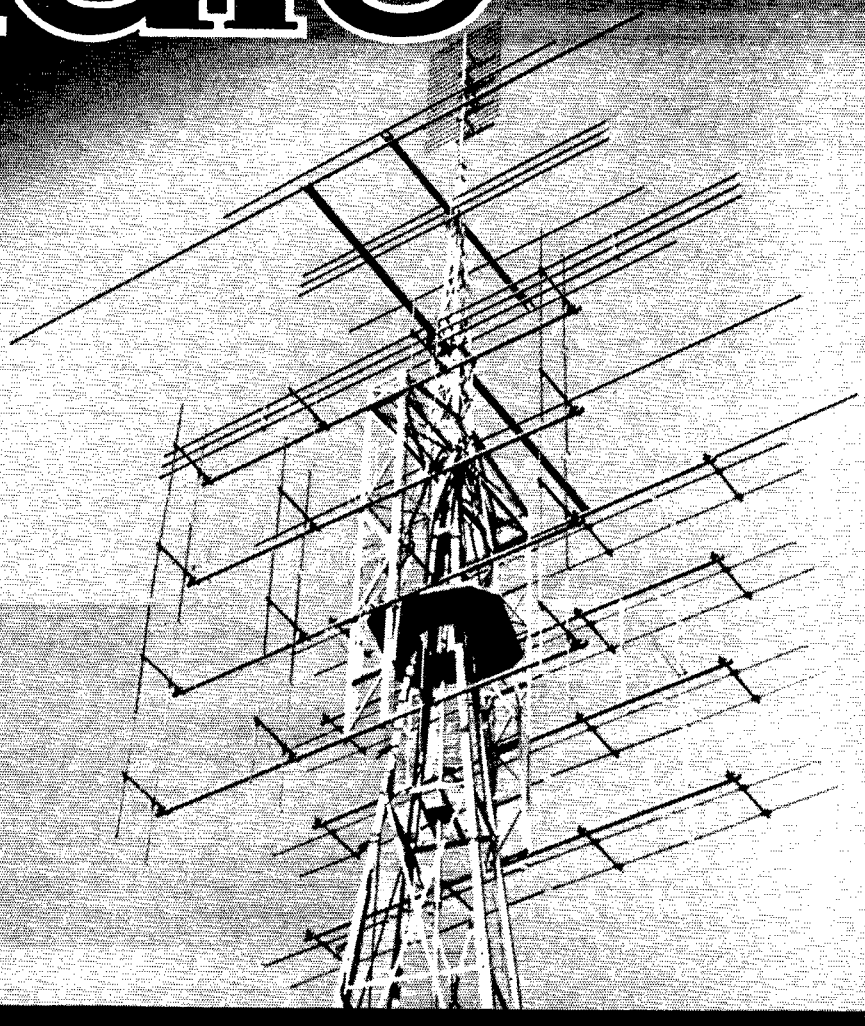
December, 1952
40 Cents
45c in Canada

QST

devoted entirely to

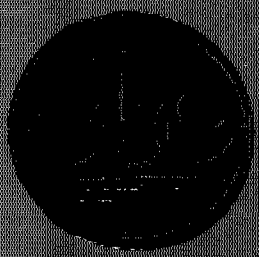
amateur radio



In This Issue:

- ★ High-Power Final for 50, 28 & 21 Mc.
- ★ 75-Watt Rig with "Economy" Power Supply
- ★ Inexpensive Low-Pass Filters for TVI
- ★ Putting the Viking I on Six Meters
- ★ Field Day Scores

PUBLISHED BY THE AMERICAN RADIO RELAY LEAGUE



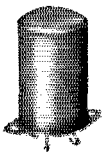
for MINIATURIZED COMPONENTS

from STOCK

The constant satisfaction of military and portable civilian gear has required ever smaller components of smaller and smaller dimensions. This is particularly exaggerated in the case of transformers for use in transistor circuits. The "H" series of miniature and sub-miniature units described below are hermetic-military types to cover virtually all audio applications. For even smaller physical size, our ultra-miniature types are available against specific needs.

MINIATURE AUDIO UNITS...RCOF CASE

Type No.	Application	MIL Type	Pri. Imp. Ohms	Sec. Imp. Ohms	DC in Pri., MA	Response ± 2db. (Cyc.)	Max. level dbm	List Price
H-1	Mike, pickup, line to grid	TF1A10YY	50,200 CT, 500 CT*	50,000	0	50-10,000	+ 5	$16.50
H-2	Mike to grid	TF1A11YY	82	135,000	50	250-8,000	+21	16.00
H-3	Single plate to single grid	TF1A15YY	15,000	60,000	0	50-10,000	+ 6	13.50
H-4	Single plate to single grid, DC in Pri.	TF1A15YY	15,000	60,000	4	200-10,000	+14	13.50
H-5	Single plate to P.P. grids	TF1A15YY	15,000	95,000 CT	0	50-10,000	+ 5	15.50
H-6	Single plate to P.P. grids, DC in Pri.	TF1A15YY	15,000	95,000 split	4	200-10,000	+11	16.00
H-7	Single or P.P. plates to line	TF1A13YY	20,000 CT	150/600	4	200-10,000	+21	16.50
H-8	Mixing and matching	TF1A16YY	150/600	600 CT	0	50-10,000	+ 8	15.50
H-9	82/41:1 input to grid	TF1A10YY	150/600	1 meg.	0	200-3,000 (4db.)	+10	16.50
H-10	10:1 single plate to single grid	TF1A15YY	10,000	1 meg.	0	200-3,000 (4db.)	+10	15.00
H-11	Reactor	TF1A20YY	300 Henries-0 DC, 50 Henries-3 Ma. DC, 6,000 Ohms.					12.00



RCOF CASE

Length 1 25/64
Width 61/64
Height 1 13/32
Mounting 1 1/8
Screws ..... 4-40 FIL.
Cutout ..... 7/8 Dia.
Unit Weight ..... 1.5 oz.

SUBMINIATURE AUDIO UNITS...SM CASE

SM CASE

Length 11/16
Width 1/2
Height 29/32
Screw ..... 4-40 FIL.
Unit Weight ..... .8 oz.

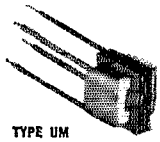
Type No.	Application	MIL Type	Pri. Imp. Ohms	Sec. Imp. Ohms	DC in Pri., MA	Response ± 2db. (Cyc.)	Max. level dbm	List Price
H-30	Input to grid	TF1A10YY	50**	62,500	0	150-10,000	+13	$13.00
H-31	Single plate to single grid, 3:1	TF1A15YY	10,000	90,000	0	300-10,000	+13	13.00
H-32	Single plate to line	TF1A13YY	10,000***	200	3	300-10,000	+13	13.00
H-33	Single plate to low impedance	TF1A13YY	30,000	50	1	300-10,000	+15	13.00
H-34	Single plate to low impedance	TF1A13YY	100,000	60	5	300-10,000	+ 6	13.00
H-35	Reactor	TF1A20YY	100 Henries-0 DC, 50 Henries-1 Ma. DC, 4,400 ohms.					11.00

SPECIAL

ULTRA-MINIATURE UNITS TO SPECIFICATIONS ONLY

UTC ultra-miniature units are uncased types of extremely small size. They are made to customers' specifications only, and represent the smallest production transformers in the world. The overall dimensions are ½ x ½ x 7/16" ...Weight approximately .2 ounces. Typical special units of this size are noted below:

Type K-16949 100,000 ohms to 100 ohms...6 MW...100 to 5,000 cycles.
Type M-14878 20,000 ohms (1 Ma. DC) to 35 ohms...6 MW...300 to 5,000 cycles.
Type M-14879 6 ohms to 10,000 ohms...6 MW...300 to 5,000 cycles.
Type M-14880 30,000 ohms (.1 Ma. DC) to 3,000 ohms...6 MW...300 to 5,000 cycles.



TYPE UM

* 200 ohm termination can be used for 150 ohms or 250 ohms, 500 ohm termination can be used for 600 ohms.

** can be used with higher source impedances, with corresponding reduction in frequency range. With 200 ohm source, secondary impedance becomes 250,000 ohms... loaded response is —4 db. at 300 cycles.

*** can be used for 500 ohm load. . 25,000 ohm primary impedance . 1.5 Ma. DC.

United Transformer Co.
150 VARICK STREET • NEW YORK 13, N. Y.
EXPORT DIVISION: 13 EAST 40th STREET, NEW YORK 16, N. Y. • CABLES: "ARLAB"

CQ!

Less than five weeks remain to nominate your candidate for . . .

THE EDISON RADIO AMATEUR AWARD

December is the final month in which you may recommend a radio amateur for the Edison Radio Amateur Award. Nominating letters must be postmarked not later than December 31, 1952.

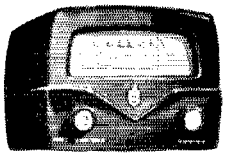
To review the facts which your nominating letter should contain, also the terms of the Award itself, please see the Edison Award announcement that appeared on this page in the October issue.

Then mail your letter to the *Edison Award Committee, Tube Department, General Electric Company, Schenectady 5, New York.*

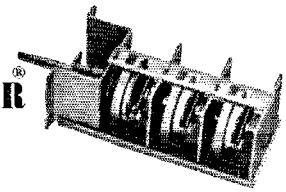
GENERAL ELECTRIC

166-1B12

MALLORY HAM BULLETIN



THE MALLORY UHF INDUCTUNER®



A practical solution to simplified tuning for UHF converters and UHF television sets

The Mallory UHF Inductuner is an excellent example of what imaginative engineering can do when given free rein. Less than 3 years ago, TV set engineers said it would be impossible to design a practical tuning system which would cover the entire UHF TV spectrum from 470 to 890 megacycles. It was believed that even if designed, such a system would be far too expensive and complex ever to build in commercial production quantities. Also, it was felt that the tuning adjustment of such a system or mechanism, would be much too critical for all but the trained technician to handle.

In spite of pessimism on every side, Mallory engineers did not hesitate, but began the practical research necessary to develop a satisfactory UHF tuner.

And develop it, they did! The Mallory UHF Converter, Model TV-101. now being sold *and delivered* wherever Mallory Radio Parts Distributors are located, is definite proof of the reality of such a tuning system. For the heart of the TV-101 Converter is a very practical UHF tuning mechanism called the Mallory UHF Inductuner.

Many readers are already acquainted with the Mallory VHF Inductuner. but few, perhaps, have heard anything concerning the Mallory UHF Inductuner. Externally, both units are identical. Internally, similarity ends. Where each tuned circuit of the VHF tuner consisted of a spiral inductance of metal ribbon, each circuit of the UHF unit consists of shaped pairs of metal ribbons bridged by an adjustable shorting bar. When connected to suitable vacuum tubes and other circuit elements, these parallel ribbons effectively become miniature "tuned lines" of exceptional efficiency, stability and uniformity. As the slider is moved, the parallel lines are shortened electrically, and smooth, broad range tuning results. By connecting 3 units together, a 3 gang UHF Inductuner is formed to make possible conventional superheterodyne circuitry consisting of oscillator, mixer, and pre-selector.

The exceptional tuning characteristics of the Mallory TV-101, UHF Converter would not have been possible without the UHF Inductuner. Used in many TV set front-ends, the Mallory UHF Inductuner effectively overcomes every one of those obstacles suggested by design engineers several years ago. It is simple. The electrical characteristics can be matched from unit to unit, day-in-day-out on the production line. It guarantees the construction of UHF TV sets with the kind of simplified tuning that makes station selection a real pleasure . . . even at 800 megacycles.

When the time comes for you to convert your own VHF TV set for UHF operation, be sure to see the Mallory TV-101, UHF Converter at your supplier's. It will operate with *all* VHF sets and it is UHF Inductuner equipped.

P. R. MALLORY & CO., Inc.
P. O. Box 1558 Indianapolis 6, Indiana

P.R. MALLORY & CO. Inc.
MALLORY

QST

DECEMBER 1952

VOLUME XXXVI • NUMBER 12

PUBLISHED, MONTHLY, AS ITS OFFICIAL ORGAN, BY THE AMERICAN RADIO RELAY LEAGUE, INC., AT WEST HARTFORD, CONN., U. S. A.; OFFICIAL ORGAN OF THE INTERNATIONAL AMATEUR RADIO UNION

OFFICES

38 La Salle Road
West Hartford 7, Connecticut

TEL.: 3-6268 TWX: HF 88

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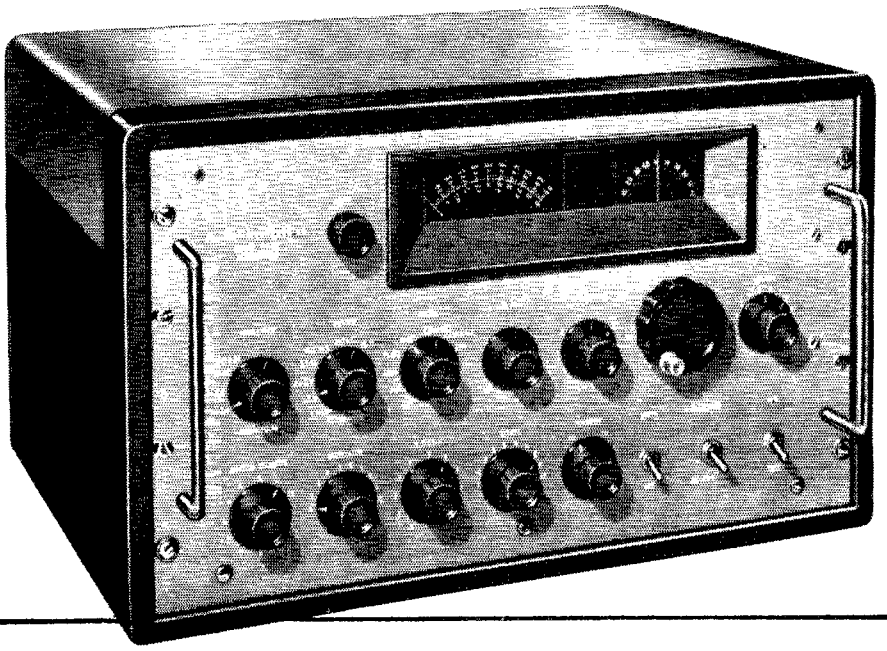
INDEXED BY
INDUSTRIAL ARTS INDEX

—CONTENTS—

FINALLY! NO MORE TV

New Hallicrafters

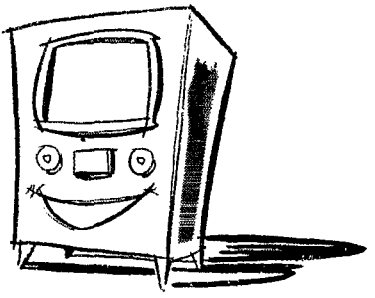


check these features

- 100 watts carrier power with high level (Class AB2) modulation on any band.
- Continuous coverage, with overlapping bands, from 1.7 to 30 mc.
- Compact, efficient design. Amazing for its power. The HT-20 is 20½" long, 11¾" high and 16¾" deep.
- Weight of transmitter, in cabinet, 105 pounds.
- All transformers and chokes operate "cool"—maximum temperature rise of 40 degrees. This means fewer replacements, long operating life.
- Operates equally well from relay rack or in cabinet on table top.
- Uses 117 volts, 60 cycle AC.
- Moderate cost.

HARMONIC PROBLEMS!

HT-20 is



T.V.I. proofed!*

Here's the news you've been waiting for—a medium power transmitter (100 watts) that solves the problem of harmonic radiation in the television channels. The Hallicrafters HT-20 is the answer. Completely tested in the lab and in the field, here is a transmitter that is truly T.V.I. Proofed*.

This is not simply a revamped design, but completely new circuitry to meet this problem. Physically, too, the entire transmitter is new from the massive, two-piece, completely rigid chassis to the electrical air cooling system of the final amplifier tube.

See this newest Hallicrafters—get the complete story of the finest transmitter, dollar for dollar, on the market today. Or write Hallicrafters direct for full details.

---

* **T.V.I. PROOFED**—means that this transmitter has circuitry specifically designed to eliminate spurious and harmonic energies that result in television interference.

hallicrafters

World's leading manufacturer of precision radio, television

CHICAGO 24, ILL.

Section Communications Managers of the ARRL Communications Department

Reports Invited. All amateurs, especially League members, are invited to report station activities on the first of each month (for preceding month) direct to the SCM, the administrative ARRL official elected by members in each Section. Radio Club reports are also desired by SCMs for inclusion in *QST*. **All ARRL Field Organization appointments** are now available to League members. These include ORS, OES, OPS, OO and OBS. Also, where vacancies exist SCMs desire applications for SEC, EC, RM, and PAM. In addition to station and leadership appointments for Members, *all amateurs* in the United States and Canada are invited to join the Amateur Radio Emergency Corps (ask for Form 7).

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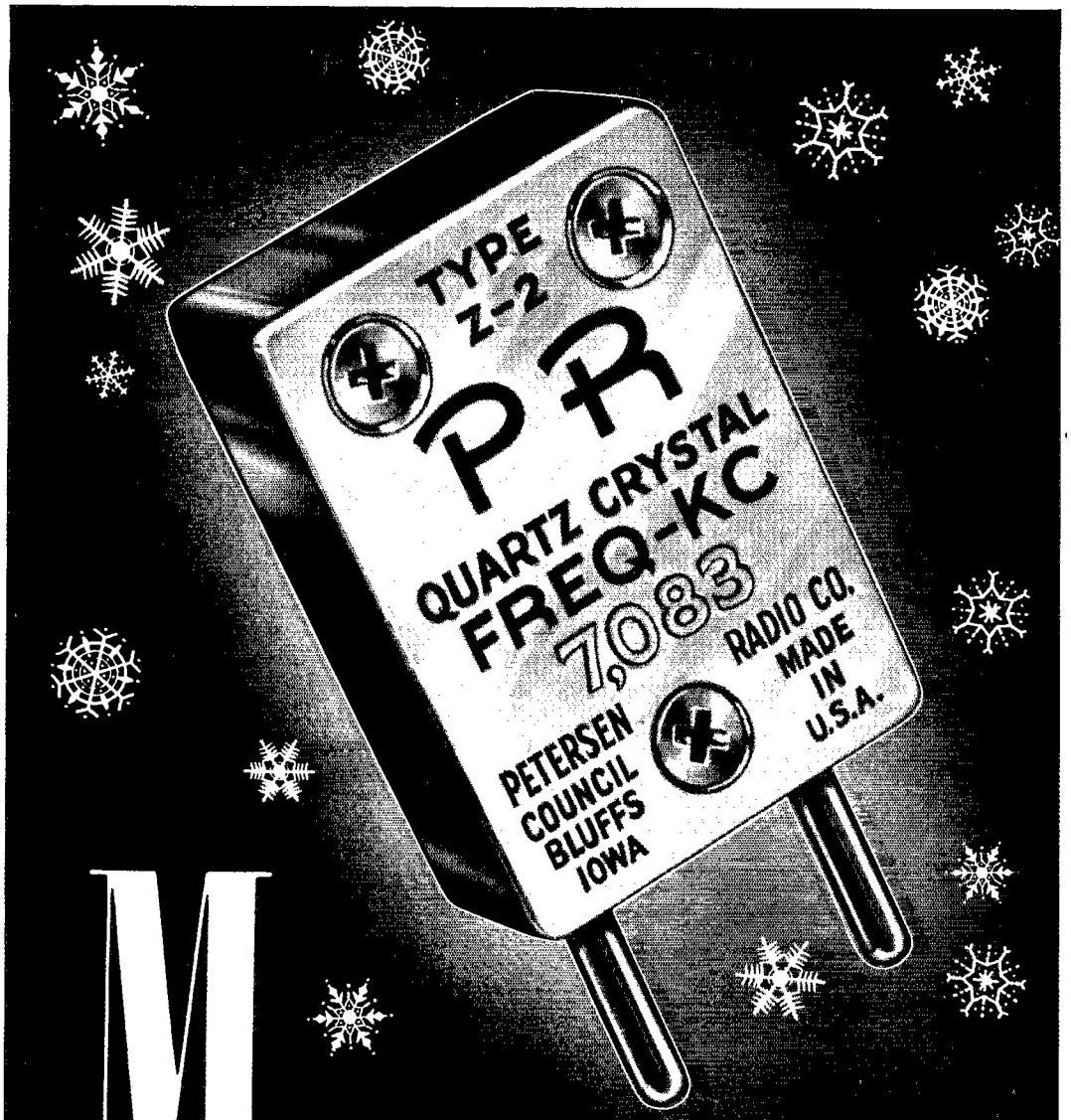
* Officials appointed to act temporarily in the absence of a regular official.



MERRY CHRISTMAS

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PETERSEN RADIO COMPANY, Inc.

2800 WEST BROADWAY, COUNCIL BLUFFS, IOWA

THE AMERICAN RADIO RELAY LEAGUE, *INC.*,

is a noncommercial association of radio amateurs, bonded for the promotion of interest in amateur radio communication and experimentation, for the relaying of messages by radio, for the advancement of the radio art and of the public welfare, for the representation of the radio amateur in legislative matters, and for the maintenance of fraternalism and a high standard of conduct.

It is an incorporated association without capital stock, chartered under the laws of Connecticut. Its affairs are governed by a Board of Directors, elected every two years by the general membership. The officers are elected or appointed by the Directors. The League is noncommercial and no one commercially engaged in the manufacture, sale or rental of radio apparatus is eligible to membership on its board.

"Of, by and for the amateur," it numbers within its ranks practically every worth-while amateur in the nation and has a history of glorious achievement as the standard-bearer in amateur affairs.

Inquiries regarding membership are solicited. A bona fide interest in amateur radio is the only essential qualification; ownership of a transmitting station and knowledge of the code are not prerequisite, although full voting membership is granted only to licensed amateurs.

All general correspondence should be addressed to the administrative headquarters at West Hartford, Connecticut.

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Vice-Director: Ramon S. Walker . . . . . WØOWP
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West Gulf Division

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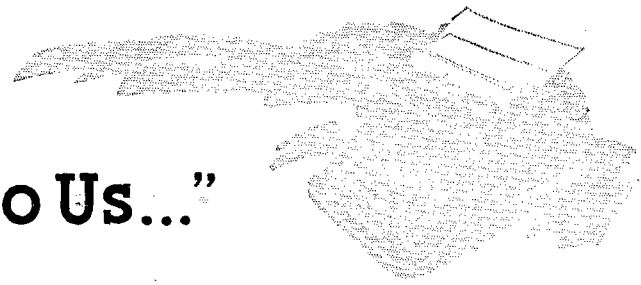
Vice-Director: Frank E. Fisher W5AHT/AST
104 E. 11th, Pawhuska, Okla.



"It Seems to Us..."

AMATEURS AND THE RADIO LAW OF 1912

The other day, purely by chance, we happened across some volumes, in our archives, reporting the proceedings leading up to adoption of the first domestic law governing wireless telegraphy in the United States — the Radio Act of 1912. Though originally engrossed in a separate project, we casually scanned the pages . . . read portions more carefully as interesting subtitles caught our eye . . . then settled down to read the whole intriguing story while letters on our desk went unanswered, our coffee got cold, and the Production Department's plea for overdue *QST* copy fell on deaf ears.

Was all this interest because it happens to be just 40 years ago this month that the law became effective? By no means. Rather, because of the surprisingly strong influence amateurs of that day exercised on the final construction and some basic concepts of the law, despite the fact that at least on the part of some interests, one original aim of the bill was to legislate us out of existence.

Since the turn of the century, spasmodic attempts had been made in government, sponsored largely by the military, to get a domestic "wireless" law. Primarily, the Navy wanted protection from amateur (and commercial) interference to its communications. At hearings on such bills, commercial interests spent most of the committees' time lambasting each other. United Wireless accused Telefunken of malicious interference, and of being a foreign company besides; Telefunken denied both charges hotly, countered that UW was purely a stock-promoting scheme. And so on. Marconi, in a view that had some support, claimed that the Navy's troubles were due to inferior equipment and even poorer operators. Anyway, one by one the bills were shunted into oblivion. Practically none of the private interests wanted regulation in the terms contemplated by the Government.

