 and T8 (or CW) shall be recorded on each confirmation submitted.

All applications must be forwarded to the L.A.B.R.E. by registered mail. Sufficient postage for the return of the confirmation must be forwarded with the application.

### These Are Your Targets

The list of countries in the American area in connection with the above award follows:

Alaska, KL7; Antarctica, VP8; Argentina, LU; Bahamas, VP7; Barbados, VP6; Bermuda, VP9; Bolivia, CP; Brazil, PY; Canada, VE; Canal Zone, KZ5; Cayman Is., VP5; Chile, CE; Clipperton Is., TI; Cocos Is., TI; Colombia, HK; Costa Rica, TI; Cuba, CM, CO; Dominican Republic, HI; Easter Is., CE; Ecuador, HC; Falkland Is., VP8; Galapagos Is., HC; Greenland, OX; Guadeloupe, FG8; Guantanamo Bay, KG4; Guatemala, TG; British Guiana, VP3; French Guiana, FY8; Netherland Guiana, PZ; Haiti, IH; Honduras, HR; British Honduras, VP1; Jamaica, VP5; Leeward Is., VP2; Martinique, FM8; Mexico, XE; Miquelon and Saint Pierre, P8; Western Netherland India, PJ; Newfoundland and Labrador, VO; Nicaragua, YN; Panama, HP; Paraguay, ZP; Peru, OA; Porto Rico, KP4; Salvador, YS; South Georgia, VP8; South Orkney, VP8; South Sandwich Is., VP8; South Shetland Is., VP8; Swan Is., KS4; Trinidad and Tobago, VP4; Turks and Caicos Is., VP5; U.S.A., K and W; Uruguay, CX; Venezuela, YV; Virgin Is., KV4; Windward Is., VP2.

# Here's How

This is the section of your magazine that will bring you bench and mechanical tips. Even pithy paragraphs of a technical nature would be quite at home in this department.

We have had a lot of requests for just such a section as this but so far we have not discovered how or where we may find the material. One thing we do know, and that is that material is not available at the corner store like a tin of peas.

So, drop us a line telling about the wrinkle you use with such practical value. We will pass it on to your brother hams through the pages of XTAL and give you a credit line for the submission.

This is YOUR magazine. If you would like to break into type here is one place where you may do so with benefit to the hobby.

\* \* \*

I've been building a crystal-switching unit to plug into the crystal holder of my triet oscillator. There were two crystals of air force three-prong type for which I had to improvise sockets. This was solved in a way that may interest readers of XTAL.

The three holes for each holder were located and bored in a bakelite panel that forms the top of the unit. Sockets for  $\frac{1}{4}$ " and  $\frac{3}{4}$ " spacing crystal holders are mounted in the aluminum side members. The switch is at the front end. The top plate was wired last. For prong clips take apart an old socket of the type that has spring-reinforced pin clips. Solder two clips to spring leads and two to the common wire of the assembly. Insert crystal holders in the prong holes and the assembly. Put crystal holder pins through the top plate, then push the clips on to the pins from below.

J. S. Houston, VE5KJ.

## NEW A.R.R.L. RADIO MAP

The ARRL Amateur Radio Map of the World, 30 by 40 inches in four colors on heavy map paper, listing amateur radio call signs, prefixes, and 270 countries on ARRL countries list. Revised postwar edition, \$2.00.

A new and completely revised edition of the Amateur Radio Map of the World is announced by the American Radio Relay League of West Hartford, Conn. This four-color map, a special projection by Rand McNally, has been especially prepared for use by amateur radio stations primarily in their "DX" or long-distance international communications activities, and is completely different from any other map now on the market.

