CQ

MARCH, 1951

F. C. C. ANNOUNCES NOVICE LICENSE

See Page 9

The Radio Amateurs' Journal

35¢

How to Make Friends

and keep them!

Many a beautiful friendship has been lost to a handful of kilocycles! More and more . . . under crowded present day band conditions . . . amateurs are learning IT PAYS TO STAY PUT . . . with PR Precision CRYSTAL CONTROL. Yes, PRs pay off . . . with stable, trouble-free operation on spot frequencies . . . where you can make friends and keep them. Whether you operate phone or CW, or both, you will appreciate the fine dependability, high output, economical operation and hair-line accuracy of PR Crystals. They're UNCONDITIONALLY GUARANTEED, and your Jobber can supply you with the EXACT FREQUENCY YOU WANT (Integral kilocycle) WITHIN THE AMATEUR BANDS AT NO EXTRA COST, NO PREMIUM. Insist on genuine PRs!

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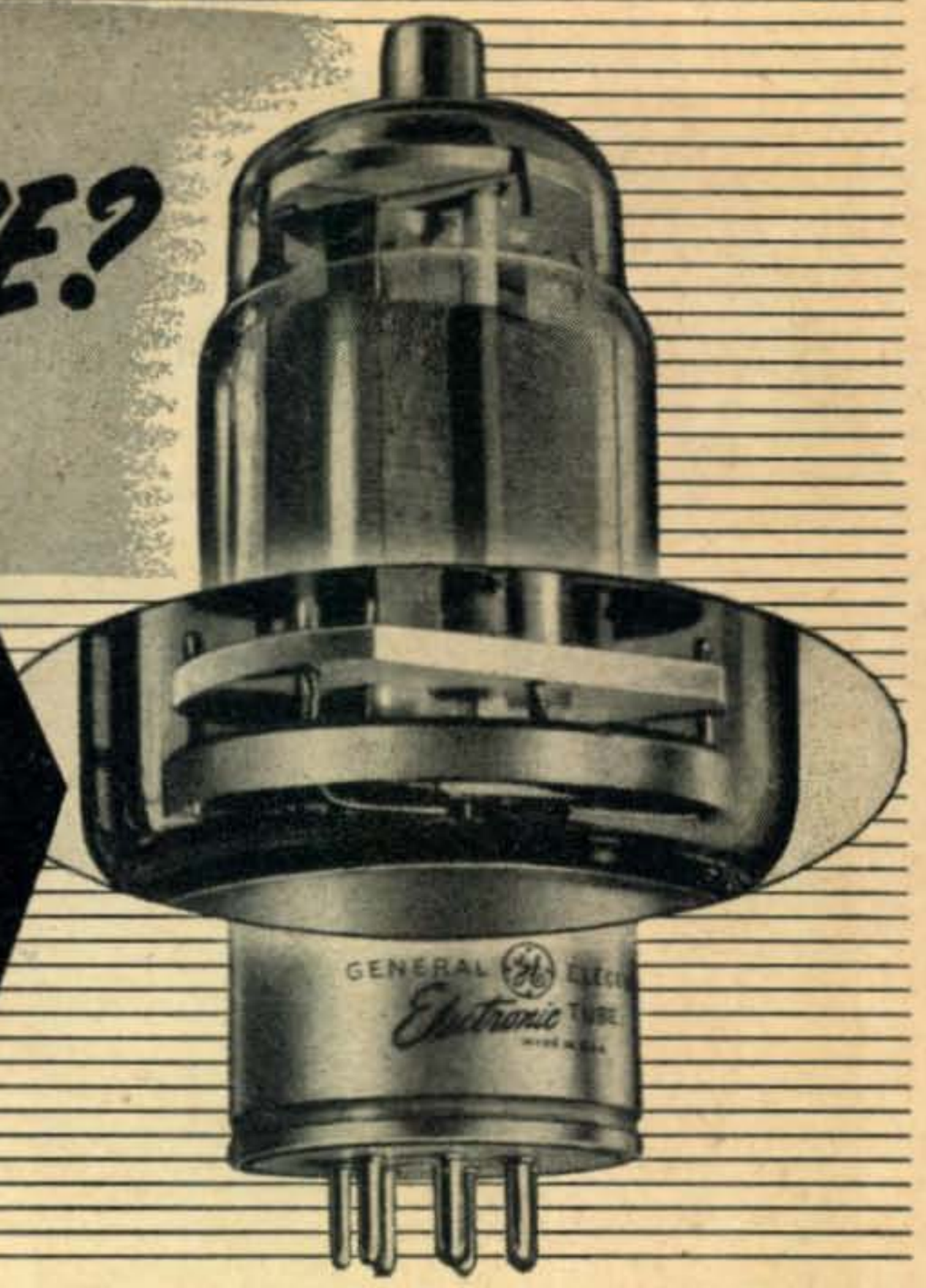
WHY NEUTRALIZE?

Save the bother with G. E.'s better-shielded GL-813!



GL-813 BEAM POWER TETRODE

Filament voltage	10 v
Filament current	5 amp
Max plate voltage	2,250 v
Max plate current	225 ma
Frequency at max ratings	30 mc

Its large ground-plane barrier is an example of the superior shielding in General Electric's GL-813. By adding the customary short external base shield, you have as fine protection from feedback as may be obtained.

G. E., therefore, gives you an 813 which is so thoroughly shielded that you can go to the higher frequencies, such as 10 meters, with every chance to avoid neutralizing. This means a simpler circuit . . . puts you in the select group of amateurs who congratulate themselves that the neutralizing job—often bothersome—is the other fellow's, not theirs.

Besides its superior shielding, the GL-813 shows, from cap-terminal to base-pins, the evidence of G-E engineering that always strives to make a good product still better . . . of G-E precision manufacture satisfied with nothing less than top quality in every tube that is built, tested, cartoned, and shipped.

When installed, the GL-813 proves itself not only a grand performer, but a tube that needs minimum drive—meaning *economy.* For example: using only 8 w of driving power, two tubes in Class C Telegraphy service will give you 750 w output!

Study General Electric's great GL-813 at your nearby G-E tube distributor. Ask for full details about its outstanding performance. Or write *Electronics Department, General Electric Co., Schenectady 5, N. Y.*

ELECTRONIC TUBES OF ALL TYPES FOR THE RADIO AMATEUR

GENERAL ELECTRIC

184-KA4

For Superior Performance

Choose BUD Products

CODE PRATICE OSCILLATOR and MONITOR

The BUD CODEMASTER is a real money-saver. No longer do you have to consider your code practice oscillator useless after you have learned the code. A flip of the switch and you have a good CW monitor. This is a really versatile instrument.

The CPO-128 has a 4" built-in permanent magnetic dynamic speaker and will operate up to twenty ear-phones. CPO-130 is the ear-phone model. It is similar to CPO-128 except that the 4" speaker is not included; it will, however, operate a permanent magnetic dynamic speaker.

A volume control and pitch control permit adjustments to suit individual requirements. Any number of keys can be connected in parallel to the oscillator for group practice.

This unit will operate on 110 volts A.C. or D.C. An external speaker may be plugged in without the use of an output transformer. All controls are placed on the front of the unit and all jacks are in the rear. It is finished in grey hammertone with red lettering.

CPO-128 ..... $14.48 dealer net

CPO-130 ..... 13.20 dealer net

WAVE TRAP

The new BUD Wave Traps are designed to eliminate interference caused by amateur radio transmission received through the AC line. Bud Wave Traps can be used in connection with any TELEVISION, AM or FM receiver. The three point installation method is simplicity in itself.

1. Plug the cord from the receiver into the receptacle in the wave-trap.
2. Plug the cord from the wave-trap into the AC receptacle.
3. Adjust the condensers, by means of hand tuning extensions, until the interference has disappeared.

NOTE THAT IT IS NOT NECESSARY TO TAMPER WITH THE RECEIVER IN ANY WAY.

The entire unit is small, compact and completely encased. Model WT-500 to be used to eliminate interference caused by a transmitter operating on the 10, 15 or 20 meter bands. Model WT-501 will eliminate interference caused by a transmitter operating on the 40 or 80 meter bands.

WT-500 ..... $3.96 dealer net

WT-501 ..... 3.96 dealer net

Write for free copy of new catalog

BUD RADIO, INC.

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CQ

VOL. 7, NO. 3

MARCH, 1951

CONTENTS

OUR COVER

The FCC has definitely established the Novice License, thus opening the door to young fellows like our prospective Novice and many others of all ages. See Zero Bias and page 11 for more information on the Novice Class.

CQ—(Title Reg. U. S. Pat. Office)—is published monthly by **Cowan Publishing Corp.** Executive and Editorial offices at 67 West 44th Street, New York 18, N. Y. Phone MUrray Hill 7-2080. Reentered as Second Class Matter February 6, 1951 at the Post Office, New York, N. Y. under the Act of Mar. 3, 1879. Subscription Rates: in U. S. A. & Possessions, Canada & Pan American Union—1 year $3.00; 2 years $5.00. Elsewhere $4.00 per year. Single copies 35 cents. Printed in U. S. A.

SCRATCHI

Feenix, Ariz.

Deer Hon Ed:

An amateur's dream are just coming true to me. Hokendoke, am I excited. You will never thinking it could happening but it are, and just last week. Scratchi are just being given an island in the Pacific Ocean. Imagine, me owning a hole island. The minute I heering of it I knowing what I are going to do with it. Can't you see the ads in the papers now: "Scratchi's DX Paradise—HAMS, Have you wanted to be rare DX? Here is your chance. Visit Scratchi's Island in the Pacific. Know the thrill of being sought after. Know what it is like to have the hole band calling you. Transmitter, receiver, antennas all supplied. Reasonable rates".

This are all coming about when distant relative of family are departing this earth. Brother Itchi and I are going to reading of will at request of lawyer, and it is there we finding out that Itchi and Scratchi jointly being given this island. Not much information available about it, just some statement about latitude and longitude. Island not even having a name.

When we getting home Brother Icthi getting atlas from bookcase and we figuring out where island is. As close as we are able to figure the island is some twenty-five miles off of Los Angeles. Of course it not showing on map, on acct. maybe map not showing that much detail. Anyway, it close enough to this country that Itchi are deciding maybe we better go see it.

Next weekend we driving over to coast and after getting to waterfront we hiring a boat to take us to island. Boat are evidentally being used normally for fishing, as are evidenced by aroma which is still present. Howsomever, Itchi and I are too excited to worrying about fish smell, so we trying to find out from boat skipper what our island is like. He is evidently not too familiar with this area, because he not exactly sure where is this island. In factly, he are not even sure there is an island at that location.

After several hours on the boat Scratchi are getting less and less excited over the island and more and more conscious of fish odor. Also noticing that boat are moving in more directions than just forward. Next cupple of minutes I spend trying to figure out how one boat can go in so

(Continued on page 58)

A Special Announcement

Concerning NOVICE CLASS Operation

As explained on other pages of this magazine, the "Novice-Class" Radio Amateur was established by the Federal Communications Commission January 31, 1951. Examinations for novice-class licenses will begin July 1, 1951.

A new low-power transmitter-receiver SR-75, ideally suited for novice-class operation, was announced by Hallicrafters some months ago. Actual production was begun in January, 1951. The unit was formally introduced in these pages last month and by the time you read this announcement, initial deliveries will have beeen made to all Hallicrafters distributors.

Hallicrafters are proud to point out that in the SR-75 we have anticipated the needs of these new aspirants to the ranks of Amateur Radio. To nourish the dreams of the beginner (looking toward the future), as well as to pioneer in new refinements for the more experienced, has always been an essential part of the Hallicrafters creed.

The SR-75 is a complete one-package station suitable for semi-portable, emergency, or novice-class use. For the benefit of those who missed our advertisement last month, its features are listed briefly: crystal controlled transmitter for 80, 40, 20, or 11/10 Meters; 10-watt input; pi-network output; built-in keying relay. Receiver substantially the same as our S-38B; transmitting section uses separate oscillator plus receiver output tube with voltage-doubler rectifier.

SR-75 $89.95

Yes, Hallicrafters are ready for the novices—with good equipment to get them started in the right way.

BILL HALLIGAN, JR.
Communications Sales Mgr.

hallicrafters
"The Radio Man's Radio"

CONTEST ANNOUNCEMENT

WE ARE PLEASED TO PRESENT THE WINNERS of CQ's "Home Brew" Contest. CQ's staff joins the judges in extending congratulations to these successful authors.

1st Prize....."Powerful Portable Pint"
by Thomas M. Lott, VE2AGF
1730 Dorchester St., West,
Montreal, Canada

2nd Prize ....."A TVI-Proof 10-Meter Exciter"
by John F. Clemens, W9ERN
612 College Highway,
Evansville, Ind.

3rd Prize....."Single Sideband? Sure You Can!"
by Edgar E. Landefeld, W8DCC
710 Milburn Rd., N.E.
Massillon, Ohio

4th Prize....."The 80 Meter Novice Special"
by S. G. Reque, W2FZW
1250 Garner Avenue,
Schenectady, N. Y.

5th Prize....."The Poor Ham's Grid-Dipper"
by Neil A. Johnson, W2OLU
10 North Tenth Ave.,
Mt. Vernon, N. Y.

6th Prize....."A Wide Range Monitor and Field Strength Meter"
by Arthur F. Mill
1145 No. 11th St.,
Reading, Pa.

7th Prize....."The Matchmaker"
by William I. Orr, W6SAI
555 Crestline Drive,
Los Angeles 49, Calif.

8th Prize....."A De Luxe Frequency Meter"
by Harley E. Saltmarsh, W8CIB/2
777 Myrtle Avenue,
Albany 3, N. Y.

9th Prize....."The Soldier's Super-Portable"
by R. S. Houston, W3QGQ
5722 Greene St.,
Philadelphia 44, Pa.

10th Prize....."A 50-Watt VFO Exciter"
by Laurence B. Peirce, W4KIX
8 Clubview Street,
Montgomery, Ala.

All contest entrants have been notified already of the judges' decision, and checks have been mailed to the winners. In a few cases, entrants failed to attach their names, calls and addresses to their manuscripts; we would appreciate your writing us if you have not heard from our Contest Board.

Precision Radio

famous throughout the world . . .

Hallicrafters precision instruments have been sold in 89 countries, used by 33 governments. They are remembered by veterans, prized by experts, and preferred by radio amateurs throughout the world who want a radio that is all radio.

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The BIGGEST *"Ham Shack"* in the World...

From the block-long building above comes more Ham equipment than any place else in the world. Its elegant Georgian design gracefully conceals the modern precision laboratories and humming production lines within.

New **S-76 $169.50**
DUAL CONVERSION RECEIVER WITH 50-KC 1-F

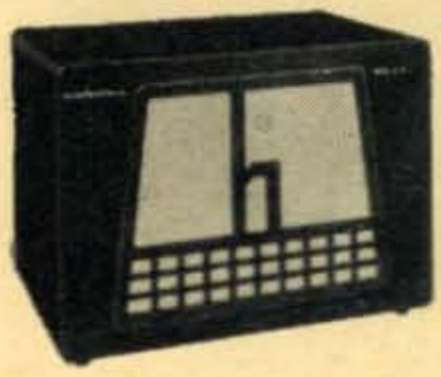
You've read about it, you've heard about it, now here it is—with the most wanted features, at the lowest possible price.

DUAL CONVERSION (1650 kc and 50 kc)—more usable selectivity than the best crystal.

GIANT 4-in. "S" METER—calibrated in microvolts and "S" units.

OTHER FEATURES: Four bands 538-1580 kc, 1720 kc to 32 Mc. Calibrated electrical bandspread. 5 position selectivity. Sensitivity 2 microvolts or better with .5 watt output. 9 tubes plus regulator, rectifier.

SX-71. 11-tube Double conversion receiver. 538 kc to 35 Mc. 46-56 Mc. Crystal filter.....$199.95.



R-46 SPEAKER
New 10" PM in Satin black cabinet. 80 to 5000 cycle range. 500-ohm matching transformer. 15" wide, 10⅞" high, 10⅞" deep....$19.95

the hallicrafters co.

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ARRL DX CONTEST SCORES

W8BHW
Rolf Lindenhayn
1950: 365,807 pts., 499 contacts
1949: 390,450 pts., 475 contacts

W1ATE
Chad Knowlton
1950: 243,004 pts., 514 contacts
1949: 223,040 pts., 468 contacts

W2SAI
J. Dawson Ransome
1949: 313,200 pts., 600 contacts
1947: 135,774 pts., 397 contacts

W4KFC
Vic Clark
1950: 365,454 pts., 514 contacts
1949: 365,160 pts., 479 contacts

It is generally agreed that of all amateur activities the DX Contest puts the greatest strain on men and equipment. Hour after hour of peak performance is demanded from each.

It isn't just coincidence that year after year in these grueling battles Eimac tubes fill key sockets in the leaders' transmitters. Men like Ransome, Knowlton, Lindenhayn, and Clark depend on Eimac tubes for reliable, efficient performance.

In competition or day-to-day operation, Eimac tubes are your best bet. These tubes of champions will give both peace of mind and outstanding performance in your transmitter because of their ability to "take it" and their advanced design.

Follow the Leaders to Eimac TUBES The Power for R-F

277

EITEL-McCULLOUGH, INC.

San Bruno, California

Export Agents: Frazar & Hansen, 301 Clay St., San Francisco, California

ZERO BIAS

EDITORIAL

ON JANUARY 29, 1951, THE FEDERAL COMMUNICATIONS COMMISSION formally established an amended set of rules governing Amateur Radio. With minor changes, the amendments are those proposed over a year ago, the full text of which appeared in Zero Bias for January, 1950. Consideration of time and space do not permit printing the entire text of the order in this issue, but here are the salient points.

(1) The controversial "Bias and Purpose" section has been added, without subsequent change of wording.

(2) Effective March 1st of this year, Class A, B and C licenses wil become known as Advanced, General and Conditional Class licenses, respectively, with no change of privileges. Effective July 1, 1951, the Technician and Novice Class licenses will become available, and after January 1, 1952, a sixth class of license, the Amateur Extra Class, will be established.

(3) Effective March 1, 1951, the 'phone subband between 3850 and 4000 kilocycles is increased another 50 kc to include 3800 to 4000 kc. Narrowband FM and PM will be permitted only between 3800-3850 kc.

(4) The "Proof-of-use" requirement for license renewal has been shifted to a basis of operating time rather than number of contacts during the last part of the license term. Specifically, the requirements after March 1, 1951 will be a minimum of 2 hours operating time during the last 3 months or 5 hours operating time during the last 12 months of the license term. (The Commission will continue to waive this requirement in cases when the amateur is on active military duty). In addition, all renewal applications must include a statement that the applicant can send and receive code at a speed not less than that originally required for the class of license being renewed.

No doubt the four main points of interest are the Novice license, the Technician license, the Extra class—and the conditions under which a present Class A licensee may retain his special privileges. Let's take them in that arbitrary order.

The Novice license applicant must pass a 5 word per minute code test and pass a written examination, to be known as Element 3(A), on Basic Law. This element will cover rules governing beginner's operation and elementary radio theory. No previous license holder will be eligible for this license. The Novice license will be good for one year and is not renewable. The intent is that Novices will be ready for a General license at the end of this period. Novice privileges: CW between 3700-3750 kc and between 26.95 and 27.23 mc, CW or 'phone between 145 and 147 mc. on any of these bands, the transmitter must be crystal controlled, and the maximum power input is 75 watts.

The Technician class applicant must also pass a 5 word per minute code test, and must pass written examinations on Basic Amateur Practice, Element 2, and General Regulations, Element 3(B). In other words, the Technician applicant must pass the Standard General Class examination with the exception of the reduced code speed. The Technician licensee will have all amateur privileges in the bands above 220 mc, with a renewable five year license.

Both Technician and Novice licenses may be available before July 1st, if necessary procedures can be completed before then.

The Amateur Extra class, which is nearly a year away, will require a 20 WPM code test and a written examination on a new technical Element, 4(B), entitled Advanced Amateur Practice. 4(B) will be broader in scope than the present Class A technical element; the aim in setting up the Extra Class license is to furnish some incentive and recognition for the man who is proficient in all phases of the hobby, technical and operating, phone and CW. Another requirement is that the applicant must have held a valid amateur license, excluding Novice or Technician licenses, for at least two years. Present regulations do not grant any privileges beyond those held by a present-day Class A licensee, but after December 31, 1952, it will be necessary for General or Conditional Class licensees to obtain the Extra Class license in order to use 75 and 20 meter 'phone. New Advanced Class (Class A) licenses will not be issued after that date.

Present Class A licensees and those who qualify for the Advanced Class license before Dec. 31, 1952, are protected by a "grandfather clause" setup. You will be able to renew and retain your special 'phone privileges in the future if you meet the activity requirements. Obviously anyone getting his first license after the end of 1951 will be unable to acquire the necessary one year experience before the Advance Class is dropped, and will be barred from 75 and 20 meter 'phone unless and until he qualifies for an Extra Class ticket. There is also the possibility that the Commission may reserve part of the 21 mc band (when we get it!) for Extra Class holders, but at the present, this is idle speculation.

Well, there it is. We at CQ approve in general. We hope that mid-year will see many new licenses among both the Novices and the Technicians, and that members of both groups will take advantage of their opportunity to graduate into the ranks of fully qualified amateurs. Novices and Technicians may both participate in Civil Defense activities and we're sure this new blood is going to have enough enthusiasm to offset lack of experience. We could use some more of that beginner's enthusiasm in some quarters right now.

—GENE, W2ESO

"like having a second right hand": W2IOP

First report from a 75A-2 user comes from Larry LeKashman, W2IOP, well known amateur operator who participates in contests in a big way.

For top performance, for scores that consistently rank with leaders in the country, Larry has long been an advocate of intimate familiarity with every piece of equipment in his shack.

A Collins 75A-2 amateur receiver was delivered to him just two hours before the start of the 1950 SS. Twenty-two hours later, after over 640 contacts in every state in the union, W2IOP had this to say:

"Its performance was like having a second right hand. Ease of handling coupled with unmatched performance made me feel like this receiver was an old friend. It was amazing to me that it was possible to feel so completely at home with this complicated unit in so short a period of time."

He added that "my own personal comments about the receiver can be summed up as 'terrific.' The crystal filter and noise limiter were superb, and there was no indication of blocking at any time, even with the receiver running wide open alongside the transmitter."

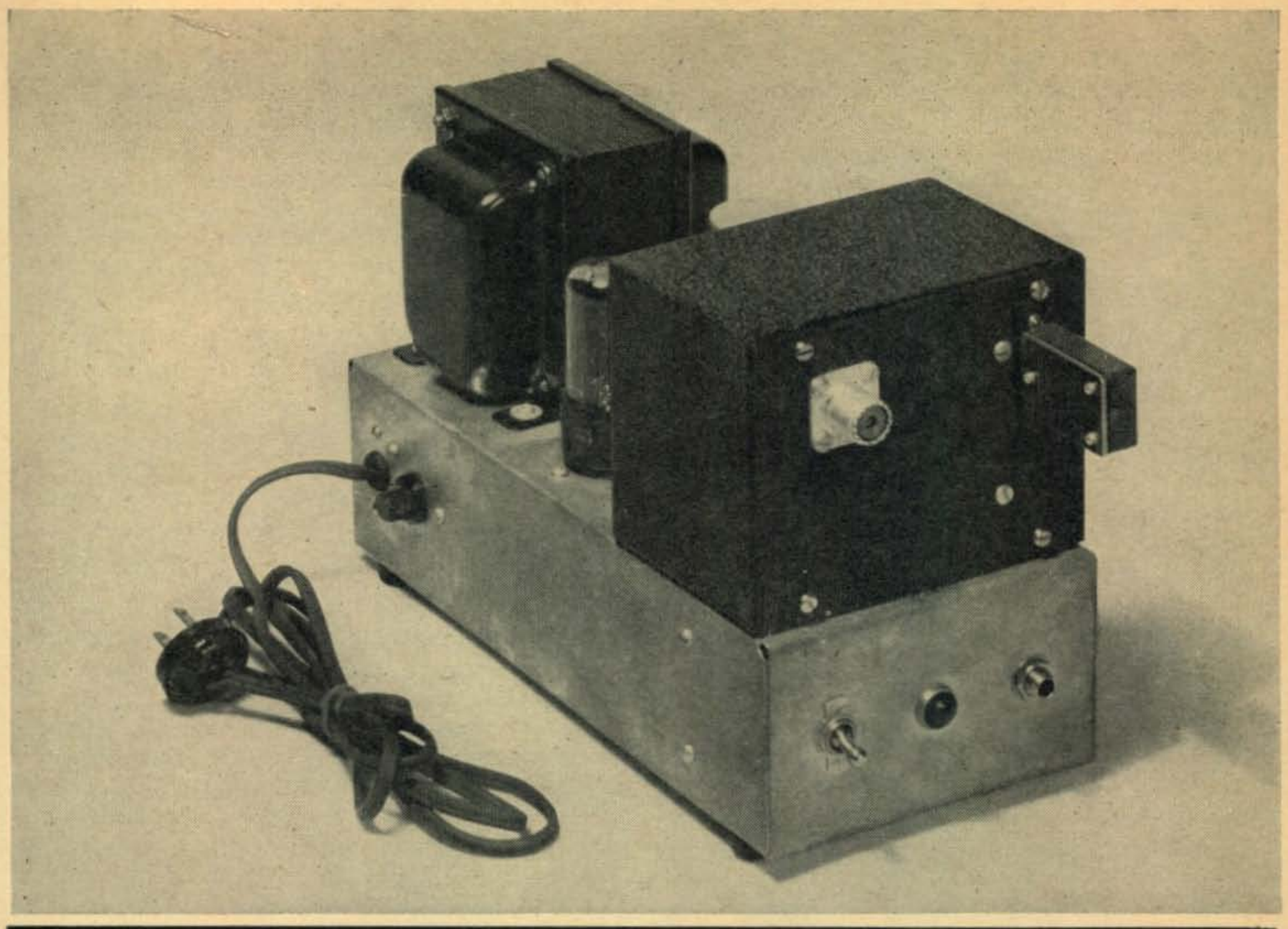
The 75A-2 was designed specifically for the radio amateur. It reflects the same high standards of engineering and manufacturing which produce all Collins communications gear for the airlines and the Armed Forces. Order from your Collins distributor, and expect gratifying performance.

FOR THE BEST IN AMATEUR EQUIPMENT, IT'S . . .

COLLINS

COLLINS RADIO COMPANY, Cedar Rapids, Iowa

11 West 42nd Street, NEW YORK 18 **2700 West Olive Avenue, BURBANK**



The 80 METER NOVICE SPECIAL

S. G. REQUE, W2FZW*

The FCC has just announced it will start giving examinations for The Novice Class License after July 1, 1951. Here is the first of a series of articles on equipment intended especially for The Novice.

THE TRANSMITTER ABOUT TO BE DESCRIBED has been designed with the particular requirements of the Novice firmly in mind. The new Novice-class licensee will be limited to operation in restricted portions of the 80, 20 and 10 meter c.w. bands, and from 145 to 147 megacycles, either telegraphy or telephony.

Because the Novice will be trying to increase his code speed in order to get a permanent amateur license, it is logical that he will want to spend a large portion of his time on one of the c.w. bands. A simple rig decrees a one-band rig, and the logical band for day and night dependable communication over both long and short distances is the 80 meter c.w. band.

The Novice-class license, as proposed, will be valid for only one year, so that an expensive rig might be a poor investment. The power limit is 75 watts, but just as much fun can be had and as much code speed achieved operating a lower power rig. Crystal control is required by regulation. Broadcast and television interference are problems which must be overcome, even with low power.

Reviewing the above we have the necessary qualifications for a Novice rig. It must be inexpensive, of moderate power, perhaps 15 watts, it must be crystal controlled, and it must include precautions to prevent BCI or TVI. The 80-meter Novice Special meets all these requirements.

In addition to serving as a c-w transmitter, this rig has been designed so that the final is capable of 100% amplitude modulation. In this sense the 80-Meter Novice Special will be useful

* *1250 Garner Ave., Schenectady 8, New York*

long after its owner has progressed to higher-class licenses, because the rig may serve as a mobile, standby or emergency transmitter.

Mechanical Design

The general construction method is easily seen from the photographs. The entire radio-frequency section is built into a 3 by 4 by 5 inch utility cabinet, and this cabinet is mounted on the end of a 10 by 5 by 3 inch chassis. The power supply equipment mounts on this chassis, and the shielding for the entire affair is completed by a 10 by 5 inch bottom cover which is fastened to the power-supply chassis with rubber mounting feet.

The front panel of the utility cabinet contains only the antenna output coaxial connector and the crystal socket. However the r.f. unit is built on a bent aluminum chassis which fastens to the front panel. This aluminum piece has a top size of 3 by 3 inches. The front lip, where the chassis fastens to the panel, is 3 inches by one-half inch, and the rear lip is 3 inches by one inch.

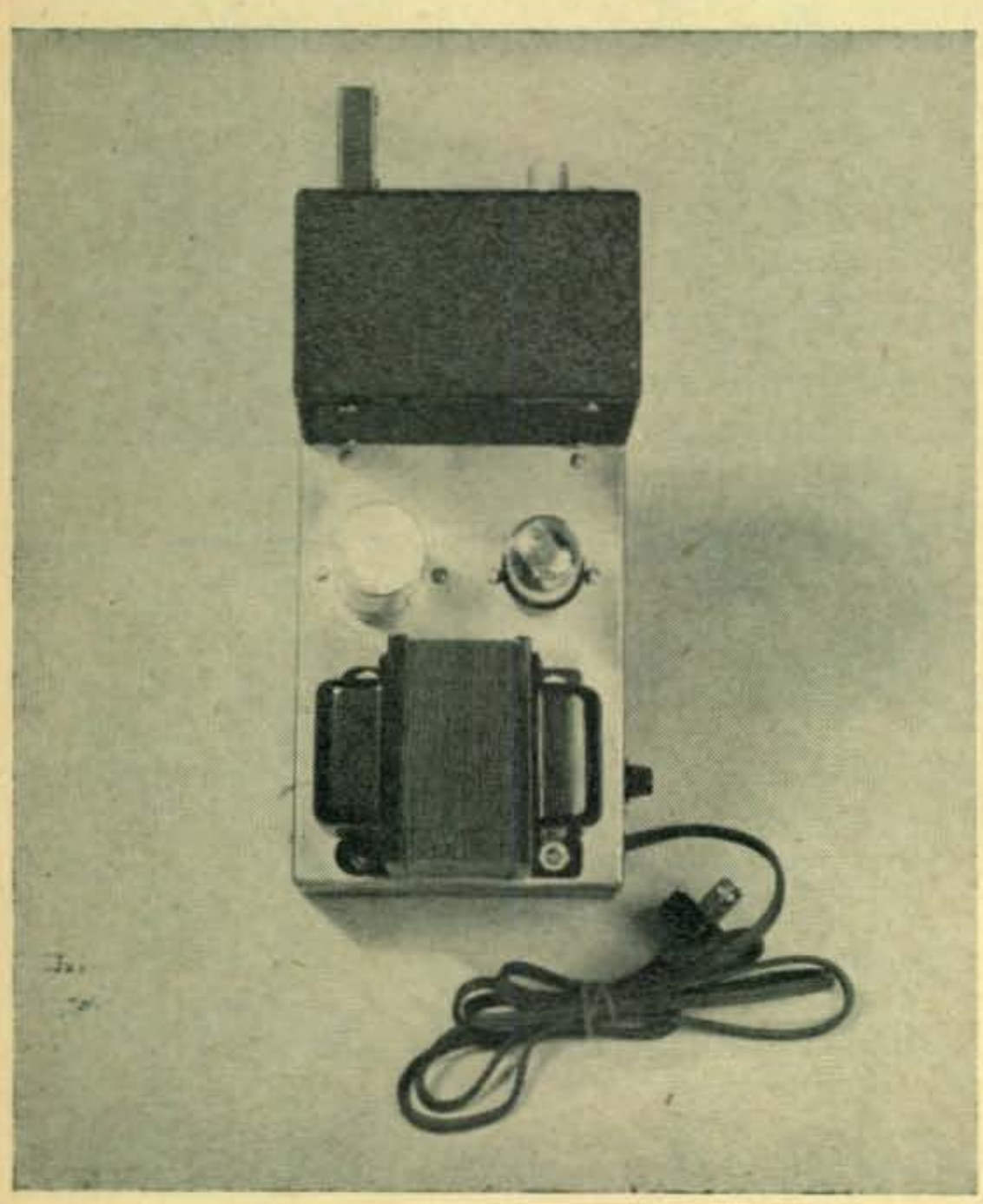
A small hole must be placed in the right-hand side of the cabinet so that a screwdriver shaft can pass through and tune L_3. Note that the r.f. chassis is actually on its side, with the "top" to the left and the "bottom" on the right.