In early 1912, another attempt was made. The pot was getting warmer; our Government had finally ratified the 1906 London agreement, and was preparing to go to another international conference that year. Separately into the House and Senate were introduced bills to regulate wireless telegraphy. This time, it appeared not so much a question of *whether* we were going to have a radio law, but only to what extent there would be federal control of radio. The theory of control was based on federal jurisdiction over interstate commerce.

It is a little-known but striking fact that had it not been for amateur participation in those hearings, licenses would have been required for receiving apparatus as well as transmitting gear, and it is a fair assumption that such a policy, once set, would have continued to the present day. Put another way, had it not been for amateurs, the probability is that today the American public would be having to get licenses for broadcast receivers, and very possibly paying for them too, as is the case in most every other country of the world.

Throughout the period of several months over which the 1912 law hearings were held, no one challenged the provisions for licensing of receiving equipment contained in the proposed law. No one, that is, except the amateur spokesman — the (amateur) Wireless Association of Pennsylvania, represented by Charles Stewart, a pioneer amateur and later 3ZS. The reason was simple: except for amateurs, no one used or contemplated one-way communications, or the building of receiving equipment without a companion transmitter. The prime use of radio was ship-to-shore communication, two-way. No commercial or military agency was interested in constructing only receiving equipment to eavesdrop on the airwaves, as were some amateurs. Stewart backed up his request for deletion of the licensing requirement for receiving purposes only with this comment:

> We offer this suggestion for the reason that we believe it is altogether unreasonable that any attempt should be made to place limitations or restrictions upon anyone who may desire to receive any form of electric wave, signal or impulse by means of any form of receiving apparatus or instruments of detection at command. It may be shown that the waves employed in radio communication are not practically interfered with or lessened in vigor by reason of the receipt of same by other stations than the one for which they are intended.
>
> We believe, also, that the act of receiving cannot be made a subject of interstate commerce, and that any such attempt to control a receiving station as

contemplated might nullify the Bill in its entirety upon constitutional grounds. The act of erecting a receiving station on land owned in fee, where no attempt is made to establish a sending apparatus, is, *per se*, in our opinion, not within the purview of the interstate commerce provision of our Constitution, and any attempt by Congress to so legislate could, and no doubt would, be successfully attacked in the Courts; in fact we regard such a provision as an infringement of States rights.

The effect of the requirement of a license for a receiving station would be to bring within the jurisdiction of the Government experimental stations that are never at any time in such relation, morally or legally, with sending stations as to justify any interference with what is merely exercise of a peculiar personal capacity or ability.

Now this indeed was, in the Committee's own words, "rather a new doctrine." But the senators expressed considerable interest in it, queried Stewart at length on the possible "unauthorized" use of receivers for interstate commerce. In quaint language that even the senators could understand, Stewart said of the incoming signal: "It comes upon our aerials, whether we seek it or not." The amateur view held forth, and when the final version of the bill appeared there was no requirement for licensing of receiving apparatus.

We think you, like we, will take pride in the part our amateur predecessors took in the formation of the basic principles of radio regulations for this country. It is interesting, too, that as long ago as 1912 the need for alert representation of amateur interests before our government and governmental agencies was clearly demonstrated. At that time there was no League, but it is significant, it seems to us, that among those amateurs who fought so vigorously for their rights in connection with the 1912 law there were those who, a short time thereafter, saw the vital need for and enthusiastically supported formation of a national organization to represent them in such matters — the American Radio Relay League. In conclusion, we'd like to remind today's amateurs that the League's beloved vice-president, for many years until his death in 1936, was none other than the amateur spokesman before Congress we have just quoted — Charles H. Stewart, 3ZS.

OUR COVER

Two 32-element 144-Mc. arrays, one horizontal, one vertical; a 4-element 10-meter beam with 3-section driven element; a similar 4-element job for 50 Mc.; and 8 halfwaves in phase, with screen reflector, for 435 Mc. make up this entry for the most-elements-per-antenna-structure prize. It is the pride and joy of W3RE, Silver Spring, Maryland.

FEED-BACK

The authors of "The 'Ultimate' C.W. Receiver" on page 38 of the September issue of *QST* point out that the 37-kc. transformers tune with 0.001-μfd. condensers, not 0.01 μfd. as was erroneously given for C_{17}, C_{18} and C_{25} through C_{37}.

In the last paragraph of the article entitled "The Shunt Selectoject," October *QST*, the value of the signal voltage should have read 10 volts, not 1 volt, and the signal-to-noise ratio should have read 46 db., not 26 db. In addition, each of the ganged potentiometers of Figs. 11, 12 and 13 should have a lead connected from the variable arm to one end of the pot, in shorting fashion.

HAMFEST CALENDAR

NEW YORK — Friday, December 5th, at Fraunces Tavern, Pearl and Broad Streets, New York City — 5th anniversary dinner meeting of the Quarter Century Wireless Association. Members and their guests are invited. This promises to be one of the outstanding meetings of the QCWA as an excellent program has been prepared. For information write to John DiBlasi, W2FX, 259 West 14 Street, New York City.

Quist Quiz

While tuning up his new 75-meter 'phone rig for the first time, **A** noticed that the signal could be heard at several spots on his b.c. receiver. Attributing this to harmonics of a low-frequency parasitic in the rig, he called on friend **B** for help. **B** consoled him with the assurance that the rig was clean, that the receiver suffered from BCI and was being "blanketed." Should **A** stop worrying, and go ahead and operate?

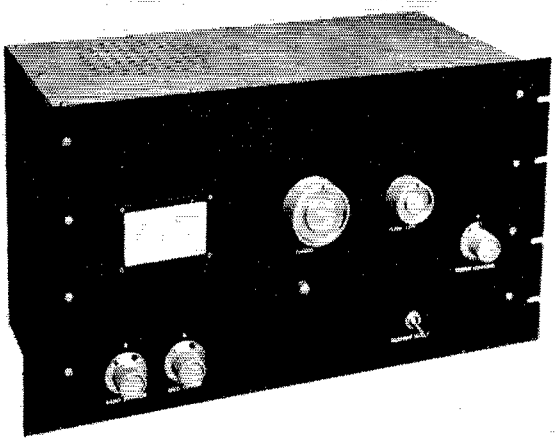
(Please turn to page 130 for the answer)

To Hams Everywhere—

A Merry Christmas

and a Happy New Year

—The ARRL Hq. Gang



Front view of the 4-250A amplifier. At the lower left are the grid circuit switch and tuning condenser. The large knob, center, is the main tuning, with a smaller similar knob for the variable inductor at its right. At the far right is the output condenser control.

A High-Powered Amplifier for 50, 28 and 21 Mc.

Adapting Pi-Network Design To Include V.H.F. Operation

BY EDWARD P. TILTON,* WIHDQ

THE multiband tetrode amplifier recently described by Grammer [1] performed so well that the principles it embodied seemed logical for application to higher frequencies. If the pi-network tank circuit permitted uniform efficiency over a range from 3.5 to 30 Mc., why not use it on 50 Mc. also, if suitable components could be found? The amplifier shown here is as near a duplicate of the Grammer design as component limitations would allow, so the reader is referred to his discussions on pi networks [1,2] for background information that will not be repeated here.

Inclusion of the 50-Mc. band in transmitters of conventional "all-band" design is not generally feasible, because of the wide range of capacitance and inductance that must be used if the circuits are to be properly designed for each end of the range. From 21 to 54 Mc. is not at all impractical, however, and the amplifier described here operates at maximum efficiency over this range. It makes a fine high-powered companion to the exciter described in *QST* for September, 1952. No plug-in coils are involved, permitting rapid band-changing, and the two units comprise a completely shielded set-up — an important factor in the application of TVI preventive measures.

Mechanical and Circuit Features

In line with the writer's interests, this was to be, first of all, an efficient 50-Mc. amplifier. This posed a tank-condenser problem. Conventional tuning condensers of suitably high voltage rating were discarded as having too high a minimum capacitance and too much stray inductance. The solution was found in a large-sized disk-type neutralizing condenser that provided a range of about 5 to 22 $\mu\mu$fd. It fitted into the layout nicely, and practically eliminated stray lead inductance. Its only disadvantage is the lack of a logging scale, but since only about ten turns of the knob are required to cover the useful range the proper settings for each band can be recorded in terms of number of turns from either the maximum or minimum position. The position of the variable inductor roller is logged in the same way.

Either of the two smaller sizes of B & W variable inductors (3850 or 3851) can be used for the main tank coil, L_9. The smaller of these will just about tune to 21 Mc., so the larger is preferred. The roller may be connected so as to short out the unused portion of the coil if desired, but it was tried each way and no difference in efficiency was noticeable. The limit on the size of the unused coil that could be used without shorting is that at which 50-Mc. resonance develops in the unshorted portion. This does not appear with either the 6.2- or 1.6-μh. model.

The small air-wound coil visible in the top-view photograph, just to the rear of the main tuning capacitor, is L_8, the 50-Mc. portion of the tank circuit. Considerable stray capacitance is inherent in the variable inductor assembly, so only a small portion of the variable coil is used in 50-Mc. work. The coil Q at 50 Mc. is thus maintained at a high level for 50 Mc., and the over-all circuit Q is close to optimum for the frequency. The result is a

* V.H.F. Editor, *QST*.

[1] Grammer, "Pi-Network Tank Circuits for High Power," *QST*, October, 1952.

[2] Grammer, "Practical Applications of Pi-Network Tank Circuits for TVI Reduction," *QST*, January, 1952.

degree of plate efficiency that is comparable to that obtainable in an amplifier designed for the 50-Mc. band alone.

The output condenser, C_{10}, must have a range of from around 50 $\mu\mu$fd. for 50-Mc. operation to 150 for 21 Mc. Thus, a conventional variable may be used, eliminating the need for switching in this circuit. The voltage at this point is low when the amplifier is properly matched to its load, so a variable condenser having the next spacing above that commonly used in receiving types affords a considerable margin of safety, even at high power.

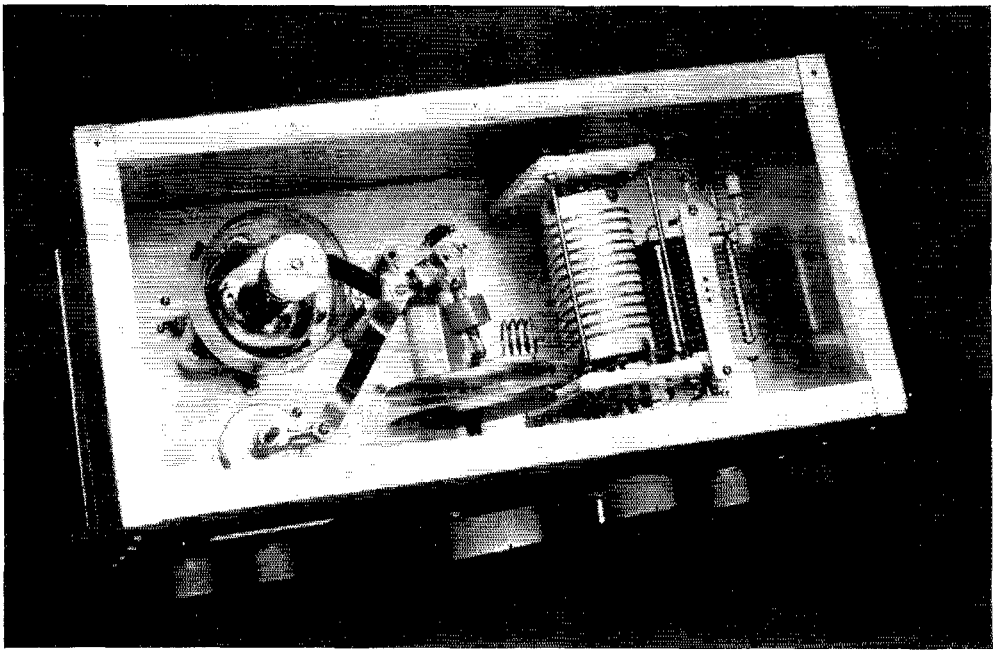
The plate side of the circuit diagram, Fig. 1, contains several other elements that may be strange to those not well acquainted with pi-network technique. The coils, L_5 and L_6, the variable capacitor, C_{11}, and resistor, R_3, comprise a parasitic suppression circuit that will be discussed in detail further on. Parallel feed is used; hence, RFC_2 and the coupling capacitor, C_8. The Ohmite Z-28 works well over the range from 21 to 54 Mc. in this application. The second r.f. choke in the output circuit, RFC_3, is a safety feature. It provides a d.c. short to ground, in case the coupling capacitor should break down. If this were not in the circuit, a short in C_8 might go unnoticed, and the full final plate voltage would be impressed on the antenna or antenna coupler. A suitable fuse could be inserted in the high-voltage lead to RFC_2, if desired, so that it would blow and protect the plate meter, in case C_8 broke down.

The screen is operated from a separate supply, in preference to the use of a dropping resistor from the plate supply. At high power levels the latter method is wasteful of power, and a very large resistor is required. The choke, L_7, is for modulation purposes. The resistor shown across it, R_2, may not be needed. The amplifier may be tested without it, and the resistor installed only if needed to prevent "singing" caused by choke resonance in the audio range. If the resistor is used it should be the highest value that will stop the tendency to tone modulation of the signal.

The grid circuit is of conventional design. Two small coils are used, one for 50 Mc., and the other for 28 and 21 Mc. Three separate coils may be made, though the tap on L_3 makes for somewhat more simple circuitry. Input coupling links are also switched. Because the amplifier is easily driven, and the exciter already described has a considerable reserve of power, the adjustment of coupling and the tuning of the input circuit are not at all critical.

Neutralization, if needed, is provided by C_{17} which, with C_1, makes a capacity bridge. In common with other transmitting tetrodes, the 4-250A tends to be "self-neutralized" at some frequency in the v.h.f. range. With the 4-250A this occurs around 45 Mc. Thus this amplifier was stable on 50 Mc. without neutralization and good enough on 28, but there was some regeneration on 21 Mc. With the neutralization installed there is a trace of regeneration on 50 Mc., when the adjustment is optimum for 21, but a satisfactory compromise can be found for the three bands. The indications of proper neutralization are the same as for other methods, and the adjustment is not critical. The mechanical arrangement of parts is such that the

Looking inside the 3-band amplifier. Note the neutralizing condenser used for tuning the input to the pi-network tank circuit. The small air-wound coil, center, is the 50-Mc. portion of the tank, L_8.



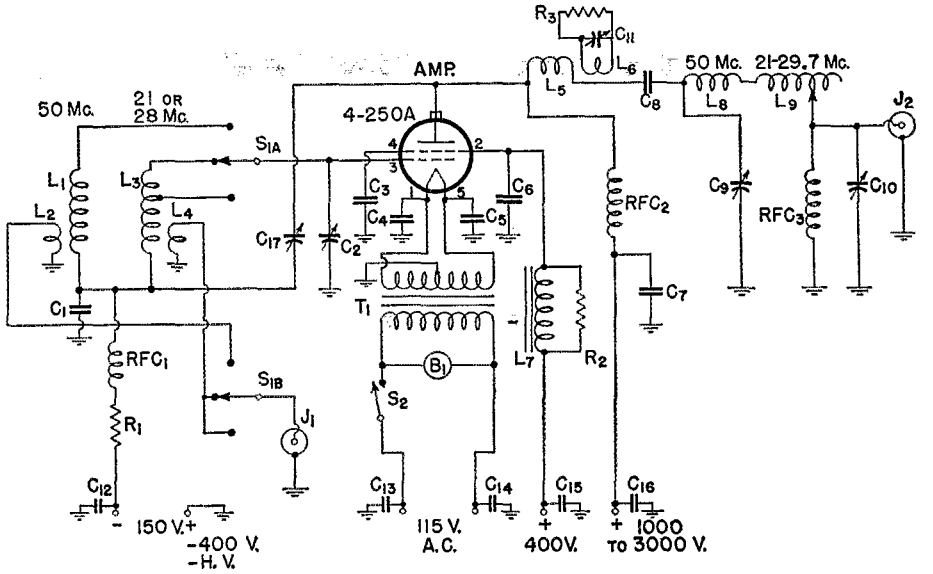


Fig. 1 — Schematic diagram and parts list for the 4-250A amplifier.

C_1 — 220-$\mu\mu$fd. silver mica.
C_2 — 30-$\mu\mu$fd. miniature variable, double-spaced (Hammarlund HF-30-X, shaft-mounted).
C_3, C_4, C_5, C_6, C_{12}, C_{13}, C_{14}, C_{15} — 0.001-μfd. disk ceramic.
C_7, C_8, C_{16} — 500-$\mu\mu$fd. 10,000-volt ceramic (Centralab TV3-501).
C_9 — 5–20-$\mu\mu$fd. *disk-type variable* (National NC-500 neutralizing condenser, with mounting bracket reversed).
C_{10} — 200-$\mu\mu$fd. variable, 0.047-inch spacing (National TMK-200).
C_{11} — 3–30-$\mu\mu$fd. mica trimmer.
C_{17} — 2–8-$\mu\mu$fd. neutralizing condenser (National NC-800A).
R_1 — 10,000 ohms, 5 watts.
R_2 — See text — use only if needed.
R_3 — Approximately 100 ohms, 6 watts (three 330-ohm 2-watt resistors in parallel).
L_1 — 2½ turns No. 20 tinned, ¾-inch diam.; turns spaced ⅛ inch (B & W Miniductor No. 3010).
L_2 — 4 turns B & W No. 3004 cemented inside cold end of L_1.
L_3 — 8 turns No. 20 tinned, ¾-inch diam., 9/16 inch long, tapped at 6 turns (No. 3011).
L_4 — 7 turns B & W No. 3004 cemented inside cold end of L_3.
L_5 — 3 turns No. 16 tinned, spaced 1/16 inch, on ½-inch *diam. ceramic stand-off, 1 inch long.*
L_6 — 2 turns similar to L_5, and about ¼ inch away from it on same form.
L_7 — 10-hy. 100-ma. filter choke.
L_8 — 4 t. No. 14 tinned, 5/8-inch diam., spaced ⅛ inch.
L_9 — 6.2-μh. variable inductor (B & W No. 3851).
B_1 — Blower motor and fan (Allied Catalog Nos. 72–702 and 72–703).
J_1, J_2 — Coaxial fitting, female.
RFC_1, RFC_2, RFC_3 — 20-μh r.f. choke (Ohmite Z-28).
S_{1A}, S_{1B} — 2-pole 3-position ceramic wafer switch (Centralab 2505, *wafer type* RR).
S_2 — Single-pole single-throw toggle switch.
T_1 — 5 volts, 14 amps.

neutralizing circuit can be installed if it is found to be necessary when the amplifier is tested.

Unlike high-powered amplifiers that use bulky components, the leads in the r.f. circuits are extremely short. In fact, there is little "wiring" to be done in the main compartment. The junction of the copper strap leads to the tube plate and neutralizing condenser is atop a ceramic pillar made from two 3-inch stand-offs mounted end on end, just to the right of the tube. The parallel-feed choke, RFC_2, and the high-voltage by-pass, C_7, are also mounted on this pillar. The r.f. choke should be at least 1½ inches away from the tube envelope, or the heat will blister the paint on the choke windings. The heat-dissipating plate connector is cut down to four fins high to increase clearance above the tube.

The by-pass, C_7, and the coupling capacitor, C_8, are high-voltage ceramic condensers of the type used in TV receiver power supplies. The coupling capacitor is seen in the top-view photograph, but the by-pass is hidden from view. Also atop the pillar is the parasitic suppression circuit, consisting of L_5, L_6, C_{11} and R_3. The two coils are wound on a 1-inch-long ceramic stand-off, which has copper brackets screwed on to each end for mounting and termination of the windings. These windings are made to fit tightly around the half-inch ceramic form by winding them on a 7/16-inch diameter form and then forcing them onto the ceramic stand-off.

Note that the tube socket is mounted above the chassis. It is raised on pillars just high enough to allow the terminals to clear the chassis, and each terminal (except the control grid) is by-passed individually with 0.001-μfd. disk ceramics, with the shortest possible leads. The grid terminal of the socket is toward the front of the chassis. The filament transformer, modulation choke, grid-circuit components and cooling fan are mounted below the chassis, which is a standard 3 × 10 × 17-inch aluminum job. The shielding is made in four pieces fitted to the front, back and sides of the chassis. The edges are folded over three quar-

ters of an inch and drilled and tapped, or the covers may be held on with self-tapping screws.

The covers and sides should make a tight fit if TVI prevention and cooling measures are to be effective. Cooling is done with a small fan that can be mounted in any convenient position under the chassis. Its blades are bent so that they will draw the air into the chassis. The entire assembly, top and bottom, must then be made relatively airtight, except for the holes in the top cover where the air stream flows out. Holes in the chassis directly under the tube socket allow the air to pass up through the socket, around the seal in the base of the tube, and up through the top. The ventilation system should be checked for satisfactory circulation by holding a smoke source near the fan hole. The smoke should be drawn into the hole rapidly, and blown out through the top cover holes with some force. A light piece of paper laid over the top holes should rise perceptibly as the fan is started. The fan blades should be as close to the intake hole as possible.

To insure the proper air circulation through the socket, all other holes in the chassis and cabinet must be plugged. Very small holes can be sealed with household cement. Others may require filling with screws, or even the mounting of a plate over large holes. The shafts of all controls must make a tight fit, or air pressure will be lost. This precaution is also necessary to prevent leakage of harmonics through panel holes.

Adjustment and Operation

Though provision for fixed bias is shown in the schematic diagram, the amplifier should be tested for stability with resistor bias only, as any tendency toward parasitics or tuned-plate tuned-grid oscillation will be detected more readily if the plate current is not cut off in the absence of excitation. Initial tests should be made at low plate voltage, to keep the plate dissipation within bounds when excitation is removed. The tests may be started with the neutralizing and parasitic-suppression circuits omitted, though provision should be made for their inclusion, if needed, as they very likely will be.

With a milliammeter of 25- to 50-ma. range connected between R_1 and ground, apply screen and plate voltage with no excitation, and watch for grid current. It will probably appear at some settings of the tuning controls, the result of a v.h.f. parasitic or a tendency toward oscillation at a frequency determined by the setting of the tuned circuits. Input to the tube should be held to a value not in excess of that producing a dull orange plate color. Screen input should be measured constantly to be sure that it is held below the safe maximum.

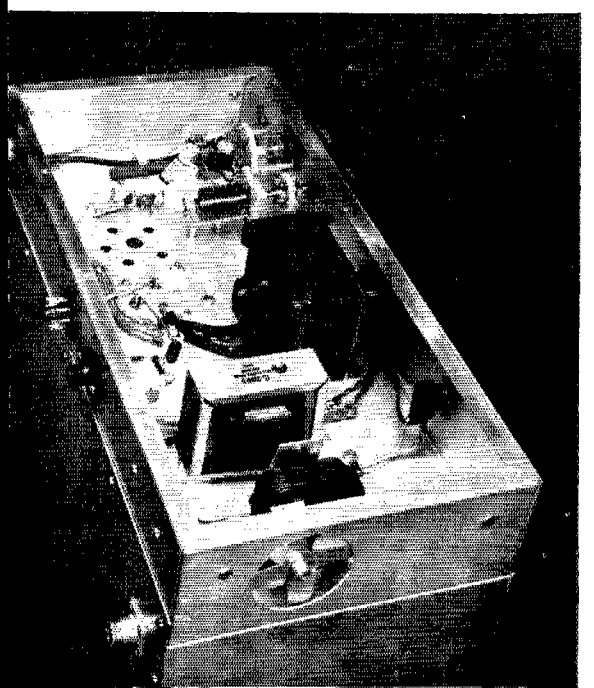
If there is oscillation of any sort, check its frequency by means of a wavemeter. It will probably be around 120 to 150 Mc. (a v.h.f. parasitic) or close to the frequency of the tank circuits. If it is the latter, connect in the neutralization and adjust to correct it. When the tuned-plate tuned-grid oscillation is neutralized out, there will almost certainly be a v.h.f. parasitic left. A parasitic-suppression circuit similar to that described by Grammer [1, 3] was tried, but the dissipation of fundamental energy was so high when the amplifier was operated on 50 Mc., that a modification was necessary.