This map is a modified equidistant azimuthal projection, centered on Wichita, Kansas, allowing distance measurements of reasonable accuracy between points in North America and the rest of the world. In addition, the map may be

# Traffic Lanes

## TRAFFIC SCORES

January			
3DBJ .....	5	3BBM .....	35
3IA .....	189	3ATR .....	89
3WK .....	96	3APS .....	32
3BUR .....	173	3BER .....	40
February			
3BUR .....	143	3ANO .....	108
3DCW .....	8	3IA .....	167
3BL .....	45	3DBJ .....	9
3ATR .....	90	3BBM .....	43
3WK .....	68	3ZE .....	5
3APS .....	5		

## TRUNK LINERS WANTED

We have received a communication from Geo. Keller Hickin, W2OUT, SO-13 Oceania St., Bay-side, Long Island, N.Y., asking our assistance in locating amateurs who would be interested in trunk line traffic. TLS (slow speed) operates on 3545 Kc at 2100 hours EST, Monday through Friday.

In TLS work you may work at any speed acceptable to the station you are working, but you are under obligation to limit your gait to 15 wpm if requested to do so.

Here is a chance for trunk-line minded VE's who have hesitated to venture into the field for reasons of either speed or lack of experience.

Amongst his other traffic activities, our President, VE3APS, has been a member of TLS for a long time which, at the moment, is otherwise exclusively a W trunk.

If you are interested drop a line to Kel at the above mentioned QTH or write in care of C.A.R.O.A. headquarters, and we shall do the rest. If you care to QNI as above noted, do so, and listen for the trunk line identification of TLS.

\* \* \*

Stations reporting into the Ontario 40-meter net in January were 3AHO, ASL, DBJ, DCW, BUR, AJN, WK, BBM, AZZ, IA, ATR, 2BB, 2XB, 1VJ.

VE5OM, 5CW and 5OP were responsible for the fine program arranged when the Moose Jaw A.R.C. held a banquet and social evening at the Canadian Legion Hall. Thirty-five members, xyl's and friends attended. Movies donated by the C.P.R. were enjoyed and the evening finished with dancing and bridge, with prizes going to Mrs. 5JS and 5OR. Mrs. 5LV and 5FK walked off with the door prizes. Everyone had an enjoyable evening and looks forward to another one.

used for determining great circle bearings from most points in the U.S.A.

The ARRL Amateur Radio Map of the World is large enough to be read easily from the operating position, and will be an attractive and useful addition to any amateur's radio room.

## ON THE HIGHER FREQUENCIES

Most of the VHF activities are on ten meters, with two next in line.

Les Weir, VE3AIB, was again top man in the January VHF contest, followed by VE3AJJ, ANY, AZX, ANT, AJJ, AZP, BJB, BQN, BOW, BEC, BVN, BUO, DAN, DBP, QT, KM, IZ, and others with good scores. Most of the boys worked four districts — VE3, W2, W3 and W8. We are looking forward to a bigger and better contest in June, so get your rigs pepped up, fellers, and join the jamboree.

3DAN, BJB and BQN are on 420, but no two-way contacts have been made. 3DBP of Waterloo and 3ANU of Kitchener are active on two meters. 3AZH at Dundalk is nearly ready to fire up on two, so turn your beams in that direction often.

If you are interested in a good converter, take out the front end of your 522 and change it to the latest QST set-up. You will have something good.

We hear by the grapevine that 3ADO will soon be on 235 and 420 crystal controlled, and 3BOW will be on six and 815 final.

Wonder which band will get the play for portable mobile this summer — two or six.

Toronto and Hamilton districts are horizontal-minded on two. Maybe if the VE2's and 3's could get together on tests there could be interprovincial QSO's this summer.

If you have any news concerning VHF, please drop me a line.  
—VE3AQG

## CBC STARTS TV BUILDING SOON

Toronto — In a progress report on television, CBC Acting General Manager Donald Manson said that preliminary plans for C.B.C.-TV buildings in Toronto were being studied with construction expected to start within a few months.

Studio and transmitter buildings, topped by a 500-foot tower and antenna, will be built on C.B.C. property at 354 Jarvis Street, Toronto. The transmitter building will house a 5 Kw transmitter which has been ordered from Canadian General Electric.