Shielding Precautions

In order to minimize TVI and BCI it is necessary to do as careful a shielding job as possible. To this end the joints between the various metal pieces must be prepared. Remove the two 4 by 5 inch ends of the utility cabinet (in other words, the front panel and the back cover) and scrape all the paint away in a half-inch wide area around the circumstance of the metal pieces. One photograph shows how this has been done to the back of the front panel.

This same job should be done to the lips on the utility cabinet where the front and back pieces fasten. For best results all exposed areas should be tinned with a very hot iron. This will prevent rust from attacking the bare steel.

The large chassis you use will undoubtedly be plated so no work is required here. However, make certain that the bottom cover fits securely. Use as many self-tapping screws as you deem necessary.



TOP VIEW

Details of the Circuit

With reference to the circuit diagram, the r.f. chassis components are shown in the upper dotted box, and the power supply components in the lower dotted box. Note that the keying jack is contained in the power-supply section.

The oscillator employs a type 6C4 miniature tube in a Pierce oscillator circuit. For single-band operation this circuit is nearly ideal and gives good output with almost any type or make of 80 meter crystal. Capacitive coupling is used between the oscillator and the 2E26 final.

The final is straightforward in all respects. Grid-leak bias is used and the final tank is a standard single-ended circuit. Note that the tank condenser, C_6, is fixed. Tuning is accomplished with the slug in the tank coil, L_3. The final output link, L_4, if wound as specified will match 50 ohm coaxial cable.

It was found desirable to include a parasitic choke, L_2, in the plate lead of the 2E26 final. This choke prevents a parasitic oscillation at approximately 200 megacycles which frequently occurs in output stages using this class of tube. This parasite is difficult to detect under key-down conditions. If it exists, it is almost sure to disturb the keying characteristic, and the keying will not be clean. The choke specified was completely effective in the several local transmitters built to these specifications.

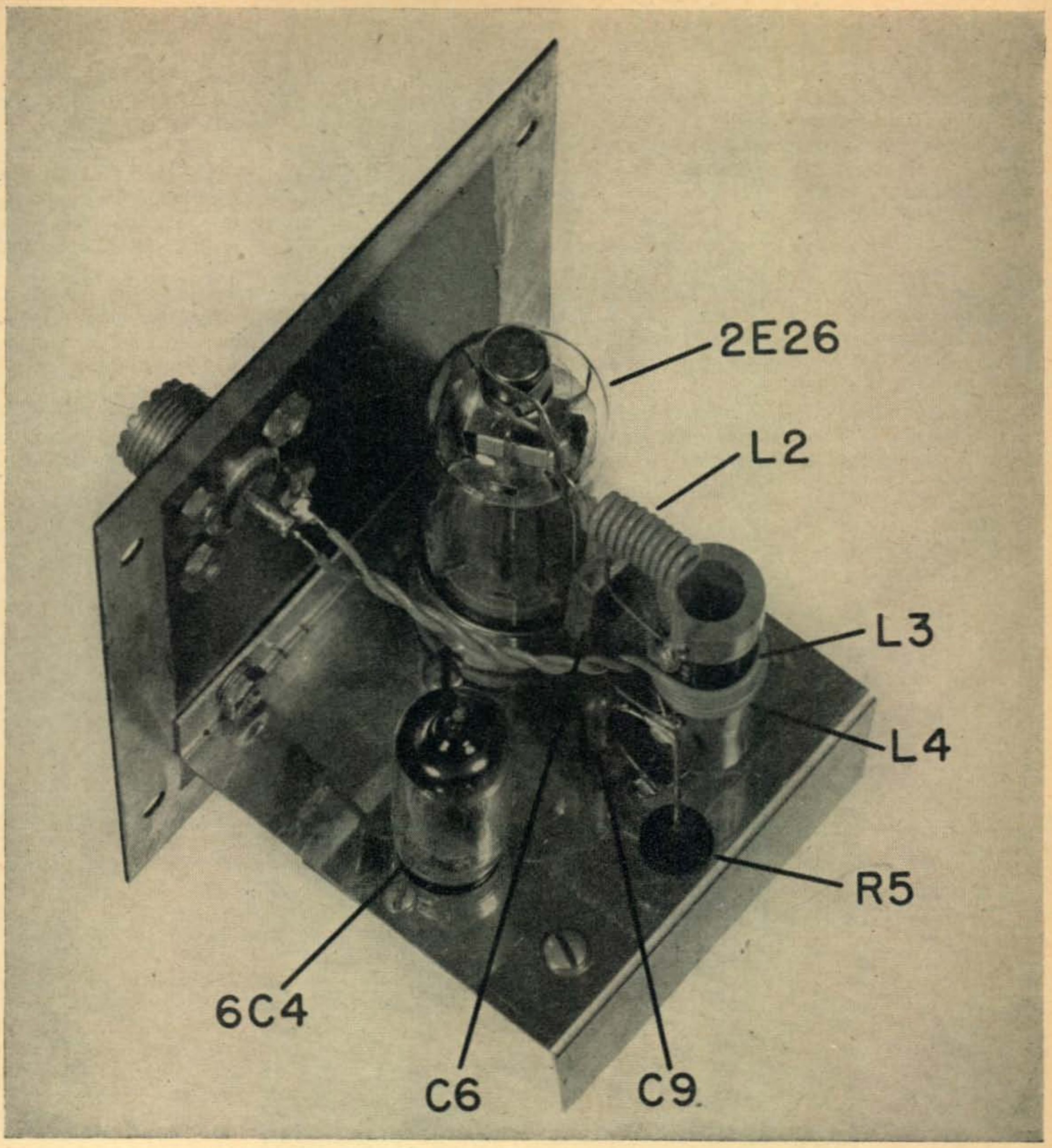
It is necessary to key the final amplifier because grid-leak bias is used. By arranging the circuit so that the oscillator is keyed simultaneously, full break-in operation is possible and an additional send-receive switch becomes unnecessary.

TVI and BCI Preventatives

Any leads which leave a shielded transmitter are likely to radiate radio-frequency energy and may nullify a lot of the benefits of a thorough shielding job. There are two such leads in the 80-Meter Novice Special, the a-c lead and the key lead. Special r-f filters are used in both leads to minimize such radiation.

The a.c. line filter consists of two chokes, L_6 and L_7, and four capacitors, C_{11} through C_{14}. This filter effectively prevents r.f. from leaving the chassis via the power cord. In this regard a good ground connection to the chassis is highly recommended. The filter action also serves to eliminate many of the annoying clicks and pops heard in the receiver while keying.

Filtering of the key lead is accomplished by L_5 and C_{15}. These components are mounted directly



Above-chassis view of the r-f section. Resistor R5 is mounted through a small rubber grommet.

on the keying jack. Both of the above filters can be rendered ineffective at TV frequencies unless the capacitors in the filter circuits are connected to the chassis with the shortest possible leads. Further, the capacitor pairs, C_{11}, C_{13}, and C_{12}, C_{14}, should connect to common ground points as indicated in the circuit diagram.

Radiation from one other point may cause TVI. The antenna feed line, of course, carries radio-frequency energy. Unless a television receiver is located very close to the antenna or feeder the 80-meter fundamental should cause no TVI or BCI. However, harmonics of the 80-meter signal may be strong enough to cause trouble in a very few cases. To cure this source of interference it is only necessary to use an antenna feeder filter, either of the low-pass or half-wave type. For single-band operation the half-wave filter is undoubtedly the most effective.*

Construction

For certainty of results, follow the mechanical layout shown in the photographs. This layout has been thoroughly tested and debugged. Substitution of parts is not recommended, although some latitude is allowable.

All condensers with the exception of C_{10} should be of the value listed. The filter capacitor can be any value from 40 mf. to any higher value desired.

*See the Harmoniker, G-E Ham News, Vol. 4, No. 6.

Tubular HiKap condensers were used in all cases where a 0.005 mf. condenser was specified, because of their compact size and their low inherent lead inductance—an important consideration for effective high-frequency bypassing.

Twenty-percent tolerance resistors are satisfactory in all cases. The coils should be wound as specified and if possible the recommended winding forms should be used.

Either a closed-circuit or open-circuit jack may be used for the key jack. The closed-circuit jack has one advantage. During test periods or other occasions when it is desirable to have a steady signal, the keying plug may be removed from the jack, and the key need not be weighted down to keep the circuit closed.

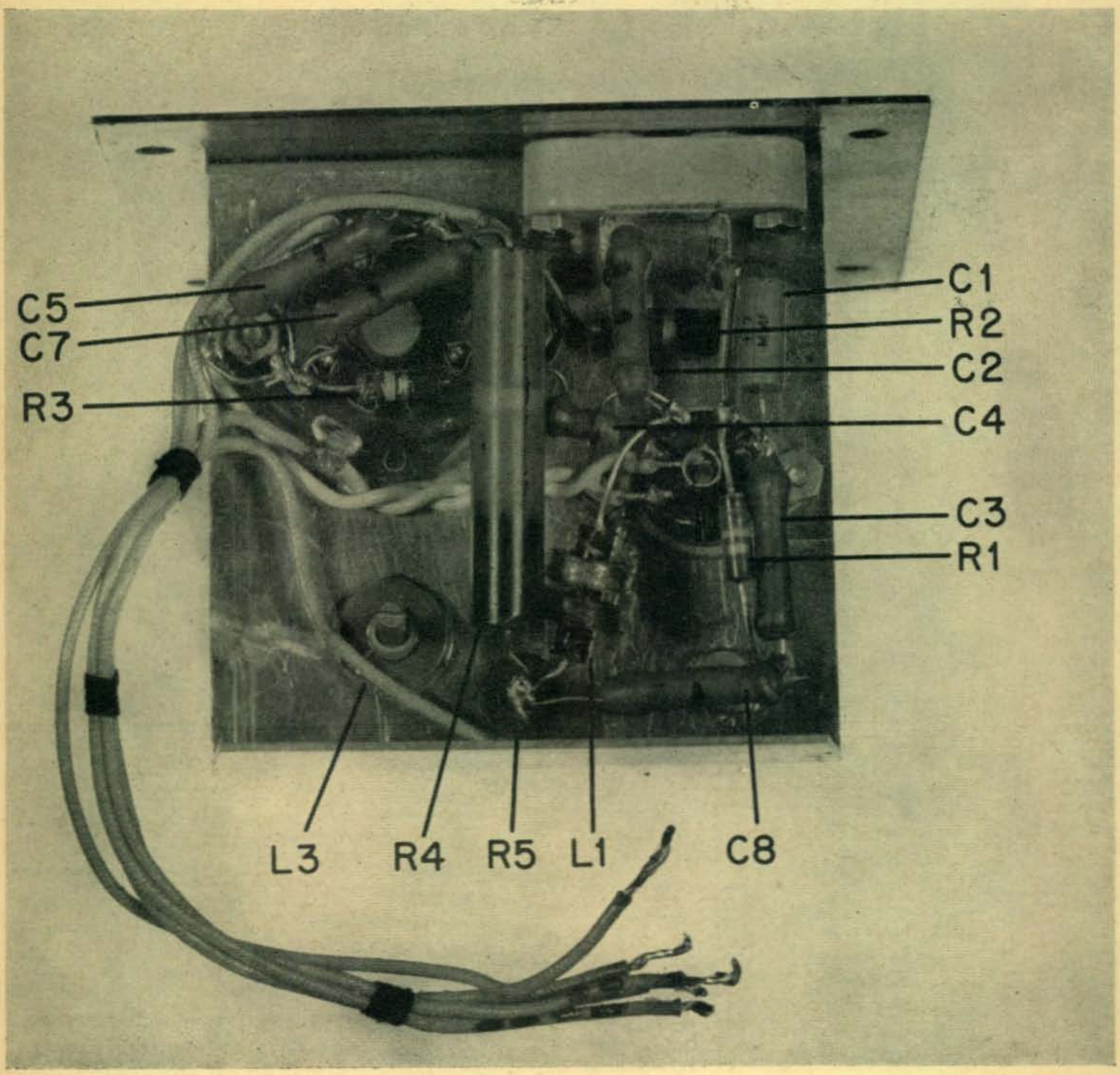
Take care to keep all leads in the radio-frequency chassis short. The wiring shown in the photographs is easy to duplicate if the recommended components are used.

Operation

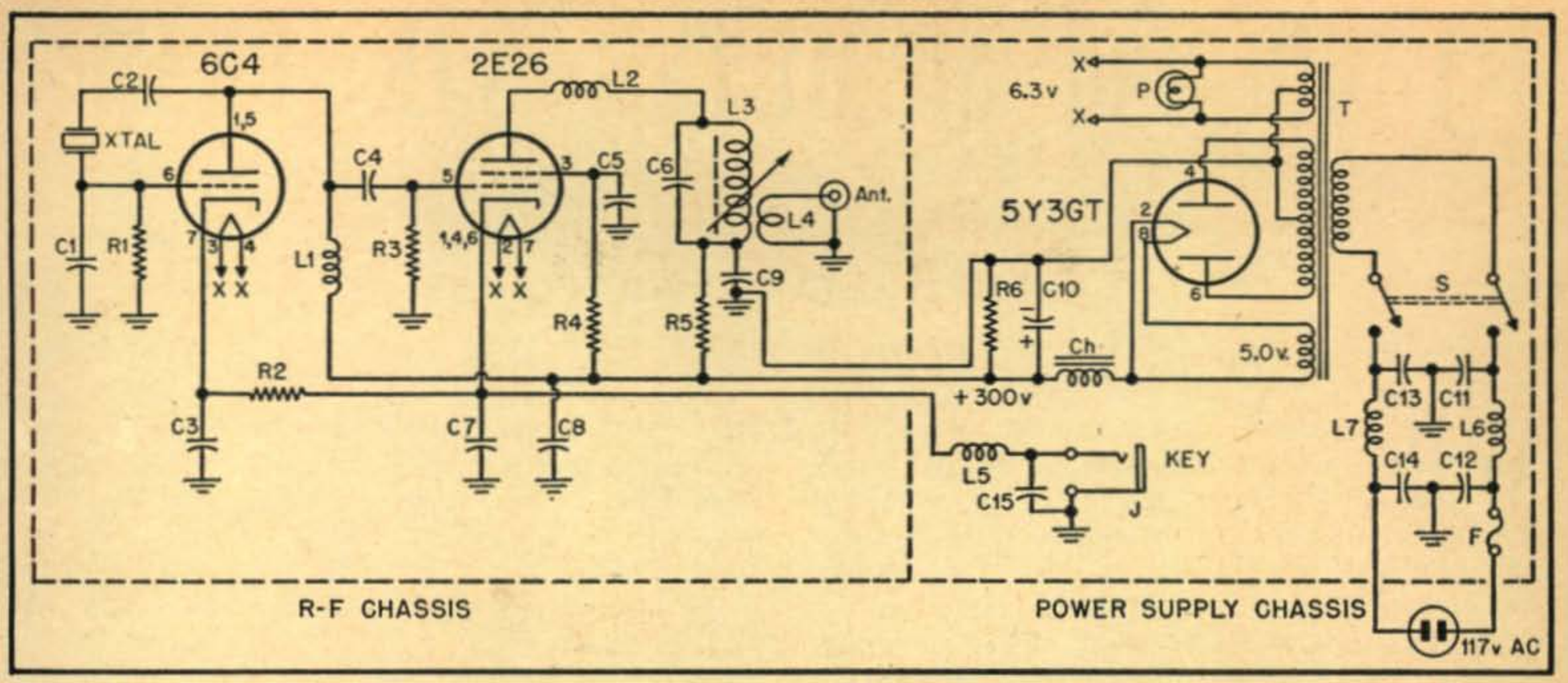
After the unit is completed check the high voltage to ensure that the power supply is wired correctly and working properly. A voltage of 280 to 320 is quite satisfactory.

The r.f. unit may now be checked. After determining that the tubes light and that there are no accidental short circuits in the high voltage leads, a crystal, preferably near the mid-band frequency (3725 kc.) may be plugged into the crystal socket.

The final tank tuning may be set in a preliminary fashion by closing the key for brief periods while adjusting the iron slug in L_3 for maximum glow from a neon bulb placed near the top end of the tank coil. Caution—do not hold the key closed on this or any other transmitter using a screen-grid tube in the final when the final is unloaded, for permanent damage to the tube screen-grid may result.



Under-chassis view of the r-f section. All of the components are mounted by their own leads.

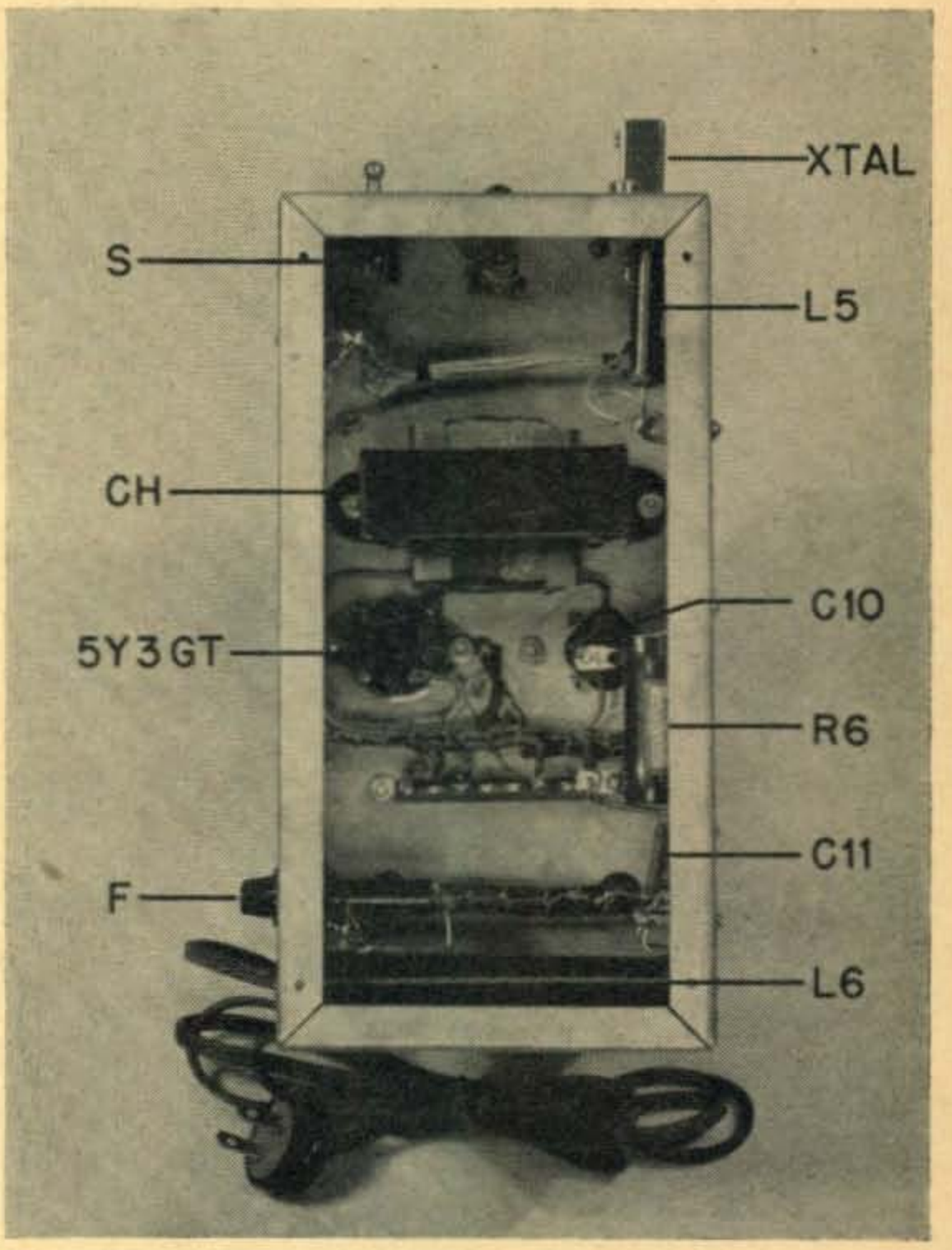


C_1—20 mmf. mica or ceramic
C_2, C_3, C_5, C_7, C_8, C_9, C_{11}, C_{12}, C_{13}, C_{14}, C_{15}—0.005 mf. HiKap
C_4—250 mmf mica or ceramic
C_6—200 mmf mica
C_{10}—80 mf. 450 electrolytic (two 40 mf sections in parallel)
CH—5-25 Henry, 160 ma swinging choke (UTC-R21)
F —1 ampere fuse
J —Open or closed circuit jack (see text)
L_1—750 MH RF choke (National R-33)
L2—10T #22 insulated wire closewound, 3/16 inch I. D.
L_3—31T #24 enam. wire closewound on 1/2 inch O. D. slug-tuned form (National XR-50 coil form wound full)
L_4—5T #22 insulated wire wound tight on cold end of L_3.
L_5—#30 enam. wire closewound to cover 1-1/2 inches on old-style 2-watt, 1 megohm resistor (5/16" O. D.
L_6, L_7—#18 enam. wire closewound to cover 4 inches on 1/2 inch diameter wood dowel.
P —6.3 volt pilot lamp
R_1—51,000 ohm 1/2 watt
R_2—1,000 ohm 1 watt
R_3—22,000 ohm 1/2 watt
R_4—20,000 ohm 2 watt
R_5—100 ohm 1/2 watt
R_6—25,000 ohm 25 watt
S —DPST toggle switch
T —375-0-375 volts at 100 ma, 5 volts at 3 amperes, 6.3 volts at 2 amperes (UTC-R12)
XTAL—80 meter crystal, 3700-3750 kilocycles
(These parts will be required in addition to those listed in Circuit Constants.)
10 x 5 x 3 inch chassis and bottom cover
3 x 4 x 5 inch utility cabinet
Two octal sockets
7-pin miniature tube socket
Coaxial antenna connector, SO-239
A-c cord and plug
Crystal socket
Plate cap clip for 2E26
Miscellaneous grommets, nuts and bolts and mounting feet
2E26 tube
6C4 tube
5Y3-GT tube

The proper antenna system must now be considered. This transmitter was designed to work into properly matched 50 ohm coaxial cable, since experience has shown that shielded feed line systems of this type give a minimum of BCI and TVI trouble.

In practice this means that the coax must either terminate in a 50 ohm link in an antenna coupler or the coax must directly feed an antenna designed for coaxial cable, such as a gamma-matched half-wave antenna. A dipole with an unbalance to bal-

(Continued on page 54)



View of the power supply section with the bottom cover removed. Condensers C12 and C14 are not visible, but they are mounted near the fuse. Condenser C13 is next to C11 which is shown. Inductance L7 is directly beneath L6.

A 40 and 80 METER 8JK BEAM

ROBERT C. CHEEK, W3LOE*

WITH THE DECLINE IN SUN-SPOT ACTIVITY as we proceed downward on the sun-spot cycle, 40 and 80 meters are assuming more and more importance as DX bands. Already 10-meter DX openings have become shorter and scarcer, and 20 meters is closed for long periods during night hours. On the other hand, absorption is decreasing, and 40- and 80-meter signals will be better than ever during the next few years. In fact, these will be the only usable bands for DX on many occasions.

With these facts in mind, we gave considerable thought here at W3LOE to the selection of a directive antenna design that would enable us to increase our effective DX signal on these two bands. Practical considerations dictate that an antenna of the dimensions required for these bands have fixed directivity, and it was decided at the outset that the antenna should be bi-directional and oriented so that maximum directivity would be toward Europe and North Africa on one lobe and toward New Zealand and Eastern Australia on the other. These directions include the great majority of the DX activity on 40 and 80. Also, it was felt that maximum utility for DX work would be afforded by an antenna that would give maximum low-angle radiation for a given height. Azimuthal directivity was to be a secondary consideration, and in fact extreme azimuthal directivity was not desired.

* *R. D. #4, Irwin, Pa.*

The considerations outlined almost automatically dictated the choice of an end-fire type of driven array for our purposes. A long-wire type of antenna—a rhombic, a vee, or long wire itself—was out because of the space it would require. A broadside array would require a greater pole height for a given effective height and would not be readily adaptable to the two-band operation desired. A colinear array alone would give an amount of azimuthal directivity depending upon the number of elements used, but no appreciable gain in low-angle radiation, and these were just the opposite of the desired characteristics.

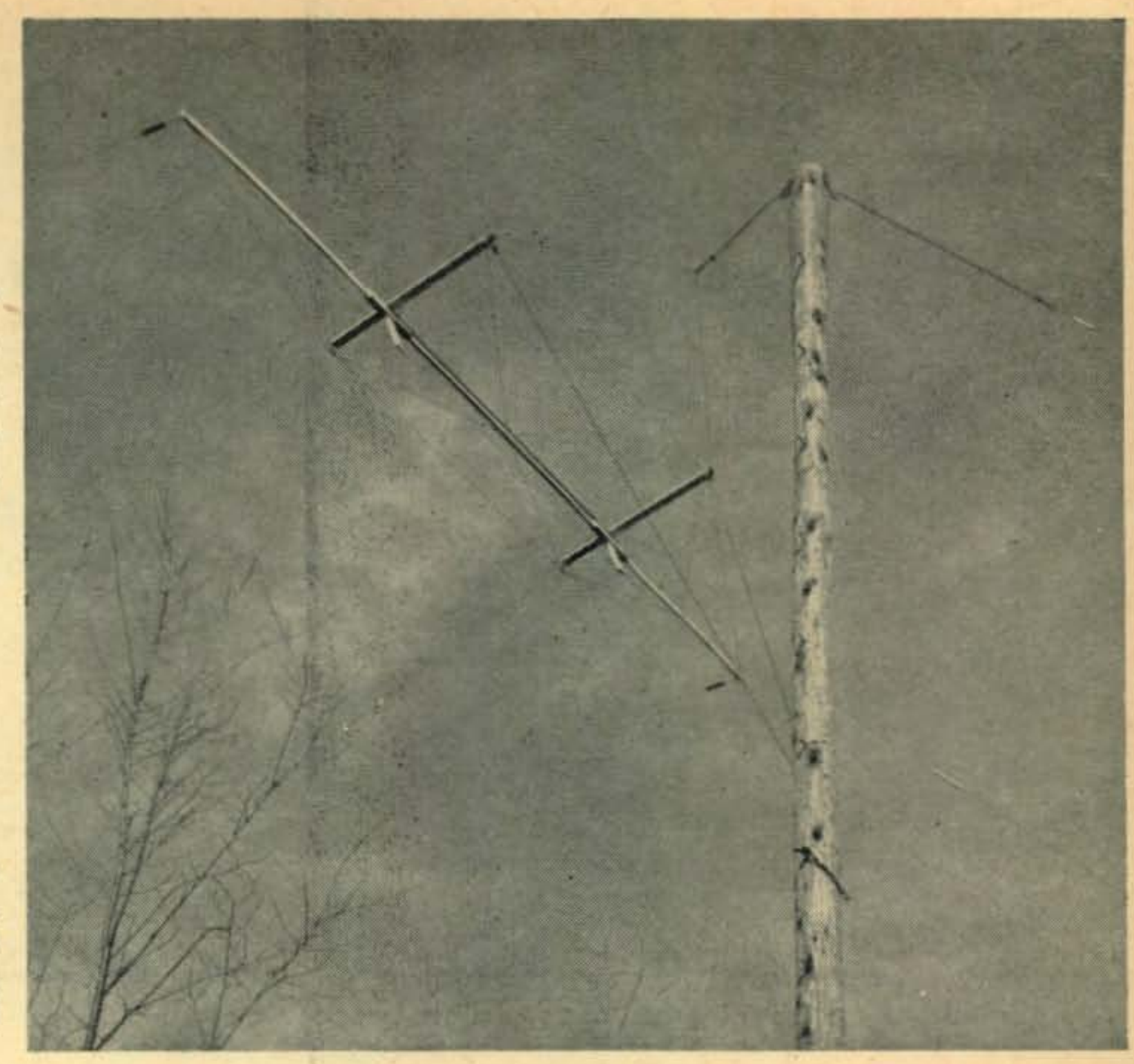
Although the Kraus, or 8JK as it is popularly called, is a common type of directive array for the higher-frequency bands, where its effectiveness has been thoroughly proved, a question remained as to its performance at the necessarily limited height, in terms of wavelength in the 40- and 80-meter bands, at which we would have to mount it. A statement often made about such antennas is that they must be elevated at least a half wavelength above ground if any appreciable advantage is to be gained. We had made the fortunate acquisition of two used 65-foot poles at a relatively low price from a nearby power company, but it appeared that for 80-meter operation these would provide only about half the desired elevation.

In an attempt to get some approximation of the answer to this question, the vertical field pattern of a single-section 8JK (1/8-wave spacing) for an effective height of 1/4 wavelength above good

OVERALL VIEW:

An overall view of the 40 and 80-meter 8JK. The short pole in the center is the transmission line pole. Here the individual feeder sections from the radiating elements join the main feeder, which extends to the right of the picture. One of the feeder sections is transposed at the paralleling point.

An effective beam for the lower frequency bands is an interesting challenge. W3LOE's successful answer has been a big factor in his high scores during recent DX contests.



CLOSE-UP OF SPREADER:

The general construction of the spreaders is shown in this photo. Raising the antenna into position by means of the rope and pulley arrangement shown is a two-man job!

earth was plotted and compared with the pattern for a half-wave dipole at the same elevation. The results are shown in Fig. 1. At first glance, the 8JK doesn't appear to offer much advantage, but close inspection of the patterns reveals a gain on the order of 4 to 4.5 db for the 8JK at all riadiation angles up to slightly over 20 degrees. Above 35 degrees the field of the single dipole exceeds that of the 8JK, the latter dropping off fairly rapidly above this figure. It was thought, however, that this might be a point in favor of the 8JK for DX work, since high-angle QRM from nearby stations would be reduced. Also, it was thought that the high-angle energy of the single dipole, traveling over more hops and arriving at the distant point somewhat more attenuated than the low-angle energy, might produce a signal with greater interference fading there, the result being a less "solid-sounding" signal than would be delivered by the 8JK with its greatly suppressed high-angle radiation. This appears to be the case in actual practice, because reports of DX stations on comparisons between the 8JK and a half-wave dipole at the same elevation often indicate considerably more than the theoretical gain—possibly some of this difference is caused by the psychological effect of the more steady signals reported for the 8JK.

The vertical pattern for operation of the array on 7 mc was also plotted. On this band it becomes a double-section quarter-wave spaced 8JK (two by two colinear end-fire array). The effective height was assumed to be a half wavelength, and the comparison antenna was a half-wave dipole at the same height. The two patterns are compared in Fig. 2. In this case the superiority of the 8JK is quite marked, a gain of well over 5 db being provided at all angles up to slightly over 20 degrees. The horizontal pattern is slightly sharper than that for 80-meter operation, but it is still over 40 degrees wide between half-power points, where

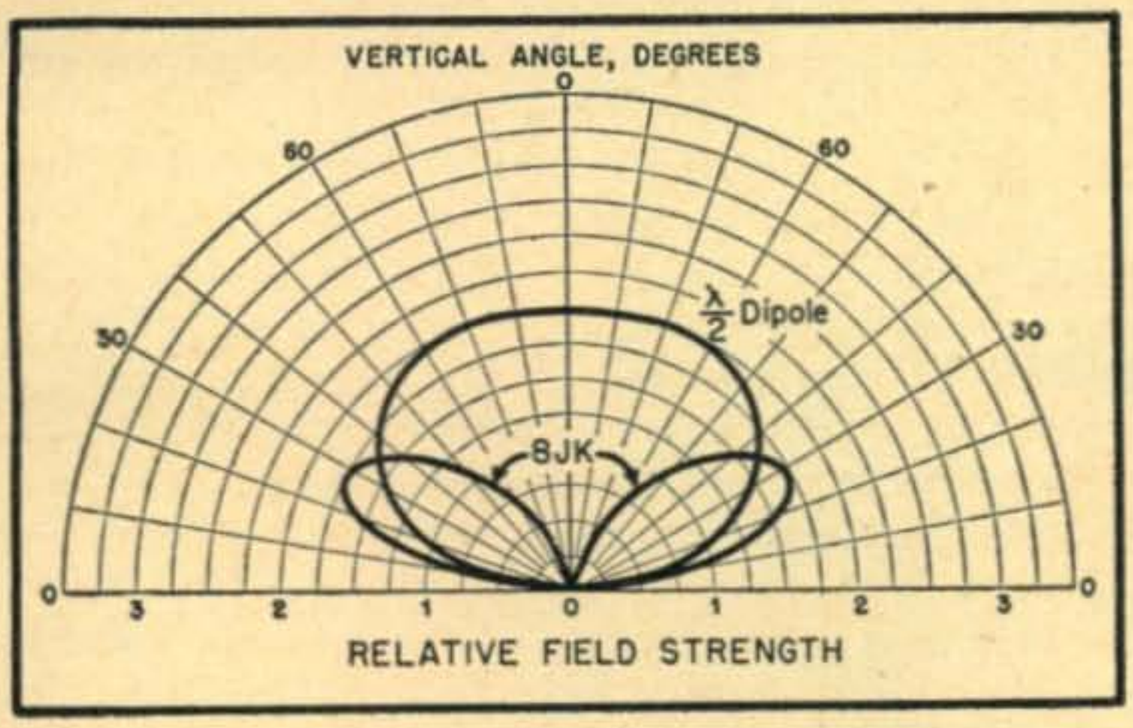


Fig. 1. Comparative vertical radiation patterns of single-section 8JK, 1/8 wave spacing, and 1/2 wave dipole, both at an effective height of 1/4 wavelength above ground.