The coil, L_5, should be as small as possible, in order to keep the inductance in the parasitic circuit down, and the parasitic frequency up. The resonant frequency of the L_6-C_{11} circuit is then adjusted to the parasitic frequency, so that the loading resistor will damp out the oscillation. The higher the parasitic frequency, the lower will be the dissipation of 50-Mc. energy, and consequently, the lower will be the wattage rating required for R_3. This operation should be done at the lowest possible power level, for as long as there is parasitic oscillation there will be the danger of burning out the damping resistor. Various resistor values may also be tried. Several were used here, with three 330-ohm 2-watt resistors in parallel working out to be a safe value. The trick is in getting the parasitic frequency as high (as far removed from 50 Mc.) as possible and then adjusting the coupling between L_5 and L_6 to the lowest value that will prevent parasitic oscillation.

When the amplifier has been stabilized it may be tested under normal operating conditions. The load should be 50 or 72 ohms impedance. If the

(Continued on page 116)

[3] Grammer, "V.H.F. Parasitics in Beam Tetrodes," *QST*, August, 1952.



Bottom view of the amplifier for 50, 28 and 21 Mc., with bottom cover removed. Note method of mounting the ventilating fan. The chassis should be made as nearly airtight as possible, except for the fan hole and holes drilled under the tube socket. Air is thus drawn in through the base and forced up around the base seal of the tube, leaving through holes in the top cover.

A Bargain (?) Novice Station

A War-Surplus Conversion To End Them All

BY J. B. WORK,* WN7RMP

• Many Novices may have felt that they have gotten into the ham field too late to benefit from the bargains in surplus electronic equipment that have filled the shacks of their more fortunate predecessors. Here is a story calculated to change any such envy into a feeling of good fortune in having been born too late.

REMINISCENT of the economist who bought a horse to eat the bale of hay a neighbor gave him is this account of the construction of a complete Novice station from a five-dollar war-surplus "bargain."

This project, naturally, resulted from the usual urge to get something for nothing. Among several "bargain" items acquired was an MN-26Y radio compass obtained, in this case, for $4.95 (plus $5.10 shipping charges). It has two tuned r.f. amplifier stages and covers 150 to 325 kc., 325 to 695 kc., and 3.4 to 7.0 Mc. in three bands. Thus, it seemed that the unit should be well suited for conversion to a pretty good receiver for the 80-meter band. Since a corner of the chassis was vacant after removing excess parts and installing a power supply, it was only natural to fill it with a one-tube transmitter. Thus a new ham was born. And here is a record of the birth pains.

Removing the Excess

The first operation was removal of excess baggage, such as the hash filter, phaser, T_{16} and the two relays. (Part designations are stamped on the unit or chassis.) All wires leading from sockets V_1, V_2, V_3 and V_{12} were clipped and the associated small parts removed. T_{15} was removed to the spot vacated by T_{16} in order to make room for power-supply components. These steps took only a few minutes, but the subsequent scavenging of connected parts alone (including 20 resistors and 11 capacitors laboriously identified by tracing wires) was the work of several evenings.

The clipper then went to work on the wires from plugs J_4 and J_7, so that these could be removed. Care was taken to identify those from terminals *12*, *17*, *18* and *20* of J_4, since they would later be connected to the 'phone jack, b.f.o. switch, tuning meter and r.f. gain control, respectively. To provide a level area on which to mount the power transformer and other components, the dynamotor pedestal was removed. (Did you ever try to use a cold chisel in cramped space?)

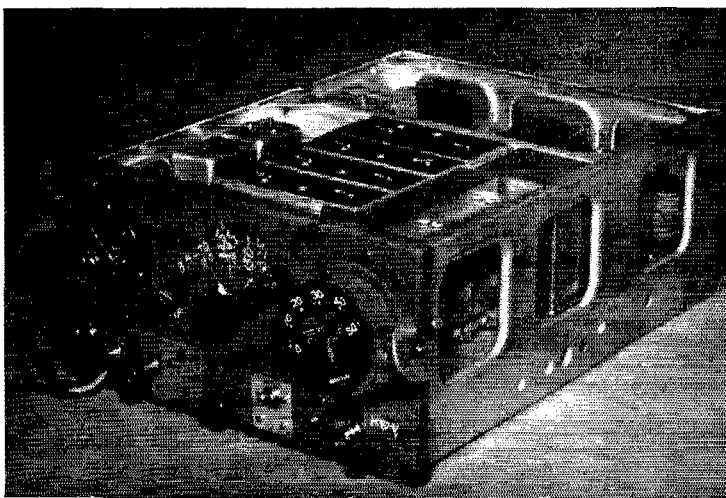
Since the heaters of the tubes were wired in series-parallel (for 28-volt operation), the next task was rewiring all remaining sockets in parallel. Instead of stripping out all original wiring and starting from scratch, over an hour was spent tracing the wiring out in an attempt to find a short-cut using as much of the same wiring as possible. The net loss of time in this strategy was a little longer than it took to figure it out!

Panel Controls

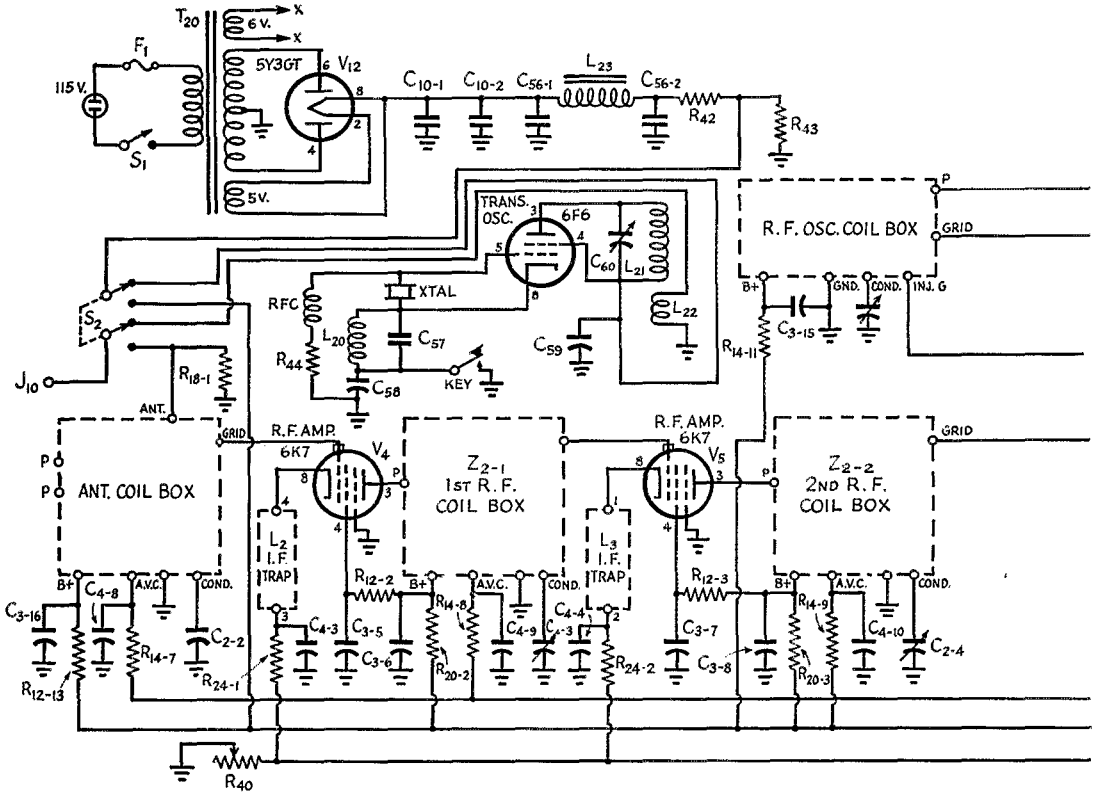
Modification of the control panel was tackled next. To make room for r.f. and audio gain controls, the loop box was taken out. This necessitated temporary removal of the antenna box. Lifting the name plate disclosed a hole lined up with the bandswitch shaft. So that a knob could be fitted, the shaft had to be slid forward until it protruded. To keep the shaft in this position, it was drilled and fitted with cotter pins and washers at the front of the antenna box and behind the oscillator box.

A hole was hacked in the upper left-hand corner of the panel to accommodate a tuning meter (a 9-ma. job salvaged from a BC-620 that cost

* 209 Douglass, Richland, Wash.



Front view of the revamped MN-26Y radio compass, showing panel modifications.



C56 — Dual 8-μfd. 450-w.v.d.c. electrolytic.
C57 — 470-μμfd. mica.
C58, C59 — 0.01-μfd. 600-volt paper.
C60 — 140-μμfd. variable (see text).
R40 — 40,000-ohm variable.
R41 — 1-megohm potentiometer.
R42 — 2000 ohms, 20 watts.
R43 — 25,000 ohms, 20 watts.
R44 — 0.1 megohm, 1 watt.
L20 — 5 turns No. 18 d.c.c., 1¼-inch diam.

$9.69). Other existing holes in the upper part of the panel were utilized, where possible, to locate a 6-volt pilot light and the two gain controls.

Along the lower edge of the panel were installed switches for the 115-volt power-transformer primary and b.f.o., a 'phone jack, an insulated terminal for the key connection, and a power cord. There were no serious difficulties here other than the time-consuming necessity for making an adapter plate to locate the b.f.o. switch where J_7 had been, and to mount both switches upside down to fit the limited space below the chassis. In squeezing the rotary change-over switch into the position formerly occupied by J_4, it was necessary to cut an adapter plate and enlarge the hole in the chassis floor left by removal of the socket for V_1.

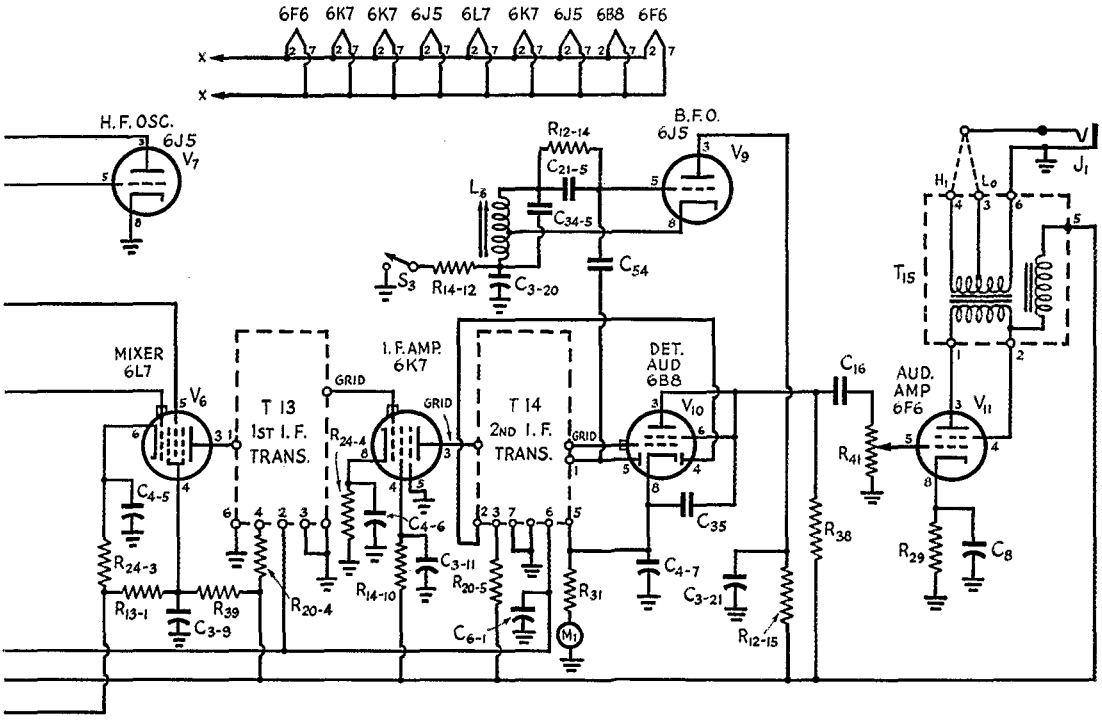
Devising a means for controlling the tuning-condenser gang was a major project in itself. Attempts were made first to use a surplus dial assembly directly on the condenser shaft after removing the gear box. But it was found that the vernier reduction was not sufficient for convenient tuning. The gear box was subsequently replaced and, after a long search, a small crank-type dial that would fit the spline of the worm-gear shaft was found in surplus. To make use of even this dial, it was necessary to turn the gear box around at an angle and file a notch in the panel to clear the dial flange.

To provide some sort of an indicator for the dial mechanism, a hole was drilled in the gear-box cover plate in line with the shaft of the condenser, which carries the large gear. A hole about ¼ inch deep was then drilled in the end of the shaft so that a machine screw could be soldered securely to the shaft. After the cover was replaced, a scale was fastened to the cover and a pointer attached to the machine screw. I happened to have an old bicycle speedometer dial and pointer that I could use for the purpose. This dial is useful for only approximate frequency settings. The small driving dial was marked off and a calibration curve of the combined readings of the two dials sketched up. Each 360 degrees of rotation of the tuning knob turns the gang condenser 6 degrees.

Power Supply and Transmitter

The power supply turned out to be a bit Bohemian, although it was intended to be a conventional condenser-input system. The transformer was mounted near the middle of the open area at the back, with the usual drilling, hacksawing and filing. The V_{12} socket was used for the 5Y3GT

Fig. 1 — Revised circuit of MN-26Y as an 80-meter Novice receiver and transmitter. Components not listed below are as in the original.



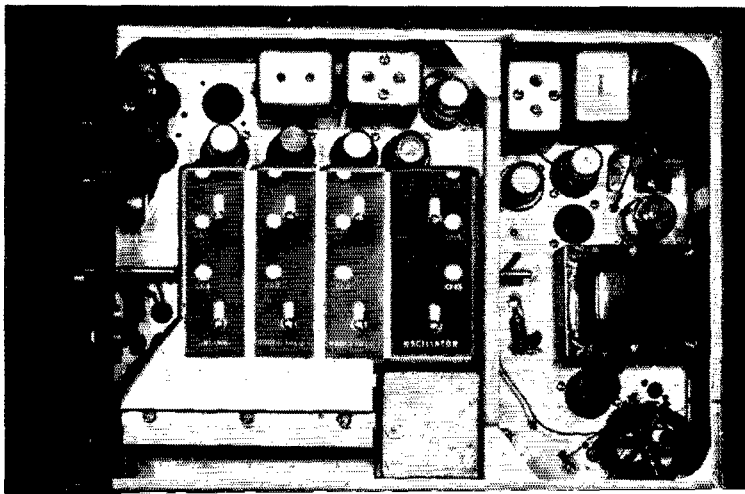
L_{21} — 19 turns No. 18 d.c.c., 2-inch diam.
L_{22} — 13 turns No. 18 d.c.c., 2-inch diam.
L_{23} — Filter choke, 12 hy., 80 ma.
F_1 — 3-amp. fuse.
J_1 — 'Phone jack.
MA_1 — Tuning meter, 0–9 ma.
RFC_1 — 2.5-mh. r.f. choke.
S_1, S_2 — S.p.s.t. switch.
S_2 — D.p.d.t. switch (see text).
T_{20} — 350–0–350 v., 90 ma.; 5 v., 2 amp.; 6 v., 3 amp.

rectifier. A husky choke, one of four scrounged from a BC-406 (cost $21.02) that had been scrapped for parts, was mounted in the corner vacated by T_{15}. The original filter condenser, C_{10}, which has two sections of 5 μfd. each, was wired into the circuit in reckless disregard of a fear that the peak voltage might be too much for it. A pair of 8-μfd. electrolytics was added for good measure.

The positive high-voltage lead is fed from a voltage divider consisting of R_{42} and R_{43} to drop the voltage to about 225 at the receiver drain of about 75 ma. S_2 switches the high voltage, as well as the antenna, to either transmitter or receiver.

The transmitter is essentially a duplicate of the single-tube Tri-tet rig described in *How To Become a Radio Amateur*. Lack of space to mount a 140-μμfd. variable for C_{60} was overcome by using two 75-μμfd. air trimmers wired in parallel. These are mounted vertically underneath the chassis with clearance holes so that they can be adjusted with an insulated screwdriver from above. The tube, coil and condensers are grouped

(*Continued on page 120*)



Interior of the MN-26Y, showing the addition of power supply and transmitter at the right and the controls behind the panel in the space formerly occupied by the loop box.

The "Tur-Key"

Presenting a New Idea in All-Electronic Keying

BY RICHARD H. TURRIN,* W2IMU

• **In most electronic key circuits, the weak spot is in the mechanical unreliability of relays. Here is a new circuit that maintains or improves upon all of the features of previous designs and at the same time eliminates the need for relays.**

WHEN considering fully-automatic electronic keys, several basic functions are desirable, if not mandatory. The keying speed must be adjustable to cover all practical speeds encountered. The ratio between dot and dash must be accurately adjustable. The length of the mark period compared with the space period must be adjustable and, most important, all of the preceding adjustments must be independent of each other.

Another function which is highly desirable is that of self-completing action for both dot and dash. The usefulness of this factor is easily understood, since all one need do to form a perfect dot or dash, with self-completing action, is to close the key contacts for only a very short duration, amounting to five or ten milliseconds. Not only should the mark period be self-completing, but the associated space period should also be included in the completing action. And, of course, the primary purpose of the key is to actuate a transmitter, so a suitable method of keying the transmitter must also be incorporated.

Thus, we have the basics for a practical and useful automatic electronic key. These are not new ideas and have been skillfully incorporated into several key designs of useful merit.[1, 2] The most recent design, appearing in *QST* of February, 1951, has some very interesting and improved variations.

All the recent designs of electronic keys having the aforementioned features have consisted of *R-C* timing networks, vacuum tubes and mechanical relays. While the resistors, condensers and tubes may be selected carefully for dependable operation, the mechanical relay represents the weakest part of the design. Even with careful selection of relays, the basic mechanical nature of their operation leads to trouble, such as contact-surface resistance, possible mechanical resonances, and other purely mechanical faults which are the cause of erratic operation of an otherwise perfect electronic device. In the past there have been keys designed without relays. These used some form of multivibrator circuit and were not too practical in part because they lacked the basic functions outlined previously. Let us therefore eliminate the relays and make the key an all-electronic device.

Basic Circuits

It is the purpose of this article, therefore, to introduce an electronic key which makes use of vacuum tubes to replace the usual relays. This new key makes use of some of the good points of previous keys but with a different approach. I have christened it the "Tur-Key." The unit is nothing more than an accurate timing device whose control is effected by sharp trigger pulses. The use of some unconventional circuitry might seem imposing to those who are not familiar with such basic circuits as the one-shot multivibrator, triggered bi-stable multivibrator (or flip-flop circuit), pulse generator and differentiator network. However, do not let them frighten you; they are really very simple and are readily understood without the use of mathematics or complex analysis. For those who have had any experience with radar or pulse technique, this circuit will appear quite simple.

An examination of the circuit schematic will reveal the following basic circuits involved. V_6 and V_7 together form a bi-stable multivibrator (flip-flop) circuit. V_4 and V_5 are a one-shot positive-triggered multivibrator. D_1 and D_2 are simple diodes arranged as series gates passing only negative pulses. V_3 and the differentiator network composed of C_2 and R_{13} together form the pulse generator. V_2 is a cathode-follower charging tube for condenser C_1. The purpose is to secure a more linear charging voltage across C_1. V_1 is the discharge tube for C_1 and V_8 is the mark-period control tube which actuates the transmitter-keyer tubes.

Let us consider the multivibrator circuits briefly for those who are unfamiliar with them. The bi-stable triggered multivibrator is nothing more than an electronic switch. By virtue of the crossover grid-to-plate voltage-divider connections, each triode section is forced to do the opposite of the other. Thus, if V_6 is conducting, V_7 will be cut off and, what is more important, they will remain in this condition until a disturbance in the form of a trigger pulse is applied, to one or the other grid, of appropriate polarity and amplitude to reverse the existing static condition. A little juggling of resistor values and fixed bias will result in a very stable circuit.

The one-shot multivibrator is somewhat different. In this circuit notice the grid-return connections. V_4 grid is returned to its own cathode.

* Gillette, N. J.

[1] Turrin, "Debugging the Electronic Bug," *QST*, Jan., 1950.

[2] Brann, "In Search of the Ideal Electronic Key," *QST*, Feb., 1951.

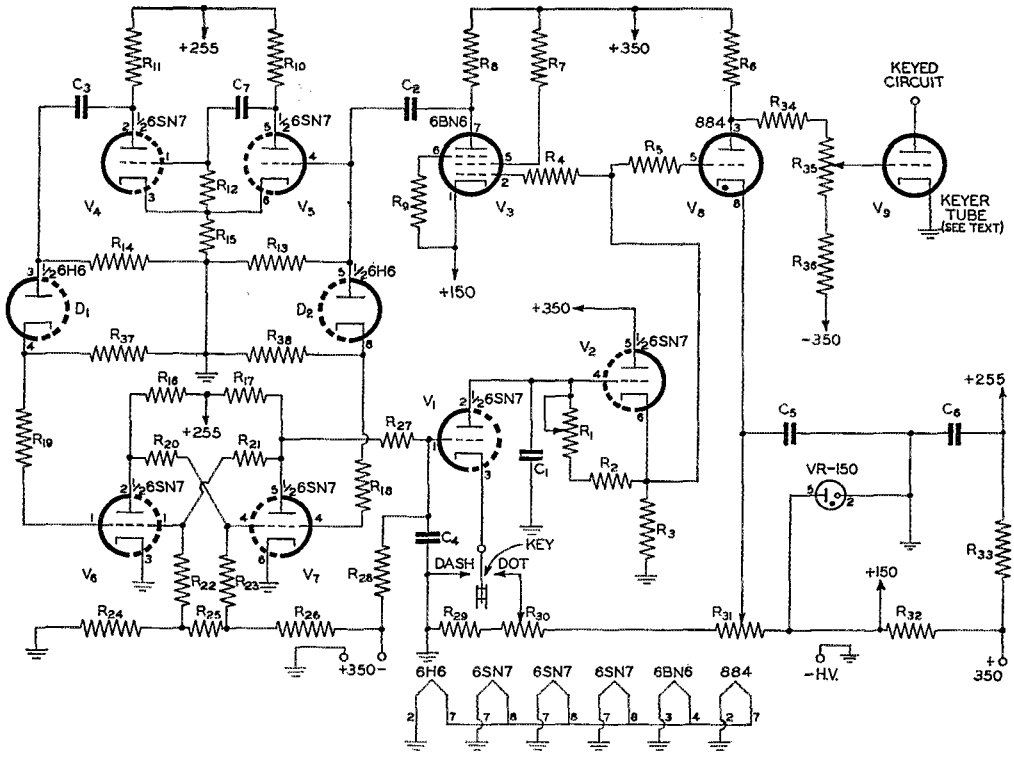


Fig. 1 — Circuit of the "Tur-Key."