Buildings to house the Toronto television facilities will be designed by the C.B.C. Engineering Division, and these designs in the preliminary stage are already being studied. The studio building will be of solid masonry. It will house television studios, control rooms, laboratories, offices, shops for building scenery, a photographic dark room, projection room and film vaults, and storerooms for scenery and properties. The studio building will be joined at one end by a television and FM transmitter building. Heavily reinforced corner posts of this structure will support a 450-foot transmitter tower topped by a 50-foot television antenna. In balconies on this tower, parabolic reflectors will pick up directional beams from television programs being shot on location.

Mr. Manson said that a second 5 Kw transmitter for Montreal had been ordered from R.C.A.

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And Reliable Performance

# SPECIFY

## Westinghouse

### RADIO TUBES

THERE IS A  
DIFFERENCE



## COUPON

Please enroll me as a member of the Canadian Amateur Radio Operators Association. I am enclosing a cheque ( ), money order ( ), postal note ( ) to the amount of one dollar which entitles me to all rights and privileges therein, and a year's subscription to XTAL magazine.

Name .....

Call Letters .....

Address .....

City ..... Prov. ....

Licence Number .....

State your interest in radio if not licenced .....

REMIT TO: The Canadian Amateur Radio Operators Association, 46 St. George Street, Toronto, Canada.

## CLUB NEWS

Clinton A.R.C. at its January 20 meeting elected a new executive due to the move of VESBAI to Ottawa. The new president is Bob Kirkby, 3RL, and the secretary Harry Walsh, 3BFW. Visitors from Goderich were welcomed. New members included 3BQG, Seaforth. Welcomed to the fold at 3BER were VEITC and 5JD. Thirty-nine of the 51 members of the club turned out for the meeting.

The Northern Saskatchewan A.R.C. have been having trouble getting together due to the extreme cold, but the few that have been able to attend club meetings are full of ideas for the future. They want to get the Scouts together for a rag-chew with other Scouts throughout the province with the view to giving the boys some useful knowledge as well as inspiring interest in amateur radio. Sounds like a fine idea. The program committee is chosen out of a hat and come what may they must think up something for the next meeting. The next meeting is to be a supper meeting at the Airways Cafe and an engineer with Northern Electric has consented to speak on the use of carrier radio in telephone circuits.

The Wireless Association of Ontario has elected the executive for 1950 as follows:

Past President, Fred Reynolds, VE3TC; President, James Montagnes, VE3BIF; Vice-President, Bill McCulloch, VE3DAN; Secretary, L. H. Richards, VE3AH, 26 Robert St., Mimico; Treasurer, Dr. Cecil Wilson, VE3MK.

## HAM-ADS

HAMS—Write for QSL cards. Attractive, creative. Al Pearsall, VE3BCB, 204 Ranleigh Ave., Toronto.

FOR SALE — Simpson Voltmeter, DC 150V, 200 ohms per volt, \$10. T. E. M. Dymond, P.O. Box 248, Grimsby, Ont.

WANTED — back issues of XTAL Air Trails, any science, ham or radio periodicals. John Young, Halkirk, Alta.

HRO SENIOR with band spread coils and 25 to 60 cycle power supply. Complete \$180. R. E. Hadfield, VE3GL, 14 Sunnylea Ave. East, Toronto.

MESSAGE BLANKS—Now available at 35 cents per 50, 3 pads for \$1, postpaid anywhere in Canada. Order from CAROA, 46 St. George Street, Toronto 5, Ontario.

FOR SALE — Radio equipment of the late Addison Neill, VE8OL. For list and full particulars write or phone M. Innes, 141 MacPherson Ave., Toronto, Midway 7874.

HAVE V.F.O. Sell or swap following PR-22 xtals. Guaranteed A1. 7040 KC, 7083 KC, 7079 KC, 3848 KC, 3841 KC, 3816.5 KC, 7171 KC, VE5AY, M. R. Geddes, P.O. Box 128, Lancer, Sask.

FOR SALE — No. 19 MK.3, in perfect condition, with all surplus tubes, aerials, etc., with DC power supply. With this goes a factory-built AC power supply made for these sets. All goes for \$110. W. F. Powell, VE5FO, Wilcox, Sask.