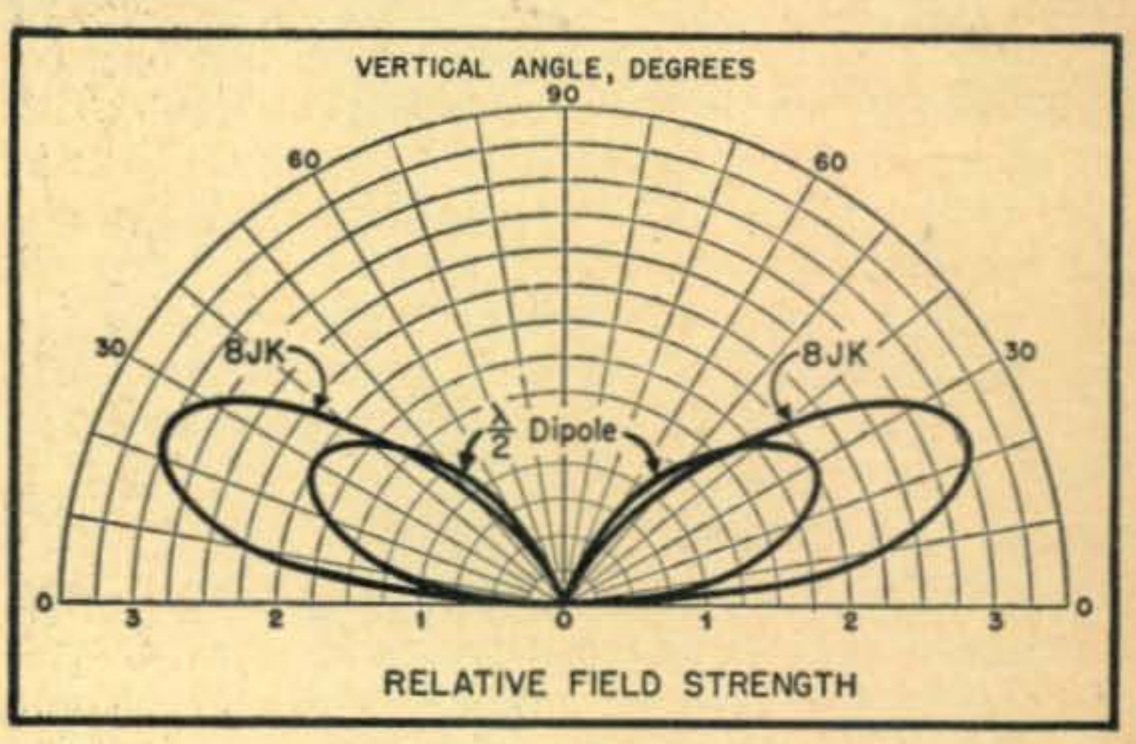


Fig. 2. Comparative vertical radiation patterns of double-section 8JK, 1/4 wave spacing, and 1/2 wave dipole, both at an effective height of 1/2 wavelength above ground.

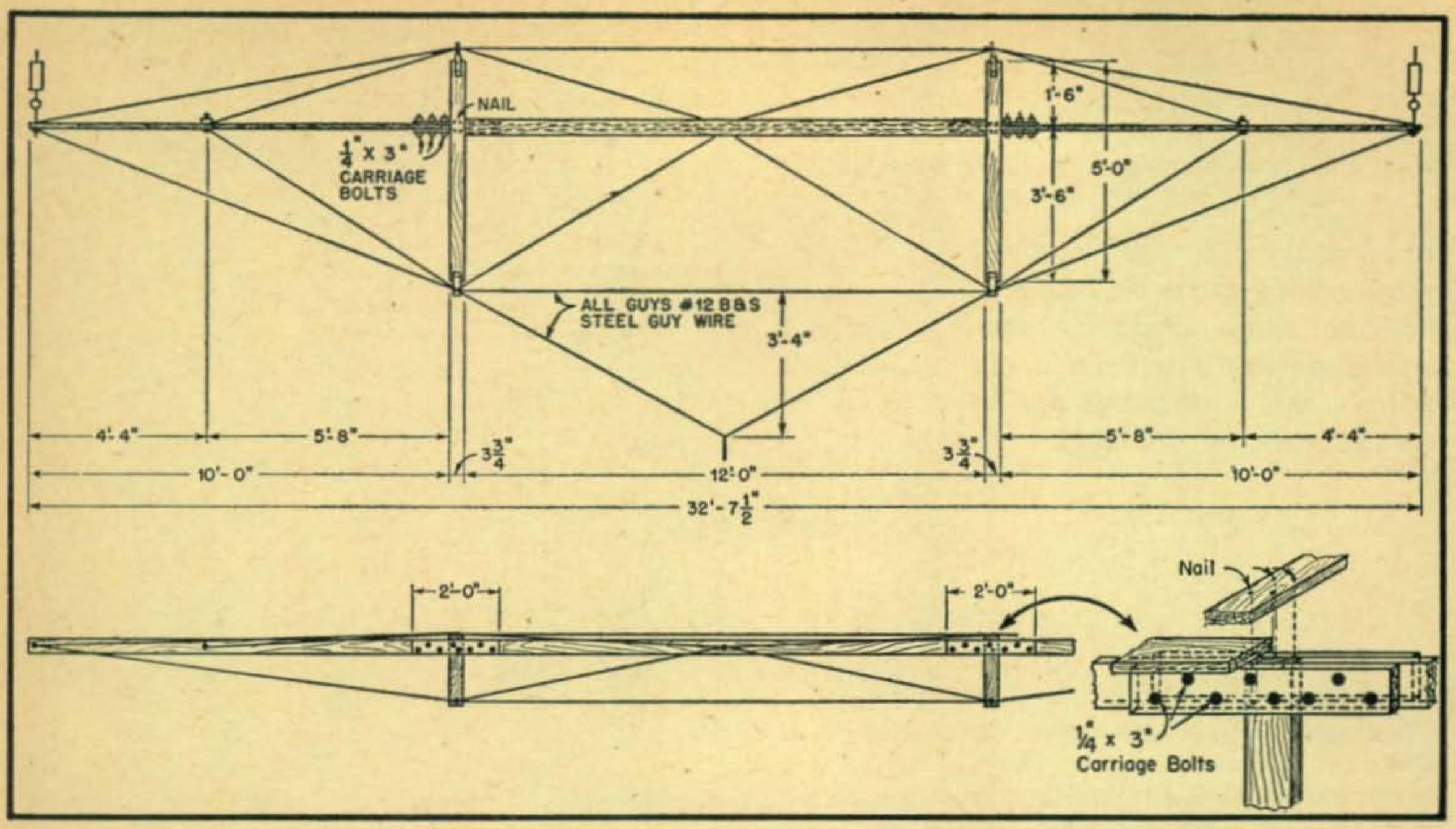


Fig. 3. Details of spreader construction. All the wood members are 1 x 4 white pine, and all guy wires are No. 12 B & S steel.

the gain is 3 db down from maximum. From our location, this provides complete coverage of Europe and a healthy slice of North Africa, the opposite lobe being aimed at New Zealand and still providing a small gain toward Eastern Australia.

It was concluded, therefore, that an 80-meter 8JK with eighth-wave spacing, operated as such on 80 but as a double-section 8JK with quarter-wave spacing on 40, would come closer to meeting our original specifications than any other basic type of directive array.

A practical problem that immediately presented itself was the means of getting the required spacing between the elements. No more poles were available at bargain prices; so it was obvious that some sort of spreader arrangement would have to be used. It was realized that spreaders long enough to give eighth-wave spacing (35 feet) at 3.5 mc would be no mean structures if they were to support themselves alone, not to mention the additional strain of supporting the antenna elements and the feed lines when they were pulled up taut. The spreaders finally designed give a spacing of a little over 32 feet, slightly less than an eighth wavelength, but the elements are pulled apart several feet at the center to give an average spacing close to the desired 35 feet. This probably broadens the horizontal pattern slightly, but this is considered to be no disadvantage.

Mechanical Details

The design and construction of spreaders of these dimensions provide an opportunity for the exercise of considerable ingenuity, not to mention the application of plenty of the principles of structural engineering if you are versed in them, which this writer definitely is not. For this reason, the spreaders used are not described in the following paragraphs with the intention of implying that they are the best design for the purpose. However, they have stood some severe windstorms and ice loads over the past year, and they are undoubtedly better than the first spreaders we tried, one of which collapsed with a resounding crash the first time the antenna was pulled taut.

The construction of the spreaders finally used is shown in the accompanying photographs and the drawing, Fig. 3. Clear, straight-grained white pine was used for all the structural members. The guys are of No. 12 B & S solid steel guy wire. The main boom consists of a 12-foot "T" section made up of two 12-foot 1 x 4's, spliced at each end to a 10-foot 1 x 4 extension. The splices include the top ends of the two vertical struts. The horizontal struts are nailed on above the center of the splice.

The guys are dead-ended with Nicopress dead-end splicing sleeves. A small block and tackle assembly with a pair of "come-alongs" was used to give the guys a small amount of initial tension before the sleeves were crimped with a Nicopress crimping tool. In the absence of this type of equipment, the use of ordinary twisted dead-ends with a turnbuckle at the center of each of the main guys would no doubt have been a satisfactory method of construction.

All the wood members were given a primer coat before assembly, and the completed spreaders were given a final coat of outside white house paint.

The radiators are No. 12 Copperweld wire. Copperweld is required because of the tension to which the elements are subjected. The elements are cut for resonance at 3525 kc (132 feet), making the resonant frequency of the individual halves of each radiator approximately 7100 kc for 7-mc operation. However, the directivity pattern does not depend

critically upon the lengths of the elements, and the directivity is good for operation over the entire width of both bands.

Each radiator is fed at the center with 70 feet of 600-ohm open-wire line. These feed lines are brought away from the radiators at an angle which causes them to pull the centers of the radiators apart by several feet, as shown in Fig. 4, to compensate for the fact that the spreaders are slightly less than an eighth wave long. The lines are held in tension in this position by six-inch spools, made of a piece of broomstick with a knob insulator at each end, at a height of about 15 feet from the ground. Each spool is attached to a guy wire which is dead-ended to a stake in the ground. The feed lines double back to a short transmission line pole directly below the center of the antenna, where they are paralleled (with the proper transposition in one of them) and attached to the main feeder. The latter is also a 600-ohm open-wire line, which in our case is 212 feet long.

It will be noted that the 70-foot feeder sections to the individual radiators are approximately a half wave in length for 7-mc operation. The resultant impedance presented to the main feeder at the point where they are paralleled is half the impedance directly at the feed points of the radiators. Although this impedance is somewhat higher than that required to match the 600-ohm line properly, it is predominantly resistive, and the resulting standing wave ratio on the main feeder is not unduly high over the 7-mc band.

In the 3.5 mc band, the input impedance of the individual radiators is quite low, and the 70-foot feeder sections are a quarter wave in length. As a result, the impedance presented to the main feed line at the paralleling point is a very high resistance, and the SWR is correspondingly high (estimated at about 30 to 1). However, the loss in the feeder is estimated to be well below 1 db at this frequency, in spite of the high SWR, and it was not considered worth the sizable additional investment to make the 70-foot feeder sections of close-spaced tubing, as is done in the Johnson "Q" antenna, in order to reduce the SWR in the main feeder. This might have been done if the feeder had been more than several hundred feet long, but the mechanical problems of supporting such matching sections might have been somewhat formidable.

On both 7 and 3.5 mc, a conventional antenna tuner is used to match the transmitter to the load presented by the feeder. The construction and adjustment of such tuners is described in all the handbooks and antenna manuals. Because the feeder is an integral multiple of a quarter wave long on both bands, it is not necessary to employ reactance compensation in the tuner.

Results

This is the inevitable close of every antenna story—a report on the results obtained. This writer attaches no significance whatever to such closing

(Continued on page 60)

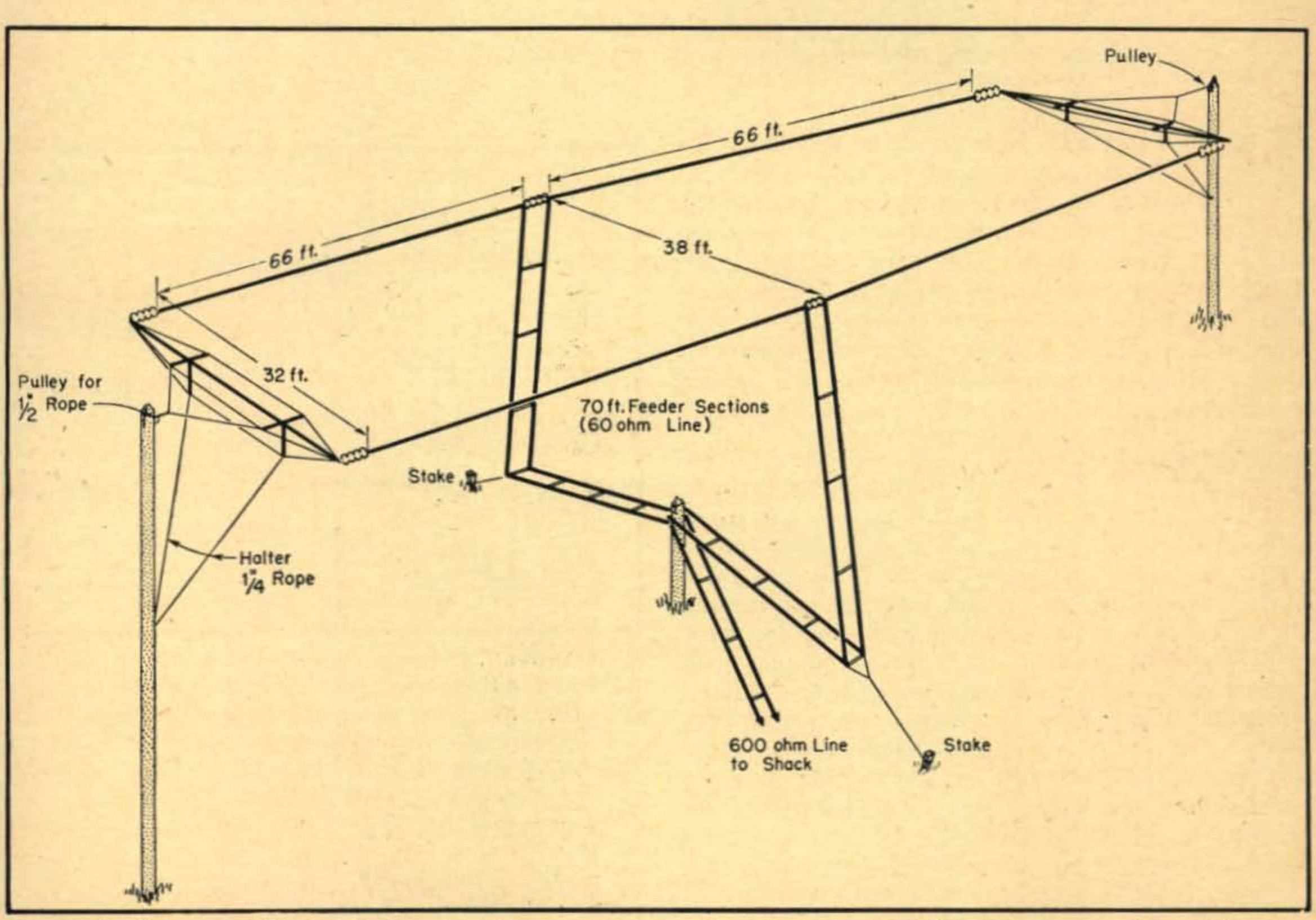
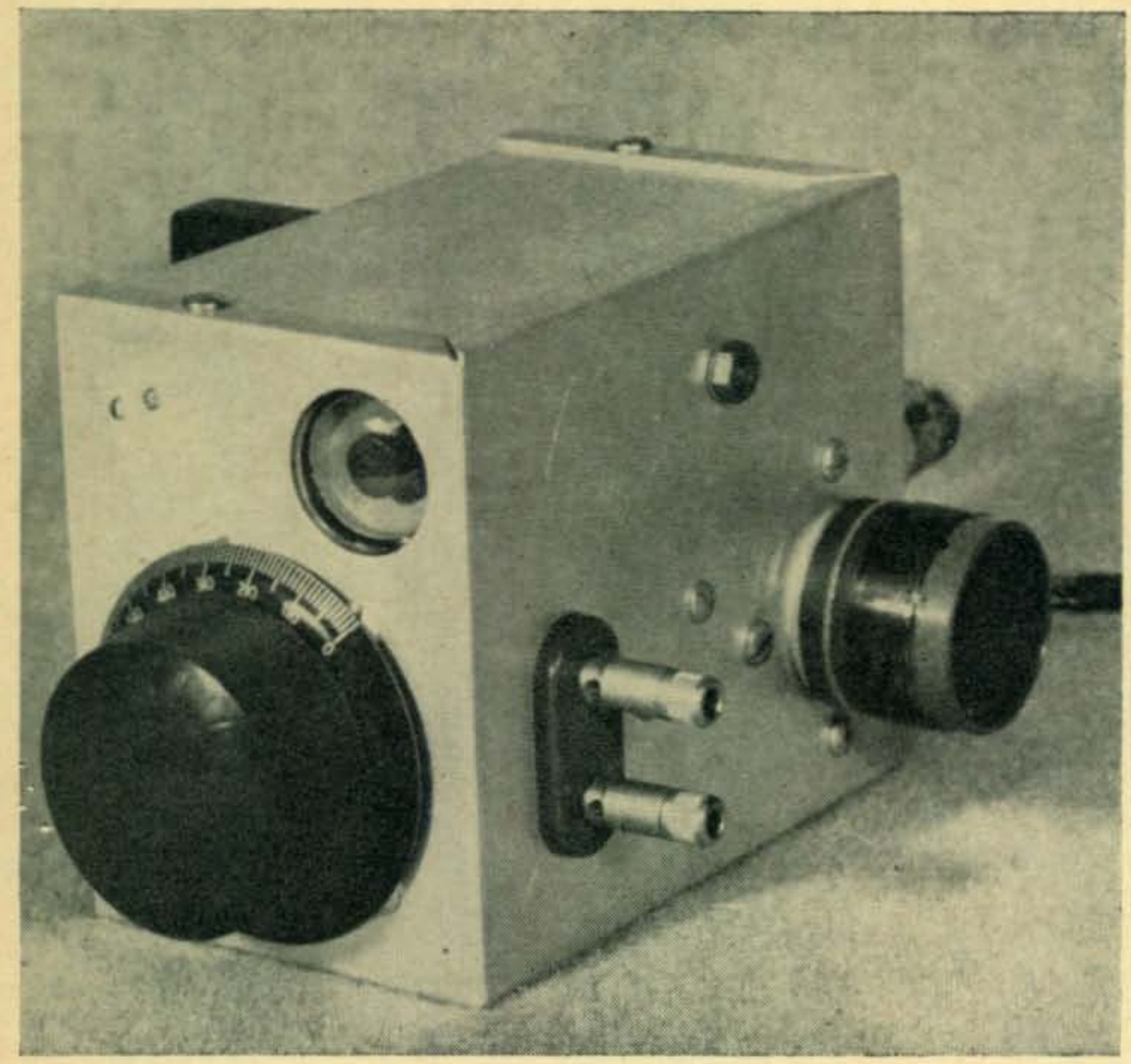


Fig. 4. Radiator and feeder dimensions of the antenna. A 1/2 inch rope and pulley arrangement is used to raise the spreader into position and to provide tension on the antenna elements.

The POOR HAM'S GRID DIPPER

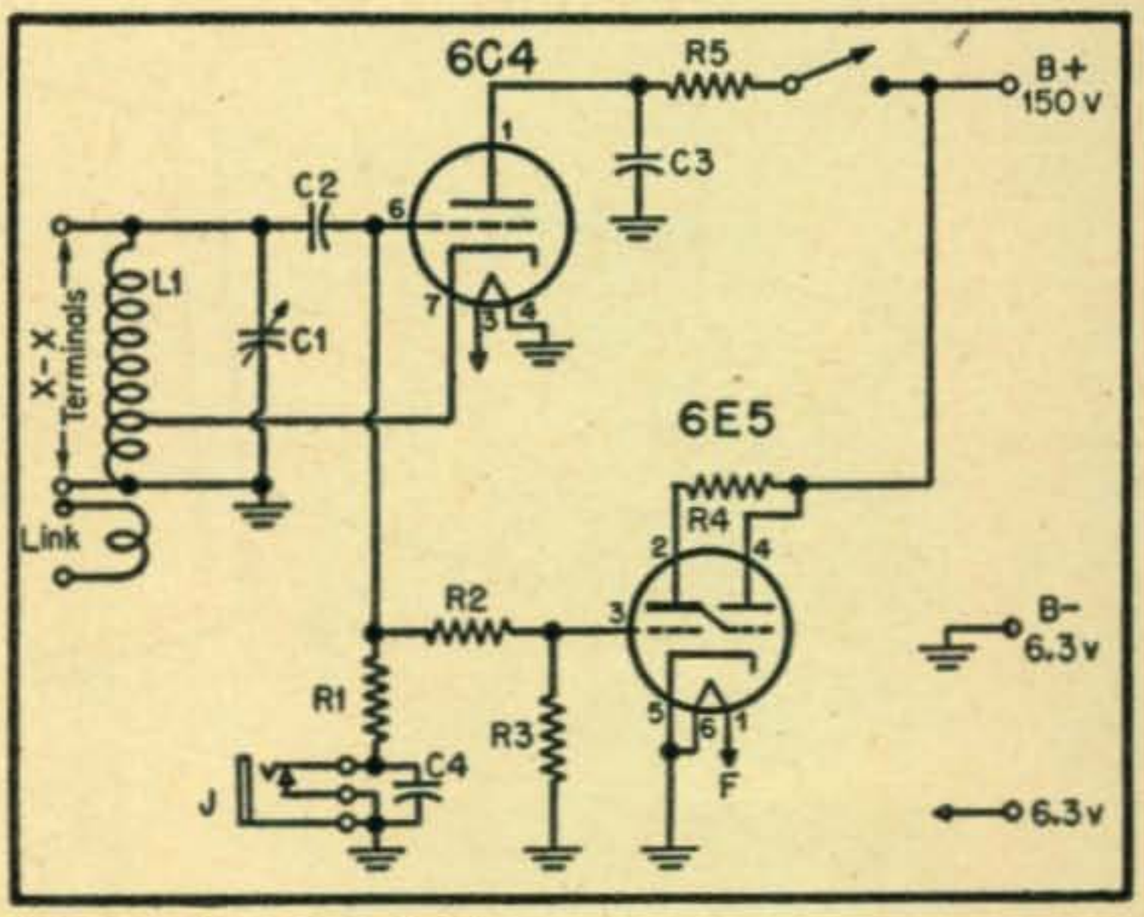
NEIL A. JOHNSON, W2OLU*



W2OLU's inexpensive dipper is held to minimum size by making the power supply external. The binding post strip used for measuring small capacities is at the right of the dial. A metal handle is just barely visible at top left.

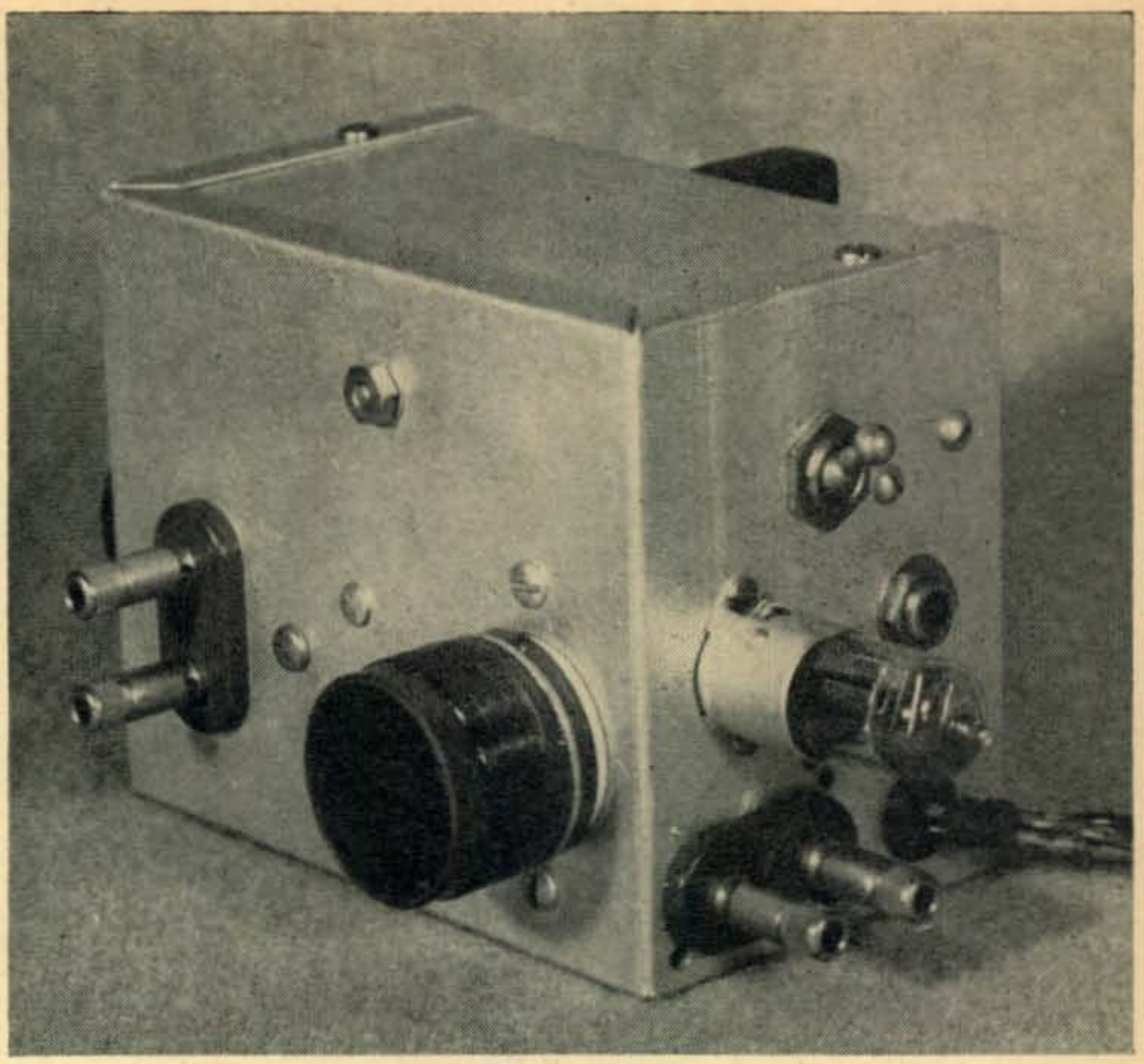
DURING THE PAST FEW MONTHS, the writer has had occasion to talk grid-dippers with many amateurs in the metropolitan area. These fellows seem to fall into two distinct classes: those lucky enough to own a good grid dip oscillator, and those who don't have one at all. The latter class is in the majority, which is not too surprising, since commercial grid dippers cost fifty dollars of more and kits are presently selling at around twenty-five dollars.

The writer, too, was in this sad category until a few weeks ago. A BC-458 command transmitter was in the process of being converted; the oscillator was padded down to 80 meters and the output stage had to hit forty, and track with the oscillator at the same time, so—pencil and paper were put to work, and an inexpensive grid dip oscillator was born. The results were most pleasing; a grid dip meter that cost between five and ten dollars. Actually, if you have to go out and buy all the parts from scratch, you can figure on spending twelve dollars. But any ham who has been in business long enough to appreciate the value of the grid dip oscillator undoubtedly has a few choice pieces in the junk box waiting for such an assign-



L1, L2—See Coil Table
C1—50 μμfd variable, Hammarlund MCS-50
C2—100 μμfd silver mica, or zero temp. ceramic
C3, C4—.01 μfd disc type ceramic
R1—100 K ohms ½ watt carbon
R2—5.1 megohms ½ watt carbon
R3, R4—1 megohm ½ watt carbon
R5—4.7 kΩ, 1 w.
SW—SPST toggle switch
J1—Single circuit jack
Binding post strips are National FWH.
Mini-Box is Bud CU3005.

*10 North 10th Ave., Mt. Vernon, N.Y.



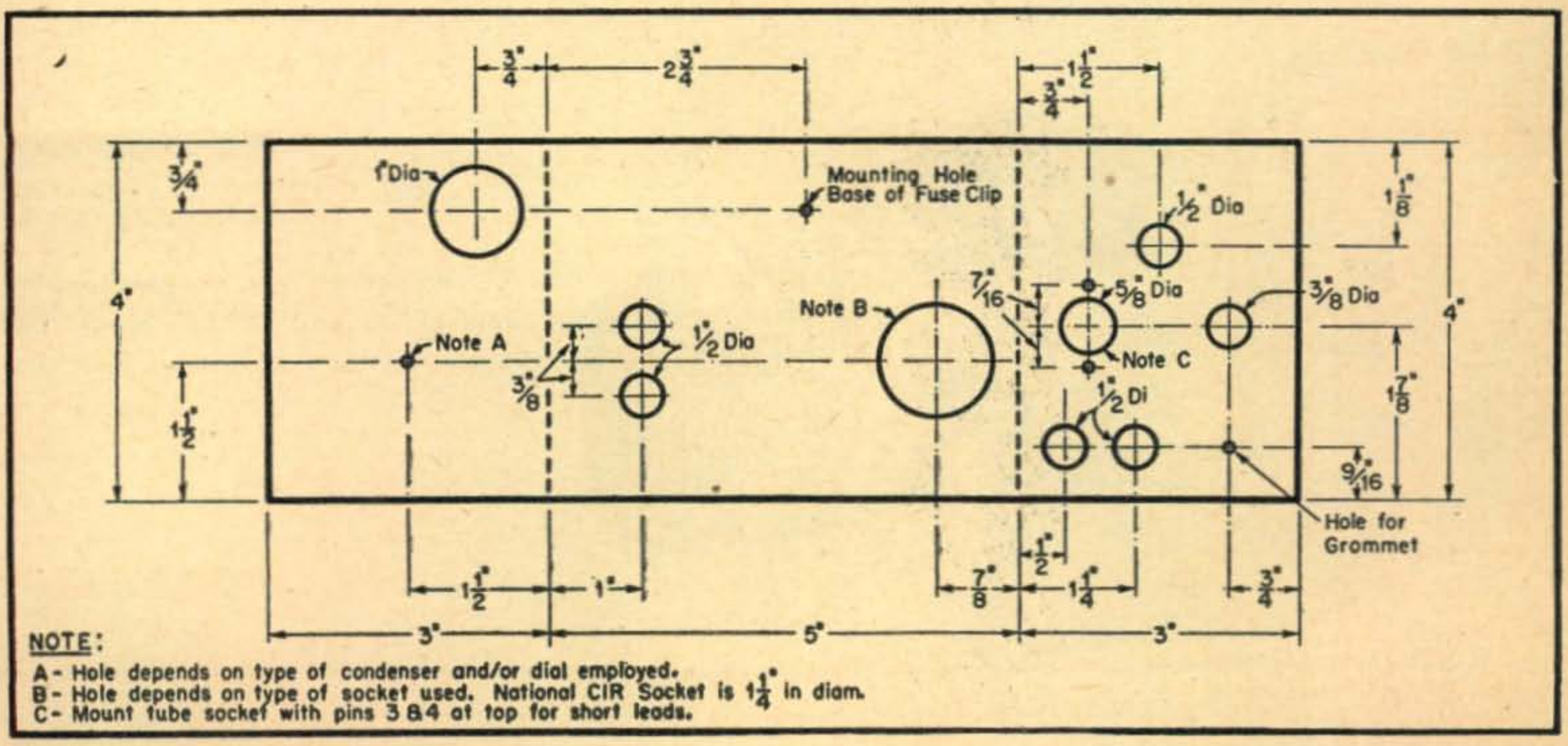
Rear view, with 6C4 shield removed. The terminal strip below the tube socket carries the output link connection.

Here's a low-cost grid dipper which features a space saving "Magic Eye" in place of a meter and an easier style of mechanical construction.

ment, with possibily a surplus 6C4 or two. Sounds ok?