C_1 — 0.01-μfd. 600-volt mica.
C_2, C_3 — 330-μμfd. 500-volt mica.
C_4 — 0.0022-μfd. 500-volt mica.
C_5 — 20-μfd. 150-volt electrolytic.
C_6 — 8-μfd. 400-volt electrolytic.
C_7 — 0.0047-μfd. 600-volt mica.
C_8 — 10-μfd. 50-volt electrolytic.
R_1 — 2-megohm linear potentiometer.
R_2 — 0.2 megohm, ½ watt.
R_3, R_{10}, R_{11}, R_{16}, R_{17} — 0.1 megohm, 1 watt.
R_4 — 0.33 megohm, 1 watt.
R_5, R_{27}, R_{36} — 2.2 megohms, 1 watt.
R_6, R_8, R_{12}, R_{13}, R_{14}, R_{34}, R_{37}, R_{38} — 1 megohm, 1 watt.
R_7 — 0.15 megohm, 1 watt.
R_9, R_{15} — 10,000 ohms, 1 watt.
R_{18}, R_{19}, R_{22}, R_{23} — 0.47 megohm, 1 watt.
R_{20}, R_{21} — 3.3 megohms, 1 watt.
R_{24} — 15,000 ohms, 1 watt.
R_{25} — 1000 ohms, 1 watt.
R_{26} — 0.13 megohm, 1 watt.
R_{28} — 10 megohms, 1 watt.
R_{29} — 4700 ohms, 1 watt.
R_{30}, R_{31} — 5000-ohm wire-wound potentiometer.
R_{32} — 7000 ohms, 10 watts.
R_{33} — 56,000 ohms, 1 watt.
R_{35} — 0.24 megohm, 1 watt.
D_1, D_2 — Section of 6H6.
V_1, V_2 — Section of 6SN7.
V_3 — 6BN6.
V_4, V_5 — Section of 6SN7.
V_6, V_7 — Section of 6SN7.
V_8 — 884.

This section is therefore normally conducting heavily. V_5 grid is returned to the bottom of a resistor which is common to both cathodes.

Since V_4 is conducting heavily, and its total plate current is passing through the common cathode resistor, R_{15}, the voltage drop across this resistor will be sufficient to cathode-bias V_5 to cut-off. V_5 is, therefore, not conducting. The appearance of a positive pulse of sufficient amplitude at V_5 grid causes this section to conduct and its plate voltage to drop. This negative-going voltage charges C_7 in such a polarity as to bias V_4 to complete cut-off. At this point, the forced cathode bias on V_5 is removed and V_5 continues to conduct even though the grid pulse has now died away. The two tube sections have now reversed their static condition but will only remain so until C_7 discharges sufficiently through R_{12}, and V_4 grid again allows plate current to flow. At this instant, a regenerative process takes place through the common cathode resistor and the tubes instantly reverse and return to their original static condition. The result is a very steep-sided rectangular positive pulse at the plate of V_4, of which we shall make good use.

Static Conditions

It will now be of interest to note the static condition of each tube section of the entire key when the key lever is in the neutral position. Note also that, except for V_2, all the tubes are either fully conducting or completely cut off, much like a switch. V_1 is not conducting because of the open cathode; however, its grid is at a positive voltage. V_2 is conducting heavily. V_3, V_4, V_6 and V_8 are all conducting. V_5 and V_7 are cut off. The voltage at the keyer-tube grid is adjusted to just below cut-off, thus cutting off

the transmitter output. The use of a resistance bridge between V_3 and the keyer tube permits direct coupling which is essential to good clean operation.

When the circuit is initially turned on, the bi-stable multivibrator circuit arrives at the static state given by virtue of a slightly higher negative grid bias on V_7. The other tubes arrive at their static conditions for obvious reasons. Various voltage values at points of interest with the key in neutral position are as follows: V_5 plate, 255; V_4 plate, 55; V_6 plate, 45; V_7 plate, 250; V_3 and V_8 grids and V_2 cathode, 275; V_3 plate, 150; V_8 plate, 130. The junction of R_{25} and R_{26} is at negative 30 volts. All voltage measurements are made with a high-resistance voltmeter, with the circuit values and supply voltages given in the schematic. The values are approximate and need not necessarily be followed closely, provided the circuits are functioning properly.

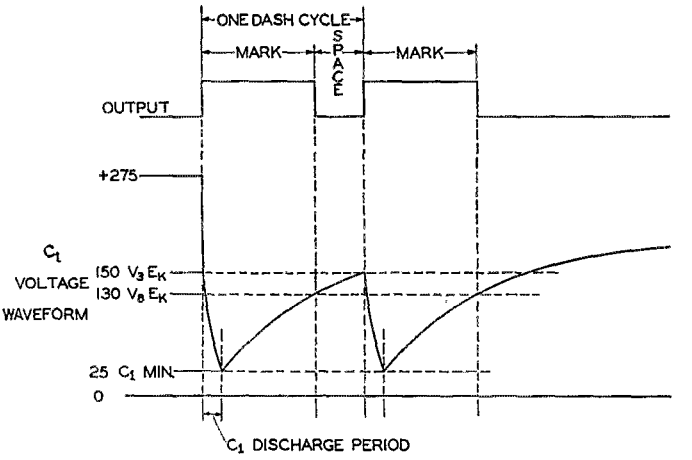


Fig. 2 — This graph shows various significant voltages that illustrate how the mark and space periods are formed and controlled.

Theory of Operation

Let us now wade through the theory of operation. For this discussion we will form two complete dashes to illustrate the recycling action, the self-completing action, and other features of interest. With the key lever in the neutral position, condenser C_1 reaches its highest charge of approximately 275 volts. The cathode of V_2 is also at 275 volts and the grids of V_3 and V_8 are positive with respect to their cathodes. At this point, the key lever is closed on the dash side, grounding the cathode of V_1. Since V_1 grid is positive at this time, V_1 conducts and discharges C_1, rapidly driving the cathode voltage of V_2 down to about 25 volts. This, in turn, drives both V_3 and V_8 grids well below cut-off, and they cease to conduct. V_8 plate voltage rises and, since the keyer-tube grid is direct-coupled through the voltage bridge, its grid becomes slightly positive. The keyer tube conducts and turns on the transmitter. Thus, we have started the mark period of the first dash.

V_3 was cut off and so its plate voltage rises rapidly, also. This rising voltage is differentiated by C_2 and R_{13} into a sharp trigger pulse of about 20 volts peak and positive in polarity. This positive trigger pulse is generated at the instant the key contacts are closed.

The positive pulse appears at V_5 grid and has two possible directions to travel. Diode D_2, however, will not pass positive pulses, so the pulse is stopped in this direction. The pulse does drive V_5 grid, triggering the one-shot multivibrator. The one-shot multivibrator produces one rectangular pulse at the plate of V_4 for each positive trigger pulse at V_5 grid. The width or time length of this rectangular pulse is approximately five milliseconds and is adjustable in width by the values of C_7 and R_{12}. The optimum pulse width will be discussed in detail later.

The positive rectangular pulse at V_4 plate is now differentiated by C_8 and R_{14} into sharp positive and negative pulses with respect to the leading and trailing edges of the wave. These triggers are applied to diode D_1. Here, again, D_1 will pass only negative pulses, so the initial positive trigger pulse cannot pass through to V_6 grid.

The negative pulse does, however, pass through D_1 and appears at V_6 grid, but is delayed in time by approximately five milliseconds, or the width of the one-shot multivibrator output pulse. V_6, which was normally conducting, is now driven to cut-off by the negative trigger pulse. And, owing to the flip-flop circuit connections, V_7 is driven instantaneously to conduction. V_7 plate voltage drops to about 50 volts positive and, by virtue of the bridging voltage divider consisting of R_{27} and R_{28}, V_1 grid is driven well below cut-off, thus ending the discharge cycle of C_1. It is well to mention that the above action all takes place within approximately five milliseconds of closing the key contacts. The key contacts still remain closed but, since V_1 is now cut off, the key is actually disconnected from the circuit. As we shall see, this is the basis for the self-completing action, requiring merely a 5-millisecond closing of the key contacts to actuate one complete character, dot or dash.

At this instant, C_1 is discharged to its lowest voltage, about 25, and immediately starts to charge through V_2 and the resistors R_1 and R_2. The charge-time period is considerably longer and a more linear voltage rise is secured by virtue of the cathode-follower charging circuit. As C_1 charges in a positive direction, the cathode of V_2 rises in a similar manner. When the cathode voltage of V_2 reaches the fixed cathode bias of V_3, V_3 conducts abruptly and its plate voltage again drops to about 130 volts. The direct-

coupled voltage bridge to the keyer-tube grid returns this grid to cut-off. The keyer tube stops conducting and we have reached the end of the mark period.

C_1, however, goes on charging and V_2 cathode follows, affected only slightly by V_3 conducting. The 2-megohm grid resistor, R_5, acts as an isolation and current limiter. The cathode voltage of V_2, now still rising, reaches the fixed-cathode-bias value of V_3 and drives this tube from cut-off to saturation with three quarters of a volt grid change. The relatively new 6BN6 beam gated tube, having this characteristic, functions very well in the rôle of pulse generator. As a result of this high amplification factor, the plate-voltage change of V_3 is rather steep, even at low keying speeds, and can be readily differentiated by C_2 and R_{13} into a negative trigger pulse of useful value. The generation of this negative pulse marks the end of the mark-plus-space period and produces the recycling action that follows.

The negative trigger pulse appears at V_5 grid and D_2 cathode. But V_4 and V_5 are a positive-triggered multivibrator so nothing happens here. The negative pulse does, however, pass through diode D_2 and reaches V_7 grid in sufficient amplitude to trigger V_7 into cut-off, forcing V_6 to conduct. Since V_6 and V_7 form the triggered bistable multivibrator, the tubes remain in their respective conditions until another suitable trigger pulse is received. With V_7 cut off, its plate voltage rises, resulting in V_1 grid going positive. V_1 will now conduct, since the key lever is still grounded through the contacts and its grid is positive. We have now arrived at a point or time comparable to the initial closing of the key-lever contacts. In this case, however, the action is completed electronically with key lever closed.

The action then repeats itself. V_1 conducts, discharging C_1 rapidly, driving V_3 and V_8 into cut-off, thus starting the second dash-mark period and also generating a positive trigger pulse at the grid of V_5. This triggers the one-shot multivibrator which, in turn, generates the delayed negative pulse for V_6 grid. V_6 is driven to cut-off, V_7 conducts and V_1 is again cut off. V_1 is cut off at the same instant V_6 receives the negative trigger. C_1, discharged to its lowest point, now again starts to charge slowly.

While C_1 is charging, we will open the key contacts. The circuit action is not affected in any way, since V_1 is cut off and effectually disconnects the key from the circuit. C_1 and V_2 cathode are now rising linearly in a positive direction. Upon reaching the cathode-bias value of V_3, V_3 conducts, ending the second mark period. When the grid of V_3 allows V_3 to conduct, we have again reached the end of a second mark-space period and a negative pulse, generated by V_3, C_2, and R_{13}, appears at V_7 grid. V_7 is driven to cut-off, V_6 conducts and V_1 grid goes positive. But V_1 cannot conduct while the key is open, disconnecting its cathode, therefore the circuit completes the second dash and space and resets itself for the next key-contact closing.

Dots are formed in exactly the same manner except that the voltage to which C_1 is discharged is made some positive value — approximately 60 volts — thus shortening the mark-period time while not affecting the space period or any other function. To understand the mark- and space-timing periods better, Fig. 2 has been included. This shows various significant voltages which may be correlated with the text to indicate graphically the manner in which the mark and space periods are formed and controlled.

Adjustments

So much for the theory of operation. A few interesting points bear special mention in the practical application. Consider the one-shot multivibrator, V_4–V_5. The output pulse width at V_4 plate determines the discharge period of C_1, and is controllable by varying R_{12} or C_7. Larger values result in wide pulse width or longer discharge period of C_1. Should the discharge period of C_1 be made too short, C_1 will not reach a stable discharged condition, resulting in erratic operation of the entire timing operation. Experiments have shown a pulse width of between 5 and 10 milliseconds to be sufficient with the circuit constants given. The use of an oscilloscope and v.t.v.m. are invaluable in observing this and other waveforms such as the trigger pulses.

Don't neglect C_4; it is essential to stable operation of the circuit, providing a slight delay in the recycling pulses. Without it, false triggering and erratic operation will result.

Some eyebrows may have been lifted when V_8, the Type 884 gas triode, was driven from conduction to cut-off by driving its grid below its cathode voltage. The action is quite valid for this particular situation and has proved to be entirely stable and dependable over long periods of operation.

The adjustable controls are as follows:

R_1 is the speed control, adjustable over a considerable range. R_{30} is the ratio control, adjusted to produce two dots plus two spaces equal to one dash plus space. R_{31}, the mark period or weight control, is best adjusted for equal dot- and space-time values of the keyed circuit. R_{35} adjusts the keyer-tube bias and is provided for initial adjustment with a particular keyed circuit. R_{35} is set so that the keyer tube is just below cut-off with the key lever in neutral position. The author keys a single 6L6 at 450 plate volts with two 6N7s as keyer tubes.

Power-supply requirements are small. A supply of 350 to 375 volts at 50 ma. is entirely sufficient. The VR-150 and associated voltage divider consume most of the power involved. R_{32} may be varied to allow the VR-150 to conduct only sufficiently to maintain regulation. R_{33} and C_6 provide additional filtering and isolation of the triggered circuits, while a single-section condenser-input filter will suffice for the rest of the circuit. The negative voltage may be taken from the same power transformer with a half-wave

(Continued on page 122)

Modifying the Viking I for 50-Mc. Operation

A Simple Way To Go V.H.F.

BY JOHN KLAR,* W1LFI

SEEING the considerable increase in 50-Mc. activity in this area stirred the urge to get into the v.h.f. picture. Having recently purchased a Viking I, the first thought was to see what could be done about putting this popular rig on 6. A preliminary investigation indicated that this should be a simple matter. It *was* simple; by doubling in the final, installing the proper crystal, and making the simple modifications outlined below, the Viking can be made to provide a good signal on 50 Mc. in hardly more time than it takes to get the chassis out of its cabinet.

Here is the step-by-step procedure followed by Paul Scholz, W1IXJ, and the writer, in converting their Vikings for use on 6:

1) Make the changes suggested by Phil Rand, W1DBM, in *QST* for June, 1952. This is recommended for 50-Mc. work primarily to provide the additional grid drive needed for efficient operation of the final stage as a doubler.

2) Use a crystal frequency (or VFO) of 6250 kc. or higher.

3) Reduce the auxiliary coil, L_8, to 2½ turns, spaced ¼ inch.

4) Remove the parasitic choke and resistor in the final plate lead, and replace with ¼-inch-wide copper strap or braid.

5) Add an 8200-ohm resistor in series with the final grid bias resistor, R_{27}.

6) Add a 27,000-ohm 2-watt resistor across the grid r.f. choke, L_6.

7) Replace lead from r.f. choke, L_7, to the blocking condenser with 15 turns No. 20 wire, ⅜-inch diameter, and 2 inches long.

8) Remove shield from 6AQ5 buffer tube.

Using a crystal around 6300 kc., no changes were necessary in the oscillator or buffer stages. With the band selector set for 10-meter operation, the oscillator will tune around 70 and the buffer near 60. Final grid current should be about 6 ma. or better to get a good dip when doubling in the final. This should not be difficult to obtain, as there was about 4 ma. available before the changes were made in the coupling between stages. After modification the grid current was up to 8 ma.

Pruning the auxiliary coil, L_8, to 2½ turns will allow the final to tune to 50 Mc. at about 97 on the dial. It is important to watch out for the resonance at 25 Mc. that shows up around 80 to 85. FCC also takes a dim view of your doubling to 56 Mc. when you are supposed to be operating on 28. Once you have it firmly fixed in your mind that 50-Mc. operation requires a setting around 97 and 28 Mc. output comes at about 85, there is little chance of getting on the wrong frequency.

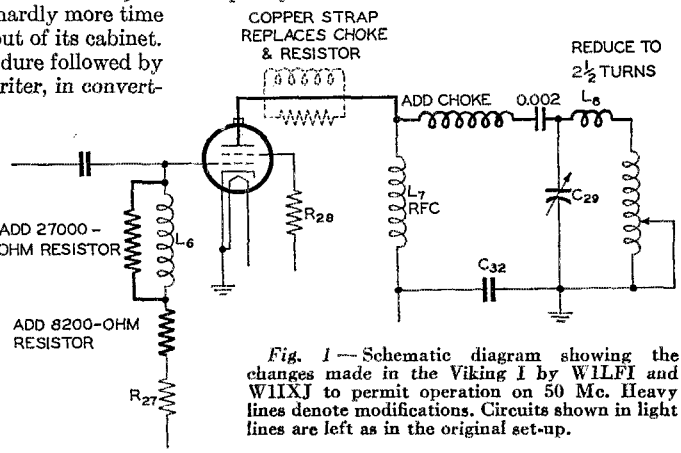


Fig. 1 — Schematic diagram showing the changes made in the Viking I by W1LFI and W1IXJ to permit operation on 50 Mc. Heavy lines denote modifications. Circuits shown in light lines are left as in the original set-up.

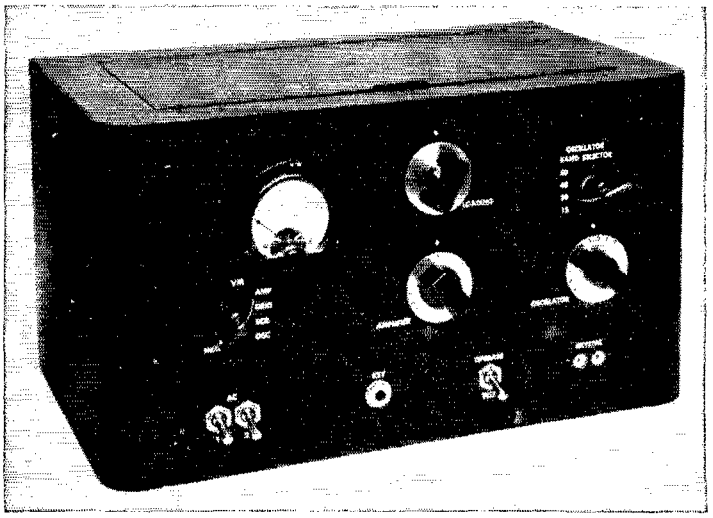
The parasitic choke and its loading resistor must be removed, as the dissipation of 50-Mc. energy in the suppression circuit is too much for the resistor. When operation was tried with the suppressor in the circuit the resistor immediately went up in smoke. The ¼-inch strap that replaces this circuit can be made from the braid from a short section of RG-8/U coax, though a copper ribbon may be somewhat more effective. Either will help in dissipating the heat from the 4D32.

The final plate current should be loaded to not over 190 ma. and no overheating will be encountered. Many Viking owners have had trouble with heating of the 6AQ5 buffer stage. If the transmitter is shielded, the 6AQ5 can be removed to allow more heat radiation.

Owners of the companion VFO unit can make use of the 11-meter position for 6, lowering its range by placing a 20-$\mu\mu$fd. mica condenser across the 11-meter trimmer. This is separate from the other trimmers, so it has no effect on the other ranges. The changes made in the rig to operate on 6 result in no changes in tuning

(*Continued on page 126*)

* 62 Central St., West Boylston, Mass.



The complete transmitter fits into an 8 × 14 cabinet, delivers an r.f. output of 50 watts on all bands from 3.5 to 28 Mc. The r.f. circuits are completely shielded, using standard aluminum boxes — 4 × 5 × 6 inches for the amplifier, 2 × 4 × 4 inches for the oscillator — and the leads are well filtered to prevent harmonic radiation in the TV bands. Used with crystal control as is, it can also be driven from a VFO fed into the crystal socket.

75 Watts with an "Economy" Power Supply

Compact Five-Band 6146 Transmitter

BY GEORGE GRAMMER,* W1DF

THE transmitter shown in the accompanying photographs illustrates the compact construction that can be realized by using the type of power supply discussed last month.[1] Although occupying only an 11 × 7 × 2-inch chassis, its measured r.f. power output averages 50 watts on all bands from 3.5 through 28 Mc., with an input of 75 watts. The unit is "TVI-proofed" in the only realistic interpretation of the phrase — that is, the harmonic radiation from the set itself is so low that it can be used right alongside a TV receiver without interfering with a very snowy picture.

Readily available materials are used throughout, and there is no special construction that might tax the facilities of a ham's workshop. Standard utility boxes are used for the shielding, and the mechanical work is confined to drilling the usual assortment of holes for mounting parts and sockets.

Although at first glance the circuit might seem rather complex for a two-tube transmitter, it is the sort of complexity that results when you combine the r.f., power supply, and metering and control circuits all into one diagram. In other words, it looks a lot more complicated than it actually is. The metering arrangement is somewhat more comprehensive than is usually the case with a small rig, but it considerably enlarges the scope of useful measurements that can be made with a single instrument, and includes a simple scheme for getting a variety of ranges by using standard values of half-watt resistors rather than fussing with home-wound shunts. The unit includes provision for operating on emergency battery-operated power supply, and also for introducing plate-and-screen modulation for the amplifier.

R.F. Section

The r.f. circuit arrangement is basically very simple and familiar: a frequency-multiplying crystal oscillator, using a 5763, driving a 6146 amplifier having an ordinary tank circuit with inductive output coupling. The upper section of Fig. 1 shows the r.f. circuit.

The oscillator circuit is the "grid-plate," using

• Depending on whether you rate your transmitters by d.c. plate input or actual r.f. power output, this is either a "75-watt" or "50-watt" rig. Built on a 7 × 11 × 2-inch chassis, the set uses a 5763 crystal oscillator and 6146 amplifier. The compact construction is achieved by using an inexpensive power supply of the type described in the November issue.

TVI-proofed, with provision for operating from emergency power supply and for introducing plate-and-screen modulation, as well as use with a VFO, the set is not only serviceable as a regular station transmitter for those who like to operate at such a power level, but is handy for emergency and portable work, or as a reserve rig to get you back on the air in a hurry should something go wrong in your main transmitter.

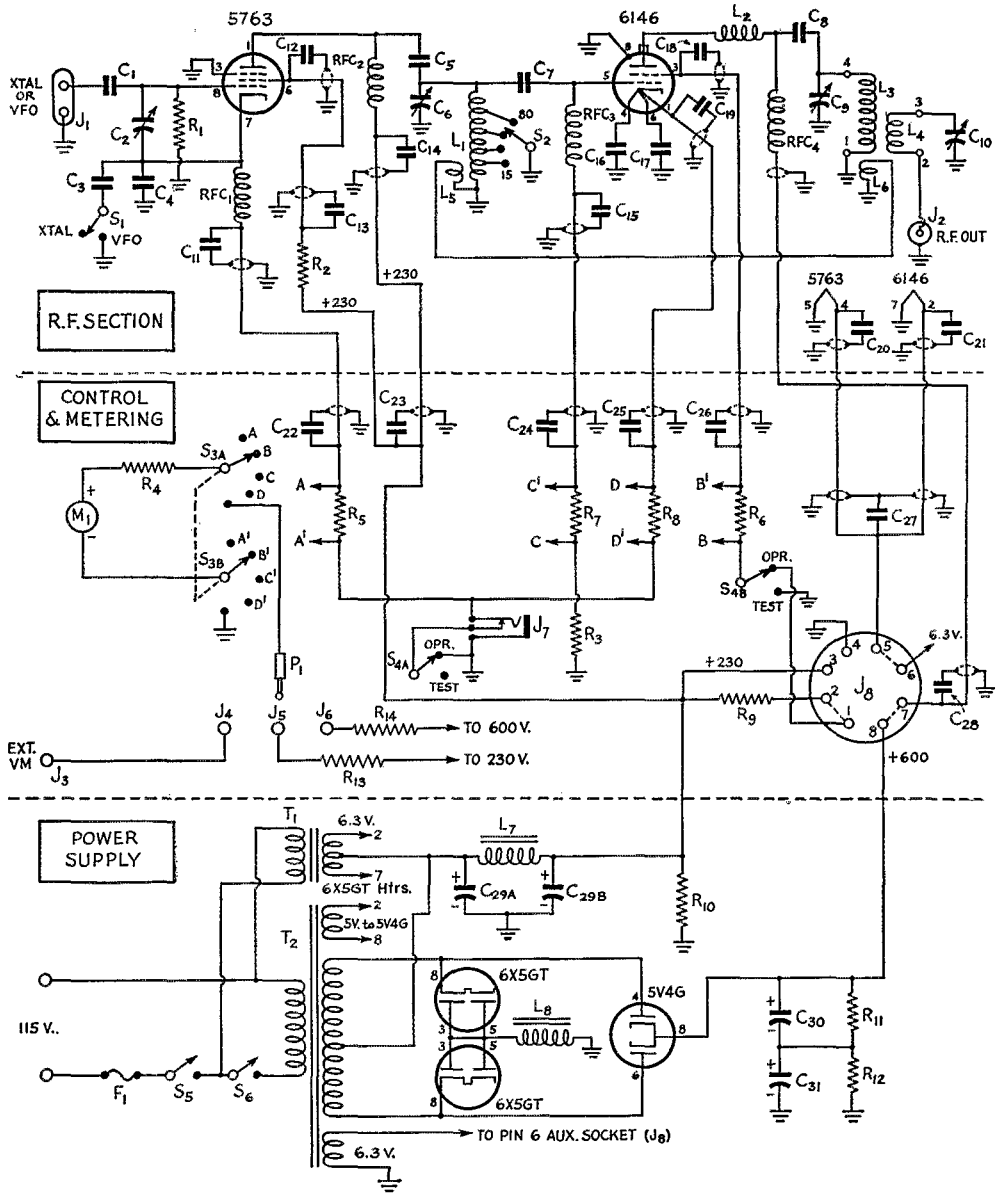
* Technical Editor, *QST*.