## COMMITTEE MEETING

(Continued from page 7)

matters relating to the association and VE3AZH to be in charge of technical matters.—Carried.

12—That VESZE be appointed to editorial board to take charge of matters relating to publication.

13—That a vote of thanks be extended to VE3AOT for his efforts in arranging a room for this meeting.—Carried.

14—That the message from VE5RB, dated Feb. 21, be presented to the editorial board for consideration and a decision on action to be taken.—Carried.

15—That a letter from VE5AP be forwarded to the editorial board for consideration.

16—That the editorial board be requested to co-operate in every way possible with the Air Force Amateur Radio System.—Carried.

17—That the editorial board consider the advisability of publishing the minutes of the executive committee meetings in XTAL.—Carried.

18—VE3MJ extended invitation to president and members of executive committee to be officially present at a meeting of the Kent County Amateur Radio Club.

Meeting adjourned at 12:14 a.m.

## SPECIAL

Crystals for 80 and 40 Meters .99  
 Mounted in the popular IT type holder. Pin spacing .487", pin diam. .093". Two may be mounted in standard Octal socket. Frequencies 3500 to 4000 and 7100 to 7400 kcs. Supplied as near as possible to your desired frequency from stock.

Order now to get best choice of frequencies.

NOTE: The above crystals were made by a well known manufacturer and only through a fortunate purchase are we able to offer them at such a low price. Take advantage of this bargain while it lasts.

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956	1.00
1616	2.00
1299A	.35
7193	.40
304TH	12.00
803	8.00
814	4.00
837	3.00
E1148	.35
830B	4.60
8020	3.00

They won't last much longer. **Order Now.**

## HAMMOND

### A New Type Available Soon

This series of small power transformers will be found to be quite useful in the construction or conversion of T. V. Boosters, Test Equipment, Bias supplies or other small Electronic Equipment. The secondary of the transformers listed below are designed for half-wave or bridge type selenium rectifiers.

Type	Primary (Black leads)	Watts	Secondary (Red leads)	Filament (Green leads)	Mfg. Cts.
262 B 25	115 v. 25 cy.	4	120 v. 15 ma. d.c.	6.3 v. 0.3 a.	2 $\frac{3}{4}$
262 B 60	115 v. 60 cy.	4	120 v. 15 ma. d.c.	6.3 v. 0.3 a.	2 $\frac{3}{4}$
262 D 25	115 v. 25 cy.	8	120 v. 30 ma. d.c.	6.3 v. 0.6 a.	2 $\frac{3}{4}$
262 D 60	115 v. 60 cy.	8	120 v. 30 ma. d.c.	6.3 v. 0.6 a.	2 $\frac{3}{4}$
262 F 25	115 v. 25 cy.	16	120 v. 75 ma. d.c.*	6.3 v. 1.0 a.	1 $\frac{3}{4}$ x 2 $\frac{3}{4}$
262 F 60	115 v. 60 cy.	16	120 v. 75 ma. d.c.*	6.3 v. 1.0 a.	3 $\frac{1}{4}$

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Flat Twin Lead	.03	2.50
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## HAMMARLUND VARIABLE CONDENSERS

Type	MMFD Capacity		No. Plates	Your Cost
	Max.	Min.		
APC - 25	23	4	7	1.14
APC - 50	50	5	14	1.29
APC - 100	99	6.8	27	1.59
APC - 140	139	8.3	37	1.89

Plate spacing .015" nominal.

The above types designed as air paddlers with screwdriver adjustment.

HF 15	17.5	2.8	5	1.17
HF 35	36	3.2	10	1.26
HF 50	52	3.7	14	1.32
HF 100	102	5.3	27	1.68
HF 140	142	6.3	37	1.98
HF 15X	15	3.6	10	1.26
HF 30X	30	5.2	20	1.50

Plate spacing .015" nominal for HF.

Plate spacing .045" nominal for HFx.



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