Circuit Features

The schematic, shown in Figure 1, is quite conventional, with the exception of the indicator. The 6E5 election eye used here has given us a smaller, lighter instrument, and on that's almost foolproof. It cannot be burned out by overland, and costs less than a suitable meter, even at surplus prices. The response of the "magic eye" is instantaneous and is sufficiently sensitive for all general applications. One other modification is the addition of General Radio type binding posts for the attachment of known or unknown capacities across the grid winding of the plug-in coils. For example, with a 50 mmfd. zero temperature ceramic condenser plugged into these terminals, the 4.6 to 8.0 mc coil, (No. 2 on the chart), now covers 3.4 to 4.3 mc, spreading out the entire 80 meter ham band across half the dial. Likewise, unknown capacitors up to 45 mmfd may be measured directly by plugging them across the "X-X" terminals; the 50 mmfd variable tuning condenser



NOTE:
A - Hole depends on type of condenser and/or dial employed.
B - Hole depends on type of socket used. National CIR Socket is $1\frac{1}{4}$" in diam.
C - Mount tube socket with pins 3 & 4 at top for short leads.

employed has a linear change of capacitance over most of its range, and unknown capacities may be measured with a high degree of accuracy. A 'phone jack and B+ switch are included; these permit using the dipper as a CW monitor, diode 'phone monitor (with the plate voltage off) or as a relative field strength meter, if a milliameter is plugged into the 'phone jack. The B+ switch is handy when changing coils, since the 6C4 bias is lost when the coil is removed.

Mechanical Construction

The appearance on the market of the "Mini-Box" line of small metal boxes made it far easier to construct this piece of equipment than had originally been anticipated. These "mini-boxes" fit together in a very similar fashion to that of the human hands while clapping, and though the garden variety of metal utility box may be used by the constructor, it is the writer's opinion that a neater, more compact unit has resulted from the utilization of this particular type of metal box. See Figure 2 for layout details. For simplicity's sake, only the tuning condenser dial and the 6E5 indicator tube appear on the front panel.

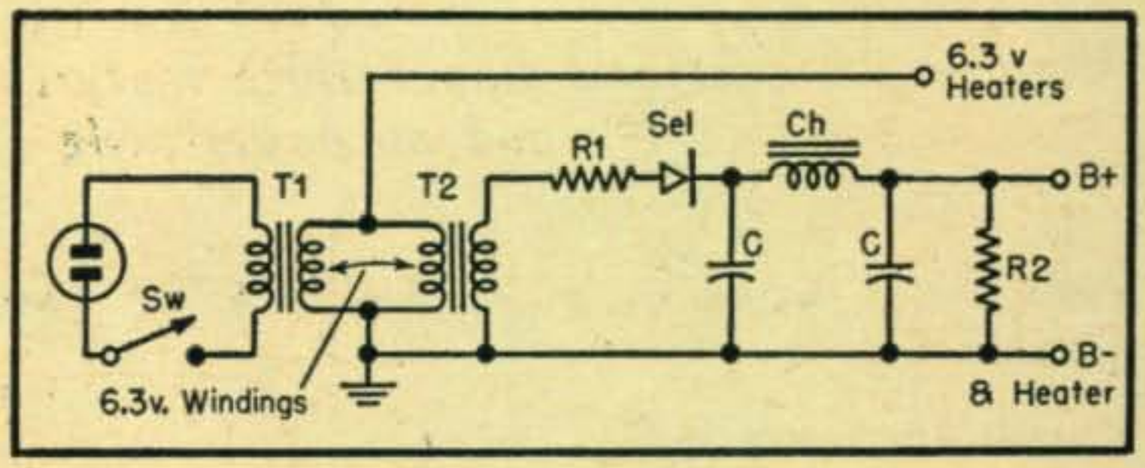
The 5 prong socket for the plug-in coil is mounted on the side panel, and the "X-X" terminals for the grid circuit likewise are on this surrace. This permits easy access to the coil, when it is desired to couple closely to an unknown L-C circuit under test. The GR type terminal strip for addition of capacity across the grid coil is placed close to the tuned circuit, but it is physically removed from the coil, as may be seen from the layout sketch. In this way, any frequency change is traceable directly to the lumped capacity which has been inserted across the coil, and calculations are not complicated by stray capacity effects.

The "hot" terminal of the "X-X" binding posts connects directly to the front of the stator of the MCS tuning condenser, which makes it possible to locate these plug-in terminals remote from the

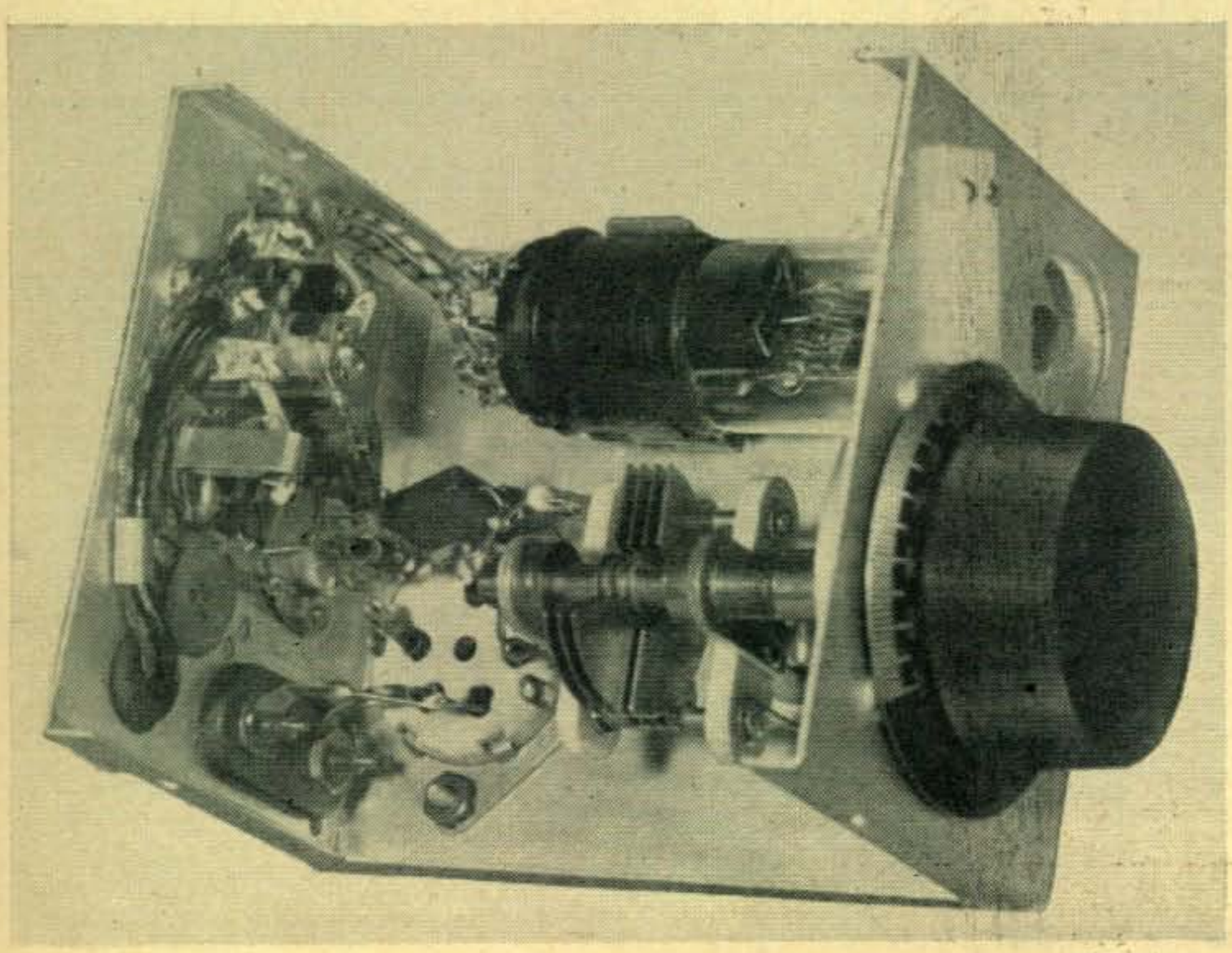
(Continued on page 55)

Coil No.	Frequency Range	L_1	L_2
1	2.8-4.9 mc.	34.5 turns, No. 35 DCC close-would. Tap 1 1/2 turns from ground.	3 turns
2	4.6-8.0 mc.	21 1/2 turns, No. 24 enam. close-wound. Tap 1 turn from ground.	2 turns
3	7.6-13.2 mc.	13 turns, No. 22 DCC close-wound. Tap 1 turn from ground.	2 turns
4	12.6-22 mc.	6 3/4 turns, No. 22 DCC close-wound. Tap 3/4 turns from ground.	1 turn
5	21-35 mc.	5 turns, No. 22 DCC spaced approx. 1/2" overall. Tap 3/4 turn from ground.	1 turn

Notes:
I. All coils wound on 1 3/8" diameter forms.
II. Adjust spacing of coil 5 to resonate at 21 mc. with condenser fully meshed, then apply coil dope.
III. Link windings may be placed inside coil form, for adjustable coupling.



T1 and T2—Fil. Trans. 6.3 V @ 1 amp.
CH—AC-DC choke, 25 ma
C—20-20 mfd at 250 volts
R1—47 ohm 1 watt
R2—47 KΩ 1 watt
SEL—Selenium Rectifier 75 ma
SW—SPST Toggle switch



All components are mounted on the walls of the box. The 6E5 Magic Eye is mounted in a 60 ampere fuse clip.

TAXES AND THE HAM

BETTY LEE GOUGH,
*Accounting Consultant**

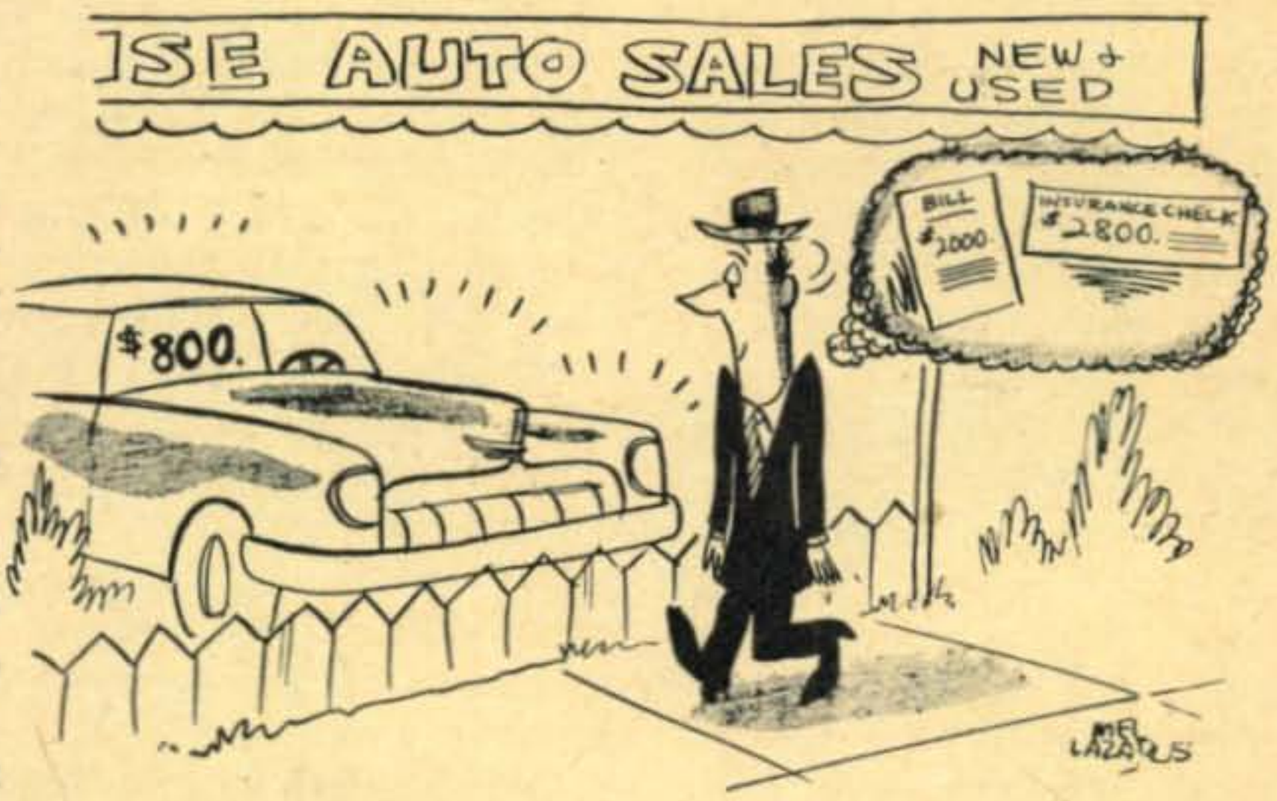
You can't get away from 'em, but maybe you can lighten the burden a bit — legally, that is.

KNOWING THE ANSWERS TO IMPORTANT INCOME TAX questions can save money for the radio ham at tax-paying time—help him to avoid overpayments, and guard against the taking of deductions which are not allowed, and which lead to later penalties and fines.

Here are common questions put time and again to tax advisors, along with authoritative answers that can help you to pare down your tax bill:

Q. Am I allowed to depreciate the cost of my equipment?

A. Does it produce income? Only things which produce income—or are necessary to the earning of income—may be charged off as expenses (other than certain personal expenses such as medical charges, deductible only when using the long form.)



Q. Some of my equipment was damaged in a recent heavy storm. Am I allowed to take off the amount of the loss in figuring up my income tax?

A. To the extent that the damage was not made good by insurance—yes. And then only if you choose to itemize personal deductions on the long form rather than take the "blanket" deduction of about 10% that is allowed on the short form.

Q. Suppose the insurance paid only part of the damage?

A. Then you would have a claimable loss for the part *not* paid by insurance.

Q. How about this situation: Equipment that cost $2000.00 was insured for $2800.00—the present replacement cost— and the insurance company paid off in that amount after a fire had destroyed the equipment. Would I have to pay income tax on the $800.00 "profit?"

A. That depends entirely upon what you did with the $800.00 "profit." If you spent it immediately to buy similar equipment of no more actual value, then Uncle Sam will take the realistic view that you got only a replacement of your loss. However, if you pocketed the money, delayed, or spent it on something else, then the tax people consider that you made a gain—and they want their share in the form of a tax percentage.

Q. During a recent disaster, I worked around the clock relaying messages and otherwise helping to keep a communications network going. Can I deduct the value of my serivces as a donation to a public cause?

A. The value of personal services may never be considered a contribution or donation. However, you are entitled to claim any actual monetary outlay you made during the disaster period.

Q. I recently won a $100 as a prize. Must I report it as income?

A. All prizes count as income. If you had been given a television set instead of a bond, then the regular market value of the set would have to be reported on the tax return.

Q. What taxes may I deduct?

A. For personal deductions by radio hams who use the long Form 1040, the Treasury notes that, "Deductible taxes include state and local income taxes, personal property taxes, real estate taxes, and certain sales taxes."

As a rough rule of thumb, the Treasury figures that one third of your income was spent on items where sales taxes applied—if your city or state levies a sales tax. If you actually shelled out more than this amount of sales tax, keep the receipts to prove it.

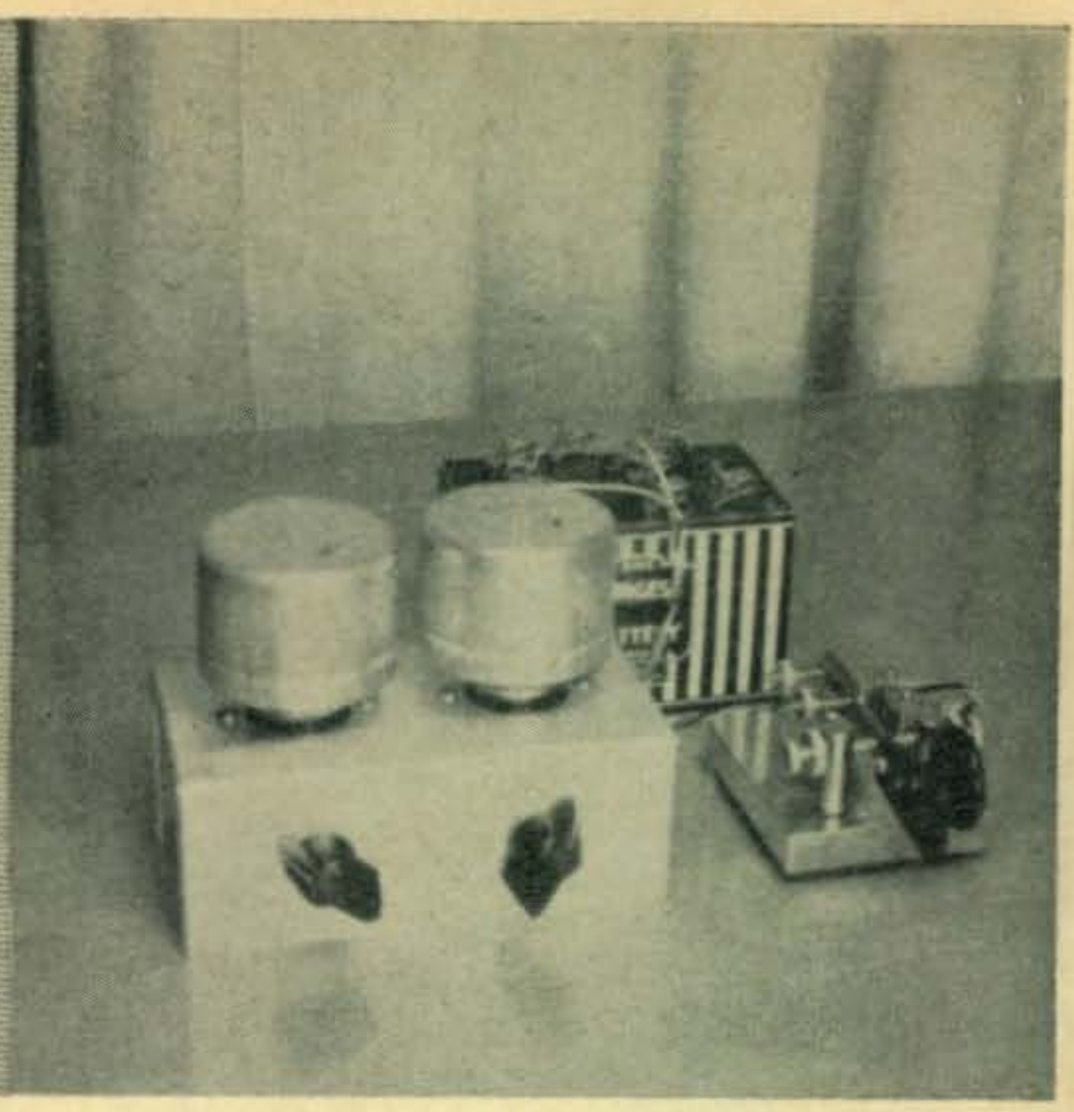
Gasoline taxes are deductible as a personal expense except in California, Louisiana, North Dakota, Utah, Wyoming and Hawaii.

Q. Last year, I donated radio equipment to a church for its rummage sale. May I deduct this?

A. Contributions can consist of things as well as money. Put a fair valuation on what you donated, and the Treasury will allow it as a legitimate item of contributions expense.

** 2710 State St., New Orleans 18, La.*

A SIMPLER CORKEY



G. FRANKLIN MONTGOMERY, W3FQB*

W3FQB's widely-copied Corkey was an electrostatic key with performance equal to the best electronic keys. Here is a clever simplification of the author's original design, which results in a very practical automatic key.

SOME TIME AFTER PUBLICATION of the first article on Corkey, the condenser-operated relay key[1], I obtained a pair of surplus relays that could be used, because of their special characteristics, in a considerably simpler circuit. The new circuit needs no rectifiers, no matching of timing condensers, and uses fewer parts. It requires a particular type of battery and has the slight disadvantage that dot and dash weights are not independently adjustable, but it retains the primary virtues of the original Corkey: self-completing dots and dashes, single speed control, and a simple, grounded key lever.

The basic circuit of the keyer is shown in Fig. 1. In order to appreciate the necessity for special relay characteristics, the circuit operation must be examined rather carefully. Suppose that the key lever is closed for a dot. Condenser C then charges quickly to potential E, and both relays close. As relay 1 closes, however, it disconnects the key and battery from the rest of the circuit, whereupon condenser C begins discharging slowly through the relay coils and the speed control R. This sequence of events is illustrated by the dotted curve in the graph of Fig. 2 where the current through the relay coils is plotted as a function of time. When the relay current has decreased to the point labeled I_2, relay 2 opens, ending the dot. When the current has decreased further to I_1, relay 1 opens, reconnecting the key. Condenser C recharges and the cycle repeats if the key is still closed in the dot position; if not, no further action occurs until the key is closed once again.

The operating sequence for dashes, illustrated by the solid curve of Fig. 2, is similar in every way to that for dots, except that the charging potential E' is larger than E. Both relays therefore remain closed for a longer time; the complete dash cycle is just twice as long as the dot cycle. Note that I_1 and I_2, the dropout currents for the two relays, are the same as before. These currents form the core of the relay problem.

Relay 1 is part of the timing mechanism for the keyer; it determines how long the dot or dash cycle shall be, and any change in its drop-out current will affect the lengths of the two cycles. In particular, if E and E' have been proportioned to give the proper two-to-one ratio of dash cycle to dot cycle lengths, a change in I_1 will cause the ratio to be upset. Relay 2 is the transmitter keying relay; it determines the ratio of mark to space lengths for both dots and dashes, and a change in its drop-out current will result in dots and dashes that are either too light or too heavy.

For many relays, the drop-out current does not

1. G. F. Montgomery, "Corkey"—A Tubeless Automatic Key, QST, November, 1950, p. 44.

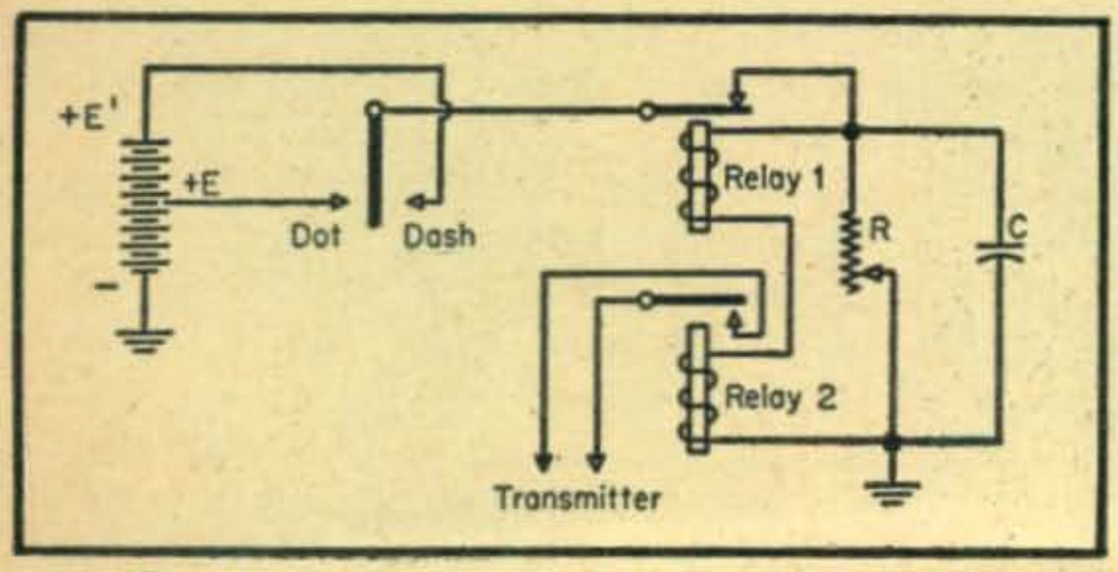


Fig. 1 Basic circuit of the simplified keyer.

*4557 So. Chelsea Lane, Bethesda 14, Md.

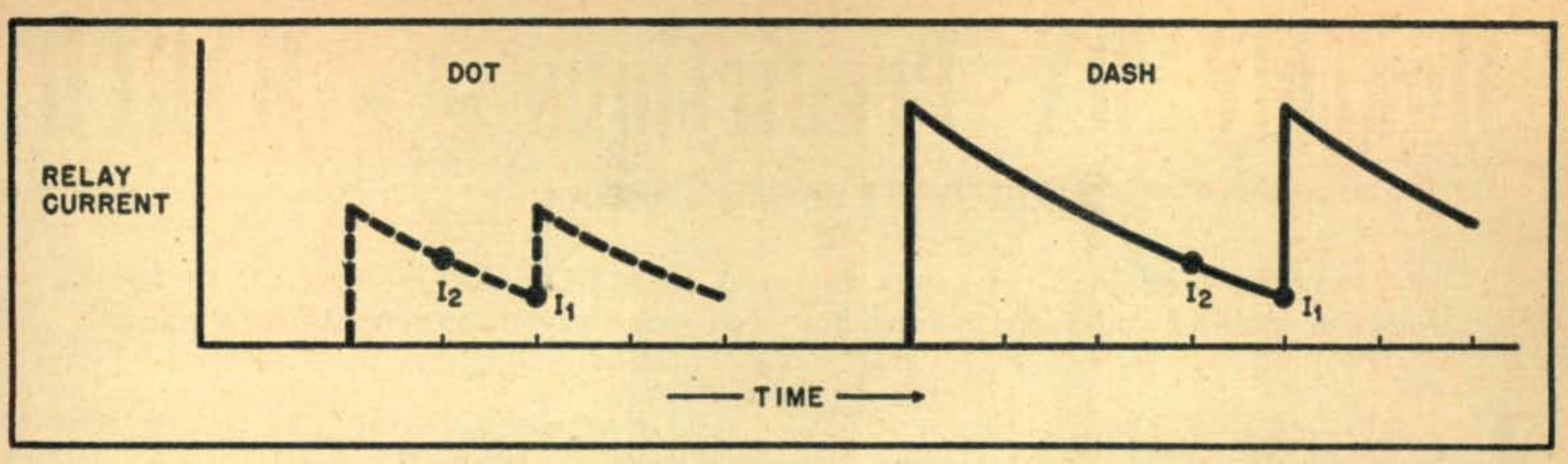


Fig. 2. Complete circuit of the simplified Corkey. Howmuch simpler can you get and still have automatic self-completing dashes, dots and spacing?

depend only upon the relay construction, armature spacing, and tension adjustments, but depends also upon the magnitude of the current previously existing in the relay coil. This effect is caused by magnetic hysteresis characteristics of the iron alloys from which the relay armature and pole pieces are made. As an example, suppose that a current of two milliamperes is sufficient to close a particular relay, and that upon decreasing the current from this value the relay opens at one milliampere. Now pass five milliamperes through the relay coil; if the relay is one having large magnetic hysteresis, it may be necessary to lower the current to as little as one-half a milliampere before it will open.

Now in the circuit of Fig. 1 the initial relay current suffers large changes, depending upon whether a dot or dash is being made. Relay hysteresis such as has been described[2] will, in this circuit, vary the dot and dash cycle lengths with keying, and such irregular action cannot be tolerated, of course, in a practical keyer. Fortunately, it is possible to find relays in which the effect of magnetic hysteresis is negligible, and the relays used in the new Corkey are of this type.

A few additions transform the circuit of Fig. 1 to the practical keyer circuit of Fig. 3 This is the diagram of the unit shown in the photographs. The relays are Sigma Instruments Inc. type 4R[3] having 1900-ohm coils and five-prong plug-in bases. The relays are mounted on a 5¼ by 2¾ by 2-inch chassis which was bent from one-sixteenth-inch aluminum sheet. All of the parts listed in the diagram are standard, but the battery must be one having a number of intermediate taps between zero and 22½ volts.

The relays as received are hermetically sealed with an alumninum can whose edge has been spun over onto the bottom of the circular bakelite base. The cover can be removed, non-destructively, by mounting the relay, base upward, in a vise and filing off the spun edge. After wiring the chassis, a preliminary adjustment of the relays will be necessary before testing the unit. The relays have three adjustments—a hair-spring tension screw on top, and two contact screws. All three are sealed with glyptal, but a firm twist with a screwdriver will break the seals. The contact screws should be adjusted until the armature travel is short and there is small clearance between pole piece and armature in the closed position.

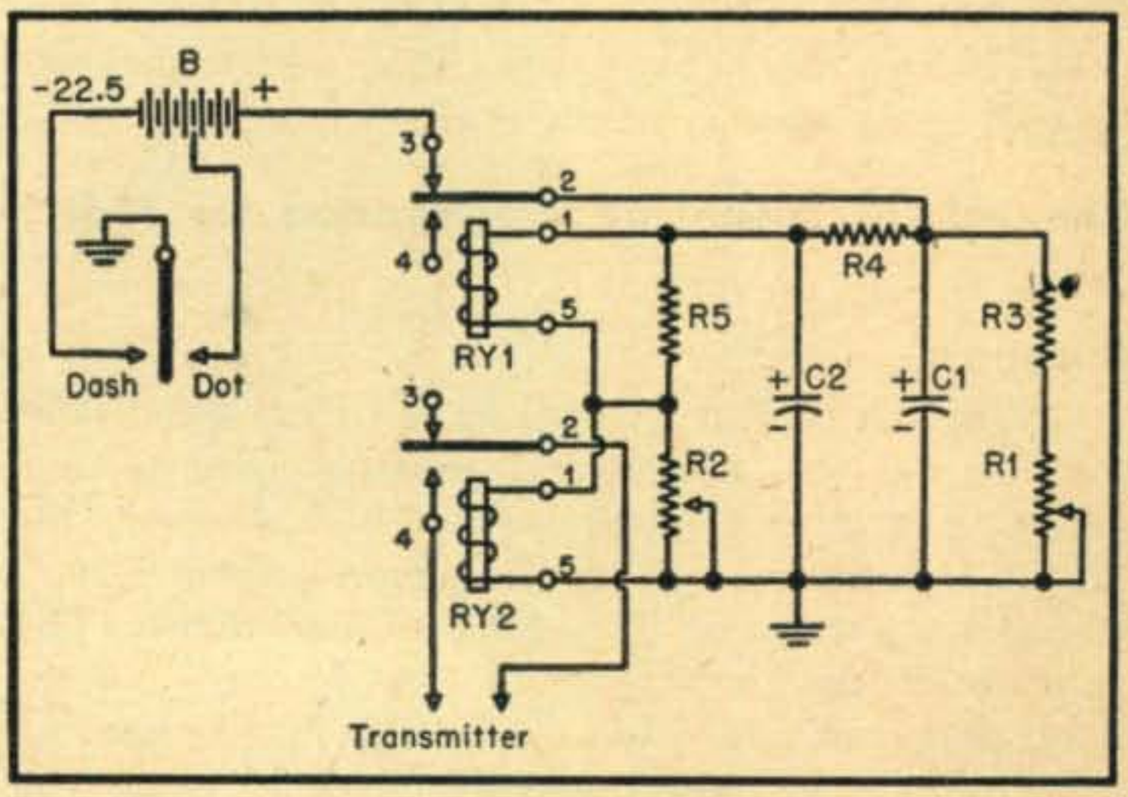
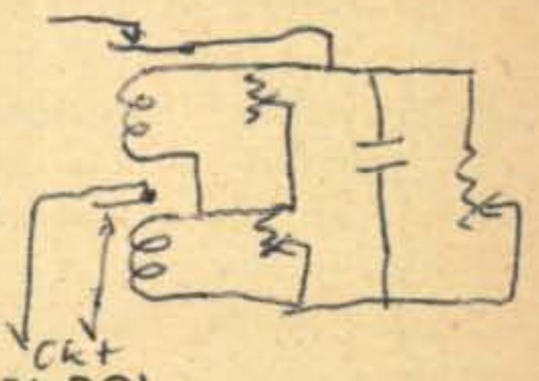


Figure 3

C1—50 mf 50-volt electrolytic
C2—4 mf 250-volt electrolytic
R1, R2—5000 ohm potentiometer
R3, R4—1000 ohms, ½ watt
R5—2200 ohms, ½ watt
RY1, RY2—(see text)
B—22½ volt battery (Burgess 5156 DC)



In testing the keyer, it will be found that the ratio of dot rate to dash rate depends mainly on the position of the intermediate battery tap but also on the adjustments, particularly spring tension, of the timing relay RY-1. In my own case, the keyer works well with the tap at minus 10½ volts. The dot and dash rate adjustment should be made with R-2 in its maximum-resistance position and with the spring tension of RY-2 made tight enough to insure keying action. R-1, the

(Continued on page 54)

2. Magnetic hysteresis should not be confused with what may be called a mechanical hysteresis effect that is present in all relays. The current at which a relay will close is always larger than that at which it will open. This disparity is due to the change in the air gap of the magnetic path that occurs when the armature closes; it is no hindrance to the operation of condenser-operated relay circuits.

3 These relays are also available in surplus under General Electric No. K-27J853.

Monthly DX Predictions - - MARCH

GEORGE JACOBS, W2PAJ*

We have received many requests to bring back CQ's DX predictions, so here they are. W2PAJ would like to know how well your observations check his forecasts.