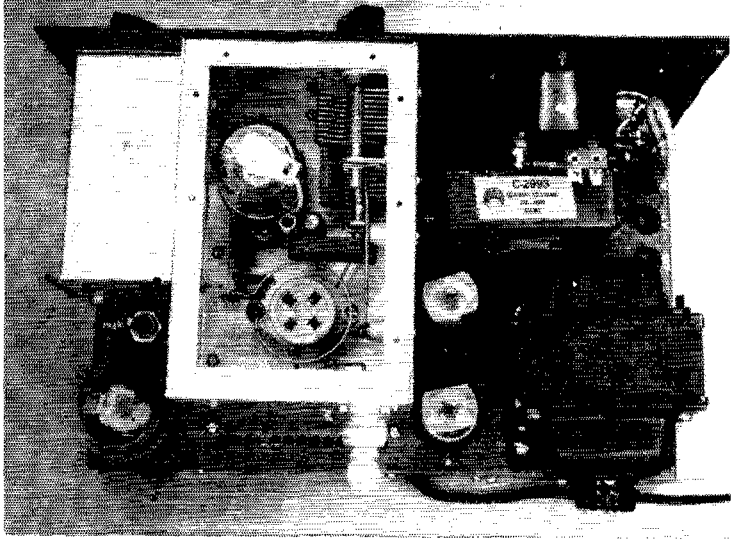
[1] Grammer, "More Effective Utilization of the Small Power Transformer," *QST*, November, 1952.

a variable feed-back condenser between grid and cathode so it can be adjusted for optimum results. A switch is included for grounding the oscillator cathode through a by-pass condenser so the 5763 can be driven by a VFO through the crystal socket. The oscillator plate coil is tapped to cover four ranges, 3.5 through 21–28 Mc., with a switch. Either straight-through operation or doubling in the oscillator gives three to four times as much amplifier grid current as is needed, with either 3.5- or 7-Mc. crystals. Quadrupling to 14 Mc. from a 3.5-Mc. crystal gives just enough excitation, under load, to drive the amplifier properly on that band. With a 7-Mc. crystal, tripling to 21 Mc. gives a little more than optimum excitation. Quadrupling from 7 to 28 Mc. is a bit on the edge; a good active crystal will give optimum excitation for the 6146 under load, but many crystals fall just a little shy. They are nevertheless usable, although the amplifier efficiency is slightly reduced with low excitation.[2] However, 28-Mc. crystals (or their 9-Mc. fundamental counterparts) give ample drive on ten.

Both the oscillator and amplifier have parallel plate feed, which permits good grounding of the

[2] The 14-Mc. crystals currently sold do not improve this situation to any extent, since they are overtone types. A 14-Mc. crystal behaves as though it were tripling to 14 Mc. instead of giving fundamental output on that frequency, and on 28-Mc. it is actually sextupling, giving only a trace of output.





Top view showing inside of amplifier box after assembly. The amplifier plate coil has been removed to show the neutralizing link, a single turn of No. 12 wire approximately 1⅞ inches in diameter, supported at one end under the screw holding the socket and at the other by a tie-point mounted on the same screw. The lead to the neutralizing link at the oscillator coil goes through a grommet in the wall of the box. The 5V4G rectifier is at the lower left; other power-supply components occupy the right-hand end of the chassis. Note the coax elbow, used so the cable connector can be installed while the unit is in its cabinet.

♦

tank circuits and simplifies mounting the condensers. In the case of the amplifier, parallel feed also is a safety precaution so the plug-in coils can be changed without turning off the plate voltage. A bandswitching arrangement was not feasible in the amplifier because of the limited size of the amplifier compartment.

Like many beam tubes, the 6146 has high power sensitivity and high enough grid-plate capacitance to let it self-oscillate at high frequencies unless some means beyond the usual shielding is taken to prevent it. In this case the feed-back external to the tube was found by test to be negligible, but the amplifier was satisfactorily stable only on 3.5 and 7 Mc. Inductive neutralization was therefore incorporated. This is a fixed circuit and need only be adjusted when the transmitter is initially tested. It involves no extra parts except a tie-point and a bit of wire.

The cathodes of both tubes are keyed simultaneously for break-in operation.

Power Supply

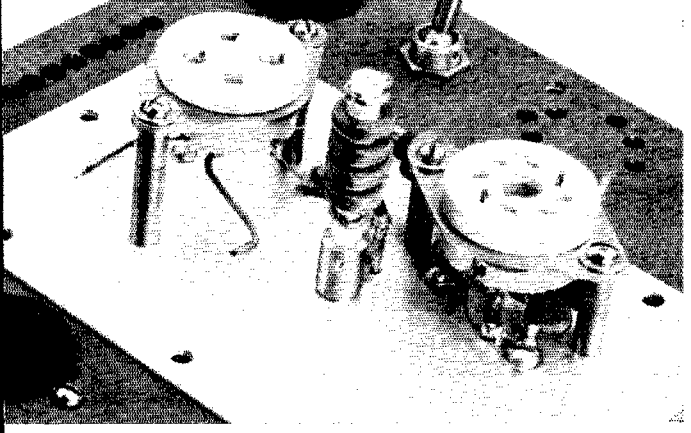
The power supply is substantially identical with that shown in November *QST*. The filter condenser for the low-voltage end is a dual-8 unit instead of an 8-16, the latter not being available at the local stores at the time. The difference in filtering is negligible.

The d.c. voltages cannot be turned off between transmissions since the heaters of the 5V4G and the two tubes in the r.f. unit are operated from the plate transformer. There is no safety hazard in this if construction similar to that shown is used, because it is impossible to touch a "hot" part of the circuit, even when changing coils, without making a deliberate effort to do so. Separate heater supplies could be used, of course, in which event the main trans-

Fig. 1 — Circuit diagram of the transmitter. Dotted lines in J_8 indicate jumpers in plug for normal operation.

C_1, C_7 — 220-$\mu\mu$fd. mica.
C_2 — 3–30-$\mu\mu$fd. ceramic trimmer, compression type.
C_3 — 0.002-μfd. mica.
C_4 — 100-$\mu\mu$fd. mica.
C_5 — 0.002-μfd. mica.
C_6 — 50-$\mu\mu$fd. midget variable (Bud LC-1644).
C_8 — 0.001-μfd. mica, 1200 volts, case-type CM-45.
C_9 — 235-$\mu\mu$fd. variable, 0.024-inch spacing (Bud type MC-1859).
C_{10} — 140-$\mu\mu$fd. variable, 0.024-inch spacing (Bud type MC-1856).
C_{11} to C_{27}, inclusive — 0.001-μfd. disk ceramic, ⅜-inch diam., 600 volts.
C_{28} — 470-$\mu\mu$fd. mica, 1200 volts, case-type CM-45.
C_{29} — Dual 8-μfd. electrolytic, 450 volts.
C_{30}, C_{31} — 16-μfd. electrolytic, 450 volts.
R_1 — 0.1 megohm, ½ watt.
R_2, R_3 — 27,000 ohms, 1 watt.
R_4 — 5000 ohms, ½ watt.
R_5 — 100 ohms, ½ watt.
R_6 — 263 ohms (270), ½ watt.
R_7 — 555 ohms (560), ½ watt.
R_8 — 25 ohms (27), ½ watt.
R_9 — 4700 ohms, 1 watt.
R_{10} — 0.1 megohm, 1 watt.
R_{11}, R_{12} — 20,000 ohms, 10 watts.
R_{13} — 0.5 megohm, ½ watt.
R_{14} — 1 megohm, 1 watt.
L_1 — See coil data.
L_2 — 4 turns, 9/16-inch diam., ⅝ inch long.
L_3, L_4, L_5, L_6 — See coil data.
L_7 — Filter choke, 40 ma., 300 ohms, approximately.
L_8 — 10.5 henrys, 110 ma., 250 ohms.
F_1 — Fuse, 2 amp.
J_1 — Crystal socket.
J_2 — Coax connector, chassis-mounting type.
J_3, J_4, J_5, J_6 — Tip jacks, insulated type (Amphenol 78-1P).
J_7 — Closed-circuit 'phone jack.
J_8 — Octal socket.
M_1 — 0–1 d.c. milliammeter.
P_1 — 'Phone tip test plug.
S_1, S_5, S_6 — S.p.s.t. toggle.
S_2 — Single-pole 5-position ceramic wafer (Centralab 2500 or 2501).
S_3 — 2-pole 5-position bakelite wafer, non-shorting type (Centralab type 1405).
S_4 — D.p.d.t. toggle.
RFC_1, RFC_2, RFC_3 — 2.5 mh., 75 ma. (Millen 34300–2500).
RFC_4 — 2.5 mh., 250 ma. (Millen 34102).
T_1 — Filament transformer, 6.3 v., 1.2 amp.
T_2 — Power transformer, 320 v. each side c.t., 120 ma.; 5 v., 3 amp.; 6.3 v., 3 amp. or more.

NOTE: Manufacturer's part numbers given above are to indicate size and style. Similar components are generally available from a number of different suppliers.



The amplifier bottom plate is assembled permanently on the chassis. The sockets are mounted on ¾-inch hollow pillars, three high for the coil socket and two high for the tube. Ceramic by-passes for the cathode and heater leads are just below the tube socket. The grounded lug under the tube socket at the left connects directly to Pins 7 and 8, and a ceramic by-pass is wired between Pins 6 and 7. The shield of the d.c. plate lead is grounded to a lug held underneath the stand-off type choke. The wires projecting from the coil socket have been cut to length for soldering to the proper points in the amplifier box. (The neutralizing link around the amplifier plate coil was installed after this photograph was taken. See photograph on p. 25.) The toggle switch is the crystal-VFO switch.

former would be used for plate voltage only. However, the extra expense and the additional space required hardly seem to warrant it.

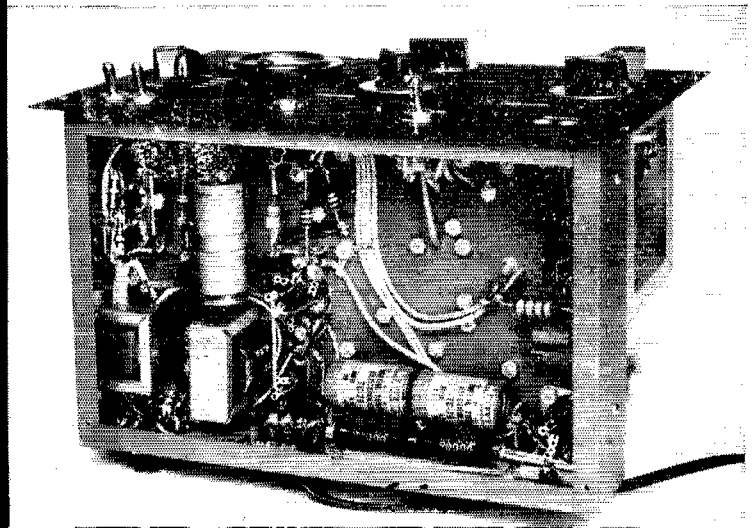
Auxiliary Circuits

A 0–1 milliammeter is used for measuring the essential currents and voltages. It is connected as a voltmeter having a full-scale range of 5 volts, and measures the voltage drop across resistors of appropriate value inserted in series with the circuits in which current is to be measured. In addition, three tip jacks, mounted on the chassis, can be selected by a test prod connected to one position on the meter switch. One is connected to the low-voltage power-supply tap through a multiplier that gives a full-scale range of 500 volts; the second is similarly connected to the high-voltage tap through a multiplier giving a full-scale reading of 1000 volts. Thus the available voltages can be monitored as well as the tube currents. The third jack connects to another, on the back of the chassis, so the meter can be used for external measurements — for example, as an indicator for an s.w.r. bridge, or for use in an r.f. voltmeter for indicating output power.

Using the meter as a low-range voltmeter permits selecting standard resistor values to be used as shunts in the circuits where current is to be measured. Where the full-scale reading is to be 20 ma. or more the voltmeter resistance can be neglected without error of any real consequence, so the resistance required is simply equal to 5 volts divided by the full-scale current reading (in amperes) desired. The ranges selected here are as follows: oscillator cathode current, 50 ma.; amplifier screen current, 20 ma.; amplifier grid current, 10 ma.; amplifier cathode current, 200 ma. Exact resistor values (without introducing more than a fraction of 1 per cent error) are given in Fig. 1, with recommended standard resistance values following in parentheses in each case. For practical purposes, an accuracy within plus or minus 10 per cent is quite satisfactory, and this is the normal tolerance on the resistors. However, the multipliers and shunts can easily be brought to the point where the accuracy is as good as calibration will allow, using the correction-resistor method described in *QST* some time ago.[3] Parallel correction is easiest in this case, so it would be advisable to select the resistors a little on the high side when correcting resistors are to be used.

A useful adjunct to the set is the "test-operate" switch. This is a d.p.d.t. toggle with one arm connected to the amplifier screen so that in one position ("operate") the screen is connected to its normal supply and in the other ("test") is grounded. Grounding the screen allows adjusting the oscillator tuning for proper amplifier grid current while the amplifier plate voltage is on. The amplifier plate current is only 20 ma. or so with the screen grounded — small enough to be not at all dangerous to the tube with the plate circuit off resonance, but still large enough to

[3] Dudley, "An Impedance Bridge for Less Than Ten Dollars," *QST*, June, 1950.



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Bottom-chassis view, including the rear wall. L_7 and T_1 are at the lower left, with C_{28} mounted on the chassis wall, close to the auxiliary socket just below T_1 in this view. The line fuse and meter tip jacks are at the upper left. The three resistors near the top center are R_4, R_2, and R_3, from left to right. C_{30}, C_{31}, R_{11}, and R_{12} are mounted on tie-points along the lower edge.

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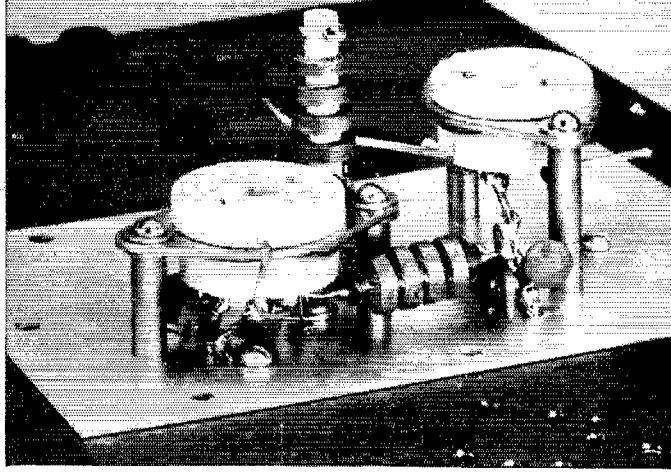

The amplifier bottom plate viewed from the right front. The screen lead with its by-pass is under the tube socket at the left. Pin 4 is by-passed to the same ground point. The grid choke mounts between Pin 5 and the tie-point at the right. The grid lead, which connects to the feed-through in the amplifier box after assembly, has been cut to length and bent to shape, ready for soldering. All shielded wires leaving this and the oscillator box are soldered to a ground lug right where they go through to the underside of the chassis.

♦

give just about the right amount of output to operate an s.w.r. bridge.

When the amplifier is plate-and-screen modulated it is necessary to get the screen supply through a dropping resistor from the plate supply. In such a case, simply opening the cathode circuits of the r.f. tubes would put excessive d.c. voltage on the amplifier screen — not only considerably higher than the tube rating of 400 volts but also in excess of the 600-volt rating on the ceramic by-pass condensers that contribute so much to filtering TV harmonics from the d.c. leads. Hence the second section of the "test-operate" switch is made to serve as a substitute key when 'phone is used. This is done by connecting the arm to the middle leaf of the key jack so that it replaces the key when the key plug is pulled out. The "test" position then becomes an "off" position, with the cathodes open and the amplifier screen grounded. When used in this way, it is necessary to insert either a closed key or shorted plug in the key jack to use the test position for its normal function.

The "auxiliary" socket serves as a terminal point for the supply leads, heater and d.c., from the r.f. section. The supply circuits are normally interconnected by means of a plug having jumpers as shown by the dotted lines. Voltages from an external supply can be introduced through this socket. The same socket also is used for introducing modulation for the plate and screen. D.c. screen voltage is furnished through an external dropping resistor in that case.

Assembly and Wiring

The constructional story is pretty well told by the various photographs, some of which show the r.f. sections partially completed. The set goes together without much trouble if the work is done in the proper order. The first thing is to get all the holes drilled. The chassis space to be occupied by the r.f. circuits is of course fixed by the box sizes, and the rest can be arranged about as you please. The layout shown allows enough room in the rear left corner to take any of the various makes of power transformer having the nominal 320-volt 120-ma. rating, provided the 6X5GT rectifiers are kept as close as possible to the amplifier box. An upright-mounting type transformer is easiest to use. Keep it right out to the chassis edges so the filter choke can be mounted far enough from the front to clear the meter. This is the only really "tight" spot in the whole set.

The small section of chassis just behind the amplifier box is drilled with a series of $\frac{3}{16}$-inch holes for ventilation, the power supply bleeder resistor being mounted directly underneath. Corresponding groups of holes are drilled in the chassis sides near the bottom front so air can be drawn through.

The r.f. boxes should be drilled first, tempora-

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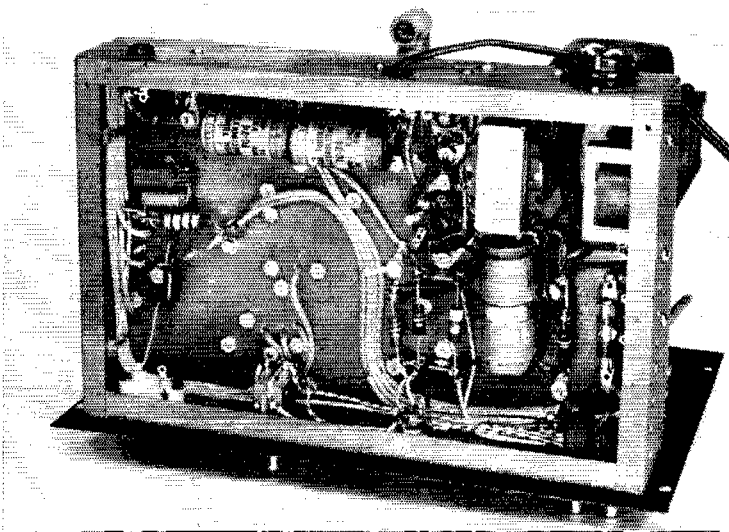

Bottom view showing the front wall. Note that the shielded wire travels around the chassis wall for a fairly long path. C_1, C_5, RFC_1 and S_1 are at the far left, just below the oscillator compartment.

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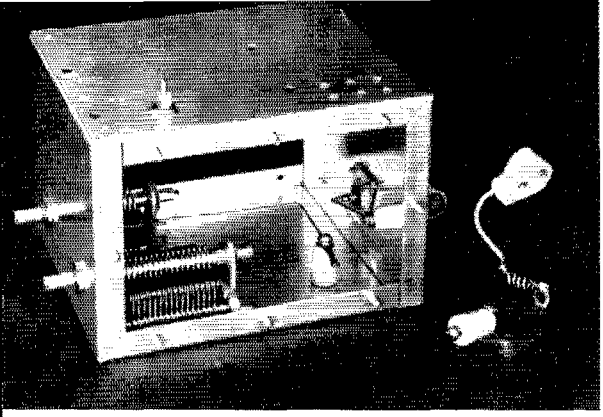


Amplifier box with parts in place ready for connecting to the components on the bottom plate. The assembly at the right consists of the plate blocking condenser, C_8, parasitic coil, L_2, and amplifier plate lead, and is mounted to the left wall of the box after all other r.f. assembly is completed. The screws in the bottom lips of the box are threaded in place to facilitate final assembly.

♦

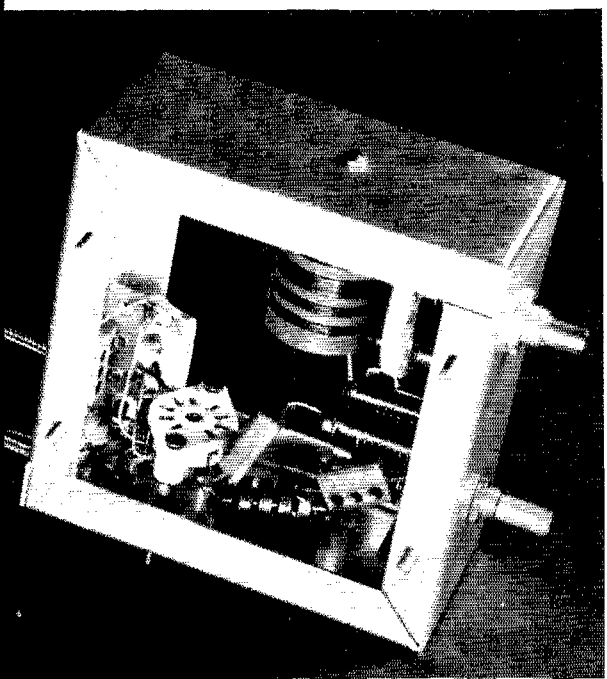
rily mounting parts and assembling where necessary to make sure everything fits before starting wiring.[4] The oscillator box mounts on the side of the amplifier box as well as on the chassis, and in drilling holes in the latter box for the screws from the oscillator compartment do not neglect the thickness of the amplifier box bottom plate. This thickness also should be taken into account in lining up the controls horizontally. When the bottoms of the two boxes are completely drilled, they may be used as templates for drilling the corresponding holes in the main chassis.

After all holes are drilled the r.f. units may be wired, leaving leads of ample length for later finishing. Remember that the shielded leads should be fairly long for good harmonic attenuation; in this unit they follow the chassis walls for as long a path as possible. Do practically all the wiring on the 5763 socket before installing it in the box, then finish the oscillator section by mounting all parts directly on the box and completing the wiring before it is mounted on either the chassis or the amplifier box. The amplifier bottom plate may be mounted directly on the chassis and then wired. Then mount the parts that go on the walls of the box and provide the leads necessary to interconnect the plate and box; they may be cut to proper length by trial with the box temporarily placed on the plate. When this is finished, mount the two boxes together and then mount the assembly on the chassis, removing the nuts on the bottom of the oscillator box so the screws can pass through the chassis. The wiring will hold everything in place for the short time necessary to do the chassis mounting. When the assembly is mounted finish off the r.f. wiring in both boxes.