THE NORMAL ANTICIPATED SUNSPOT NUMBER for March, 1951 is 78. However, recent continuous observations at Zurich indicate that the actual count will be near 58 rather than 78, so it is expected that general propagation conditions throughout March will continue to be sub normal. Severe magnetic storms are forecast during the second week in March, and for the last week of March. These periods of magnetic disturbances have been calculated by observing magnetic disturbances throughout December, 1950 and January 1951, and the fact that these disturbances are known to re-occur according to the 27 day cycle of the sun. These storms affect North Atlantic circuits severely, and Trans-Pacific paths. to a lesser degree. North-South paths are little affected except by extremely severe magnetic disturbances.

General Discussion of Propagation for March

Europe.

Conditions to Europe will be far from good. The combination of sub-normal sunspot counts and severe ionospheric disturbances will prevent the MUF (maximum useable frequency) from reaching 28 mc for more than 50% of the month. The number of openings will be far less to Northern European areas than to Southern Europe because of the increased auroral absorption on the Northern paths. On quiet[1] days some openings will occur to Western and Southern Europe and North Africa on 10 meters.

Conditions on 20 will be improved over those on 10, with considerably more openings to Europe. On quiet days conditions will be fair to all areas of Europe, except to Eastern Europe. The path from North Africa to North America should provide some good QSOs on undisturbed days.

When normal[1] night time ionospheric conditions exist, which is not expected to be too often, a fair number of openings should occur on 40 meters. Conditions will be best shortly before sundown local time. On disturbed days, especially during the two predicted storm periods, the MUF will drop below 7 mc., causing the band to black out.

All European paths favor East Coast stations, and conditions are progressively poorer the further West that your QTH is located.

South America

Ionospheric storms have a lesser affect on North-South paths than on trans-Atlantic paths, so conditions to South America are expected to be fair to good on all bands.

On the majority of the days of March the MUF will exceed 28 mc, producing some very good openings with strong signal levels. Conditions become poorer as the distance of the path increases. East Coast South American stations will be heard first as the various bands open, and West Coast South American stations will be heard best during the latter period of the band opening.

The 20 Meter band will open about 1300 GMT, but conditions will be erratic, varying with the noise level and opening on only relatively quiet days. At approximately 2300 GMT the noise level should decrease considerably and good conditions should prevail to all areas of Central and South America.

Forty meters will provide good DX for the evening hours, and paths may open even during severe magnetic storms.

Far East

Conditions are expected to be poor for the Eastern and Central areas of the United States. Very occasional, if any 10 or 20 meter openings are expected because of the long distance of the path, subnormal MUFs, prolonged ionospheric disturbances, and heavy auroral absorption. The all dark 40 meter path may provide some openings, especially for Pacific Coast hams. These paths favor the West Coast QTHs and some 10 meter openings can be expected from this area to the Far East. Conditions on 20 from the Pacific Coast to areas of the Far East are expected to be fair. High atmospheric noise levels may make phone contact hard to maintain, but CW should make QSOs possible on a good number of days.

Oceania. (Australia and New Zealand)

The MUF should rise above 28 mc for a good number of days throughout March. However as we approach the equinox (March 21), atmospheric noise levels start to increase, and on some days this high noise level along this path will make 10 meters quite noisy and erratic. Generally speaking however, conditions are expected to be fair. Conditions on 20 meters are also expected to be fair, with some days being noisy and signal levels

1. **Some assistance in ascertaining whether or not quiet conditions exist may be obtained by listening to ionospheric storm warnings broadcast twice each hour over WWV. The letter N is broadcast to indicate Normal or quiet conditions, W indicates disturbed, or a forecast of disturbed conditions, and U indicates unstable conditions.**

* *3620 Bedford Ave., Brooklyn 10, N. Y.*

weak, but on quiet days signal levels are expected to be good.

Conditions on 40 meters are expected to be good. Since this is an all dark path, atmospheric noise levels and ionospheric absorption are at a minimum.

On all band openings the New Zealand hams will be heard first, with the Australians being heard best during the latter period of the band opening.

These paths to the Oceania area favor West Coast QTHs.

Low Frequency DX

In general, it is quite difficult to accurately forecast band conditions for 80 meters because of the very high noise levels, both man made and atmospheric, usually encounted in urban locations. The same propagation conditions usually will exist for 80 meters as exists for 40 meters except that higher noise levels are to be expected. In areas where noise levels are low (usually rural), expect to hear the same openings as you hear on 40 meters. The values forecast in the following chart If you are in a low noise area, conditions can be have taken into account atmospheric noise as well as man made noise for a normal urban QTH. expected to be a little better than forecast.

The best time for East Coast hams to listen on 160 Meters for European DX is between 2300 and 0700 GMT. During ionospheric storms the MUF decreases to such a low value that many times it borders 2 mc. Under these conditions, ionospheric absorption decreases considerably on 160 and good DX conditions exist, with multi-hop transmissions taking place. During the severe disturbances expected during March, it may be worth your while, DX-wise, to keep a watch on 160.

ALL TIMES IN GMT

EAST COAST TO:	10 METERS	20 METERS	40 METERS	80 METERS
Scandinavia	NIL	1130-1230 (2) 2000-2100(2)	2300-0600(2)	2300-0600(0-1)
Great Britain & Western Europe	1600-1800(0-1)	1100-1200(2) 1900-2200(2-3)	2300-0800(2)	2300-0700(2)
Balkans	1700(0-1)	2000-2200(2)	2230-0630(2)	2300-0600(0-1)
Central Europe	1600(0-1)	1100-1200(2) 1900-2200(3)	2200-0700(2)	2300-0600(1-2)
Southern Europe & North Africa	1530-1830(3)	0930-1100(2-3) 2000-0100(3)	2300-0700(3)	2300 0700(2)
Near East	1600(1)	2000-2130(2)	2200-0230(1)	2200-0230(0-1)
Central America	1700-2230(3-4)	1230-2300(2-3) 2300-0400(4)	0100-1200(4)	0200-1100(3-4)
South America, Northern Countries	1500-2130(3-4)	1200-1300(3) 1300-2200(0-1) 2200-0300(4)	2300 1000(4)	0100 0800(3)
South America, South East Section	1430-2130(2-3)	1100-1200(1-2) 2230-0630(3)	2330 0830(3)	2330-0830(1-2)
South America, South West Section	1300-0000(2-3)	1100-1200(1-2) 0000-0530(3)	0000-0900(3)	0100-0800(1)
Hawaii	1930-2300(3)	0100-0400(3-4)	0700-1300(3)	0800-1200(1-2)
Oceania	2200-0000(2)	2300-0330(1) 0330-0500(2-3) 1400(2)	0700-1300(2)	0800-1200(0-1)
South Africa	1600-2000(2-3)	2030-2230(1-2) 2230-0200(3)	0100-0400(4)	0200-0400(0-1)
Far East	2300-0000(0-1)	0000-0300(1)	0800-1400(1-2)	0900-1400(0-1)

ALL TIMES IN GMT

	10 METERS	20 METERS	40 METERS	80 METERS
West Coast USA	1700-2300(4)	1230-1430(2) 1430-2000(1) 2000-0400(4)	0000-1200(3-4)	0100-1000(2-3)
CENTRAL USA TO:				
Great Britain & West Europe	1600-1800(0-1)	1200-1300(2) 1900-2300(3)	2300-0700(2)	2300-0500(1-2)
Central Europe	NIL	1900-2300(3)	2300 0600(2)	2300-0500(0-1)
Southern Europe & North Africa	1700-1900(2)	1100-1130(2) 2100-0000(3)	0000-0500(2)	0000-0500(1-2)
Central America & Northern Countries of South America	1500-2200(3-4)	1200-1330(3) 1330-2300(2) 2300-0530(3-4)	0100-0900(3-4)	0200-0900(3-4)
South America, East Coast Section	1400-2030(2) 2030-2200(3)	2300-0730(3)	0030-0830(3)	0130-0830(1-2)
South America, West Coast Section	1400-2100(2) 1900-2200(3)	1200-1300(2) 0000-0900(3)	0100-0900(3)	0200-0900(1-2)
Hawaii	2000-2330(3)	0200-0500(3-4)	0700-1330(3)	0700-1300(1-2)
South Africa	1800-1900(1-2)	2300-0100(1-2) 0100-0230(3)	0100-0400(3)	0200-0400(0-1)
Far East	2330-0030(0-1)	0030-0330(1)	0800-1500(2)	0800-1500(0-1)
Oceania	2230-0030(2)	2330-0400(1) 0400-0530(2-3)	0700-1400(2)	0800-1300(0-1)
WEST COAST TO:				
Europe	1800-1900(1)	1330-1530(1) 1930-2300(3)	0130-0630(2)	0130-0630(0-1)
Central America & Northern Countries of South America	1730-0000(3-4)	1330-1700(3) 1700-2330(1) 2330-0500(4-5)	0230-1300(4)	0230-1200(3-4)
South America East Coast Section	2100-2330(2-4)	0200-0900(3-4)	0400-0900(3)	0400-0800(1-2)
South America West Coast Section	1600-1700(2) 1700-2300(0-2) 2300-0100(3-4)	1300-1500(2-3) 0000-0900(4-5)	0200-1100(4)	0300-1100(2-3)
Hawaii	1800-0300(4-5)	1600-1800(4) 1800-0200(1-2) 0200-0800(4-5)	0400-1500(4-5)	0600-1500(4-5)
Oceania	2000-0200(2) 0200-0400(2-3)	0500-1000(3)	0800-1400(3-4)	0800-1400(2-3)

ALL TIMES IN GMT

	10 METERS	20 METERS	40 METERS	80 METERS
Japan & Far East	2200-0200(2-3) 0200-0300(3)	0300-0800(3)	0800-1400(3)	0900-1400(1-2)
Phillipines & East Indies	2300-0230(1)	0800-0900(1)	1100-1430(3)	1200-1400(0-1)
Guam	2100-0230(2-4)	0600-0800(2-3)	0900-1400(3)	1000-1400(2)
East Coast USA	1700-2300(4)	1230-1430(2) 1430-2000(1) 2000-0400(4)	0000-1200(4)	0100-1000(2-3)

Numbers in parenthesis indicate the general condition of the path and also the approximate percentage of the month that the band is expected to open as follows:

(0) No path opening expected.

(1) Openings on very quiet, normal days only. Openings probably will not exceed 10% of the days of the month.

(2) Openings about 25% of the days of the month.

(3) Openings about 50% of the days of the month.

(4) Openings about 70% of the month. This will be a very good circuit during normal conditions but may be erratic during disturbances.

(5) Openings about 85% of the month. This will be an excellent circuit during normal conitions, and a fair circuit during ionospheric disturbances.

All times shown in the Forecast Chart are GMT for periods of band openings along given path. Since path is to an area rather than to a specific point, actual times of path openings and closings at your QTH may vary slightly from those indicated in the forecast.

Forecast for Eastern USA is centered on Washington, D.C.

Forecast for Central USA is centered on St. Louis, Mo.

Forecast for West Coast USA is centered on Sacramento, Calif.

We would appreciate your observations and comments. If there is any specific amateur path you would like analyzed in future forecasts let us know about it.

Good hunting and 73. George, W2PAJ.

REVAMP YOUR TOWER

CLYDE C. COOK, W6GBV*

Fig. 1. The long pipe with cable inside gives the tower that "clean cut" look.

By distributing the twist through a long length of cable, W6GBV obtains full rotation of his beam without coupling loops or slip rings.

UPON RECEIVING MY "TICKET" LAST YEAR I hurriedly bought a supply of angle iron and built a tower. Like many "hams" I purchased a "prop-pitch motor" and a commercially built 10 meter beam. The beam was mounted on a short length of pipe and a notch was cut in the bottom end of the pipe to fit over the drive pin in the prop pitch motor. A hole was drilled in the side of the pipe for the coax cable outlet.

In a very few months it became apparent that this set-up had three main defects. The beam could not be rotated more than 90 degrees without snarling and damaging the cable and, secondly, to replace the cable it was necssary to take the whole tower apart. Last, but not least, the beam was not high enough.

I decided to revamp the tower sufficiently to eliminate the three defects. The first step was the purchase of a 21 foot length of 1¼" galvanized pipe and two 1¼" pipe flanges. After filing the threads away the pipe flanges were used for bearings. A gear that would mesh with the gear on the prop-pitch motor was picked up at the local junk yard. This gear was welded to a length of 2" steel tubing.

Figure 2 shows the pipe flanges in place and the gear drive arrangement. Notice that the coax-cable now runs down the hollow pipe and the beam may be rotated 360 degrees in either direction with

(Continued on page 63)

* *190 Magnolia Ave., Millbrae, Calif.*

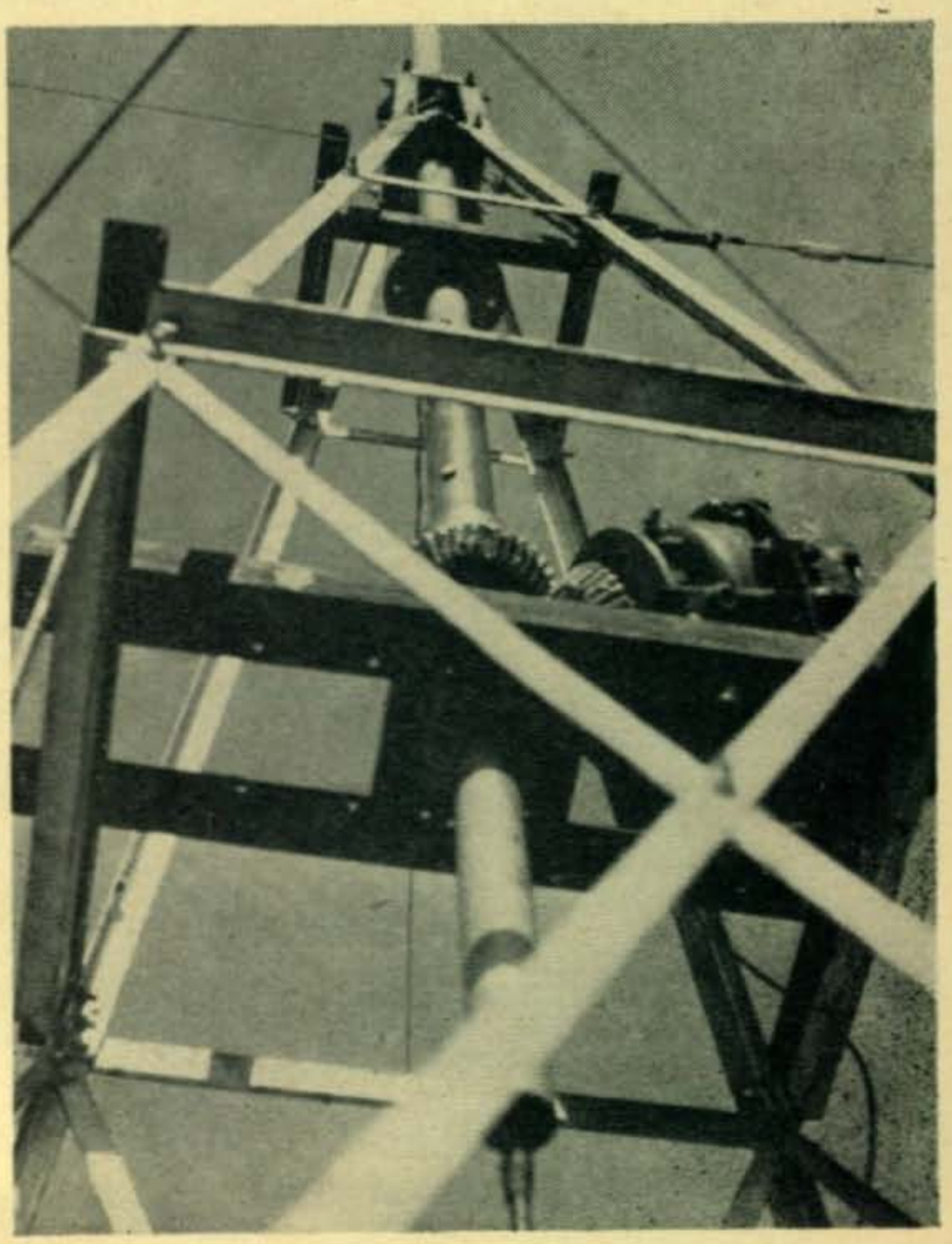
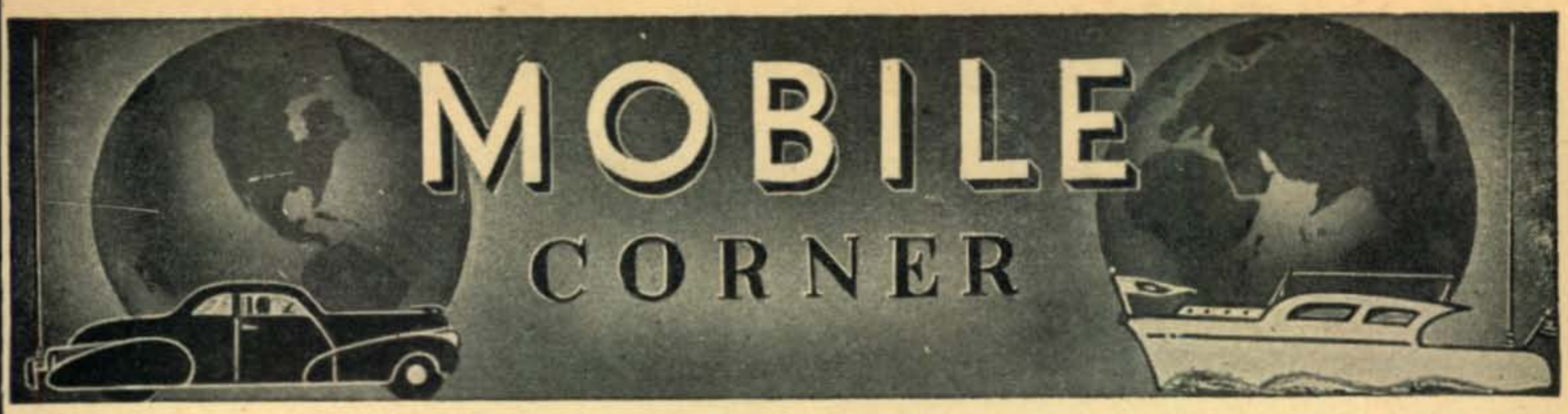


Fig. 2. Details of the gear drive and pipe flange mounting are shown in this photo.



Conducted by RALPH V. ANDERSON, W3NL*

IN CONNECTION WITH AMATEUR EMERGENCY COMMUNICATIONS, there are a number of factors which should be brought to the attention of mobile operators, Many of us have designed our gear around components and tubes that were in the junk-box or available as low-cost surplus, with the result that the mobile station is often poorly suited to emergency operation.

In the event of a major emergency where commercial power is not available and transportation is disrupted, there seems to be no question but that mobile stations will initially provide practically all communications. These mobile stations may be police, fire, taxi, etc., as well as amateurs, but it is certain that only mobiles and possibly small portables will be available until fixed stations can get going. Many of us will find that our mobile stations' power supply will fail after a few hours operation, whereas with a little fore-thought, the operating time can be greatly extended.

Full consideration should be given to making the existing components of the station as efficient as possible. Mounting the dynamotor in the engine compartment will eliminate long leads which carry heavy current. Provision should be made for reduced-power operation, and advantage should be taken of the highly efficient permanent magnet field dynamotors in order to reduce battery drain when possible. A second storage battery, though in some cars normally not required, is highly recommended. A couple of long heavy leads, such as PG 103 dynamotor cables equipped with battery clips, should be readily available for tapping the storage battery of an adjacent car. Design considerations should be toward operating as long as possible without running the engine. In the average installation in the average car, the engine speed necessary to maintain the battery in a charged condition would require a full tank of gasoline for each ten hours—that is, if you had it. Remember gasoline rationing? An "A" coupon would not go far even for those with special generator equipment, where charging efficiency is quite high in comparison to standard equipment. Late-model car owners should remember that there is no hand throttle and some means should be provided to keep the engine at a constant speed without keeping a toe on the accelerator.

Does your transmitter give good efficiency? The use of quick heating tubes, especially in the modulator and final will help. The 2E24 will directly replace a 2E26 in a number of cases and the 2E24's are excellent modulators. (Use 2E26 audio ratings). The use of fixed bias will often reduce the static drain materially. A carbon mike will save the power necessary for amplification of a low-gain mike. Many tubes with only .15 filament drain can be directly interchanged with those of .3 or higher rating. Crystal oscillators are usually more efficient than VFO's; a switch to turn-off the VFO tubes when using crystal will save that much battery drain. In any event, crystal control should be provided. We have personally had the experience of a whole net being thrown into utter confusion because one station's VFO went off calibration.

There are many things that can be done to a receiver to increase efficiency. Headset operation should be built-in, not only to save the power required for operation of the speaker, but also because it's conceivable that under certain circumstances you couldn't use the speaker. The receiver should be silenced when transmitting by stopping the vibrator. The average car receiver with its many tubes plus the converter does not normally provide an efficient receiver for emergency work. A complete new receiver might be in order.

The station should be operable from an extension cord of any conceivable practical length. The surplus hand-sets are excellent for this purpose. In a genuine emergency one doesn't wish to be compelled to sit in a car for long periods of time. Besides, a good operator would be able to do a lot of other things at the same time he is operating.

The frequency allocations for emergency work indicate that 2, 6 and 10 will be the major bands used. While in a great many cases the communications plan may require one station to use one frequency on one band for a specific purpose, it is unrealistic to pre-suppose that this is all that will ever be required. It follows that each mobile will be able to contribute a great deal more if the station is capable of multiband operation with "quick-QSY", not only of bands, but also of frequencies within the band. This editor has long been an advocate of everything "up front" with the transmitter controls equal in accessibility to those of the receiver. Some fellows have only the RF

(Continued on page 57)

The Monitoring Post

gleaned by THE BRASSPOUNDER

THE FCC HAS UNDERLINED its confidence in ham radio by allocating to us an official spot in radio communications. The Federal Civil Defense Administration informed the FCC that amateurs will be requested to provide and/or supplement other existing communications systems for civil defense purposes. The latter cleared the deck and lost no time in consulting with all agencies to designate ten bands for CD operation by the amateur. With the announcement came this important preamble: "This notice is primarily intended to make clear which portions of the regularly allocated amateur bands will continue to be available for amateur use to provide civil defense communications after any suspension of normal amateur activity . . . because of war or other national emergency."

Ham radio is now planning to cover this job on a broad scale.. It is entirely up to amateur radio to give serious study to this project, making the best use of the freqs set aside for it, and to come up finally with a unified CD radio communications system that will surpass anything ever before accomplished by the ham. The FCC has confidence in amateur radio's ability to do it and the job *must* be done efficiently. It is the first time the Amateur Radio Service has been charged with such a definite responsibility by the nation. We have a duty to perform.

Unlike the War Emergency Radio Service of 1942, with frequencies for CD operation being limited to 112-116 mc, we have a wide choice of bands, from 1800 kc to 225 mc. Relatively narrow bands for the most part, but sufficient if properly used. Not merely local coverage this time, but enough channels on suitable frequencies for nationwide coverage, if necessary.

VE1ABP in action

A very important problem is the development of the 5,000 kc wide 220-225 mc band. Equipment is not available for this band though it offers a great deal for strictly local coverage. The large cities could well cover their areas with many nets on 220. Wise leaders will give a great deal of thought to the possible use and development of 220 before discarding the band due to shortage of gear. In the extremely crowded areas, such as New York, Chicago, Los Angeles, Philadelphia, Boston, etc., with their many immediately neighboring cities, careful study of the high frequencies will have to be made and agreements reached on frequency use to keep QRM at a minimum.

Amateur Civil Defense regulations will come later. Now we plan; and be sure the planning is sound. There is need for haste, but not at the expense of careful planning to make the most of the frequencies. In planning, consult your neighboring city and county CD organizations. We should not endeavor to work alone. Amateur radio needs a greater organization today than ever before and should recognize this by frequent meetings with all concerned. Not only in neighboring cities, but also in neighboring states. Borrowing a slogan coined by Dan Scherer, W2NVH, Public Relations Director of New York's C.D. Amateur Radio Service: "The Lifeline of Civil Defense is Communications." Team-work is essential.

The announcement of freqs is merely the beginning. The FCC states: "The extent to which these bands meet the actual requirements for amateur participation in civil defense communications may be revised after a sufficient number of local communities have established appropriate civil defense plans, conducted communications drills or otherwise accumulated data which will permit such a review." The authorities actually invite constructive ideas. They realize that problems may be present under this initial announcement of frequencies by stating that the entire business "may be reviewed" later.

Every endeavor is being made to permit ham radio to set up a good CD radio communications system. It is entirely up to us to make it work in a manner that will justify the confidence put in ham radio by the government. We have an opportunity to prove that ham radio is a dependable means of communication. We can pursue our hobby as we please, as in the past, and at the same time become a vital part of civil defense.

W6LGU takes a 30-watt portable rig with him when making shots for Technicolor on location; the latest trip was to Furnace Creek, Death Valley, where a small gas-driven generator in his car powered the 30-watt rig to QSO *VE7HX*, Alert

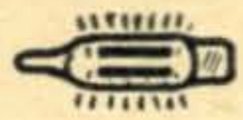
(Continued on page 59)

The RF "SNIFFER"

IRVING GOTTLIEB, W6HDM*

Most of us are interested in little gadgets which can be built in a hurry from odds and ends. Here's a cute one which is more than just a toy.

Proper arrangement of R3. Only one electrode is luminous.



When "SNIFFER" is brought near an R-F Field, both electrodes become luminous

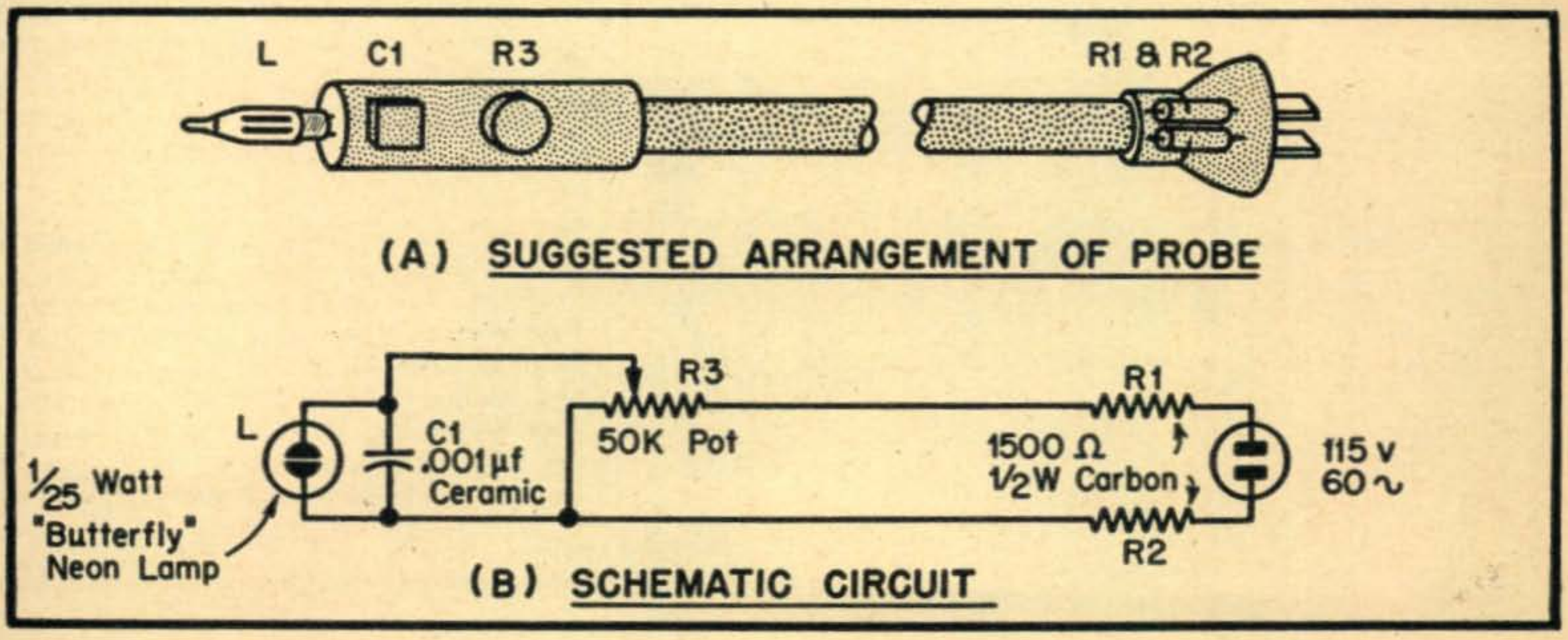
THE DEVICE TO BE DESCRIBED is called an RF "sniffer" because it possesses a marked ability to detect the presence of very small quantities of RF. It is a useful instrument for locating RF in circuitry and components where it should not be. It provides an excellent means of neutralizing Class C amplifiers; for this purpose, it will be found that detuning of the tank circuits or neutralization condenser due to the proximity of the sniffer is negligible. Still another use involves the measurement of standing waves on a pair of insulated Lecher wires. The recurrent question, "is it oscillating?" is readily answered for flea power oscillators. However, where the sniffer really out-performs the conventional pick-up loops, wave-meters, and field-strength meters is in its unique ability to reveal the existence of parasitic oscillations. In many instances, the leads responsible for the development of the parasitics can be identified.

Parasitic oscillations often are of such high frequency as to be out of range of the commonly used RF indicators. Another difficulty encountered in the detection of parasitics is that the indicating device constitutes a sufficient loading or detuning influence to kill the spurious oscillations. The sniffer will respond to microwave frequencies and will produce much less circuit disturbance than indicators employing pick-up loops.

The circuit of the sniffer is depicted in Fig. 1. Its principle of operation is not apparent from the schematic, however. If the potentiometer R3 is rotated slowly from its zero to its maximum voltage position, it will be observed *that first one electrode of the neon lamp, then the other will "ignite".* The operating condition is established when the adjustment of R3 is such *that only one* electrode is surrounded by a luminous film of glowing gas. The presence of RF will then cause the other electrode to glow. The closer R3 is adjusted to the threshold where both electrodes become luminous, the greater the sensitivity to RF. A nominal amount of practice with the instrument will enable one to judge relative power in terms of the distance required to "fire" the non-luminous electrode. Thus, a sharp determination of a voltage loop on Lecher wires can be made by locating the point where the sniffer will be fired at the greatest distance. Conversely. a calibrated dial for R3 will provide a slightly different method of determining relative power.

(Continued on page 59)

* *10764½ Missouri Ave., W. Los Angeles 24, Calif.*



Conducted by LOUISA B. SANDO, W5RZJ*

DECEMBER, ABOUT THE BUSIEST MONTH of the year for most everyone, was even busier for the YLs participating in the QSO Contest held Dec. 9—10, 16—17. Top winner for the phone section is W3UUG, Miriam Blackburn. With a multiplier of 26 (states, possessions and countries worked) and a score of 11,180 points, Miriam well deserves her award of the silver cup. Runners up in the phone section were: WØTAB with a score of 8855, W4HWR 5400, W1FTJ 5145, W7HHH 5100, W9FZX 4200, W6HTS 2550, W5MJU 2380, and W4LKM 2145.

In the c.w. section the silver cup for top honors goes to W1FTJ, Dot Evans. A really busy gal our YLRL president, getting into both sections of the contest and winning on c.w. with a score of 2050. Runners up for this section were: W9JTX with a score of 920, W3MSU 760, and WØZWL 160.

During December, too, all of the traffic handlers were busier than ever with Christmas greetings from GIs overseas, especially handling messages from Korea. Among others, W3NHI worked day and night relaying such messages, and we hear she's made the local papers six times recently with writeups—FB! YLRL net.

A change in schedule for the YLRL 40-meter net. It now meets Monday afternoons at 3 p.m. EST on 7220 kc. NCS is W3CUL.

A note from W5DRA, Teev, tells of a recent visit from W5PTI, Rene, and her OM, W5MTO, and their two junior ops. Seems that the OM is due to spend six months attending a language school in Monterey, Calif., and then the King family will be on their way to Peru.

National ARRL Convention

A letter from W3CDQ comments: "W7KEU, Laura, has invited me to come to Seattle next summer to the National Convention. Kay, W3LSX, will go with me. How about your going? And I think it would be nice if the president of YLRL could go to a convention other than in her own division once in a while—maybe money could be appropriated from the YLRL treasury for such a trip." All sounds good to us! Don't forget, gals, about the National ARRL Convention to be held in Seattle on July 27, 28, 29. Start planning your vacations with your OMs now for that time and area.

YLs Needed

So far this column has adhered to reporting, but it seems appropriate now to do a little editorializing. Amateur radio is facing a highly critical period. This has been quite forcefully brought home to us recently by working with the new Director of the West Gulf Division, W5CA, as his assistant from the YL viewpoint. Mid's program for amateur radio to meet this challenge calls for increased participation in emergency networks especially to provide civil defense communications, more v.h.f. operation (essential for civil defense networks), active novice/beginner's assistance, a drive for increased ARRL membership, and a firm stand against the inroads of TVI. In all of these phases the YLs can contribute greatly.

First and foremost is the matter of emergency networks. Always faced with the possibility of

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** Send all contributions to Box 35, Jemez Pueblo, New Mexico.*

The all-ham wedding party mentioned here a couple of months ago. L. to r.: W4GOB, Rev. Walter Benson; W4IYM, Ray Watkins (best man); W4CXI, Lee Brigman, and his XYL (Frances' father and mother); W4GOB's XYL; W3LID, Jack Krepp. and his bride, W4KYI, Frances Brigman Krepp; W4LSB, Holly Long (matron of honor); and W4IYM's XYL.

natural disasters, such as fires and storms, we are now even more urgently confronted with the need for civil defense communications. The need for *working* networks is great. YLs are in an ideal position to offer their services as operators. Many of you are at home during the day and have the time for operating and have, or could acquire, the necessary equipment. Get in touch with the Emergency Coordinator in your area and join the Amateur Radio Emergency Corps.

Since communications during any kind of war emergency would necessarily have to be carried on mostly in the v.h.f. or u.h.f. regions. YLs would do well now to increase their activity on these frequencies.

It is expected that the FCC will soon put into effect its new proposals for amateur radio, including the novice, or beginner, class of license. With its relatively easy requirements of 5 wpm code and simple basic theory and laws, it should provide opportunity for many more gals to get on the air. Working in clubs or as individuals, already licensed YLs can stimulate interest on the part of would-be YLs and lend a helping hand to get them started. Although the novice class of license will not be renewable after one year, it is the logical stepping stone from interested spectator to fullfledged amateur licensee. There are many possible prospects—XYLs of licensed hams, Girl Scouts or girls' clubs, YWCA, church or school groups. Even for the novice class of license the beginners will need help and encouragement, which you can provide.

LA9YL, Erna Angell, of Flekkefjord, Norway.

YL of the Month

Some time ago we received via LA5YA an FB letter from one of the then six (there are now nine) licensed YLs in Norway. All the YLs in Norway, incidentally, have the letters "YL" included in their calls. This practice has given some YLs the distinction of being the only hams in Norway to hold 3-letter calls. In fact, there are only three 3-leter calls in all Norway, all held by YLs. If a district already had a YL call (LA2YL, for instance, issued to Borghild Pallvik) then the next YL in the 2nd district to get her ticket, Elsa Rektovli, drew LA2AYL. Makes us envious—we're still looking for some likely phonetics for RZJ!

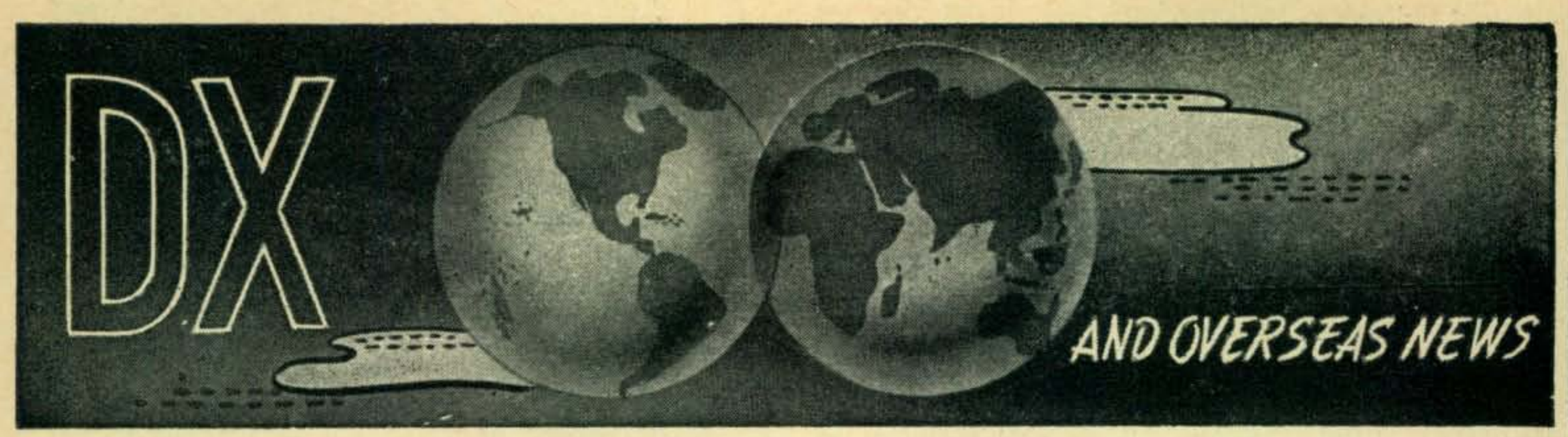
But to get back to the letter. From LA5YL, Erna Angell, it was addressed "Dear W *Boys*"! We're sure the OMs will gladly share it with us, however. Erna writes:

"It is hard to say exactly when I became interested in amateur radio. For many years I liked Morse code and have always been excited when I got sight of apparatus or heard c.w. signals on the radio. I remember that when I discovered the Morse alphabet in my physics book I forgot all about the physics lesson and sat down to learn Morse. During the war when the German ships often anchored in the fjord, I used to try to interpret some of the messages they sent to each other by light. I got a couple of my girl friends interested in Morse and we loved to tease the Nazi teachers by sending messages to each other, tapping in code with our pencils on the school desks.

"When the war was over and amateurs again began their work, my music teacher, LA2P, was one of the most eager, and this, of course, had its influence on me. Every time I went for my lesson he was either busy constructing his new receiver or transmitter, or upstairs in his radio room in QSO. Obviously, sooner or later I had to be an amateur. After having discussed the matter with my parents (they insisted that I had my school and my music) I at last got permission to join the amateurs and attended the radio course as the only girl among ten boys. In September, 1948, I got my license and the call LA9YL. For the first year I had to operate on c.w. and until I got my phone license the hams here on phone used me as a 'call pigeon' when they could not get any contacts themselves! Now 21 and in my junior year, I have to let amateur work alone except for Saturdays when we have no classes. I built my own transmitter—v.f.o. My receiver was an old wireless set without amateur bands so I had to make a converter for it. I am especially interested in working W stations because my sister lives in New York.

"My QTH is a small village of about 3000 inhabitants. It is one of the typical villages on the coast of South Norway. Its name is Flekkefjord and it has very beautiful surroundings. The people living here are kind and peaceful and everybody knows everything about everybody! A stranger has to be criticized very much before he is accepted.

(Continued on page 60)



Conducted by HERB BECKER, W6QD*

OUR MOST SINCERE CONGRATULATIONS to the following DX men in achieving WAZ.

249	**VK5MF**	Alan C. Smythe	40-121
250	**W8JIN**	J. W. Ringland	40-219
251	**W8NBK**	Earl M. Reichman	40-221
252	**W6AUT**	John Claussen	40-132
253	**W6AOD**	V. Gebhart	40-140
254	**W6DFY**	George H. Osborn	40-186

It is good to see VK5MF make the grade and as you can see, he is the only one out of the states getting a certificate this month. Take a look at the other five boys and cerainly they need no introduction to you. During recent months cards from AC4YN have come through to quite a lot of East Coast stations, thus completing the 40 for quite a number.

Before diving into the sack of mail, I would like to assure all of you who took part in the 1950 World-Wide DX Contest that you are going to get your certificaes without all of the delays there were with the 1949 affair. The entire batch of Contest logs were plopped right into the lap of W6DI, after which we appointed him "Contest Chairman in Charge of Final Tabulations."

Guy is striving to wade through several cartons of contest logs with the hope of getting the final scores listed in a early issue. If you don't think this fellow, W6DI, is up to his neck in logs, you should be here and hear him scream. Well, that is enough on this subject, now let's see what is what.

VP5BP—Cayman Islands

VE3CJ expects to be in the Caymans between March 13th and March 30th. Here he will set up shop as VP5BP. He will operate 10 and 20 meter phone, and if possible will get on some of the other bands. He is hopeful of keeping the station on the air for the entire period, as he might get some help from VE3XZ, who will be along with him. The equipment consists of a 40 watt c.w. and phone transmitter, 300 watt, 60 cycle generator and an Eddystone 750 receiver. Noel figures to be on phone most of the time in order to keep clear of American QRM, but is going to do his best to give everyone a break.

W9NRB dropped a card to tell us he was having a swell time in the Smokey Mountains of North Carolina. Yes, Smitty, but you can't work DX from there.

W6PQT breaks loose with some information which probably all of you would like to hear. Of course, I am assuming too that some of you probably heard this before now. Anyway, FA3RA/FR8 should be on Reunion Island using both phone and c.w. This was passed along by FA8RJ to PQT. . . Another bit of 'relay' work from W4NNH to PQT, reveals that I5ZU in Italian Somaliland was on 14055.

LA6C claims there is a Ham on Jan Mayen Island at the Meteorological Station but as yet has no equipment to get on the air. Other Norwegian Hams are trying to arrange permission for him to use the transmitter at this station. . . . ZS6DO is apparently skedding ZS2MI, trying to make him a little more DX minded. It so happens ZS2MI is a commercial operator and doesn't do very much 'hamming.' If it works out that he gets the DX bug, ZS6DO will probably handle the QSL cards for him, instead of being routed via SARL. As ZS6DO pointed out, maybe some W6 will want to donate some cards!!! Because of the Antarctic weather, 2MI sometimes has

The home of XZ2SY.

Send all contributions to Herb Becker, 1406 South Grand Ave., Los Angeles 15, Calif.

trouble starting his Diesel engine, and this too, naturally would limit his operating.

W6ENV phoned the other night, and said he had a little information that might be news to some of you. Andy went on to say that F9ET is now in Madagascar, apparently permanently. He is 42 years old and formerly of Paris, and has his station all set to go, except for the license—which he expects soon. The rig is 6L6 xtal osc, two RL-12P35 doublers and RS291 tetrode final. They will be licensed for 50 watts on 14 mc. and 100 watts on 28 mc. He will use both phone and c.w. and has a 3-element fixed beam ready, aimed on France, which should hit parts of the U.S.A. Says he will let us know his call letters by QST to a "W". . ! !

W6VFR, who gets a lot of French stuff—mail, that is,—got a letter from FA8DA and here are a few of the things it relates: FB8XX, Kerguelen, will be on soon at 14030 kc. xtal and will listen at 14020; FB8ZZ is on 14040 xtal and listens at 14050 kc.; FF8JC is VFO on 14 and 28 mc. FF8AC is VFO on 14 mc. with rac note; FQ8AE and 8AC are on 14 mc. VFO and xtal at 14042 and 14082 kc.; FP8BX will soon be on 7 mc. c.w.; FY8YB is on 14 mc. VFO; F8EX/AR, F9AL/AR and AR8AB are all on 14010 kc. c.w. F8EX and F9AL are supposed to be setting up some equipment at the airport there in Lebanon. Dunno how long they will be there.

MT2E On The Move

After nearly seven years in Tripoli, the last three years of which he has been active as MT2E, he and his family are moving to Aden. Of course he has written the postmaster there applying for a license, and if all goes well he expects to be given the call of VS9E. And if things go according to schedule, he should be on the air for the ARRL DX Contest. While in Tripoli, OM Orrell handled the QSL's for the RSGB and has arranged now for MT2DZ to handle it. The QTH will be found at the end of the column. If any of you fellows have been waiting for a card from MD2WY, you had better forget it as he was not listed in the register for Tripolitania, and all cards which have been received have been destroyed. MT2E used a transmitter with 90 watts input, and this was inspired from and built along the lines of an exciter described in December, 1949 "CQ." The receiver he has been using is a Super-Pro.

W8NBK, in addition to making WAZ this month, sings out with "Happy Days," and he is back in business again. All this commotion was caused by working VK1RF. . . W6VE took on VR1F and CR5AC—and W1APA, while still moaning about punk conditions, hooked CR5AC. . . . W6AM hears all sorts of things; for example, he was told by G2PL that it was so cold that twelve of his gold fish died—so Don suggested he put a soldering iron in the water, but Peter said "no soap" on account of their current being rationed.

W5MET can't complain with new ones such as VK1RF, YI3ECU, ZS7C, VU2EB, FY8AC, and last but not least, VQ9FD—and let's hope this one is good. . . . W2SHZ is still digging, and this time he dug up VS7KR, ZS3Q, VP5BH, and CE7ZJ. . . . I can't figure out what happened, but something must have to get WØANF to bring his Honor Roll standings up to date. Harry is a good old phone man, but he has just been too busy to do much bookkeeping, I guess.

W4LPT was glancing through the DX section of "CQ" and he said an idea struck him. The idea was that he had never contributed anything to the column, and how in the heck could the column exist if no one ever contributed? He is so right, and I hope there will be others that will follow his example. . Anyway, W4LPT is not a newcomer exactly, as he received his first ticket in 1930. Before receiving his present call, he has held W9EMT, W8AEF, W6RNY, and later W3HTY.

For those of you who can read French, as well as those of you who cannot, here is a choice bit of news which W6SAI sent in, and we are showing it as received. If you can't interpret it, I am sure W6SAI will help you.

"Here is some poop for your column: A legitimate FP8 has been licensed. He is: Paul Detchverry, FP8BX (Baker, X-ray) %P.T.T., Saint Pierre & Miquelon Island via Canada. He wrote me this message to pass to you:

A INSERER DANS "CQ" MESSAGE FOR ALL W'S. EN RAISON DE MA

◆

Has your shack been cold lately? Take a look at the "front yard" of OX3UF.

◆

W. A. Z. HONOR ROLL

CW & PHONE

WAZ

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W6ENV	231
W2BXA	229
W6EBG	227
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KH6CD	176
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W5KEV	153
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W6EYR	150
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W7IYA	59

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W9RBI	215
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W3OCU	210
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W1BIH	209
F8BS	209
W2HHF	208
W1JYH	208
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W5ASG	203
W5LVD	203
W9IU	201
VE3QD	201
W2HZY	200
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W4GG	197
W3DKT	195
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W2AGO	191
W1AWX	191
OK1VW	190
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W2EMW	187
W8SYC	187
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W2MEL	145
W6LGD	145
OK1AW	144
W6KYV	143
TF3EA	142
W9DUY	140
W5FFW	140
W6KYT	135
W9NZZ	134
VE7KC	133
W7ETK	132
W6TE	131
CR9AG	131
W6WJX	131
W5CPI	130
W7BTH	129
OE3CC	128
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W6JWL	114
W6EYC	114
KL7GG	114
W6FBC	114
W6VAT	110
DL3AB	107
W7GXA	105
W6LEV	103
W7LEE	91

38 Zones

W2HMJ	192
W2PUD	181
CM2SW	174
W8KPL	173
W8FJN	167
W2SHZ	162
W2GVZ	159
W8EYE	158
W2UEI	156
LU7CD	155
4X4RE	146
W3LVJ	145
VE2BV	145
ZS2AT	145
W8ZMC	143
WØAZT	143
ZL3AB	143
W5MET	141
W9FKH	135
VE3ACS	134
W6ETJ	132
W4FPK	131
W2PQJ	130
W4LQN	130
W3ZN	129
WØRBA	127
W9MZP	126
FE8AB	126
W9TB	122
GW4CX	120
WØFET	118
ZL1QW	117
VE7VC	116
W6CAE	113
KL7PJ	112
W7EYS	107
W6FXL	92
C1CH	84

37 Zones

W1KFV	171
W2ZA	160
W3WU	157
W4IWO	149
W3FYS	147
ZL3CC	143
GM2UU	142
W4ML	140
W2WC	136
W9HUZ	134
W2AYJ	133
W7HKT	130
W4DIA	129
W1APA	128
VE5JV	126
W9LNH	122
OE1FF	117
VE1EA	116
W6AX	110
WØFWW	108
W7PK	104
W8HSW	104
W2BLS	99
OH3OE	93
KL7KV	88

36 Zones

W4HA	151
W9WCE	136
OZ7BG	130
OA4AK	128
VE1PQ	128
I1IZ	126
W3AYS	124
F8TM	124
W9LI	124
SV1RX	119
W2BF	115
4X4BX	112
G3BPP	111
W5CD	108
EA1AB	103
W2JA	102
W5BK	99
VE8AS	98

35 Zones

W2OST	146
W1BFT	141
W3MZE	134
W4DHZ	132
W9CKP	132
W5FXN	125
W5JUF	121
G6QX	121
W6ZZ	120
W9RQM	119
CO6AJ	119
W9DGA	115
W9FNR	114
W8AVB	113
WØGBJ	110
W2HAZ	109
KZ5IP	108
KL7CZ	80

34 Zones

W1DEP	150
W8NSS	133
W1NLM	130
W4IYT	127
W1MRP	118
W5NTT	107
W8JM	102
W6VBI	100
G2BVN	91
W9WEN	83
W8PCS	80
W6EUV	66
W6OKL	61

33 Zones

W4QN	110
W2SEI	100
W8QUS	85

PHONE ONLY

39 Zones

VQ4ERR	196
W6DI	192
W6VFR	174
W7HTB	161
G8IG	159
VE7ZM	145
DL1FK	125

38 Zones

W2BXA	168
W4CYU	160
ZL1HY	157
W1HKK	153
W6KQY	151
W9NDA	149
F9BO	145
W6AM	143

37 Zones

XE1AC	196
W9RBI	180
W1JCX	179
PK4DA	170
W3LTU	169
W8REU	163
CE3AB	163
W7MBX	158
VK3BZ	158
W6WNH	157
G3DO	155
G2PL	154
W6PXH	153
W3JNN	150
W8BF	146
W6TT	142
F8VC	124
W7MBW	107
C1CH	83

36 Zones

W1NWO	176
W1MCW	172
W1BEQ	164
W9HB	160
W4ESP	152
W2DYR	140
W9BZB	139
GM2UU	135
W9HP	131
W6PDB	130
W4INL	129
W1FJN	128
W8AUP	128
G6BW	127
VE3BNQ	126
VE7HC	123
WØHX	120
W3GHD	114
W8CYL	112
W3DHM	96
W6SA	92
F8DC	87

35 Zones

HC2JR	165
ZS6Q	156
W4HA	142
W6PCK	141
W9RNX	140
W2RGV	136
HC2OT	134
W6CHV	133
W2GHV	131
WØEYR	131
W9BVX	130
WØPRZ	124
W9CKP	124
WØANF	124
G8QX	123
W8ZMC	122
WØPUE	117
W5LWV	108
W4OM	106
W3PA	105

34 Zones

W5ASG	142
W3KT	129
LU8CW	129
W2ZVS	126
W5KC	125
W4LZM	124
I1AXD	124
W6UZX	123
W8BIQ	122
W3EVW	122
W5JUF	117
W1BPH	105
W8UIG	100
W4IWO	100
W8QBF	92
WØBFB	70
W2NXZ	65

33 Zones

W9MIR	131
W5ALA	126
W9WCE	119
W2ZW	115
I1VS	115
W8BFQ	114
W8SDR	113
W8NSS	112
VE3BQP	108
W2PQJ	100

VENUE SUR L'AIR, J' ADDRESSE A TOUS LES "OM'S" ET "YL'S" ET TOUT PARTICULIEMENT A.W.I. ORR ET AU CALIFORNAI SOUTH DX CLUB AINSI QUE W2BYF MES MEILLEURS VOEUX POUR 1951. JE REMERCIE TOUT SPECIALEMENT LE DX CLUB ET MON AMI W6SAI POUR LA GENEROSITE DONT ILS ONT FAIT PREUVE A MON EGARD. DANS MES LIAISONS FUTURES SUR L'AIR AVEC VOUS JE M'EFFORCERAI DE VOUS SATISFAIRE TOUS. GOOD LUCK AND 73 AT ALL. FROM PAUL DETCHVERRY, FP8BX."

XE1AC grabbed off the following on 20 phone. FN8AD, 14361; EQ3FM, 14119; YI3ECU, 14176; UG6WD, 14151. Al said all of these QSO's were over the long way around. . . . W2ZVS picked up a good one on phone, EA8AX. . . .

OZ7BG is following in the footsteps of his father, OZ7EU. It seems like his OM won the Contest in 1948 and 1949 and it happens that 7BG might have the highest score in OZ for the 1950 affair.

W6SYG, who churns out the Southern California DX Club Bulletin has a good piece of news from the Norwegian Radio Relay League. I am quoting as it was printed:

"From the Norwegian Radio Relay League"

"We are in receipt of your letter dated November 8 on the matter Norwegian Radio Amateur station in Spitzbergen, or Svaldbard, as its official name is, and from the island of Jan Mayen.

From Svaldbard there will be one ham operating, LA2FB, Kaare Skevik, Longyearbyen. We owe to make you know that he has nothing to do with our organization, and no QSL sent via NRRL will reach him. You will also understand that there is special call used for Svaldbard.

LA4MA is now operating from Haugesund, in the South-west part of Norway.

From Jan Mayen there will be no ham heard this winter. One ham is there, but he has no rig with him.

The call LP2J, a pirate, has been supposed to be operating from Jan Mayen, but, if you look at the call, you will find that LP belongs to Argentina, as the letters allocated to Norway are LAA to LNZ.

Talking of DX hunting. Have you ever operated LA4QC? He is till about Dec.—Jan. operating from the 1951-52 antarctic continent on 20 now and then, about 20 gmt. Several Norwegian hams have contacted him, with fb results.

Hoping you will find these informations useful, we wish you good hunting. Best 73 from P. K. Saebo Assist. Secty."

W9HUG started out the new year by working HH2JC, UF6AC, and MI3VG. The first one on 40, and the other two on 20. . . . W9RBI does a little microphone work now and then, and his

Major Soe Ya, XZ2SY, well-known 14 and 28 mc 'phone.

latest include AP2N, EQ3FM, ZK2AA, UAØAC, VP8AQ, and FK8AH.

VP5FR works 10 phone and does a pretty good job with all districts except W6 and W7. At the present time, Gordon is putting up a 40-foot tower on which he expects to hang a 20 meter 3-element rotary. The rig uses a 813 with about 230 watts input. VP5FR claims he has a dickens of a job getting QSL's out of the GI boys overseas. Yet, he QSL's 100%. Cards from the following would, no doubt, make him very happy: KX6BA, KX6AA, KJ6AJ, KW6AP, KB6AC/KM6, and KB6AF. Gordon tells me he likes to work practically everybody and will be looking for the boys on 20 c.w. and phone. And the same goes for 80 and 75.

If any of you boys worked AC4BL, how did you like the way he pointed up on your antenna? At least maybe the weather was warm in the Carribean. The last two letters of his call no doubt signifies just about his status.

ZS2AT has been out of circulation for about a year, after having traveled in a Caravan for about 3000 miles into ZE land. After arriving at his destination, they apparently decided that wasn't so good, so back home he went and is once again chasing Zones 2 and 19. ZS2AT is another one chafing at the bit for not getting cards from KH6 stations.

W2PUD, you might recall, moved to Lancaster, Pennsylvania, and was nicely settled as W3QDZ when his company decided to move his particular department to the Harrison Plant, and so Dick is once again W2PUD. At present, the only antenna he has is a dipole in the attic. He says they make you so anonymous while getting acquainted in a new neighborhood.

The Director of "Posts and Telecommunications" at Tripolitania has very kindly authorized Amateur station operation for American personnel stationed

in that country. According to Major H. Stanley Wilson, M.A.R.S. Station Director, the following calls have been issued. Of course you remember that MD2 is for military personnel, while MT2 is for civilians.

AMERICAN PERSONNEL STATIONED IN TRIPOLITANIA

QTH: APO 231, NYC or RSGB
or DL4 QSL Bureau

MD2AC M/Sgt. Milton E. Gallaher, 1950 AACS Squadron (AJ1K) M.A.R.S.
MD2AF M/Sgt. Earle Mathison, 1603d A. B. Squadron
MD2AM T/Sgt. John Wylie, 1261st AT. Squadron
MD2AR S/Sgt. August Rigotti, 1950 AACS Squadron
MD2EU M/Sgt. Martin Oberg, 1950 AACS Squadron
MD2FJ S/Sgt. Frank Kreisher, 7th Air Rescue Squadron
MD2GO T/Sgt. Larry Risban, 1603 A.B. Squadron
MD2MD Major H. Stanley Wilson, 1950 AACS Squadron (AJ1W) M.A.R.S.
MT2AB Mrs. Earl Mathison

W6LN winds up 1950 with FF8AC, UO5KAA, and VP3CW. W6SYG picked up YI3ECU. . . . G8KP is trying to find someone that is extremely friendly with YN1HB on account of his own persuasive methods apparently have not been enough to rate a card. Bill got a card from UM8KAA which completes all of the USSR countries. He tells me he purchased one of the telescopic plywood masts with a tripod base. He also has ordered a prop pitch motor, so it looks as though G8KP is really going into the business. . .

By the way, it looks as though the RSGB from now on in is returning all cards coming from HA and OK. The reason is because all of these cards of late have been coming in plastered with Communistic propaganda. . .

W3MZE is still hoping VQ9AA is good, so sent it in for possible credit. We still don't think he is, and we are not giving credit for this one. So far no one has contributed any information that would indicate the guy was good. We, personally, hope our guess is wrong but until something other than negative information comes to us, we will just have to say "NG." Don't worry, if we are wrong we will certainly admit it and let you know about it. So far our batting average has been pretty high.

VE3AAZ is still disappointed because his Rhombic hasn't as yet brought him Zone 23. In view of conditions over there it doesn't look very hopeful either. However, he has added a few, so all is not lost. They are VP8AJ, VP5BH, ET1AC, VP8AO, and PK4DA. . .

W4TO, the man from the South, sent me an envelope he had addressed to VQ9AA and which was returned to him with the rather familiar marking "Return to Sender—Unknown." W4TO also got a card returned from YA2B, but on the better side of the ledger Buck worked VQ9FD, who is supposed to be good—at least that is what is being circulated in rather choice company nowadays. Another good one for Buck was PK7NL.

Lifted from G2MI's column in the RSGB Bulletin, we see that ZD6RD (G3GAR) should be on any day now, with 100 watts phone and c.w. from 3.5 to 28 mc. . . . VT1DF is claiming to be in Kuwait, c/o Cables & Wireless, but it is considered highly improbable, since he has never QSL'd. . . . CT3AF appears to be a phoney. . . . VQ8AF says that VQ8AU was never issued, therefore must be a phoney. The only legitimate VQ8's and AB, AE, AD, AF, AZ, and CB. 8AX was O.K. but never did QSL, and left some time ago. . . SVØAN is ex-VQ4RAW and if you hear G3FNJ, he is none other than ex-SV1RX. The above, once again, is from G2MI.

EAØAC, who operates phone, has QSO'd c.w. stations, and usually hangs out from 14300 to 14400. . . . Another bit of information reveals that ZD2PLL has been coming through on 20 phone.

W2CTO got a bit of information from ZC4TC, who said that after being in his home country of ZC4 for two months he couldn't get a license, as they seem to license only Military personnel. In view of this unfortunate circumstance he has returned to the Sudan with his old call of ST2CT. His new QTH (See QTH Section for complete address) is only a few miles from the Egyptian border, so it is entirely possible by the time you read this there will be some SU/ST activity.

HC2JR, who performs very well with a 'mike,' has logged CR6AQ, VR1B, EAØAB, EQ3FM, VR1E, YJ1AA, and LU1ZC. . . . CE3AG still finds them to work, and this time it is VK1PG, F9QV/FC, and VR1F. This makes 216 for Luis. . . . CE3DZ is still doing a swell job and here are a few of his latest to give you an idea of what I mean: VR1F, AR8AB, ZD2DYM, PK4DA, VR6AB, ET6AC, VK1YG, and EAØAB.

F8BS and a little brass pounding netted him MD9AA, VK9QK, VK1YG, and VQ8CB. And as Pierre puts it "plus a couple of pirates" YA2B and VQ9AA.

Well, what's this? W6AM is in again, and of all things, he worked a guy signing PX2MU, 14103. And to go on, KH6ES told Don that he was told by ON4UT that PX2MU was o.k. Yeah, I'm from Andorra too. (Some day we will get caught with our PX's down, because one of these guys will show up good.) So, anyway, Don worked some other stuff and on phone, including VR1F, on Phoenix, ZK2AA, VR3C, Fanning, and ON4HC. W6AM almost worked VT1AC, 14055, who at time happened to be working ZL4FO, and then quit. It is reported that this fellow is OK, but thus far no one else to my knowledge has been able to draw a bead on him. He gave P.O. Box 54, Kuwait, for any of you boys who feel like corresponding.

If any of you fellows hear KL7MF, he is ex-W6MI of San Diego. Hal is still with the FCC. . . . W2YEJ tells us that QSL cards from ET1AC, 2AC, and 6AC have been mailed to all those who

(Continued on page 55)

Conducted by E. M. BROWN, W2PAU*

THE ANNUAL VHF SWEEPSTAKES PRODUCED the usual mid-January outburst of activity on the 50, 144, and 435 mc bands. It seemed as though even the most casual v.h.f. operators were in there pitching. The club contest committees had done a good recruiting job. Many stations were using jury-rigged antennas, hastily improvised after the devastating winds had taken their toll a few weeks prior to the contest. Still, considerable DX was in evidence, and "Sections Worked" totals should compare favorably with the 1950 results. As was the case last year, six meters did not demonstrate any ionospheric tricks, so the six-meter and two-meter specialists competed on nearly an equal basis.

Although we are in no position to predict what the outcome of the fray might be, we feel that W2NLY will be in line for congratulations. Jim's score of 213 QSOs in 8 sections (run up exclusively on the two-meter band) was the best we have heard to date. W3KKN with 174 contacts in 9 sections should also be high on the list. As for club scores, in the Philadelphia area, the York Road and the South Jersey groups slugged it out toe to toe. From here it looks as if the York Road Club might get the decision. The Amateur VHF Institute of New York, last year's winners, and the Frankford Radio Club, tops in '49 and always a threat, seemed willing to rest on their laurels and made only a token showing this year.

Activity was not confined to the centers of population. The results obtained by W4AO, W8BFQ, VE3AQG, W2TBD and others demonstrate that a good lively contest will attract a crowd wherever it may occur! Wouldn't it be nice if the sort of activity that was achieved during the contest weekend could be maintained year 'round!

New Rules

On January 31st the Federal Communications Commission announced that the previsions of the controversial "Docket 9295" will be incorporated into the rules governing the amateur service. Although the new regulations will become effective on March 1, 1951, the impact on the v.h.f. and u.h.f. bands will probably not be felt until after July 1st, after which date the Commission hopes to be able to start examinations for the Novice and Technician class licenses.

The new rule provides for issuance of "Novice" licenses, good for a period of one year, to citizens of the United States who demonstrate ability to send and receive code at a speed of 5 words per minute, and who pass a written test on the rules and regulations essential to beginners' operation, including sufficient elementary radio theory for the understanding of these rules. Holders of Novice licenses will be permitted to operate in a narrow segment of the 80-meter band or in the 11-meter band using only crystal-controlled radiotelegraphy. They may also operate in the band from 145 to 147 mc, using 'phone, FM or AM, or c.w. emissions, crystal controlled. Transmitter power will be limited to 75 watts d-c input to the final stage.

"Technician" licenses will be issued to citizens of the United States who demonstrate the ability to transmit and receive code at a speed of 5 words per minute, and pass a written examination on rules, regulations and theory the same as that currently required for obtaining the present Class B license. Holders of Technician licenses will be given all amateur privileges applicable to the bands above 220 mc. Technician licenses will run for the usual licensing period of 5 years, and they may be renewed.

We have heard various dissenting opinions on what the effect of the new "regs" on our v.h.f. bands may be. Undoubtedly, there will be a big influx of novices to the two-meter band-it is the only band on which they can use 'phone. And, as one correspondent puts it, if the old-timers on the band have so much trouble keeping signals clean and avoiding TVI, what may happen when the members of the local Boy Scout troop start firing up those surplus ARC5 and SCR522 rigs that they have been hoarding for the past few years? There will certainly be plenty of new problems to contend with. Around our bigger cities QRM is sure to be a cause of friction—especially if the QRM emanates from an improperly-adjusted Novice's transmitter. There is almost certain to be a "class barrier" between the "old timers" who had to obtain their tickets the hard way, and he "young squirts" who are in many cases just on the air for a short while, not seriously intending to go through with the project of acquiring a full-fledged General Class ticket.

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* *Associate Editor, CQ. Send contributions to E. W. Brown, 88 Emerald Avenue, Westmont, Collingswood 7, New Jersey.*

The Technician license holder is much less likely to run into competition from already-established ham interests. From the many talks that we have held with fellows who have been trying to build up activity on the bands above 220 mc, we have deduced that activity on those bands would be welcome in any form—even bootleggers with modulated oscillators would have been encouraged in some places! And the number of "regular" hams on these channels at this time is so pitifully small that if the idea of the Technician's license catches on at all we will be rapidly outnumbered!