Reversing this process — that is, disassembly after the transmitter has been completed — is not nearly so easy as the original assembly. It is wise to make sure, therefore, that the wiring is *right* and that there are no defective components (particularly the ceramic by-passes, some of which are inaccessible without disassembly) or wiring. Continuity checks should be made before any further wiring is done, and if possible the shielded-wire circuits should be tested at a few hundred volts d.c. to make sure there will be no breakdowns.

In the remainder of the assembly, finish off the shielded wiring first, since it will for the most part be around the chassis walls. Then mount the small parts and finish as much of the remaining wiring as possible before mounting the heavy units such as the power transformer and choke. In the transmitter shown, slightly elongating the mounting holes for the 6X5GT filament transformer made it possible to mount this transformer over two of the mounting holes for the power transformer. Some modification of the layout might be necessary with other components, since different makes vary somewhat in dimensions.

[4] Full-size drilling templates for the amplifier bottom plate and the bottom of the oscillator box were prepared but space did not permit their inclusion with this article. However, a supply of prints is available and those interested in duplicating the r.f. arrangement can have a copy on request, provided a self-addressed stamped envelope is enclosed.



The inside of the oscillator box as viewed from the amplifier side. The grid leak and cathode feed-back condenser are at the extreme left. The grid and cathode leads drop through holes just to the left of the tube socket. The amplifier coupling condenser, in the foreground at the right, is in the proper position to connect to a feed-through on the amplifier box, after assembly.

Operating Data

As a preliminary, check the plate voltages with no load on the supply — key open or jumper plug out of the auxiliary socket. Be sure that the 6X5GT heaters warm up before the 5V4G; close S_5 fifteen seconds or so before closing S_6. The voltages will vary somewhat depending on the line voltage, but at normal line voltage

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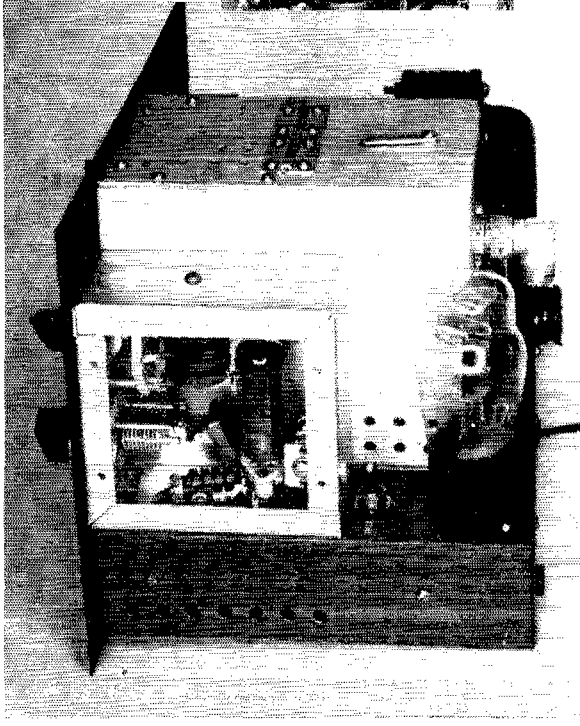

Looking into the oscillator box after final assembly. This compartment is covered by its 4 × 4-inch plate after C_2 and the neutralizing link have been adjusted.

The cover for the amplifier box is cut into two equal parts fastened together with small hinges. The section at the left is held permanently in place by screws threaded into the top lip of the box. The right-hand part forms a hatch through which the coils can be changed; it is held tightly in place by a simple home-made friction catch, made from a 6-32 screw and a few bits of brass filed to shape, that binds under the rear lip of the box. The holes in the amplifier box at the lower right and in the top cover are to allow air circulation to help cool the tube.

♦

of 117 to 120 volts should be about 800 on the high tap and somewhat over 300 on the low tap. If the 5V4G is taken out of its socket — which is a convenient way to disconnect the plate voltage from the amplifier — the low voltage will be about 400 with no load, since the bleed on this tap alone is very light.

Set the switch in the "test" position and adjust the oscillator tuning for maximum amplifier grid current. Typical maximum values are as follows:

Crystal	*Osc. Output Freq.*	*Amp. Grid Current*
3.5 Mc.	3.5 Mc.	9 to 10 ma.
3.5 Mc.	7 Mc.	7 to 8 ma.
3.5 Mc.	14 Mc.	4 ma.
7 Mc.	7 Mc.	8 to 9 ma.
7 Mc.	14 Mc.	7 to 8 ma.
7 Mc.	21 Mc.	4 to 5 ma.
7 Mc.	28 Mc.	2 to 3 ma.
28 Mc.	28 Mc.	6 to 7 ma.

If the grid-current values at the third and fourth harmonics are not fairly closely approximated with a crystal of normal activity, adjust C_2. Up to a certain point, increasing the capacitance of C_2 will increase the output on all frequencies, but too much feed-back will tend to make the oscillator slightly "yoopy," particularly when the output frequency is the same as the crystal fundamental. Adjust for the best balance between output and good keying, using a stable receiver for monitoring. Since the amplifier requires a grid current of only a bit over 2 ma. for optimum straight-through performance, this adjustment can be modified later after the amplifier is neutralized and in operation. The oscillator plate current is 25 to 30 ma. on all bands.

Neutralization of the amplifier is adjusted by moving L_5 closer to or farther away from the oscillator plate coil. With the switch in the "test" position and the oscillator adjusted for maximum amplifier grid current on 21 Mc., insert the 21-Mc. coil and tune the amplifier tank condenser through resonance (about 30 on a 100 scale). The grid current probably will show a noticeable kick as the plate circuit goes through resonance. Adjust the neutralizing half-turn for minimum kick. Then go through the same operation with both circuits tuned to 14 Mc. If the neutralizing must be readjusted for minimum kick on this band, check back and forth between the two until the best average result for *both* bands is obtained. Finally, check for actual oscillation in the amplifier. This may be done by keying a few dots with

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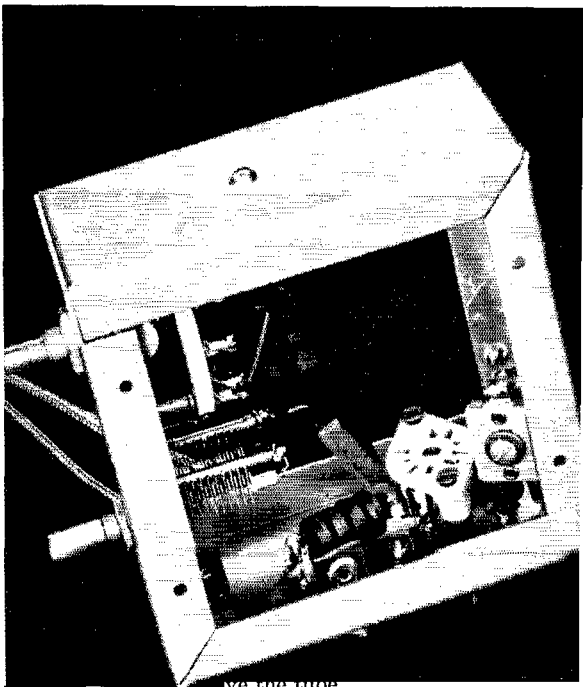
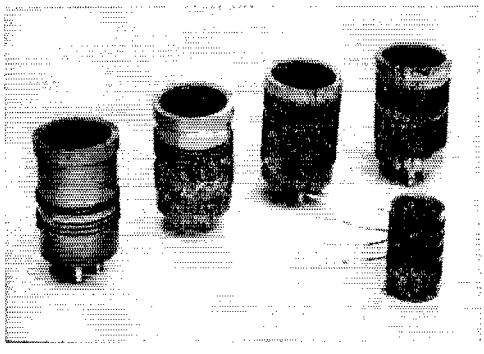


The oscillator box after wiring but before final assembly to the amplifier box and chassis. The plate choke, at the bottom, is supported between the plate prong on the tube socket and the tie-point in the foreground. C_2, at the right, is mounted on a double tie-point. The ceramic by-passes on the d.c. plate lead, heater, and screen leads (in order from left to right along the lower edge of the box) are mounted on the ends of shielded wires by the method shown in the TVI chapter of the *Handbook*. The oscillator plate coil shown in this photograph is an experimental one and does not include the neutralizing link.

the crystal removed and S_4 in the "operate" position. The amplifier plate current should swing off scale, with the plate tank tuned to the band while the oscillator tuning is swung over its range. Don't hold the key down for more than a fraction of a second in making this test! It's quite an overload on the tube and may damage it if the key is closed long enough to let appreciable heat develop. When the amplifier stands the oscillation test on both 14 and 21 the neutralizing is satisfactory. It should be found that the same neutralizing adjustment that holds for 21 Mc. will also be satisfactory for 28 Mc., since the same coils are used for these two bands.

Winding direction of the coils is important in inductive neutralization, since if one coil is going in the wrong direction the feed-back will increase the tendency toward oscillation instead of providing neutralization. The oscillator and amplifier tank coils are both wound counterclockwise, looking at the bottom of the coil form with the winding progressing away from the observer. The neutralizing turn at the amplifier end also goes counterclockwise, starting from the grounded end. The half turn at the oscillator coil lies toward the amplifier box, with its grounded end to the left as you look into the oscillator box.

Normal straight-through operation of the amplifier in this outfit is with a plate current of 120 to 130 ma., at which currents the plate voltage will run between 600 and 650 volts. Maximum output at this input should be obtained with a grid current between 2 and 2.5 ma., although values as low as 1 ma. are usable. The grid current may be adjusted by tuning the oscillator plate condenser, C_6. The amplifier screen current with normal grid current will be 10 to 12 ma., so the cathode current, which is the current actually read by the meter, will be about 15 ma. greater than the plate current. Loading to a cathode current of 140 ma. is about right. The amplifier can be used as a doubler to 28 Mc., if desired, driven by the second-harmonic output of a 7-Mc. crystal. In this case use the maximum available grid current, which will be between 5 and 6 ma. under load, and adjust the loading for an amplifier cathode current of 120 ma. or so. The screen current runs about 16 ma. under these conditions. The plate input should be limited to about 50 watts when doubling, because of the lower efficiency.



The amplifier coils have the plate winding at the bottom, with the "hot" end down. This view also shows the oscillator coil with its half-turn neutralizing link ready for installation in the oscillator box.

COIL DATA

Oscillator Coil, L_1: Wound with No. 26 enameled wire on 1-inch diameter form (Millen 45000) in four sections.

1st section: 20 turns close-wound
2nd section: 10 turns close-wound
3rd section: 5 turns close-wound
4th section: 4 turns spaced wire diameter

Taps taken off between sections. Spacing between sections approximately ⅛ inch. Fourth section (21-28 Mc.) turn spacing should be adjusted to cover 30 Mc. with oscillator condenser, C_6, near minimum capacitance.

Amplifier coils, L_2L_4:

Band	*Wire Size*	*Turns*	*Turns/inch*	*Space Between Coils*
3.5 Mc. L_2	22 enam.	15	20	⅛ in.
L_4	22 enam.	20	close-wound	
7 Mc. L_2	18 enam.	10	10	3/16 in.
L_4	18 enam.	8	close-wound	
14 Mc. L_2	18 enam.	5	10	0.2 in.
L_4	18 enam.	5	10	
21–28 Mc. L_2	18 enam.	3	10	0.2 in.
L_4	18 enam.	3	10	

Coils wound on 1½-inch diameter forms (National XR-4) with L_2 at bottom and plate terminal down. See Fig. 1 for connections in coil form and socket.

The output coupling circuit is designed to provide adequate power transfer into a 50- or 75-ohm flat line, and is therefore suitable for either an antenna system using such a line or for use with a coax-coupled antenna tuner. The method of adjusting for a low standing-wave ratio in either case is covered in detail in the *Handbook*.

Although the transmitter is well shielded and the leads are thoroughly filtered for TV harmonics, no special attempt has been made to reduce harmonic output from the amplifier other than to avoid unfavorable v.h.f. resonances in the circuits. Harmonic filtering of some type therefore may be required between the transmitter and the antenna. On the 14-Mc. band and lower frequencies we have found a simple coax-coupled antenna tuner of the type described in the *Handbook* to be adequate even for very weak TV signals, but under the same conditions a low-pass filter was a required addition for 21 and 28 Mc. Whether or not the filter is needed in a particular case will depend on the usual factors of TV channel, signal strength, proximity of TV receivers, and so on.

Happenings of the Month

LORAN SHARING EXPANDED

In late October FCC took action to finalize its proposal (initiated in July, 1951, and modified in April this year) on rules, specified by the U. S. Coast Guard, liberalizing amateur privileges in the 1800–2000-kc. portion of the spectrum. Primarily, amateurs in the Gulf Coast states benefit, for the first time being permitted nighttime operation. The second major change is a westward shift in the geographical boundary separating use of the two shared Loran segments. These changes become effective December 15, 1952. As the text of the new regulation is identical to that printed on page 32 of our June issue, we are not repeating it here. In brief, the changes will be these:

1) Amateurs in Minnesota, Iowa, Missouri, Arkansas and Louisiana move to the "east coast" frequencies, 1800–1825 and 1875–1900 kc., with the present 500 watts day, 200 watts night power. These new power limits also newly apply to Florida and east Gulf Coast states, thus permitting nighttime operation.

2) Texas, Oklahoma and Kansas, as special cases, move also to the "east coast" frequencies, with 200 watts day power, *75 watts* nighttime power.

3) Puerto Rico and the Virgin Islands move also to the "east coast" frequencies, with 500 watts day, 200 night.

Note carefully, again, that the effective date of these changes is December 15th.

RESTRICTIONS DROPPED ON LEBANON, JAPAN

As every good DXer knows, a few misguided countries (and, it must be admitted, others with legitimate reasons) have previously filed with the International Telecommunications Union their objections to communications between their amateurs and those of other countries. Like it or not, we have been bound by the international rules, relayed by public notice of the FCC. As a result of some needling started long ago by Hq., and with some very fine coöperation by Lebanese amateurs, the OD5 government, previously on the list, withdrew its objection, and FCC has now finally published the notice. Separately, apparently as a result of change in U. S. policy, Japan (nationals) has been removed from the list.

As information, we quote below the portion of the FCC notice which lists DX restrictions still in effect:

Countries whose Administrations forbid radiocommunications between their amateur stations and amateur stations of other countries: Austria, Cambodia, Indonesia, Iran, Laos, Thailand, and Viet Nam.

Countries whose Administrations have placed the special conditions noted on amateur radiocommunications: Australia (Commonwealth of) — When communicating with another amateur station, the licensee of an amateur station may transmit and receive only messages of an unimportant character in plain language relating to experiments, or consisting of remarks of a personal nature: Provided that the licensee shall not use his station for the purpose of communicating with countries whose Administrations do not allow the transmission or reception of such messages.

Amateur licensees are cautioned that this notice does not modify, nor should it be confused with, the Commission's notice of April 15, 1952, concerning the handling of third-party messages by amateurs.

RENEWALS OVERSEAS

While for some time, initially at ARRL request, amateurs in military service overseas have been able to renew their tickets without the necessity of proof of activity, FCC has now extended this waiver also to employees of the Federal government on overseas duty. The suspension of the activity requirement for such persons holds until further order of the Commission.

December 1927

. . . ARRL Secretary Warner tells of the extreme difficulties encountered by our amateur radio representation at the Washington International Radio Conference.

. . . League President Maxim gives us a message of cheer at a potentially dark hour; only *four* of fifty-two conferring nations are favorably disposed toward amateurs.

. . . We have good news, too — Technical Editor Robert S. Kruse furnishes details on the new shield-grid UX-222, now becoming available for amateur application.

. . . "The Shield-Grid Tube as a Radio Frequency Amplifier" provides more UX-222 information as compiled by Radio Frequency Laboratories and ARRL's technical staff.

. . . The new bottle is put to work in a practical receiver layout by Assistant Technical Editor Westman in "Effective Short-Wave Radio Frequency Amplification."

. . . Another application of the UX-222 is given by R. B. Bourne, 1ANA, in a receiver circuit of amazing sensitivity and stability at 15 meters and below.

. . . A. J. Haynes traces most of the grief involved in the use of high-voltage electrolytic rectifiers to improper formation of the cells.

. . . Ivan H. Anderson, operator at standard frequency station 9XL, explains the method used to produce this station's unique new tone modulation.

. . . Next February's International Test is announced by Communications Manager F. E. Handy — prizes again will be awarded to operators of high-scoring stations.

. . . The elaborate 'phone and c.w. installation of 1CCZ, owned by Edward C. Crossett of Cape Cod, is pictorially and schematically detailed.

. . . New DX stations reported on the air are fqOCDL, French Cameroons; niTFHV, Iceland; ewH4, Hungary; fe2VO, Egypt; and fm8MA, Morocco.

The Hetromon

A Compact Instrument for Frequency Checking

BY J. P. NEIL,* VE3PN

• Every day more hams are coming around to the realization that measuring equipment isn't just a bunch of gear that the long-haired boys have around the shack to impress the lesser fry. Particularly in these days of double superhets, varied modulation systems, TVI *and single sideband, a certain* amount of measuring and checking gear is fast becoming as essential as the rig itself. The unit described here by VE3PN has the advantage that several useful functions are combined in a single compact unit requiring only one power supply.

Most hams recognize the practical value of test equipment. A few pieces of such gear not only may save many hours of hectic cut-and-try, but also always bring the satisfaction of knowing where you stand. However, as one begins to accumulate individual pieces of equipment, he finds himself up against the problem of space as well as the fact that he has an inordinate amount of money tied up in power supplies. The author, having found himself in such a position, decided the only practical solution was in the design of multipurpose units.

The unit shown in the photographs (which I have called the Hetromon) has combined features as follows: (a) a 100/1000-kc. crystal secondary standard; (b) a heterodyne oscillator capable of beating with, and being accurately calibrated against, the crystal, as well as emitting a calibrated signal for checking an incoming signal; (c) the output has harmonics up to at least 50 Mc.; (d) it may be used as a signal generator for alignment of receivers (including i.f.) as well as for calibrating transmitters; (e) it contains a fixed-frequency audio oscillator to provide approximately 400 cycles to modulate either heterodyne or crystal output; (f) it contains a modulation-percentage indicator and 'phone monitor; (g) audio output is available for signal tracing and condenser testing (not measuring).

Circuitry

While the circuit shown in Fig. 1 is, in most respects, quite straightforward, some comment will not be amiss. Starting with the crystal-oscillator section, the Bliley crystal bar is on the left side of the chassis, close to the 6SA7. The 6SJ7 crystal-oscillator tube is immediately behind the 6SA7. S_2, a toggle switch in the lower left-hand corner of the panel, controls the plate voltage to the crystal oscillator. Crystal output is fed to the mixer and heterodyne oscillator through C_7 and C_8, respectively. Either 100 or 1000 kc. is selected by S_1, a toggle switch above S_2. C_3, an adjustable silvered-mica condenser under the chassis, to the right, tunes the 1000-kc. circuit to resonance. C_1 should not be required unless the 100-kc. section refuses to oscillate without it. The 6SJ7 heterodyne-oscillator tube is located in the approximate center of the chassis. The oscillator coil, L_3, and C_9 are inside the shield box under the chassis. The main tuning condenser, C_{12}, is at the center of the panel. C_{10} and C_{11} are to the left of C_{12}. S_4, below and to the left of the dial, is the plate switch for the h.f. oscillator. The 6SA7 mixer is coupled to the h.f. oscillator through C_{16}. R.f. input and output are coupled through C_{20} and the attenuator, R_9, which also includes the line switch, S_6. J_1 is for headphone output from the mixer.

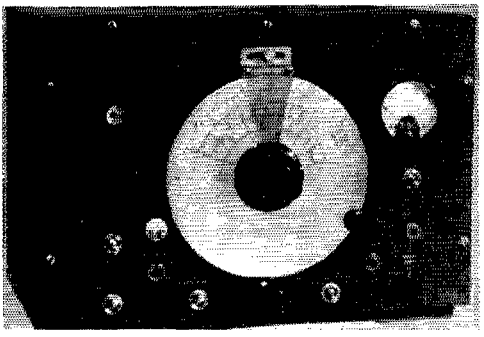
The audio oscillator is conventional. Its output is connected to S_3, which permits 400-cycle modulation of either crystal or h.f. oscillator. No external lead was brought out for signal tracing or condenser testing, since by the use of an unshielded audio transformer, T_1, and wiring, there is enough leakage to permit the audio tone to be taken out at J_1. The frequency of this oscillator must be adjusted to the desired tone by C_{25}, depending on the inductance of the transformer used. A plate switch for this section, S_7, is attached to the audio gain control, R_{13}.

The 'phone monitor-percentage-modulation indicator is conventional. J_2 is for headphone monitoring and S_5 is for measurements with or without modulation.

Construction

Most of the constructional details are evident from the photographs. Although a standard chassis and cabinet could be used, I preferred to make my own from 16-gauge steel. The cabinet

* 1567 College Ave., Palo Alto, Calif.



The Hetromon, a versatile instrument for frequency checking and monitoring. Across the bottom of the panel, from left to right, are S_2, S_4, R_9, S_6 and J_2. To the left of the dial are S_3, J_1 and the output-input terminal. To the right are J_2, J_4 and S_5.

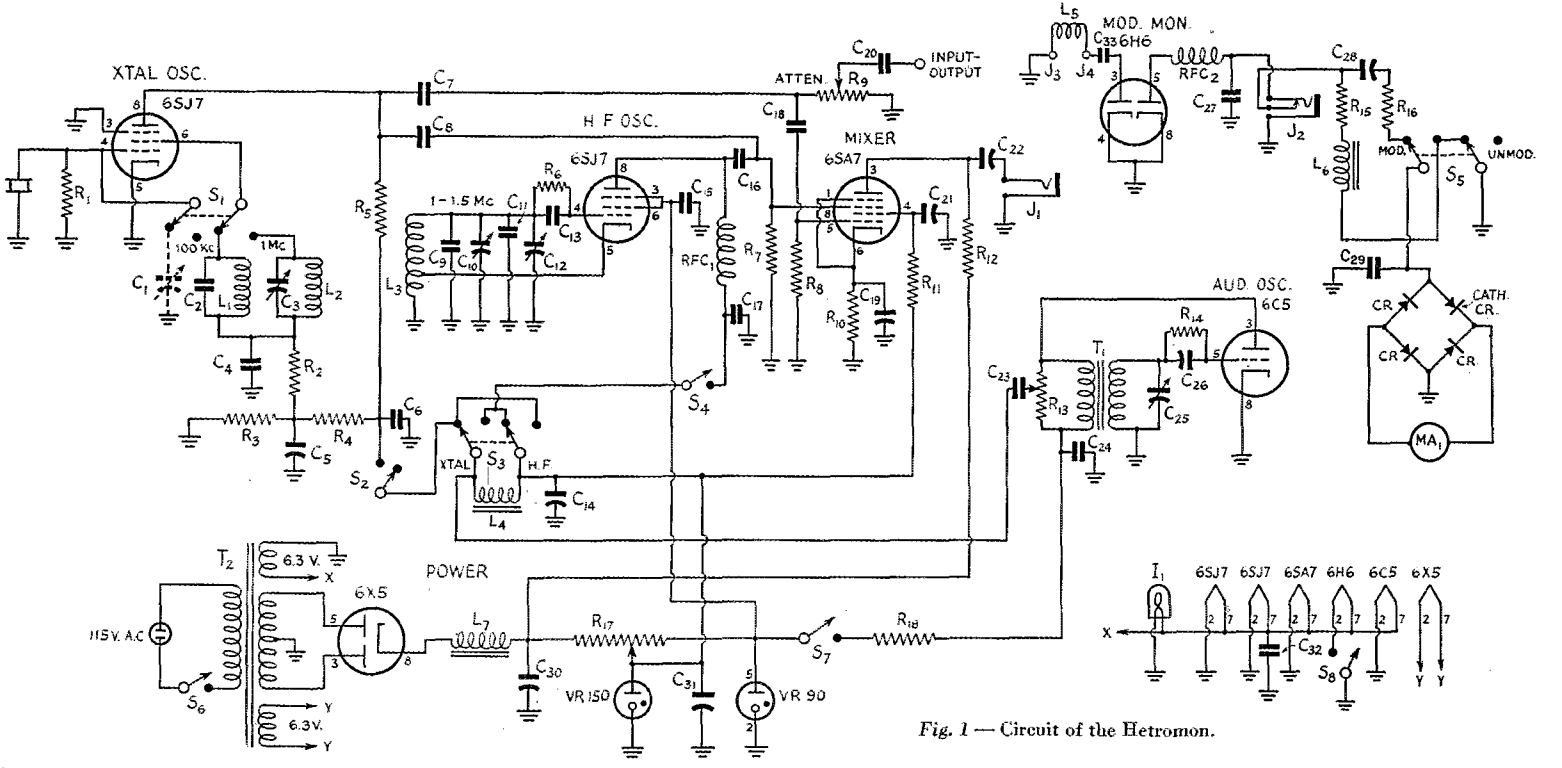
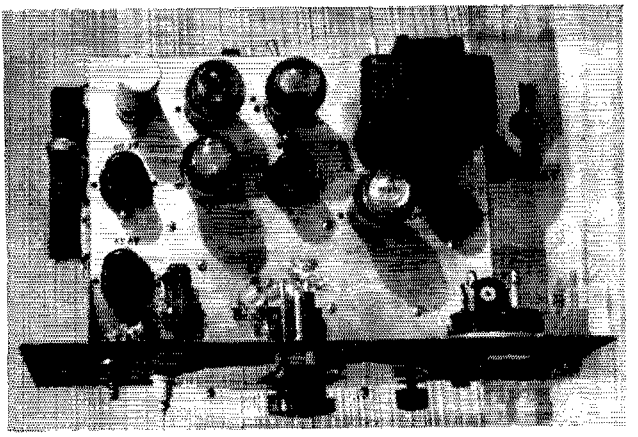


Fig. 1 — Circuit of the Hetromon.