In any event, the new license classes should bring an influx of new blood into the ham ranks. We're in favor of the idea—having plugged for greater activity ever since the advent of TV dropped evening-hour v.h.f. activity to the point where operating often becomes more a chore than a pleasure!

Radio clubs should welcome the opportunity to increase their enrollment by adopting potential novices and technicians and assisting them in getting started on the right foot. Most clubs these days could use a little more young enthusiasm among their members. And those initiation fees come in handy, too!

Civil Defense workers should welcome new licensees with open arms. The technicians, with the full 220 mc band at their disposal—permitted at this time to use simple modulated oscillator equipment if the need should arise—could provide a worthwhile source of emergency communication facilities.

In short, Ye Ed thinks that the new regulations are a step in the right direction, and the newcomers should be encouraged in every way. We'd like to hear from our readers—old timers as well as potential novices and technicians—just what your ideas on the subject might be. Let's try to make the transition to the new order as painless as possible for all concerned!

More on Civil Defense

The recent announcement by the FCC that certain amateur frequencies will be retained for amateur use in time of war was enthusiastically greeted by the Civil Defense planners. Now we can select net frequencies without the fear that some future decree could necessitate re-ordering crystals for all our net stations. The allocations are more than generous. At least 10 spot-frequency nets could operate simultaneously in one location on the ten-meter assignment with negligible QRM. The six-meter allocation is about the same width, percentage-wise, but it is possible that with a little extra effort expended on transmitter crystal frequency stability and receiver stability even more nets could operate simultaneously on this band than on ten meters. The two-meter assignments are narrower, percentage-wise, than those of the lower v.h.f. bands, and the stability problem seriously limits the number of spot-frequency networks that can be accommodated on this band. At this time it seems to us that at least 200 kc should be allowed for each two-meter channel, taking into account the total drift of transmitters and receiver bandwidths used in the mobile service on this band. This would allow us only about 5 or 6 simultaneous nets on two meters in any given geographical location. The 220 mc assignment is the widest—a full 5 megacyles. It could accommodate more activity than any of the other three bands if all stations used crystal control and reasonably narrow receivers. This band could probably handle about 17 networks without mutual QRM! Considering the number of channels available on all these bands, it is pretty obvious that our choice of bands will not be dictated solely on the basis of availability of spectrum space unless our civil defense activity expands tremendously in the months to come!

It is, however, important that planners attempt to coordinate theeir efforts with those of other CD workers in the same general geographical area, to select net frequencies such that minimum QRM between nets will be encountered. For example, with only about five good clear channels available on two meters, it may take a bit of juggling to fit in all the groups now operating on this band. In the Philadelphia area there are already at least five organized emergency nets using the two-meter band!

We will not attempt in this column to urge the selection of any particular band for CD use.

It is obvious that the bands which get the most attention at first are those on which there is now plenty of normal, routine, activity; where a mobileer will find someone to talk to between emergency net sessions. The equipment which is designed for emergency operation should also be sufficiently versatile to use for general ham operations. We do not feel that it is realistic to push forward schemes which depend, for example, on the use of crystal-controlled receivers, un-standard modulation systems, or the like. These systems may work well, indeed, they may do a far better job than the conventional ham gear. But there are not many fellows willing to go to the trouble of building mobile gear unless it can be operated with nearly the same ease, flexibility, and potential coverage as their home stations. (In fact, we think that it is just a matter of time before someone licks the stability and size problem and comes up with a VFO design good enough for two-meter mobile use. And we're all for it, provided the user of the VFO has the frequency-checking equipment and the common sense to use it correctly!)

Nor do we think that it is wise at this time to go all-out in favor of any band where the local activity is so small that it will have to be built up from scratch. In cases of this sort the group that is pushing the use of the hitherto un-popular band will almost always wind up in a minority, while in the same sections of the country those who selected one of the bands where there was already some routine activity, experience, and know-how will generally do a better job.

While on the subject of planning for v.h.f. or u.h.f. mobile work we again want to emphasize the importance of good equipment design. While it is possible to communicate over reasonable distances

HARVEY is HQ for CD emergency communications gear

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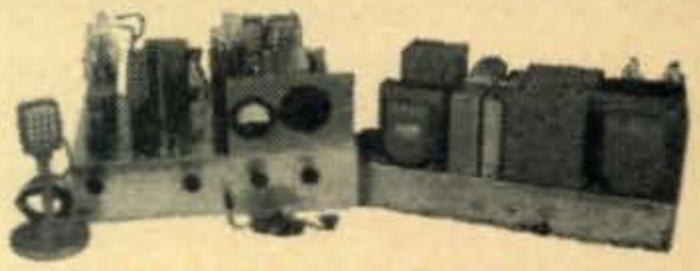

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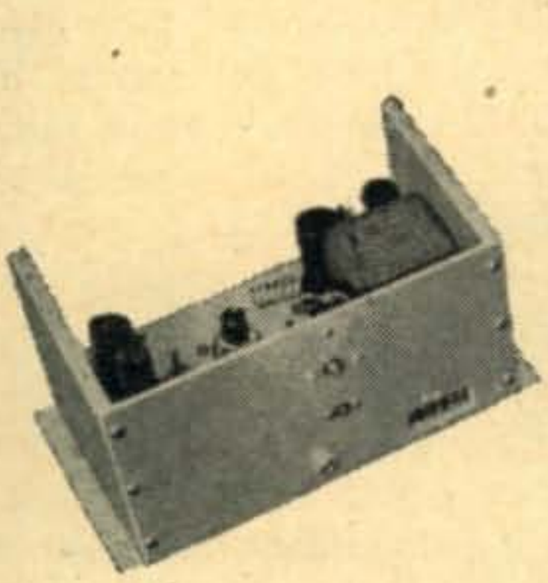

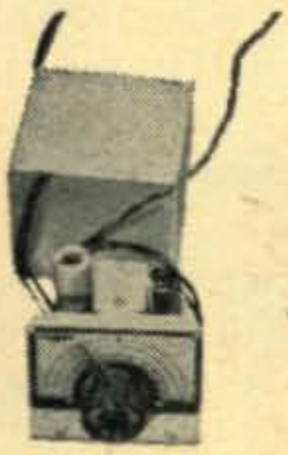

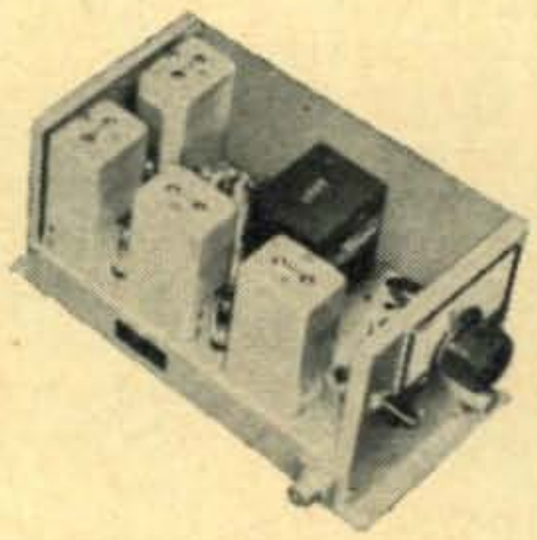

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Designed for stable, trouble-free operation in the 144-150 mc bands. Couples to any co-ax fed 2 Meter antenna. Uses any power supply providing 300v. at 200 ma. Screw-driver adjusted tuning controls. 7 tubes. Components and tubes are standard for replacement ease. Co-ax connectors. 5½ x 9½ x 5½ in., with universal mounting flanges. Prices are less power supply.

TRANSMITTER, wired and tested **$74.95**

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Superhet Receiver

An excellent 10 tube receiver, sensitive, stable, selective. Highly efficient with precision vernier tuning over 144-150 mc. Exceptional signal-to-noise ratio. Minimized power requirements with total battery drain only 22 watts. Matching cabinet, same size as xmitter, with universal mounting flanges. Jones plug and co-ax connectors. Prices are less power supply and speaker.

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Shpg. Wt. 80 Lbs.

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with flea power, a super-regen receiver, and a broadcast-type whip antenna, when the chips are down the shortcomings of this sort of gear are only too apparent. It is not always sufficient to just "be on the air" with a mobile outfit—often conditions are such that the equipment must put out a fairly potent signal to be useful. Look at the typical 75-meter and 10-meter mobile installations, note the transmitter power input, the number of tubes in the complete receiver, and the length of the antenna. Does it seem reasonable that you could do as good a job on the v.h.f. bands with much less power, a smaller antenna, and a much less efficient receiver? It is not difficult to make up for the theoretical disadvantages of the shorter wavelengths by proper equipment design . . . so why not start off with something a little more ambitious and avoid disappointment?

The results of the recent Camden, N. J. test of Civil Defense facilities serves to emphasize the weaknesses of the current crop of v.h.f. mobile gear. Although the test was classified as a success, those of us who participated in the affair know that we have a long way to go before we can guarantee good and sufficient communications in case of a real emergency. The full report of this test is being prepared as a feature story for CQ—watch for it next month.

Band Opening Warning Systems

In months past we have had quite a bit to say about the use of "Beacon" signals as indicators of unusual propagation conditions. Although the weather maps and the sunspot curves may give some warning that good conditions are coming up, the payoff comes when the DX signals start rolling through. Several of the gang have found that TV broadcast signals afford a good check on conditions over a wide area around their locations. Others have spotted commercial or governmental stations on the edges of their reception fringe areas, and by noting the strength of these signals they can pretty well deduce what conditions may exist on the adjacent ham bands.

DL4CK (formerly W6YHI) suggests that signals from aircraft operating on frequencies near our bands might provide clues as to band conditions. Planes are required to report their position and altitude frequently. Military and commercial ships all run the same order of power, and use similar antennas, so the signals should depend mainly on the distance and altitude—and propagation conditions. A list of the frequencies used for this service could be obtained from your local airport operator, any CAA representative, etc. The airways are so busy these days that there should be no shortage of signals. Vertical polarization is employed. The monitoring receiver used to check these signals should have a fairly broad selectivitv characteristic, since the transmitters are not all on exactly the same frequency. That spare 522 receiver, or one like it, would be ideal for checking these channels.

Some of the gang may not realize that the multiplex relay stations operating near Washington, D. C., are still doing business at the same old stand. We find that the signal on 143,75 mc is ideal for checking conditions to the south from our QTH. Horizontally-polarized, the "marker" signals are barely detectable under normal conditions, at times fading down into the noise. However, when conditions are good, they will build up to amazing strength—and the characteristic "jingle bells" modulation can be plainly heard.

W2TBD and W2UDD are planning to rig up wide-swinging panoramic systems to scan the band while they are engaging in routine operations. Tom, W2TBD, hopes to be able to spot signals on the 'scope that would be too weak to hear on a quick tune across the band in the usual way.

More on Low Power Operation

In the past we have featured stories concerning the use of low power on the two-meter band. It now seems that the prize in this department should go to W2NGA. Located in a thickly settled section of the Bronx, N. Y., Doc once counted over 46 TV antennas within 500 feet of his transmitter. And that was over a year ago! Forced by TVI to use low power, Doc proceeded to prove that he could continue to enjoy operation at any hour without neighbor trouble, and still get out of his own back yard. But, of late, he has gone much further than just cutting down his input to the point where the TVI complaints ceased. In a series of tests run over a period of several months with W2NKO, Doc has continued to pare down the power to the point where he now talks about not watts, but milliwatts! The object of the tests was to give W2NKO a weak, controlable, on-the-air signal to use in perfecting his ideas on receiver improvements. Doc is now of the opinion that Al's receiver incorporates features that contribute to a performance better than that of any other receiver he has seen or heard about.

There is a good basis for this method of attack on the receiver design problem. Bench checks made on a receiver using test signal sources can never be related exactly to checks made on an actual antenna system. Copying a voice signal through the composite noises that appear at the receiver input under typical operating conditions is a lot different from watching a meter reading on the output of a receiver when a noise generator or signal generator is connected to the input through some sort of dummy antenna. The system employed by W2NGA and W2NKO at least gets rid of a lot of possible sources of error in measuring, and includes several factors in the test which are not taken into account in the usual test set up. The results seem to be pretty convincing. If you can arrange to reduce your transmitter power accurately to very low levels, make a schedule with W2NGA and challenge him to a power-reduction contest! We lost Doc at about 1 watt input on our last QSO (not bad for a 100-mile hop in the dead of winter!) but he insisted that if we had been able to QRP down to 0.4 watt he'd still be getting me OK!

Six-Meter Conditions During January

The New Year got off to a good start with an

(Continued on page 50)

SEE LEO FIRST . . . for National RECEIVERS

Brand New NATIONAL SW-54 RECEIVER

Here is National's latest engineering triumph . . . the most compact general coverage receiver ever built. Entire frequency range covers from 547 kc. to 30 mc. voice, music or code. Sensitive and selective superhet circuit, new miniature tubes make possible new sensitivity and performance. Unique slide rule general coverage dial is adjustable to assure complete logging accuracy. Police, foreign, amateur and ship bands are clearly marked.

Complete

$49.95

LOW DOWN PAYMENTS

NATIONAL HRO-50 RECEIVER

Built-in power supply on separate chassis. Front panel oscillator compensation control. 20 to 1 precision gear drive. Provisions for NBFM adapter. Push-pull audio output. Speaker matching transformer built into receiver with 8 and 500/600 ohm output terminals. Packed with important new features.

$359.00 (less speaker)

HRO—TS, 10" PM Speaker in matching cabinet $16.00

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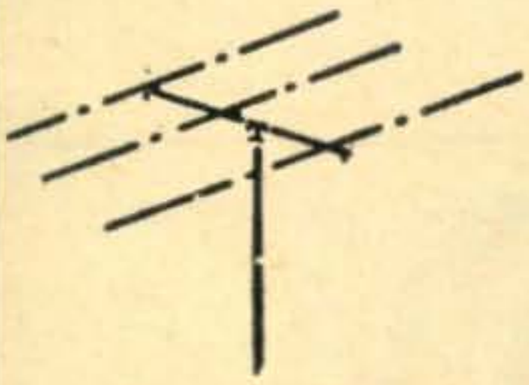
NC-57 B	$ 99.50
SELECT-O-JET 3	24.95
NC-183 (WITH MATCHING SPEAKER)	295.00
NC-125	149.50
(MATCHING SPEAKER)	11.00

NOW YOU CAN AFFORD TO OWN A BEAM

10 METER BEAM



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1.8 to 1.825 — 1.875 to 1.9

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$1.25 ea.

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3.5 to 4.0 — 7.0 to 7.4

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NEW BUG

Semi-automatic keys are older than "wireless"—the basic design of the well-known "bug" dates back to the early days of telegraphy—so it is somewhat surprising to see a design innovation in a key of this type. A new semi-auto key called the "Dow-Key" does, however, contain a radical change in mechanical design.

The entire dash and dot forming assembly, including the key lever and paddle, are rotatable as a unit. The manufacturer claims that the ability to adjust the angle of the vibrator results in decreased fatigue while sending, and has the additional advantage of increased accuracy when the key is used aboard ship or on a moving vehicle. Further information may be obtained by writing the manufacturer, The Dow-Key Co., Warren, Minn.

TV ANTENNA BOOK OFFERED FREE

A new book titled "TV 'Tenna-Tips" prepared by Edward M. Noll and Matthew Mandl, members of Temple University faculty, and Charles A. Trowbridge, chief design engineer of Snyder Mfg. Co., is being offered free to CQ readers.

Prepared for the television technician as a reference for the principles of antenna systems and their characteristics, "TV 'Tenna Tips" furnishes a good working knowledge of fundamental antenna types. The book has chapters on basic antennas, helpful hints, installation do's and don'ts, the yagi antenna, dimension guide, channel frequencies and proper feed methods for stacked arrays.

Listing at fifty cents a copy, "TV 'Tenna Tips" may be obtained free by writing direct to Dick Morris at Snyder Mfg. Co., 22nd & Ontario Sts., Philadelphia 40, Pa.

V O A NEEDS HELP!

Voice of America Announces the constant need (New York City and overseas) for experienced radio men, including Studio, Recordng, Field (Remote Pick-Ups), Maintenance and Transmitter Technicians.

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NAVAL RESERVE COMMISSIONS OFFERED

An opportunity for civilians and enlisted members of the Naval Reserve to apply for commissions as Reserve officers is presented in a new procurement program. Both men and women are eligible.

Commissions in the following officer programs are open to all qualified Reservists and to civilians: General Line, Supply Corps, Civil Engineering Corps, Electronics, Naval Architect, Petroleum Engineer, Communication Supplementary Activity, and Naval Intelligence. The following programs are limited to those Reservists who are on *inactive* duty and civilians: Chaplain Corps, and Merchant Marine Reserve.

General Requirements—Each applicant, whether he is on active or inactive duty in the Naval Reserve, or is a civilian, must meet the following general qualifications:

Be a citizen of the United States by birth, or a naturalized citizen for a period of at least 10 years, during which he has resided continuously in the United States.

Be phisically qualified according to current medical standards, with minimum vision (which must in all cases be correctable to 20/20) as follows: (a) Line officers for General Service—15/20; (b) Line officers for Special Service and Staff Corps officers—4/20.

Must establish mental, moral and professional fitness for appointment to the naval service.

Must have a college degree from an accredited college or university. This applies in all cases except Merchant Marine Naval Reserve, which calls for special professional qualifications.

In the case of women candidates, must not have a dependent under the age of 18 years.

Specific Requirements—Of particular interest to CQ readers are the qualifications for the following programs.

Electronics Specialists. Open to men only, who are 19 or older but under 33. Candidates for ensign must have a degree in electrical, radio, or ocmmunication engineering, or a degree in physics with courses in electronics or wave propagation. Candidate for lieutenant (junior grade) must have, in addition, 5 years of practical experience in electronics maintenance, repair, or design (including graduate study or active military experience in related fields).

General Line. Open to men 19 years old and over, who have not reached the age of 27; and women 21 years old and over, who have not reached the age of 27. Educational requirements call for a baccalaureate degree.

Where to Apply—Personnel on inactive duty and civilians who are interested in applying for a commission would report to the nearest Navy Recruiting Station and Office of Naval Officer Procurement (address may be obtained from any naval activity).

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AS IN NOV. '50 QST—LO. FREQ.
Also many other uses—in FT 241-A Holder—½" Pin SPC. Marked in 54th OR 72nd Harmonic MC Freq. Listed Below by Fundamental Frequency. Fractions Omitted.

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419 441 484 507 395 408 380
420 442 485 509 396 409 EACH 39c EACH 99c
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5305 5873 6425 6740 7540
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5706 5900 6450 7306 7640
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5750 5925 6475 7373 7706
5760 5940 6506 7406 7806
5773 5973 6540 7440 8340
5775 5975 6573 7473
5806 6273 6606 **99c EACH**
5825 6340 6640 **10 for $9.00**
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BC-610 XTALS

2 BANANA PLUGS—¾" SPC

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These can be easily converted to 20-40-80 meters. Crystal required for 10 meters. Each electronic coupled oscillator dial has 3000 divisions enabling quick precision shifting. This transmitter was constructed of the highest quality of precision parts, with laboratory precision. Four separate output tanks; one 4-position selector channel switch having seven sections which changes the ECO, IPA and output tanks simultaneously. All the controls are mounted on the front panel. The housing is cast aluminum; shields and case are sheet aluminum. Dimensions 11 x 12 x 15 inches, weighing 35½ lbs. Complete, simple instruction for conversion furnished. Uses three 807, four 12SK7 tubes; one 2-inch 5 amp. R.F. meter. A complete coverage transmitter, for the new or experienced amateur. A TRUE HAM VALUE—complete with tubes

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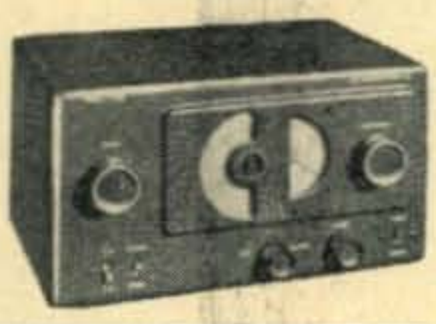

S-38B 49.50

S-40B 99.95

S-53 79.95

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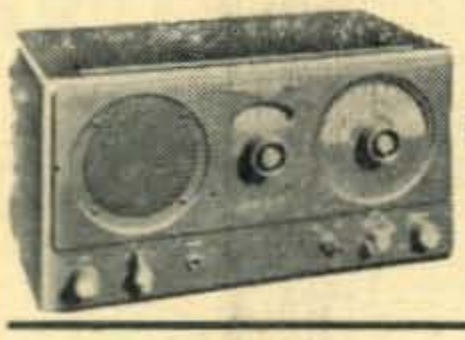

NC-33 67.50

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ALL NEW — ⅓ OFF!

.500 GAP.	.375 GAP.	.250 GAP.
96-22.15	11- 8.15	111-16.80
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Note: Figure in Left Column is Max. Cap. per Section

NATIONALLY KNOWN FAMOUS MAKE HEAVY DUTY SINGLE & DOUBLE STATOR TRANSMITTING CONDENSERS.

Max.	Gap	Price
300	.077	$ 5.32
230	.171	5.57
500	.219	17.22
250	.219	12.85
75	.344	8.96
245	.344	14.11
50	.469	7.05
100	.469	11.62
150	.469	12.95
75	.719	12.85
200-200	.077	6.58
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SCR-522 REPLACEMENT TUNING CONDENSERS

Approximately 200 MMF per Section. Continuous Rotation on Ball Bearings. Also ideal for connecting to motor for use as sweep condenser. Each section has own air trimmer.

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LESS TUBES

Used. Good Condition. Covers 150-210 MC, Can be converted to TV Receiver or a Hot 2 Meter ham receiver. Has 2 RF stages, detector & oscillator. Each individually tuned, 5-10 MC. I.F. Stages, 2nd Detector & Video AMP with 110 V. AC 60 Cycle Power Supply.

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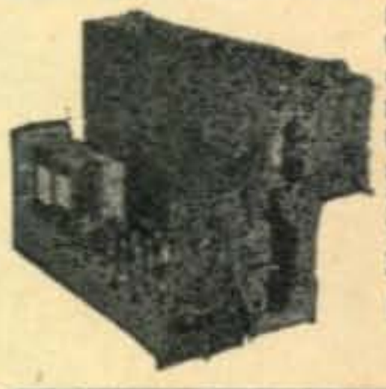

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RADAR TRANSMITTER BC-1072A

Used. Good condition. Covers 150-210 mc. Contains many parts, such as 110 V AC Blower, Gen. Radio—1 AMP variac, kilovolt meter, circuit breaker, 110 volt HI & LO voltage power supply, tubes, oil condensers, and many others. Companion to 1073A. Operates from 110 V AC 60 Cycles.

Special Package $19.95
1—BC-1068A Less Tubes
1—BC-1073A **$24.95**
1—BC-1072A All 3 for
$9.95

VHF-UHF

(from page 44)

opening at about 2000 EST between Mexico City and Texas, with XE1GE on the southern end greeting W5ONS, W5BDT, and W5FSC. On the following evening, at about the same time, the conditions seemed to repeat, with XE1GE working W5AJG, W5ONS, and W5FSC. Earlier the same evening, W9NJD hooked VE5NC. Several scattered "heard" reports from the 5th call area involving W7QLZ, W7HEA, W6TMI and W6BWG seemed to point to the fact that the good conditions were widespread, but not very stable.

More sporadic E activity was reported during the evening of the 3rd, when W5FSC worked W7QLZ and XE1GE heard W5ONS. W6IWS worked VE7BQ and VE7DU. Again many reports of weak, fluttering signals were received, indicating that the ol' band was almost ready to pop.

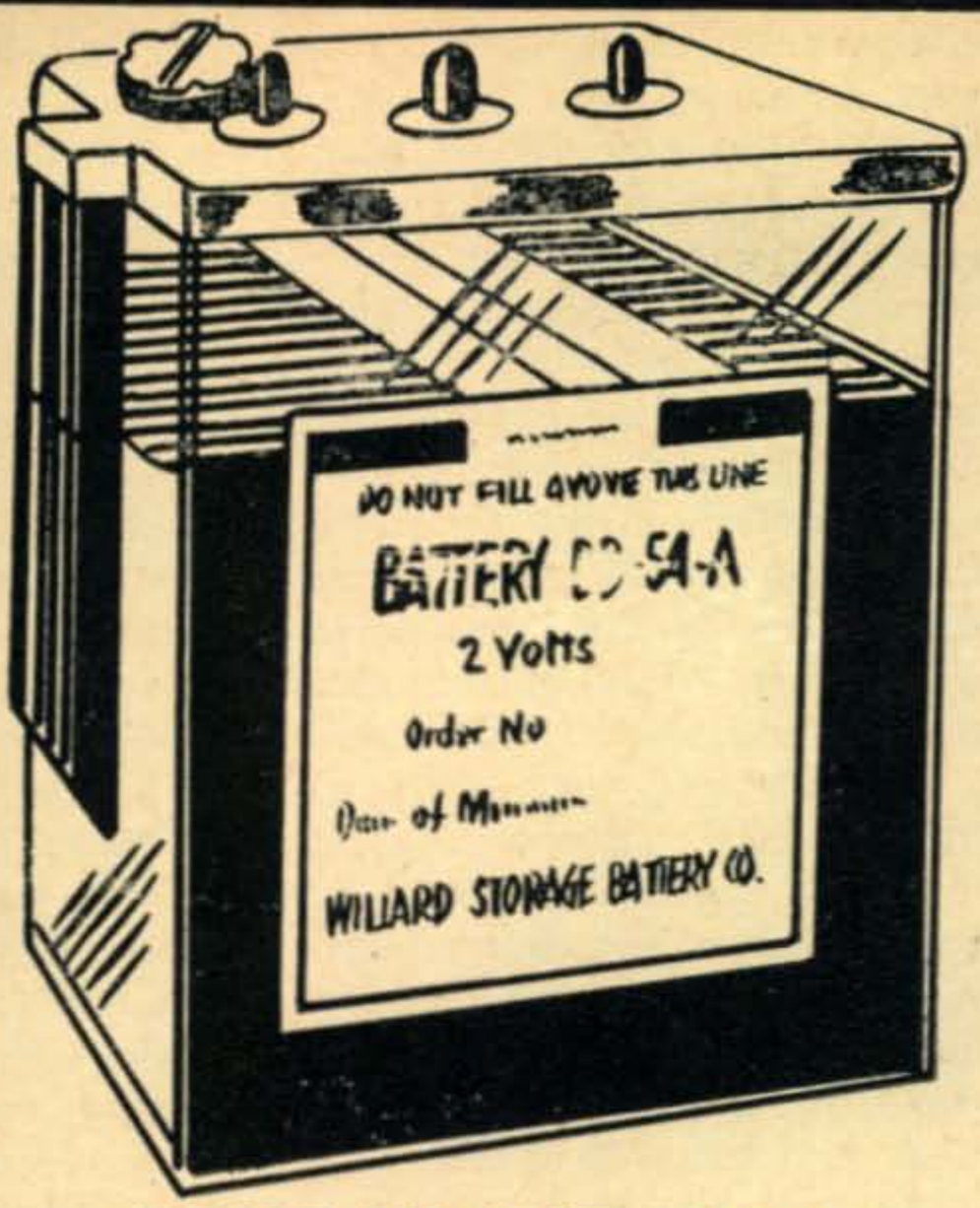
On the 4th, widespread opening brought activity to just about all sections of the country. The Northeast Atlantic paths were open, and signals from VE1s, QZ, TR, QY and W1PWW were booming into the W2, W3, W4, W8 and VE3 call areas. This opening was still going on after midnight! Ye Ed was getting out despite the loss of 50% of the push-pull final amplifier—it didn't take much power that night. Meanwhile, things were popping in the south and central portions of the country, W4MS reports QSOs with W8CMS, plus a whole flock of W5s and WØs. Eddie also heard the signals of XHTV on channel 4 from Mexico City. W8BFQ was right in the middle of things, and ,ooked W5s ONS, FSC, CUH, DSB, QME and FXN. Then the band shifted 180 degrees, and Marge went on to work VE1QY, W1PWW and VE1TR. WØUQM had a busy evening, working W4, W8, and W5 call areas. VE5NC heard several of the W5s, but signals over that path were relatively poor. Not to be outdone, the gang on the West Coast staged a show also, with W7JPA working W6TMI and W6ANN, and W6IWS reporting W7HEA, W7JPA and VE7DU. Quoting O. P. Ferrell, "It certainly was a most unusual opening for this time of year!".

According to the meagre reports received since this opening, not too much six-meter activity took place during the closing weeks of January. We have heard a few second-hand reports that aurora openings occured during the evenings of the 30th and 31st, but have no details as yet.

Two Meter Notes

W3KUX, of Washington, D. C., is all set to take advantage of the possibilities of tilting his antenna to collect more of the high-angle scattered signals from the atmospheric "blobs" described by W. E. Gordon in last month's issue of CQ. Preliminary tests are inconclusive, but Wally hopes to conduct further tests during his scheduled "winter-time DX" contacts. W4AO and W2PAU are running similar tests, with graphic signal-strength recording meters at both ends of the 120-mile circuit to provide written proof of their results. To date, any antenna tilting by these stations has been purely involuntary!

The Southern Ontario VHF Group meets at the Riverside Lodge, Oakville, Ont., (the QTH of VE3AGY). They plan to hold 4 meetings each year, with a different chairman presiding at each meeting. The most recent meeting, on the 19th of January, was a howling success. One of the highlights of the affair was the induction into the "Sacrilegious Order of the Bathtub Plug" of the luckless ham who perpetrated the most foul deed



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We are dealers in surplus electronics and we are interested in anything dealing with radio or television. We are especially interestd in large quantities of surplus and anything that can be bought at a bargain price. Please don't hesitate to write us immediately. Quote us prices on what you have and give us a full detailed description. We will not answer any letter unless description and price is quoted.

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on the v.h.f. bands during the previous period. The award this time went to one who had best remain un-named—he has suffered enough! He pulled the classic boner of leaving his 522 transmitter turned on, accidentally. while he went to a movie. This would have been a sufficiently grave offense in normal times, but during the rush period of the VHF Sweepstakes—WOW! Only rapid action with direction-finding antennas, brainy detective work, and a few well-placed phone calls got the carrier off the air in time to permit the Buffalo gang to work the stations who had been snowed under by the un-modulated carrier on the busy channel! The award consists of a large aluminum medallion, suitably engraved on one side with the full story of the victim's misdeed, a length of chain (bathtub plug chain, of course) to support the assembly around the wearer's neck, and a suitable token to symbolize the act—in this case, a switch with a spring return to the "off" position. The bearer of this medallion is required to wear it, face out, at all ham gatherings, and, in case he is tempted to hide his shame by wearing it in reverse, the back side is inscribed "What'll you have, fellows? The drinks are on me!" The serious portion of the meeting was devoted to a discussion of Civil Defense plans by VE3IL, VE3XZ and W2TBD.

W2JAV passes on the information that quite a bit of the TVI trouble that is experienced by the two-meter gang is due to strong fundamental r.f. signals which are transmitted into the front end of the TV set via the antenna and feed line. Cases of image interference, beats, between powerful incoming carriers, etc. can be greatly alleviated by the installation of a suitable two-meter rejection trap in the TV set feed line. Phil recommends the Meissner type 15-7514 as an efficient pre-fabricated filter which can be purchased at most distributors' for a reasonable price. He has had success in pre-tuning these filters to the frequency of his rig and just installing them in the victim's home with no further adjustments. In stubborn cases, it is often necessary to run shielded feed line from the tuner on the TV chassis to the spot where the filter is supported. W2ZFG was even able to clear up a bad case of TVI in his "fringe area" location on a Motorola table model set which suffered from image response on channel 10 by this treatment. As any of you two-meter men who have run into this problem can attest, curing it isn't easy!