C_1 — 35-$\mu\mu$fd. silvered-mica trimmer.
C_2 — 250-$\mu\mu$fd. mica.
C_3 — 100-$\mu\mu$fd. silvered-mica trimmer.
C_4, C_{15}, C_{16}, C_{17} — 0.0022-μfd. mica.
C_5 — 1-μfd. 400-volt paper.
C_6, C_{18}, C_{20}, C_{29} — 0.001-μfd. mica.
C_7, C_{11} — 47-$\mu\mu$fd. silvered mica.
C_8 — 330-$\mu\mu$fd. silvered mica.
C_9 — 50-$\mu\mu$fd. neg. temp. (Erie).
C_{10} — 45-$\mu\mu$fd. silvered-mica trimmer.
C_{12} — 140-$\mu\mu$fd. variable.
C_{13} — 100-$\mu\mu$fd. silvered mica.
C_{14} — 0.1-μfd. paper.
C_{19} — 25-μfd. 25-volt electrolytic.
C_{21}, C_{23}, C_{26} — 0.01-μfd. 400-volt paper.
C_{22} — 0.5-μfd. 400-volt paper.
C_{24} — 8-μfd. 450-volt electrolytic.
C_{25} — 300-$\mu\mu$fd. mica trimmer.
C_{27}, C_{32} — 0.0047-μfd. mica.
C_{28} — 0.25-μfd. 200-volt paper.
C_{30}, C_{31} — 16-μfd. 450-volt electrolytic.
R_1, R_7 — 1 megohm, ½ watt.
R_2 — 0.5 megohm, ½ watt.
R_3 — 47,000 ohms, 1 watt.
R_4, R_8 — 22,000 ohms, ½ watt.
R_5 — 0.5 megohm, ½ watt.
R_6, R_{14} — 0.22 megohm, ½ watt.
R_9, R_{13} — 50,000-ohm potentiometer.
R_{10} — 150 ohms, 1 watt.
R_{11} — 4700 ohms, 1 watt.
R_{12} — 47,000 ohms, 2 watts.
R_{15} — 8200 ohms, 1 watt.
R_{16} — 8200 ohms, ½ watt.
R_{17} — 6000 ohms, 50 watts, adjustable.
R_{18} — 22,000 ohms, 1 watt.
L_1 — 10 mh. — 10-mh. r.f. choke.
L_2 — 250 μh. — 250-μh. TV peaking coil (Millen 6181).
L_3 — 125 μh. — 75 t. No. 28 enam., 1½-inch diam., 2 inches long, tapped at 25 t. from ground end.
L_4, L_6 — 35-hy. audio choke (Thordarson T20C51).
L_5 — R.f. pick-up coil, as required for proper coupling to final amplifier.
L_7 — 30-hy. 50-ma. filter choke.
CR — Copper-oxide rectifier.
I_1 — 6.3-volt dial lamp.
J_1 — Open-circuit jack.
J_2 — Double-circuit jack.
J_3, J_4 — Pin jack.
MA_1 — D.c. milliammeter, 1-ma. scale.
RFC_1, RFC_2 — 2.5-mh. r.f. choke.
S_1, S_3, S_5 — D.p.d.t. toggle switch.
S_2, S_4, S_8 — S.p.s.t. toggle switch.
S_6 — S.p.s.t. switch on R_9.
S_7 — S.p.s.t. switch on R_{13}.
T_1 — Power transformer.
T_2 — Audio transformer, interstage type.



Top view, showing the layout of parts on the chassis. The 6SA7 is behind the panel to the left. In the first row of tubes, from left to right, are the crystal-oscillator tube, VR-150, heterodyne-oscillator tube, 6C5, and 6H6. To the rear are the VR-90 and 6X5. The power transformer occupies the right rear corner.

is 13 inches long, 8½ inches deep and 9 inches high. The chassis is 8 inches wide, 10 inches long and 3 inches deep. The side that is fastened to the panel is open. The panel is braced with triangular brackets at each end fastened to pieces of ¼-inch-square brass rod attached to the panel. Several ventilation holes should be drilled in the sides, top and back of the cabinet. The panel and cabinet were given a crackle finish.

Dial

The dial is a special homemade job. It is a 6-inch disk of chromium-plated copper, with a General Radio knob (type KNSP-8) at the center. A National type ODD friction vernier knob is provided for fine tuning. One novel feature is the cursor which permits accurate adjustment of the calibration with aging. This consists simply of a sheet-metal strip, about 1½ inches wide with a curved slot at the top end and a hole to clear the tuning-condenser shaft at the other. This strip runs down behind the dial. A spacing block, filed to fit the curvature of the dial, is attached to the metal strip below the adjusting slot and attached to this block is a transparent indicator with a hairline index. The only fastening for this assembly is the knurled locking screw in the adjusting slot at the top. At the top of the transparent indicator, a vernier scale is marked with 10 divisions equal to 9 divisions on the dial. This permits accurate reading to $\frac{1}{10}$ dial division. As the calibration changes with aging, it can be corrected by adjusting the position of the cursor.

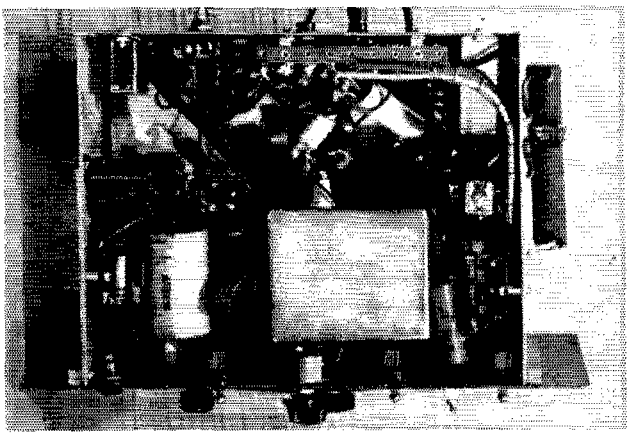
The outermost scale on the dial is marked off in 100 divisions. The other scales are for frequency calibration of the fundamental range of 1 to 1.5 Mc. and as many of the harmonic ranges as desired, using the crystal oscillator and WWV as the references.[1]

Adjustment and Operation

Adjustments are relatively few and simple. The slider on R_{17} should be adjusted, starting at the end opposite the power supply to the point where the VR-150 just ignites with all switches turned on. Be sure to turn off the power supply while you are adjusting the slider! Then connect the r.f. output terminal to a communications receiver, adjust R_9 for maximum and tune very slightly off WWV at 5 Mc. Turn on S_2, leaving S_4 and S_7 off. Set S_1 to 100 kc. and the beat should be heard against WWV. If the crystal does not oscillate immediately, give it a slight

(Continued on page 124)

[1] Chamberlin, "Identifying Frequency-Meter Harmonics," *QST*, Sept., 1952, p. 24; Collier, "What Price Precision?," *QST*, Sept., 1952, p. 42.



Bottom view of the Hetromon. The heterodyne-oscillator coil, L_3, and its fixed padder, C_9, are enclosed in the shield box. The resistor at the side is R_{17}. The potentiometer at the rear of the chassis is R_{18}.

Carrier Generators for S.S.B. Reception

Outboard Receiver Additions for Simplified Carrier Injection

BY PAUL N. WRIGHT,* W9OHM

To receive single-sideband (s.s.b.) signals on a regular a.m. receiver, the only additional equipment required is a stable signal generator to furnish the carrier. Carrier injection at the signal frequency offers numerous operating advantages.[1] The essential requirements of a carrier generator for reception of single-sideband suppressed-carrier 'phone signals are:

1) Frequency stability.

2) Output amplitude control over a wide range.

3) Sufficient bandspread to simplify the mechanics of precise frequency spotting.

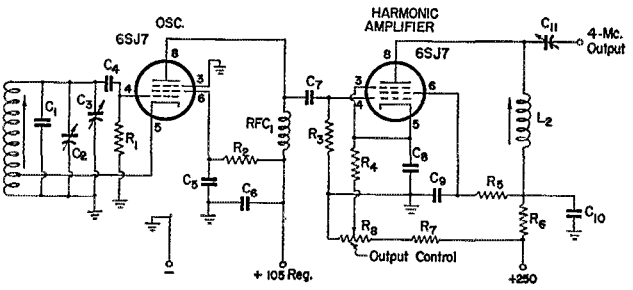


Fig. 1 — Circuit of a l.f. oscillator with good bandspread, for using harmonics for carrier reinsertion.

C_1 — 2500-$\mu\mu$fd. zero temp. coefficient.
C_2 — 25-$\mu\mu$fd. variable (bandspread control).
C_3 — 140-$\mu\mu$fd. variable (bandset control).
C_4 — 47-$\mu\mu$fd. zero temp. coefficient.
C_5, C_6, C_8, C_9, C_{10} — 0.01-μfd. mica.
C_7 — 47-$\mu\mu$fd. mica.
C_{11} — 100-$\mu\mu$fd. variable.
R_1, R_7 — 0.1 megohm.
R_2 — 39,000 ohms.
R_3 — 1 megohm.
R_4 — 220 ohms.
R_5 — 82,000 ohms.
R_6 — 1000 ohms.
R_8 — 25,000-ohm potentiometer.
RFC_1 — 2.5-mh. r.f. choke.
L_1 — 10-μh. coil, wound on ceramic form.
L_2 — Slug-tuned inductor (CTC 5-Mc. coil).

Harmonic Generator

Two circuits for providing variable-amplitude carrier to the receiver are illustrated in this article. The circuit of Fig. 1 illustrates a stable carrier generator using a 1-Mc. VFO and a harmonic amplifier. Carrier output is controlled by R_8 in the circuit. About 40 db. of control is available with R_8. The unit is intended for use on 75 meters; however, output on other bands may be brought up to a usable level by providing a plug-in coil or bandswitching arrangement for the plate circuits of the oscillator and amplifier.

The unit serves as a band-edge marker at 4-Mc. by zero beating WWV at 5 Mc. with the 5th harmonic of the oscillator. The fourth harmonic will then provide a marker on 4 Mc. Of course, it will also provide output at 1-Mc. intervals up through the spectrum, enough to be used as a marker to 30 Mc. However, if it is to be used to provide carrier for receiving s.s.b., plate tank circuits tuned to the desired harmonic frequency should be used in order to provide enough output.

Power for this unit may be obtained from the receiver. The heater and plate voltage may be obtained from Pins 2 and 7 and Pin 4, respectively, if the output tube is a 6V6, 6K6, 6F6, etc. The regulated 150 volts may be obtained from Pin 5 of the VR-150 in the receiver. Simply wrap about 3 turns of wire around each tube pin and reinsert the tube in its socket. Be sure the wire insulation is dressed right up to the tube pin to avoid shorts when the tube is plugged in.

A 4 × 5 × 6-inch utility cabinet will house the unit nicely. Mount the tubes externally on the back of the cabinet and mount the dials on the front. The sides of the cabinets are removable, which makes wiring easy. Mount the resistors on the back of the cabinet, also. This keeps the heat away from the frequency-determining components of the oscillator. R_8 is mounted internally since it must come out the front panel.

Adjust the oscillator tank to 1 Mc. by beating against a local b.c. station or a signal generator. Adjust the slug of L_2 for maximum output on 4 Mc. with R_8 advanced far enough to provide a good signal in the receiver.

A Conversion-Type Generator

The circuit of Fig. 2 illustrates a circuit that may be used with s.s.b. exciters already in use. The circuit may also be used by those who do not have an exciter but plan for one in the future. It operates by mixing the frequency of the two oscillators in the s.s.b. exciter, thus providing output at the operating frequency. An amplifier is added to provide additional output, more control over the amplitude of the output voltage, and r.f. feed-back isolation of the low-level stages of the exciter. The circuit may be incorporated in the exciter if there is room, or built up as a

* R.F.D. 4, Wabash, Ind.

[1] Wright, "The Reception of Single-Sideband Signals," *QST*, Nov., 1952.

separate unit. For those contemplating s.s.b. operation, it may be built up into a frequency-control unit for both the receiver and transmitter by incorporating a VFO and crystal-oscillator stage. The crystal oscillator provides carrier for the sideband generator, and the VFO provides carrier for the second mixer in the exciter.

Any stable oscillator circuit may be used for the crystal oscillator and VFO. The r.f. voltage requirements from the two oscillators are not critical. About 15 volts from the VFO and 3 volts from the crystal stage are required. Tune L_1 and L_3 for maximum carrier input to the receiver at 4 Mc. with R_{11} advanced.

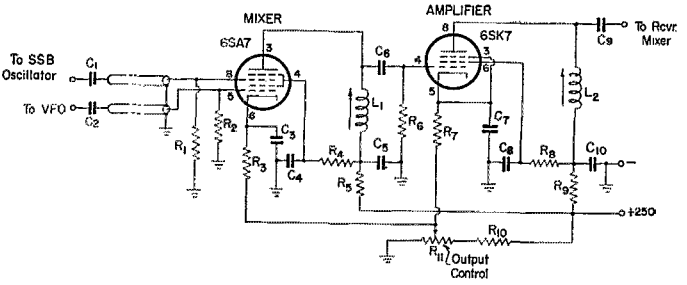


Fig. 2 — A mixer-type carrier supply that can be used for either receiving or transmitting.

C_1, C_2 — 3-30-$\mu\mu$fd. mica trimmer.
C_3, C_4, C_5, C_7, C_8, C_9 — 0.01-μfd. mica.
C_6, C_{10} — 47-$\mu\mu$fd. mica.
R_1, R_6 — 1 megohm.
R_2 — 22,000 ohms.
R_3, R_7 — 470 ohms.
R_4 — 22,000 ohms, 1 watt.
R_5, R_9 — 1000 ohms.
R_8 — 82,000 ohms.
R_{10} — 0.1 megohm.
R_{11} — 25,000-ohm potentiometer.
L_1, L_2 — Slug-tuned inductor (CTC 5-Mc. coil).

General

Many fine articles have appeared in the past regarding the design considerations of stable self-controlled oscillators, so the subject will be disposed of with a few reminders:

1) Keep all possible temperature rise away from frequency-determining components.

2) Use ceramic forms for VFO oscillator coils.

3) Mount all components very securely and in such a manner that vibration or jarring the oscillator will not cause any physical displacement of the components.

4) Use regulated heater voltage if possible.

5) Use regulated voltage for the plate and screen of the oscillator.

6) Use widely-spaced variable condensers to minimize the effects of vibration and humidity.

7) Cabinet and chassis should be very rigid and of sturdy construction.

8) Use as little plate and screen voltage as possible, consistent with sufficient output.

9) Care in layout, choice of components, and construction will pay big dividends in stability.

When the circuit of Fig. 2 is used in conjunction with a s.s.b. transmitter, using mixers following the exciter to obtain output on the higher frequencies, no extra circuitry is required for carrier insertion to the receiver on the desired band. There is generally enough stray pick-up of the 4-Mc. carrier by the mixers so that they will radiate enough local signal on the desired output frequency. The carrier-insertion control will thus work on the higher-frequency bands the same as it does on 75.

The circuit of Fig. 2 provides for a very high order of stability for s.s.b operation all the way from 75 through 2 meters. This stability is possible because the VFO frequency remains in the 3.5-Mc. region regardless of the output frequency of the transmitter. It is the same principle as using crystal-controlled converters for 2 meters and using a stable low-frequency receiver as a tunable i.f. strip to cover the band, except that the process is reversed. Since the VFO frequency is never multiplied, its drift on 2 meters is the same as on 75 meters. The only additional drift would be from the crystals used in the frequency converters. They are running constantly for both transmitting and receiving, so the resultant frequency stability for the transmitted signal as well as the reinserted carrier to the receiver is excellent on all bands. When this system is used, the bandspread per kilocycle on the VFO dial is exactly the same, regardless of the amateur band in use.

When using the carrier generator of Fig. 2 with a s.s.b. transmitter, and using carrier generation for all bands covered by the transmitter, the only requirement of the receiver is that it must be stable enough on the band in use to be usable for a.m. work. If it meets that requirement, it will work equally as well for single-sideband reception.

Silent Keys

IT IS with deep regret that we record the passing of these amateurs:

W1BOY, Roland J. Cote, Pawtucket, R. I.
W1LGN, Harry B. MacClymon, Sandy Hook, Conn.
W2EBD, Robert O. Blake, Glens Falls, N. Y.
W2QPD, Charles E. Rommel, Irvington, N. J.
W3DZD, Raymond A. Kiefer, Perkasie, Penna.
W3IPE, Henry S. Hibner, jr., York, Penna.
ex-W5AJO, Mary McCollam, Medicine Park, Okla.
W5PP, Leslie F. McCollam, Medicine Park, Okla.
W7BH, Fayette W. Keeler, Mesa, Ariz.
WN7SDL, Henry Goit, Seattle, Wash.
W8ALC, Forrest W. Dickman, Ashland, Ohio
W9NLP, Rowland J. Long, Chicago, Ill.
W9VS, Carmi E. Miller, Chicago, Ill.
WØBZN, Browning B. Miller, St. Louis, Mo.
WØDEF Alexander Maitland, Guffey, Colo.
WØZIC, Ralph C. McNail, St. Louis, Mo.

The Tune-Up Loop

An Inexpensive and Simple Means for Cutting Down Meter Costs

BY LEWIS G. McCOY,* W1ICP

THE device described in this article is one of the utmost simplicity, both in construction and use. It will no doubt bring a smile to the faces of many old-timers and will serve to recall some fond memories, because the device is about as old as amateur radio itself. Because of its usefulness and simplicity, it is well worth resurrecting for the newcomer of today.

The resonance or tuning indicator is simply a loop of wire with a flashlight bulb in series. When the loop is coupled to the coil in a tuned circuit in the transmitter and the condenser is tuned through resonance, the flashlight bulb will light when the circuit is in tune, thus showing there is power present.

In these days of high costs, many amateurs can only afford one meter and that is usually installed in the plate circuit of the final amplifier. While it is possible to switch the meter from circuit to circuit, many newcomers would prefer to avoid the additional wiring and costs involved. The use of the tuning, or more correctly, power indicator, helps to show by visual means that a stage in a transmitter is putting out power. One thing should be made quite clear. This is not a wavemeter, so it does not show the frequency to which a circuit is tuned. It is just a device that shows when a stage is in tune with whatever frequency may be applied.

There are two ways of using the tuning indicator. When a continuous check is desired, the loop and flashlight can be permanently mounted adjacent to the coil to be checked and the coupling adjusted until the light glows. If your rig has a panel the flashlight bulb can be set in the panel and a pair of leads run to the pick-up loop.

The other method is to mount the loop and the bulb on an insulated rod and hold the loop over each coil as the particular stage is tuned up. The reason for using the insulated rod is to avoid getting shocks while reaching around in the transmitter. The single loop coil should be made from fairly stiff wire so it will hold its shape. It is also important to use insulated wire to keep from accidentally shorting out circuits in the transmitter when checking a stage.

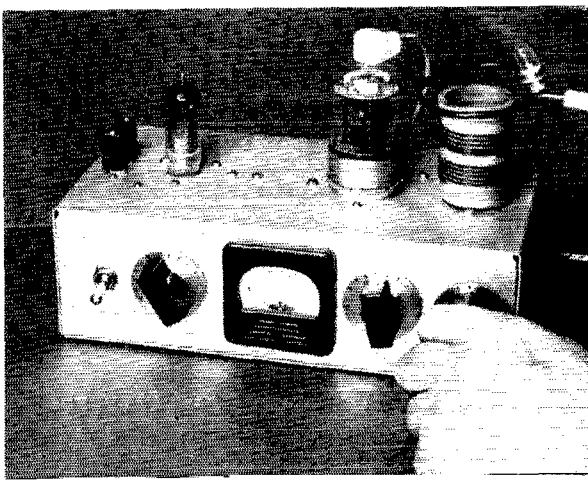
Care should be taken to couple loosely to any but very low-power stages as it is very easy to burn out the bulb. In making the indicator, a flashlight socket can be soldered in series with the coil to facilitate changing the bulb. When checking very low-power stages, it is sometimes best to use the lowest-power bulb available, such as a 2-volt 60-milliampere type (pink bead) while a high-power stage might take a 6–8 volt 400-milliampere bulb (white bead) with less danger of burn-out.

Another method of construction is that shown in the photograph. The one end of the loop is formed into a socket to hold the bulb. The base of the bulb can be soldered to the other end of the loop to insure a good contact.

Many newcomers using this device will wonder why the lamp lights only when a circuit is in tune. Without becoming too technical, here is what takes place. When a radio-frequency voltage is applied to a coil-condenser combination a field of energy exists around the coil. When the coil and flashlight bulb combination is brought into this field it absorbs a small amount of power from the tuned circuit. If the circuit is tuned to the same frequency as the r.f. voltage coming in, the field is very strong, and enough energy is coupled into the loop to cause the bulb to light. When the circuit is out of tune with the applied r.f. voltage the field is practically nil and the power coupled to the loop is too small to light the bulb. Thus we have a visual indication of power in the tuned circuit we are checking.

You'll find that the tuning device is a handy gimmick to have around the shack.

*Technical Assistant, *QST*.



Checking a stage for resonance with the tune-up loop. Note the simple construction and the precautionary measures of using insulated wire and an insulated rod for holding the loop to prevent touching live circuits.

Low-Cost Low-Pass Filters from Standard Mica Condensers

In testing over a period of nearly two years, our experience with ordinary mica condensers in the output position of a pi-network tank circuit has been uniformly good, so long as certain conditions are observed. One such condition is that the network work into a matched coaxial line, where the impedance level is definitely known. Since such a line is the best place to install a low-pass filter for TV harmonic reduction, it was a natural extension to consider the use of the condensers in a filter, their cost and size being small enough to offer interesting possibilities.