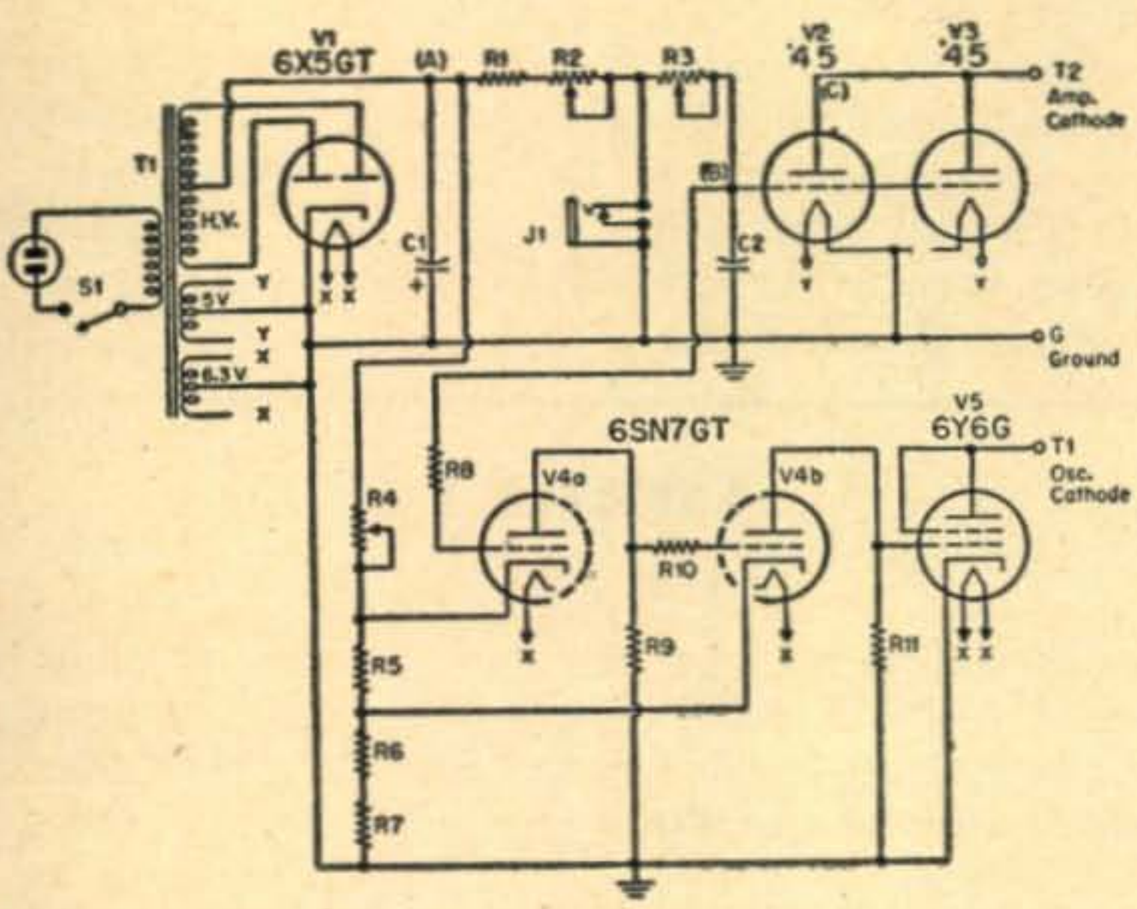
W4AO reports that the sub-miniature type 5702 pentode (approximately equivalent in characteristics to the 6AK5) performs better than its large-size prototype in two-meter receiver pre-amplifier service. Ross is using one in a Wallman Cascode circuit, and has obtained better results with this amplifier than with the 6AK5 version of the same circuit or the 6J4 grounded grid amplifier. He bases this opinion on noise-diode tests and on-the-air listening tests.

Well, that's about all we have room for, this time. Keep us posted. 73 and see you next month. . . .

Brownie, W2PAU

MORE ON W2ZDE's KEYER

Since the publication of our differential vacuum-tube keyer in *CQ* of January, some errors and changes have come to light, which we'd like to pass on to you[1]. Not the least of these is the omission of the all-important parts list. Referring to the original circuit (*Figure 1*):



1 "A New System for Perfect Keying," *CQ*, Jan. 1951.

R1—100 k, 2 w.
R2—5 meg. pot.
R3—1 meg. pot.
R4—20 k pot.
R5—15 k, 2 w.
R6—18 k, 2 w.
R7—22 k, 2 w.
R8—6.8 meg.
R9, 10, 11—1 meg.
C1—16 μf., 450 vdc elec.
C2—.005 μf. mica.
T1—650 VCT 40 ma. power trans. (Stancor P-6010)

The formula for calculating C2a (for grid-block keying) gives the value in uf., not "N.F." of course. R1a should read "50K 5W.".

A very handy addition to the completed keyer is a "push-to-tune" switch. This gadget allows you to zero-beat the VFO with another station roll." This can be accomplished very easily with the addition of only a momentary switch (or push button) and a 2 megohm resistor, as shown in *Figure 2*. The switch is located at the key terminals; pressing it allows the bias voltage to drop to a value sufficient to turn on the VFO, but keeps the amplifier stages cut off. The keyer will respond at any time to operation of the key, and therefore QSY-ing becomes a very simple matter.

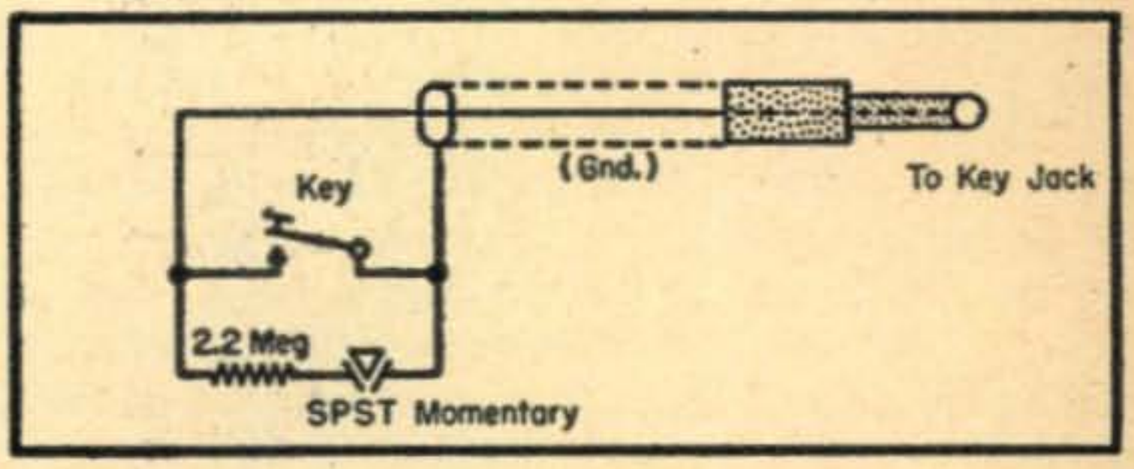


Figure 2

Because of the high sensitivity of the d.c. amplifier, the keyer can be used as a rough leakage checker. With R2 and R4 set at maximum, the oscillator will turn on if there are 15 megohms or less, approximately, across the key. Decreasing R4 increases the sensitivity to higher resistances, and serves as a handy method for checking paper condensers, etc.

Our belated thanks to Joe Breyer, W2ZDD, who built the final model of the keyer, and to the fellows who wrote to us, pointing out the omission.

NOVICE SPECIAL

(from page 15)

anced r.f. transformer (bazooka) is also satisfactory, though perhaps less practical at this low frequency.

Once the proper antenna has been installed the finishing touches may be made on the original tuning. Only a minor adjustment in the position of the slug in L_3 should be necessary to peak the glow from the neon bulb.

A double check may be made by connecting a 0-100 ma meter in parallel with R_5 and noting the plate current, which should be approximately 50 ma, at resonance. (A convenient way of connecting this meter is to clip the positive side to the plus 300 volt lead in the power supply chassis and he negative side to the lower terminal Post of L_3.)

The 80-Meter Novice Rig may now be operated in any portion of the 3700 to 3750 kc. band without further tuning.

Additional Notes

Condenser C_1 was chosen so that the 6C4 oscillator would operate properly with currently available crystals. Pre-war crystals of the old style are frequently found to be considerably less active than the current units and are therefore not recommended. Use of these old crystals may require a circuit change involving C_1 which is beyond the scope of this article.

Regarding TVI, in extremely unfortunate cases it is possible that the shielding precautions taken may not be adeguate. A further refinement in the metal-to-metal bonds between chassis and covers can be accomplished by the use of shielding braid. This braid, used as a gasket between the mating metal surfaces, provides a far superior, continuous joint in the shielding.

CORKEY

(from page 25)

speed control, can be left alone in some medium-speed position while these adjustments are being made. After the rate adjustments have been completed, giving a satisfactory two-to-one ratio, R-2 should be rotated about one-quarter of its range from the maximum-resistance position, and

the spring tension of RY-2 should then be decreased until a satisfactory dot weight is obtained. Potentiometer R-2 will now function as a weighting control, lighter dots and dashes being obtained as the control is rotated toward minimum resistance.

A final caution: observe that the two fixed contacts of the key lever are connected to different taps on the battery. The two contacts should not be closed simultaneously in making key lever adjustments, or the battery will be damaged.

GRID DIPPER

(from page 22)

coil, and at the same time keep down the lead length to an inch or less. The "cold" terminal of the X-X pair is grounded directly to the side panel, using a 6-32 bolt and a shakeproof lug to make a firm low impedance connection.

Most of the "works" ended up on the rear edge of the Minibox. Short leads, with their attendant advantages, are a direct result of this layout. For example, there are no wire leads between Pin 7 of the 6C4 and the cathode tap on the coil—connection is made by soldering the respective lugs on the sockets together. A similar arrangement was worked out between one side of the link winding and the GR-type antenna terminals for the link winding.

Well, there it is, fellows. It's your grid dip meter if you want it—and for only twelve bucks, if you do it the hard way—less if you have any sort of a junk box inventory. When it's built, you'll have all the fun that I experienced in learning how to use "the thing." All the joys, that is, without the head-scratching that went into the rear panel layout and in getting those five coils to overlap so nicely.

DX & OVERSEAS

(from page 40)

have sent their cards to K2AJ. QSL cards for the other contacts are ready to be mailed as soon as K2AJ receives QSL's from the various stations involved. . . . It should be interesting to know that the ET 1, 2, and 6 stations were operated at three different locations in Ethiopia during the period of September to December. The rig used 6V6 crystal oscillator followed by a 6L6, giving about 10 watts into a long wire antenna. The receiver was a portable SX72.

Remember VO6X? Well, he is in Korea serving with the United Nations Commission, and according to VE2BV, who got a letter from him, he was hale and hearty as of December 31. Jack says no hope of getting on with an HL call, but says he won't lose hope, and neither will we. When VO6X was active on 20 c.w. in Zone 2, he was responsible for many of the boys grabbing off this particular zone. Well, it sounds easy now, but I know a certain W6 who had a heck of a time

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Mrs. Rose Nysse says, "In 1942 William and I started making U. S. Savings Bonds a part of our plan for financial security. I joined the Payroll Savings Plan at the Sweetheart Soap Co. where I work, and began buying a $100 bond a month, knowing my money was safe and working for me. U. S. Savings Bonds certainly make saving easier!"

"Savings Bonds alone made a $5,000 down payment on our house!" says Mrs. Nysse. "Altogether, we've saved $8,000 just in bonds bought through Payroll Savings, and we are keeping right on. When we retire, our bonds will make the difference between comfort and just getting by. Bonds offer a patriotic and practical way to security."

You can do what the Nysses are doing —the time to start is now!

Maybe you can't save quite as much as William and Rose Nysse, maybe you can save more. But the important thing is to *start now!* It only takes three simple steps.

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nabbing this zone.

I guess I had better go now. Anyway, you fellows want to do a little patching up, I imagine, for the rest of the DX contest. It looks as though during the March portion of the Contest 'Yours truly' will be flitting around NYC—more specifically the week of March 19th—for the IRE doings. Hope to see some of you around the Commodore.

EAØAC	Dr. Juan Medem, P. O. Box 195, Sta. Isabel, Spanish Guinea.
EQ3FM	A. P. O. 205, % Post Master, New York, N. Y.
F9ET	M. Loubet, C. G. F. Boanamary, Madagascar.
HH2JC	Radio Club of Haiti, Port Au Prince.
KX6AA	Unit 82, Navy 824, % Post Master, San Francisco, California.
MI3VG	Box 513, Asmara, Eritrea.
MT2DZ	P. O. Box 260, Tripoli.
Ex-MT2E	H. Orrell, Eastern Telegraph Mess, Aden.
ST2TC	T. C. Christodoulides, International Aeradio Ltd., Wadi Halfa, A. E. Sudan.
YI3ECU	% R. S. G. B.
ZD1AR	P. O. Box 25, Freetown.
ZD2PLL	Via R. S. G. B.
ZD6RD	P. O. Box 72, Zomba.
ZS2MI	% ZS6DO, Box 4887, Johannesburg, South Africa.

MOBILE CORNER

(from page 31)

portion of the transmitter on the dash with the modulator tucked away in any convenient location. For band-changing, the RF portion can be built as a plug-in unit with separate units for each band.

It is realized that a lot of these things, such as fighting for that last half amp, normally would not apply. However, conditions under actual sustained emergency conditions certainly are not the same as those of a simulated drill lasting an hour, where the penalty for failure is only loss of time. It is possible that only a few changes in existing equipment would permit twice the operating time with the same demand on power source, and at the same time permit much more efficient operation.

Further suggestions from the gang would be appreciated.

Maritime Mobile Club

Effective in January, W3OB, Mac, took over the job as Secretary-Treasurer of the Maritime Mobile Amateur Radio Club. Mac has had a great many contacts with the MM's numbering well over a hundred, and is known by QSO to practically all of the MM operators. In the future, fixed-stations should send their 30 MM QSL'S for the MM certificate to: W3OB—John G. McKinley, 1317 Orangewood Avenue, Pittsburg, Pennsylvania.

The MM club presented a beautiful Ronson table lighter set with an engraved tray to this editor on the occasion of his retirement as the 1950 Secretary-Treasurer of the Club. Thanks, fellows.

Wonder how many of the gang realise that our MM gang quite often make important reports regarding radio propogation and weather. These reports, coming from all parts of the globe, per-

mit a much better evaluation of these observational projects than if land reports only were available.

DL6NU and HB1HL are MM's in the North Atlantic operating on 3520 kc/s. They operate 6 to 6:30 EST.

SCRATCHI

(from page 4)

many directions at once, and after that not even caring how many directions it moving, so going down in little cabin and passing out—in more ways than one, I'm fearing.

Well, Scratchi are missing the island, because I not coming to until boat are safely tied up back at dock. That night at the hotel Itchi are giving me the lowdown. It seeming that he and skipper are having hard time finding island, but after much searching they coming across it. It are so close to another big island that at first they mistaking it for large rock. In fact, that is just about what it is, a large rock. However, Itchi say not to worry, because it is high tide when seeing island, and there still plenty room to walk around rock, so when low tide coming island would be looking much bigger.

Learning the size of the island is putting small damper on my plans, but not too much, especially when Itchi say that island is all mine if I want it. So, next day, on way back to ranch, I are discussing my plans with Itchi.

Our first problem is what call letters to use on the island. It are evidentally outside twelve-mile limit, so not belonging to United States. I can arranging for DX Committee to recognize it as separate country, but still needing call letters. Can't getting official assigned prefix until next international convention, so finally deciding to select own prefix. Hon. Ed., what you thinking of QRM as nice prefix? It are one no one else likely to use. Scratchi's personal call can be QRM2U. It are making nice distinctive call, aren't you thinking?

Several other problems are temporarily stumping me. For power I can use gasoline generator, but island are so small that generator noise are likely to make receiving conditions much fierce. Also, are hardly room to build shack of any sort, unless making it waterproof and airtight. Itchi finally coming up with solution. He saying why not use barge to put equipment on, and tie barge to island. That way have lots of room, and not have to build anything on island. Itchi say this last are particularly good idea, on acct. if get any strong wind over island he afraid not much be left of it.

So, that's the way it now standing, Hon. Ed. If you know where Scratchi can get good used second-hand barge reel cheap letting me know. It will have to be on west coast, though, as Scratchi not taking any barge through Panama Canal. And while you are thinking, you might letting me know how I can put up some half-wave antennas for eighty meters. Barge won't be long enough, and island isn't that big. If you get any brainstorm you know where to reaching me. I writing

again when getting things all set.

Oh yes, how much do you think I should be charging for ham license to operate on Scratchi Island?

Respectfully yours,
Hashafisti Scratchi

RF SNIFFER

(from page 33)

The question is certain to arise, "Why not use DC?" DC was tried, but proved unsatisfactory for three reasons: 1. The sensitivity is considerably lower. 2. There is an excessive amount of electrical "backlash." 3. Photo-electric effects make the indication eratic.

The device being quite simple, the constructional details are left to the ingenuity of the experimenter. If the suggested arrangement shown in Fig. 1A is followed, a lucite coil form approximately an inch and a half in diameter and about five inches in length will serve as a satisfactory probe housing. The capacitor, C1, is provided for the purpose of by-passing any RF picked up by the probe cord. C1 should therefore be mounted and connected as close to the neon bulb terminals as possible. The small 1500 ohm resistors, R1 and R2. may be inserted directly inside the line plug.

MONITORING POST

(from page 32)

Bay, B.C., and *VE4BS,* Swan River, Manitoba; other trips brought him to several spots in Arizona, Colorado, Montana, and California; the Death Valley photography was on "The Golden Horde" for Universal with Ann Blythe starring. . . . *W9AWM/2* at Fort Monmouth, has been on the air since 1923 with the calls 8CGN, W9EST, and W9OOT; 27 years of brass pounding—and he still likes it. . . *WØHA* is one of the boys who keeps KRNT at Des Moines going.

HK5CR does very well with his indoor antenna on 40, working the W2s without difficulty. . . . *W2QX* honors us with his signal on 80 after a ten-year absence from ham radio. . . . *W9MWL* has also come back to 80 after a long vacation on the higher bands. . . . *W9BEN* can be heard on the air at most any hour now that cool weather has caused a closing of his drive-in theatre at Freeport, Ill.; his folded unipole antenna, a 66-foot aluminum tower, brings RST589 reports on 40 from the ZLs; he's an old-timer, having been on with spark in '23. . . . *VE1ABP,* Liverpool, N.S., proudly displays an array of QSL cards in the shack; his sked with *W6AY* is kept consistently with 100 watts; others in his town are *VE1US, AA,* and *ABB,* with *VE1LK* close by; *ABP* and his brother, *ABB,* have just finished their first year as hams.

The Greater Cincinnati ARA announces its officers as: *W8RJD,* pres.; *W4UXH,* v.-pres.; *W8BDA,* sec.; *W8CNV,* treas., and *W8MGP* as editor of "The Mike and Key," it monthly bulletin... The

Lawton-Ft. Sill ARC is all ready for several thousand messages to be originated at the annual Easter Pageant on March 25; watch for the W5s in this area for traffic on the above-mentioned date and help the club to clear the hook quickly; mobiles, portables, telephone ops and sundry handymen are lined up for the event; the club bulletin queries: "Are there any amateurs in Deleware?" . . . Schenectady ARA has its 1951 officers in *W2GYV*, pres.; *UKA*, v.pres.; *ZHI*, sec., and *YIK*, treas.

YL

(from page 35)

"Finally, I will mention my other hobbies. Amateur radio is, of course, my chief hobby. But as the second one comes music. I play the piano and my favorite composer is Beethoven. I am very much interested in all kinds of sports—in winter I love skiing and in summer swimming. I also like very much to dance. And last, I love all sorts of travel, but first and foremost by ships. So I know that sooner or later I will go to sea, and naturally as a radio operator. But in the meantime you'll hear me from this small QTH where I'll be fishing for DX."

40 & 80 METER 8JK

(from page 19)

paragraphs in many antenna articles which state that such a situation was worked and the report was this or that. The only worthwhile criterion of performance is a comparison of one antenna with another under identical conditions, that is, a test in which a quick change is made several times between antennas, with a distant station listening and giving comparative reports. At the time this antenna was erected, we had available a 3.5 mc center-fed half-wave antenna at approximately the same height as the 8JK. This antenna became two half waves in phase on 7 mc, with maximum directivity in the same directions as the 8JK. Also available was a center-fed half-wave antenna for 7 mc, at an elevation of about 45 feet. Comparative tests were made with a number of DX stations among the three antennas on 7 mc and between the 8JK and the half-wave job on 3.5 mc. On 3.5 mc, the reports from Europe and from New Zealand in nearly every case gave the 8JK at least one "S" point over the half wave, sometimes more. G5VG and ZB1AR reported the 8JK three "S" points better than the half wave! On 7 mc a particularly interesting series of tests was run with F3NB, who gave the 8JK S-8/9, the two half waves in phase S-7, and the 7-mc dipole S-5 with heavy QSB. We were receiving F3NB a solid S-7 with the 8JK, but when we stood by to listen after changing to the dipole we had to switch quickly back to the 8JK in order to get his report, because his signal was so weak and thin we could hardly be sure he was there in the QRM.

The payoff on this antenna, however, was the way in which it performed in the 1950 ARRL

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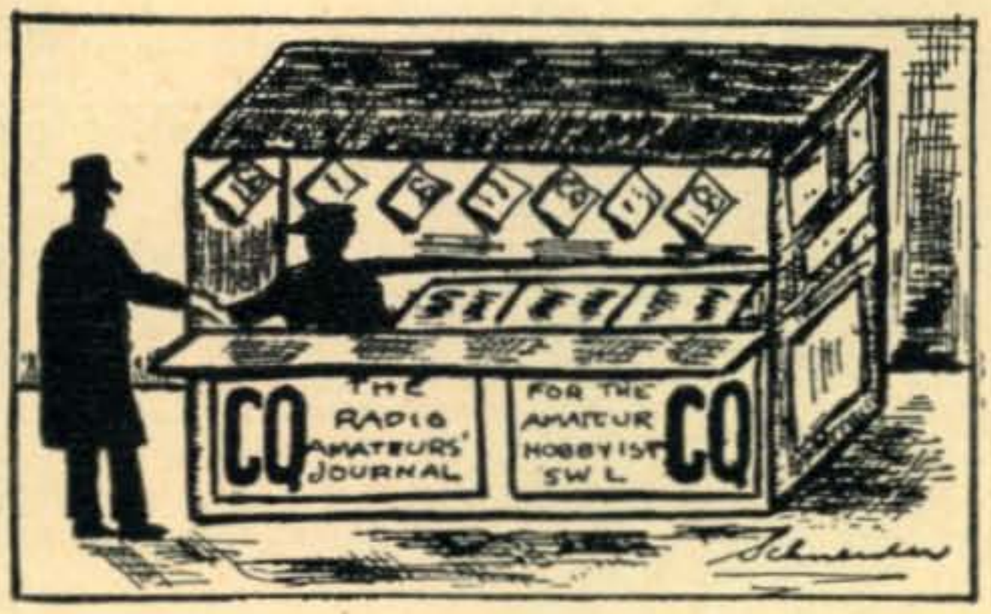

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FOR SALE: BC348 receiver converted in excellent condition, with shock mount base, $75.00 W8AYS, 17225 Roseland Rd., Cleveland, 12, Ohio.

SWAP: 600 watt plate modulated phone transmitter. All band. HQ129X & speaker. Bud VFO, Elincor 3-element 10 meter beam, lots of extras. Will consider extra good boats, outboards, shot guns, rifles (high power) etc. or $350.00 cash. W5JOD, Homer K. Howe, Blackwell, Okla.

QSLs, HIGH QUALITY, fair prices. Samples? W7GPP, 1380 F. The Dalles, Oregon.

HOTTEST SURPLUS LIST in the country. Electronics—hydraulics—aircraft gadgets. Dick Rose, Everett, Wash.

BEAMS AND ANTENNA ELEMENTS. Send card for information. Riverside Tool Co., Box 87, Riverside, Ill.

CONVENTION! ARRL National Convention in Seattle July 27, 28 and 29, 1951. Plan your vacation in the evergreen playground during Seattle centennial year. The event of a lifetime! General Chairman: W7RT.

ATTENION: Jay C. Alpern, New York, N.Y. Received your subscription and remittance. What is your address? CQ Circulation Department, 67 West 44th St., New York 18, N.Y.

WANTED: RA-34 rectifiers; TCS sets parts; PE-104, PE-103, BC-654 (SCR-284). Arrow Appliance Co., 525 Union St., Lynn, Mass.

BUSINESS relationships are on a personal basis when you deal with W1BFT at Evans Radio, Concord, N.H.

SELL: TCS equipment; BC-654; (SCR-284) T.C. Howard, 46 Mt. Vernon St., Boston 8, Mass.

FOR SALE: Collins 75A1 excellent condition with speaker $260.00. M. M. Parries, WØWZQ, 1301 Third Street No. Fargo, North Dakota.

GLOBE KING 400-A. Full 400 watt phone Newest model. 80, 20, 10 meter coils $390.00 F.O.B. Omaha. Also RME-45 with speaker and HF-10-20 for best offer. Tom Fifer, WØAQJ, 7214 North 35th St., Omaha, Nebraska.

FOR SALE: PP813s, AM (805s), FM xmtr 80 to 10 meters, Meissner 9-1090 driver. Grey Par-Metal cabinet. Fine job. Will not ship. R. A. Worley, W2WI, 723 Hamilton Ave., Trenton, New Jersey.

SELL OR SWAP: PE-103-A and filter. Good condition. W5JJO, 1535 Creswell, Shreveport, La.

SELL: Meissner 150-B xmtr, with exciter, $250.00; Collins 310-B1 exciter, $150.00; ARB/CRV46151 rcvr, 190 kc to 9 mc, $20.00; BC453-A Q5-er, $15.00; National NC-1-10 rcvr, $25.00; G. E. XFM-1 FM transceptor, $35.00; Lysco 75 mtr mobile converter, $15.00; PE-103-A $18.00; all new or like new. Used BC-946 broadcast command rcvr, $10.00. Want cash, no trades. W20VY, F. R. Vadney, 1853-8th Avenue, Watervliet, N.Y.

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SELL OR SWAP: BC610 components. F.O.B. Grand Island, Nebr. Modulator deck, wired. Less tubes and modulation transformer. Exciter deck, wired with two tuning units less tubes. BC-614-A speech amplifier, complete with tubes. Junction box JB-70-A. Antenna tuning unit BC-729-C, complete. All in good condition. Want SX-42 or NC-183 receiver or cash. WØPZU.

FOR SALE: Temco 75GA transmitter completely modified with Eimac 4-65A in final running 200 watts phone and CW; electronic keying system built in; modulation increased to full 100 watts audio, being used presently on all bands, price $275.00 FOB Butte. W7KKB.

FOR SALE: Almost completely assembled Eldico TR-1 transmitter kit with cabinet. 200 watts phone, CW all bands. Best offer over $125.00 or test equipment of equal value. Excess equipment reason for selling. W2DNM, Bernard McConnell, 551 W. 174 St., New York City.

MOBILE generator, regulator, cables, fittings now set at 7.2 volts, 45 amps 15 mph up. Maximum possible 8 volts, 55 amps, idling. Cost new $138.00. Run 8000 miles. Got 13 countries. Good offer gets it express collect. W2WLR, 12 Public Square, Watertown, N.Y.

MECK T-60 or similar transmitter and sensitive communications receiver wanted. Will swap or sell SX25 $55; S40 $45.00; Hammarlund Four-20 transmitter $40.00; New Carter 100 W. dynamotor, not surplus, filter, 6 v $30.00; 175 W modulation transformer $10.00; shielded 1000, 750 vdc 300 ma transformer and 300 ma swinging choke $10.00; 810 $3.00; 814 $2.00; 811 $2.00. W3MLZ, 1132 E. Pine St., Mahamoy City, Pa.

WANTED: Instructograph Senior, electric driven, or equivalent. State price and condition, first letter. Daniel Rosenbaum, 1450 48 Street, Brooklyn 19, N. Y.

WANTED: Collins 310B-1, 310C-1 or 310C-2 exciter unit. State condition, age and price. W5BUF, Sil Thompson, 6460 Vicksburg Street, New Orleans, La.

QSLs? SWLs? Made-to-order Cards! Samples 3c Sackers, W8DED, Holland, Michigan. (Veteran).

WANTED: Collins 31OB-1, 31OB-3, 32V1, 32V2. National 101X and NC-240-D. Please describe condition and state best price in first letter—not necessary equipment be in perfect condition. Address Box 130, CQ.

HELP WANTED

ASSISTANT ADVERTISING MANAGER wanted by midwest communications equipment manufacturer. Excellent remuneration and opportunity. Box 54, CQ Magazine, 67 West 44 Street, New York 18, N. Y.

EDITOR OF CQ needs assistant, will be trained in production, etc. Excellent opportunity for the right man or YL. Give complete details to Personnel Manager, CQ Magazine, 67 West 44th Street, New York 18, N. Y.

DX contest. It was used for all European and Pacific contacts in the latter half of the fracas, and we seemed to have no great difficulty in cracking the "QRM wall" along the East Coast, although we are nearly 300 miles inland. Nearly every station called on 7 and 3.5 mc was worked, and although it must be admitted that the kilowatt helped, the kilowatt competition was commonplace as usual in all DX contests. An extra "S" point may not mean much in normal operating, but when the chips are really down it can make a tremendous difference!

REVAMP YOUR TOWER

(from page 30)

no detrimental effects on the cable. The height of the beam was increased 17 feet. When necessary to change cable or tune up beam the drive pin (located just above the horizontal gear in Fig. 2) is pulled and the 17 feet of pipe slides down in the center of the tower. The weight of the pipe and beam keeps the gears in constant mesh which eliminates any trace of backlash.

The increased height can be seen in Fig. 3. Note in Fig.. 1 that in spite of the 17 foot increase the tower still looks compact and simple. A 60

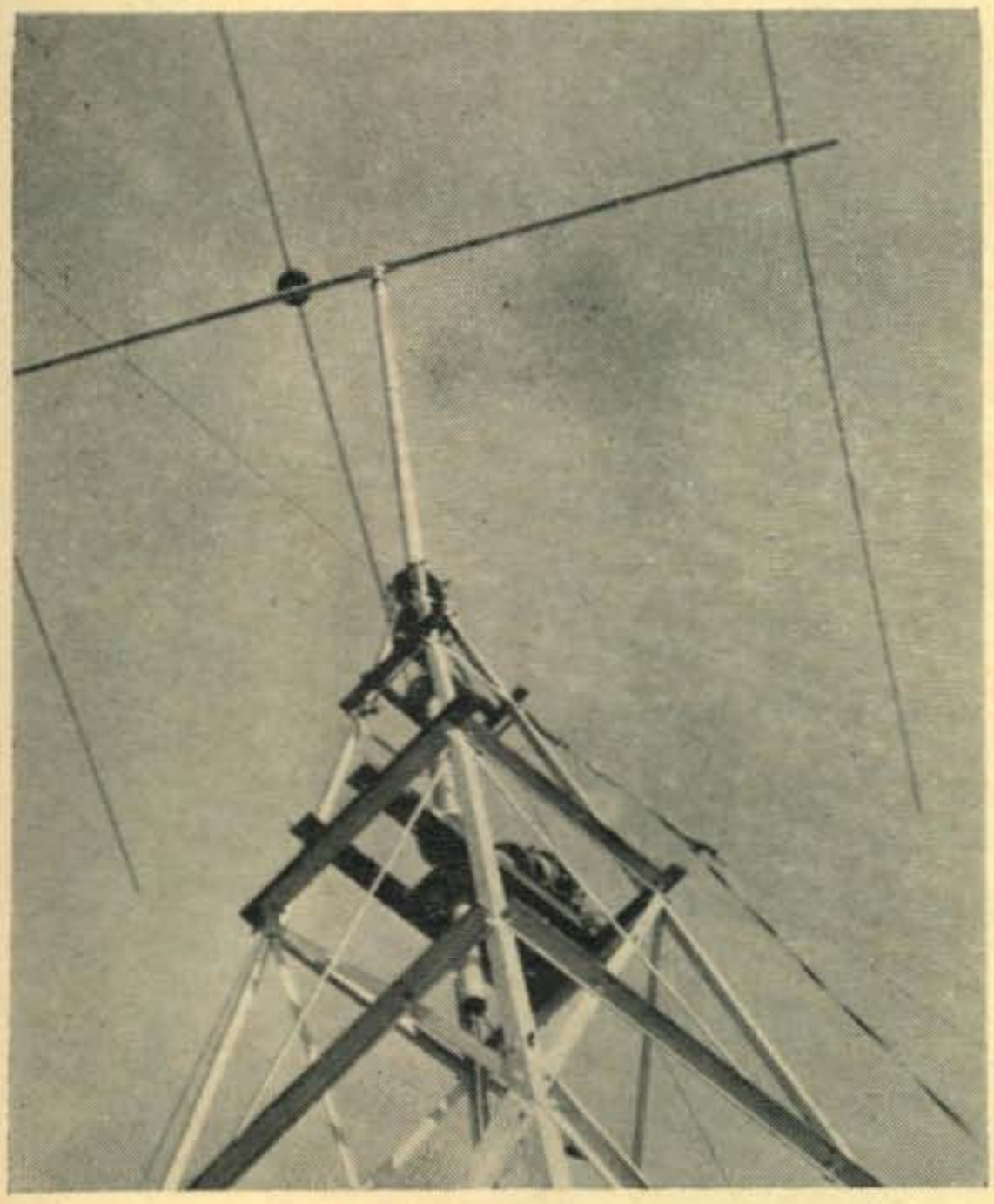

Fig. 3 Rotation is smooth and extreme rigidity is assured by the heavy pipe.

pound auto flywheel was attached to each of the four tower feet to balance the pipe leverage. Two guy wires were installed as a precautionary measure.

Other "hams" having cable or rotation problems might find an idea from the pictures.

CQ Ad Index

CQ

A STARTLING ANNOUNCEMENT WILL APPEAR ON THIS PAGE SOON

FORGET ANY STANDARD OF SELECTIVITY YOU HAVE EVER KNOWN.