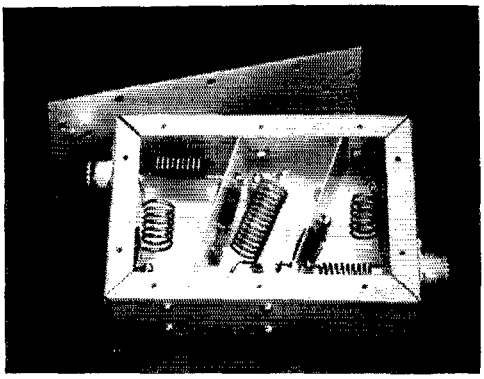
Coaxial lines operate at relatively low voltages, so voltage ratings on the mica dielectric do not seem to offer much of a problem. The current that a condenser can handle safely is another matter. So far as we know, no one has made extensive tests on this point. Experience with transmitting-type condensers, reported earlier,[1] indicated a safe limit in the neighborhood of 3 amperes per condenser. Somewhat sketchy tests on postage-stamp silver mica condensers indicated that they could carry a current of 1 ampere (in a 100-$\mu\mu$fd. unit) with barely noticeable temperature rise. Because of the way low-pass filters operate, the condensers carry the largest current at the highest operating frequency, and at 28 Mc. the current is definitely the limiting factor in the power-handling capability of a filter.

One drawback in using fixed condensers is that only a limited number of capacitance values is available. This restricts the design, and it is not always possible to get exactly the filter characteristics that may be wanted. This is because the available values of capacitance determine the cut-off frequency and the m value, and these in turn determine the impedance characteristics of the filter in the passband, especially near the cut-off frequency. However, this has relatively little effect on the attenuation in the TV region.

In view of the present shift of TV-receiver i.f. amplifiers to 41.25–45.75 Mc. and the possibility that harmonics from 21 Mc. and lower-frequency bands will fall in this region, it seems advisable to put the filter cut-off frequency below 40 Mc. if possible. This is considerably lower than has been customary with many filters, since most designs have been based on an m of 0.6 and taking advantage of an infinite-rejection point at about 56 Mc., which puts the cut-off frequency at about 45 Mc. When an exact value of capacitance cannot be selected no great dependence can be placed on the infinite-rejection points for harmonic suppression. Instead, we have to put reliance in the brute-force suppression of constant-k sections. In most cases two constant-k sections and a pair of m-derived terminating sections will suffice, the latter being used mainly to get a sharper cut-off.

The constants given in Fig. 1 are based on the selection of standard condenser capacitances, singly or in combination, to give filter designs that are as nearly optimum as possible. The catalog values of silver mica condensers are in greater variety, and thus more favorable, than the values available in the small transmitting-type micas. In the latter, only the 50- and 100-$\mu\mu$fd. sizes are usable. As these values do not lend themselves to any type of design for 75-ohm lines (for a cut-off frequency near 40 Mc.) except straight constant-k sections, no set of constants is given for this impedance.

[1] Grammer, "Pi-Network Tank Circuits for High Power," *QST*, October, 1952.



An inexpensive low-pass filter using silver-mica postage-stamp condensers. The box is a 2 by 4 by 6 aluminum chassis. Aluminum shields, bent and folded at the sides and bottom for fastening to the chassis, form shields between the filter sections. The diagonal arrangement of the shields provides extra room for the coils and makes it easier to fit the shields in the box, since bending to exact dimensions is not essential. The bottom plate, made from sheet aluminum, extends a half inch beyond the ends of the chassis and is provided with mounting holes in the extensions. It is held on the chassis with sheet-metal screws.

Power Rating

It is highly important that the transmission line in which the filter is inserted be properly matched so that it operates with a standing-wave ratio as close to 1 to 1 as possible. Only when this is done can the current in the various arms of the filter be known with any accuracy so that a power rating can be put on the filter. Based on a current of 1 ampere per condenser, the designs using postage-stamp silver micas can carry 50 watts of r.f. safely in the 28-Mc. band, and the one using transmitting-type condensers is good for about 250 watts at this frequency. Actually, the two filters shown in the photographs have carried a good deal more in tests. The larger has been operated continuously for more than an hour with 350 watts going through it to a dummy antenna, and the silver mica job has similarly carried more than 100 watts, both on 28 Mc.

In neither case did the condensers show more than just perceptible heat, although the coils (No. 14 wire) were noticeably warm.

At lower frequencies the current through the condensers decreases, for the same power, so more power may be carried safely. At 7 and 3.5 Mc. the voltage, rather than the current, is the limiting factor. Allowing 200 volts r.m.s. as a reasonable value, the silver mica unit can carry 400 watts safely and the larger one is good for a kilowatt at these frequencies. The same ratings also apply at 14 Mc., which is about the cross-over point for current and voltage ratings, based on the figures above.

Filter Adjustment

Tolerances on silver mica condensers are ± 5 per cent of the rated capacitance, which is close enough for practical work. The transmitting condensers are rated ± 10 per cent, which is a little larger than might be desired, but not by any means fatal. If a selection is possible the condensers coming closest to the rated capacitance should be chosen, of course.

The condensers being fixed, all adjustments must be on the coils. This is easy, with a grid-dip meter having a reasonably accurate calibration. In any filter design there are always several closed

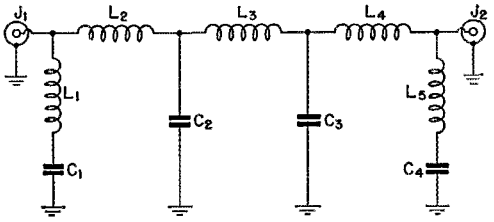


Fig. 1 — Low-pass filter circuit for attenuating harmonics in the TV bands. J_1 and J_2 are chassis-type coaxial connectors. In the table below, the letters refer to the following:

A — Using 100- and 70-$\mu\mu$fd. 500-volt silver mica condensers in parallel for C_2 and C_3.

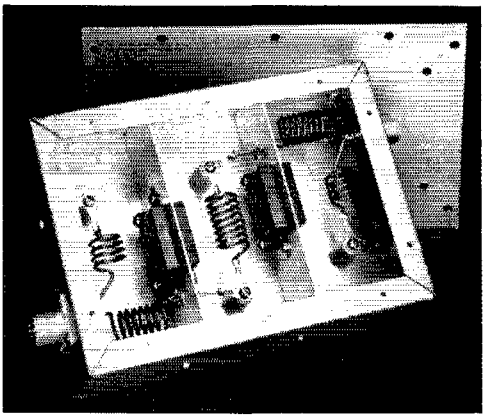
B — Same as *A* but with 70- and 50-$\mu\mu$fd. silver mica condensers in parallel for C_2 and C_3.

C — Using 100- and 50-$\mu\mu$fd. mica condensers, 1200-volt (case-style CM-45) in parallel for C_2 and C_3.

	A	B	C	
Z_o	52	75	52	ohms
f_o	36	35.5	41	Mc.
$f\infty$	44.4	47	54	Mc.
f_1	25.5	25.2	29	Mc.
f_2	32.5	31.8	37.5	Mc.
C_1, C_4	50	40	50	$\mu\mu$fd.
C_2, C_3	170	120	150	$\mu\mu$fd.
L_1, L_5	5½	6	4	turns*
L_2, L_4	8	11 [1]	7	turns*
L_3	9	13	8	turns*

* No. 12 or No. 14 wire, ½-inch inside diameter, 8 turns per inch.

[1] A 9-turn coil with closer turn spacing to give the same inductance is shown in the photograph.



Low-pass filter using case-type CM-45 condensers. The box is a 2 by 5 by 7 aluminum chassis, fitted with a bottom plate of similar construction to the one used in the smaller filter.

circuits, the resonant frequencies of which can readily be calculated from the constants. Each such loop can be adjusted by disconnecting everything from it and then adjusting the variables until the loop resonates at the calculated frequency.

For example, in the filters of Fig. 1 the shunt coil and condenser, L_1 and C_1, should resonate at the rejection frequency, $f\infty$, when the coax fitting is short-circuited. Hence the inductance of L_1 should be adjusted, by changing the turn spacing, until the grid-dip meter shows that the circuit is resonating at the proper frequency. The same is true of the shunt coil and condenser at the other end, L_5 and C_4. The center coil, L_3, resonates with the two condensers, C_2 and C_3, on either side of it at 0.71 times the cut-off frequency, when L_2 and L_4 are disconnected from the loop formed by C_2, L_3 and C_3. Thus L_3 is adjusted to resonate at this frequency, labeled f_1 in the table. With L_3 disconnected, the loop formed by C_1, L_1, L_2 and C_2 (no short across the coax fitting) should resonate at the frequency f_2 given in the table under Fig. 1, and since L_1 has already been adjusted it is only necessary to adjust L_2 until the grid-dip meter shows the circuit is resonant at the proper frequency. L_4 is similarly adjusted, checking resonance in the loop formed by C_3, L_4, L_3 and C_5. Then L_3 may be replaced and the filter is complete. A check with the grid-dip meter now will show that the filter is resonant at the cut-off frequency. This check should be made with nothing connected to either terminal.

The theoretical attenuation of these filters varies somewhat with the design, but is about 55 db. at 56 Mc. and 60 to 70 db. at 90 Mc. While this should be sufficient for most cases, there is no reason why an additional constant-*k* section should not be added if more attenuation is wanted. This can be done simply by duplicating L_3 and C_3, placing the new coil between L_3 and L_4, and connecting the extra capacitance from the junction of the new coil and L_4 to ground. The additional attenuation will average 15 db. at 56 Mc. and 25 db. at 90 Mc. — *G. G.*

Two in a Car

A Crystal-Controlled Converter for Improved 2-Meter Mobile Reception

BY H. A. BLODGETT,* W2UTH, W2FRL

THE converter about to be described is not presented as anything radical or new in the 2-meter field. No great claims are made for its low-noise performance, and it is unlikely that it will revolutionize 144-Mc. mobile technique. It is, however, extremely simple to build and adjust. Its cost is low, and the over-all performance of the system is gratifying, both as to stability and sensitivity.

It was designed primarily for mobile operation, and to serve the aims of simplicity and low battery drain, some features that might be considered desirable in a home-station converter were omitted. The tuning range of the usual car receiver is insufficient to permit coverage of the entire 2-meter band without switching of crystals, so this unit is used ahead of another converter for lower frequencies, in this instance a Gonset Tri-Band. The range of the Tri-Band extending somewhat below 26 Mc., tuning it from 26 to 30 Mc. provides the four-megacycle spread needed to cover the 2-meter band.

Circuit Features

Circuitry of the converter is quite conventional, the various details being similar to sections of converters that have been described in *QST* or the ARRL *Handbook* at one time or another. The r.f. stage is a 6AK5, pentode connected. This results in a slightly degraded noise figure, compared to that obtainable with a triode, but with the other sources of noise in mobile work the ultimate in first-tube noise figures is unimportant.

The mixer is a 6AB4 triode. This tube and circuit had been used in a home-station converter built from a *Handbook* design and had proven satisfactory in more than two years of service. The functions of r.f. amplifier and mixer could be combined in a single tube by using the new 6U8, which contains a triode and a pentode similar to the 6AB4 and 6AK5, in a single envelope.

The oscillator is the simplest form of triode circuit, using a crystal on 39.33 Mc. in the first half of a 6J6, the second portion tripling to 118 Mc. Crystals such as the James Knights JK-H17 or H-173, the Bliley BH-6, or GE G64B can be obtained for this frequency readily. The oscillator system could be modified to use overtone techniques and various lower crystal frequencies if desired. Such crystals and circuits have been described previously in *QST*.[1]

Where the mixer is a separate tube from the oscillator-multiplier, some injection coupling may be necessary, though the minimum required value should be used. The 1.5 $\mu\mu$fd. needed was obtained by connecting two 3-$\mu\mu$fd. capacitors in series.

The converter was built without an i.f. amplifier stage originally, but added gain was found necessary because of the drop-off in the performance of the Tri-Band converter below 28 Mc. The output circuit, similar to that of the R-9'er,[2] allows a good match to the Tri-Band input circuit.

Construction

The converter is built on a 5 × 5-inch chassis that mounts inside a standard utility box. As there is no adjustment required during ordinary operation, the converter can be built in almost any shape that can be fitted into available space in the car. The coils and capacitors are mounted under the chassis, and once the initial adjustment is made they are left alone.

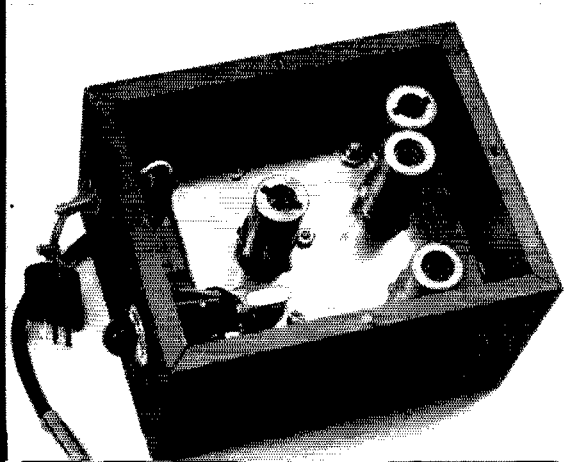
In order to isolate the input and output circuits of the r.f. amplifier, a small right-angle shield is placed across the 6AK5 socket in such a way as to enclose the antenna coil. The shield may be seen in the lower left side of the bottom view. The antenna is connected directly to the grid

(*Continued on page 128*)

* 38 Duffern Drive, Rochester 16, N. Y.

[1] "Overtone Crystal Oscillator Circuits," Tilton, p. 56, April, 1951, *QST*.

[2] G. H. Floyd. "The R-9'er," G.E. *Ham News*, Nov.–Dec., 1946, *QST*.



Top view of the crystal-controlled converter for 2-meter mobile reception. The oscillator-multiplier tube and crystal are at the left. At the right are the r.f. amplifier, mixer and i.f. amplifier, looking up from the bottom. Because no external adjustments are needed, the converter may be built in almost any shape that will fit available space in the car.

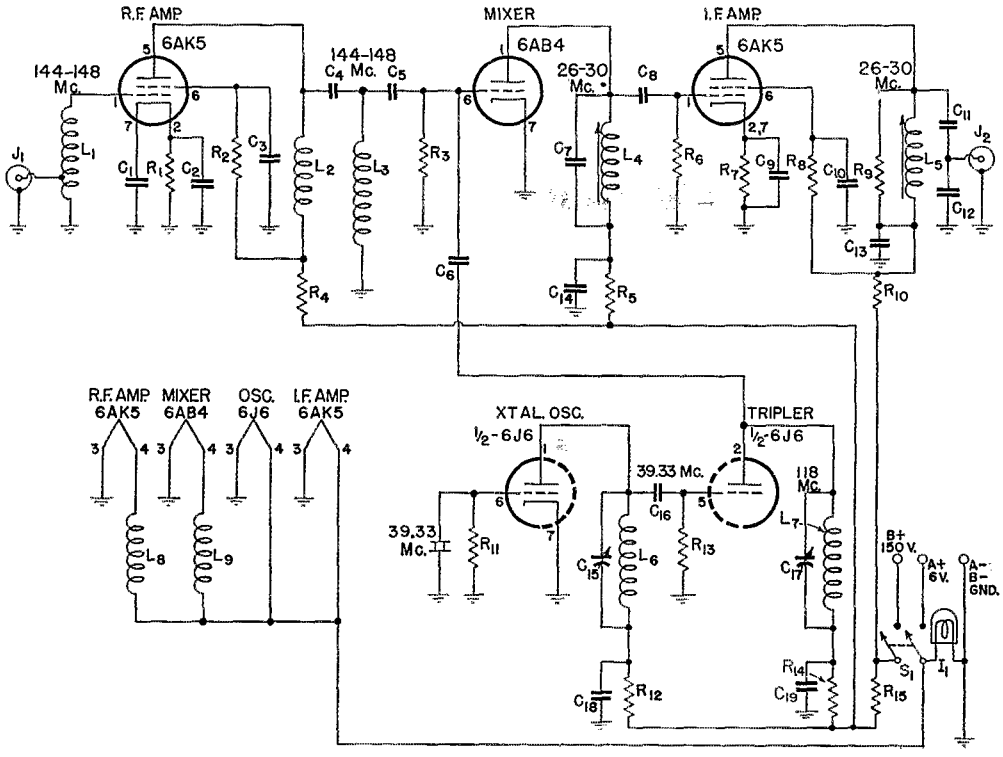
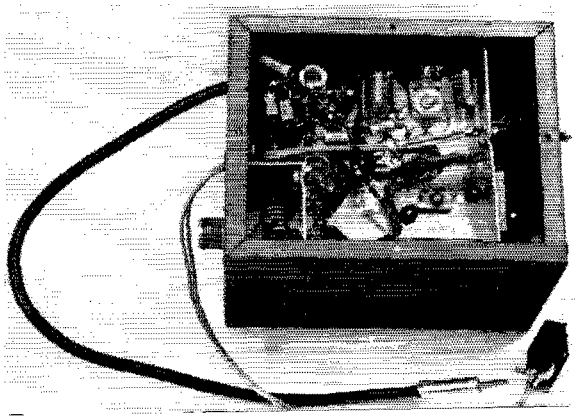


Fig. 1 — Schematic diagram and parts list for the crystal-controlled 2-meter converter. If crystals lower in frequency than 39 Mc. are to be used an overtone oscillator circuit can be substituted for the crystal circuit shown.

C_1, C_2, C_3, C_9, C_{10}, C_{13}, C_{14}, C_{18}, C_{19} — 0.001 μfd.
C_4, C_{11} — 5 μμfd.
C_5, C_8 — 50 μμfd.
C_6 — 1.5 μμfd. (two 3-μμfd. in series).
C_7 — 10 μμfd.
C_{12} — 30 μμfd.
C_{15}, C_{17} — 4–30-μμfd. ceramic trimmer.
C_{16} — 25 μμfd.
(All fixed capacitors ceramic.)
R_1 — 150 ohms.
R_2 — 10,000 ohms.
R_3 — 0.68 megohm.
R_4 — 1000 ohms.
R_5 — 3300 ohms.
R_6 — 0.1 megohm.
R_7 — 680 ohms.
R_8 — 39,000 ohms.
R_9 — 7000 ohms.
R_{10} — 1500 ohms.
R_{11} — 47,000 ohms.
R_{12}, R_{14} — 4700 ohms.
R_{13} — 0.22 megohm.
R_{15} — 5600 ohms, 1 watt. (All other resistors ½ watt.)
L_1 — 5 turns No. 16, ⅜-inch diam., ½ inch long, tapped at 1½ turns.
L_2 — ½-watt resistor wound full of No. 30 enameled wire.
L_3 — 3 turns No. 16, ⅜-inch diam., ¼ inch long.
L_4 — 10 turns No. 24 enam. on $^{13}/_{32}$-inch diam. form (Millen 69041), brass slug.
L_5 — 10 turns No. 20 enam. on ½-inch slug-tuned form from BC-624 receiver. National XR-50 also usable.
L_6 — 11 turns No. 18, ½-inch diam. (B & W No. 3003 Miniductor).
L_7 — 3 turns No. 18, ½-inch diam.
L_8, L_9 — ½-watt resistor wound full of No. 18 enam.
J_1 — Coaxial fitting, female.
J_2 — Coaxial fitting, male.
S_1 — Double-pole single-throw toggle switch.

♦

Bottom view of the 2-meter converter. The coil form at the upper left is the mixer plate circuit. Oscillator-multiplier components are at the upper right.

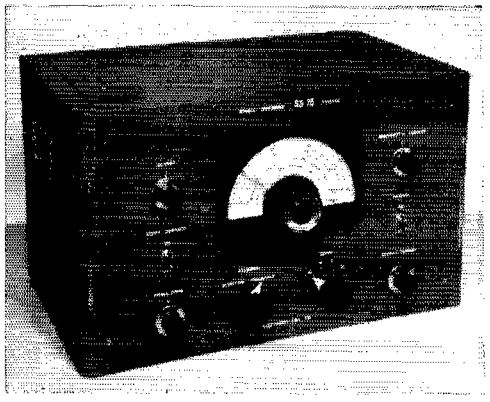


♦

New Apparatus

The SS-75 S.S.B. Transmitter-Exciter

The active s.s.b. operators are probably already familiar with the SS-75 (W9OHM) transmitter-exciter, since a number of them have been on the air now for a year or more, but there are many other amateurs, waiting for a practical commercial unit before taking the plunge to s.s.b., who will be interested in knowing what it is and does. The unit shown in the photograph was sent to the ARRL for test and examination, and it has many features that commend it to anyone interested in a commercial s.s.b. unit.



The SS-75 is a complete self-contained s.s.b. transmitter capable of delivering 5 or 6 watts of s.s.b. peak power anywhere in the 75-meter 'phone band. VFO-controlled, an unusual feature is the breaking-down of the 200-kc. band into four tuning ranges, thus insuring excellent bandspread anywhere from 3.8 to 4.0 Mc. The exciter uses a crystal oscillator and filter at 450 kc., and the signal is then heterodyned to the 75-meter band, the output frequency being set by the VFO. At the output frequency, the signal is amplified by a Class A 807. An excellent voice-control system is included in the set, with provision for connecting the voice-control system into the receiver. During tests we couldn't find any noticeable delay in the voice-control operation when it was turned on, and it hangs on for about one second after the speech has stopped. A switch cuts the voice control in or out as desired. Adjustable carrier insertion is provided for, to simplify tune-up and to aid in raising stations unfamiliar with the carrierless technique.

Another feature of the transmitter is the patented "receiver carrier insertion," which takes a fraction of the (suppressed) carrier from the transmitter and introduces it in at the front end of the receiver. Thus, the transmitter can be used as a source of carrier for receiving other s.s.b. stations on exactly the same frequency. The amount of carrier inserted in the receiver is adjustable, and the instruction book gives complete details on how the receiver S-meter, in conjunction with this feature, can be used to give s.s.b. signal-strength reports. Using the transmitter like this, to furnish the carrier for the receiver, of course does away with the need for receiver b.f.o. adjustment, except when working an s.s.b. station off your own frequency.

If more power is desired, connections and sockets have been provided for the addition of another 807 (in parallel with the one furnished) and a 750-volt power supply. Operated this way, the unit will provide approximately 100 watts peak power output. As it stands, however, the exciter can be connected directly to an antenna or used to drive Class B 813s or Class AB_1 304TLs to a kilowatt. The instruction book is clearly written, and no interested amateur should have any trouble putting an SS-75 on the air.

The SS-75 is manufactured by the Electronic Engineering Co., Wabash, Ind. — *B. G.*

SINCE the war many countries of the world have set up currency restrictions which either prohibit the sending of money outside their boundaries or make it practically impossible. This has meant that hundreds of amateurs in other lands do not normally have the opportunity to renew their ARRL memberships and receive *QST* regularly. The situation is made more acute by the devaluation of many foreign currencies, for many of those who formerly were just barely able to get together the necessary American dollars now find it utterly impossible to do so.

At the end of the war ARRL did in numerous instances grant membership and *QST* to prewar members overseas on a credit basis, but of course we couldn't carry membership-subscriptions on that basis indefinitely and, in practically all cases, we have been regretfully obliged to discontinue these arrangements. It occurs to us that perhaps American amateurs and club groups might wish this year to make a "care" package gift in the form of *QST* for Christmas, as many did last year. If it's something you'd like to do, we'll be glad to make necessary arrangements. The foreign membership dues are $5. If you have a particular DX buddy in mind, give us his name — and complete address. If you have no special name, we can arrange to apply your remittance to a membership-subscription for a foreign amateur who cannot send his own money but wishes to renew. We'll let you know what amateur we select. And of course we'll send the recipient of your gift an appropriate note to tell him who his American patron is. Address ARRL, 38 La Salle Road, West Hartford 7, Connecticut.

Power-Supply Filters

Fundamental Facts for the Beginner

BY GABRIEL P. RUMBLE,* EX-W5BBB

If the requirement is pure (that is, unvarying) direct current, the rectifier outputs shown in a previous article[1] will not fill the bill. We must use the properties of L and C (or sometimes R and C) to iron out the ripples in the rectified current.

If a condenser is placed in parallel with the load on a half-wave rectifier, as shown in Fig. 1A, the voltage between alternations does not drop to zero, because the condenser charges during the conducting half-cycle and discharges through the load during the nonconducting half of the cycle, as shown in Fig. 1B.

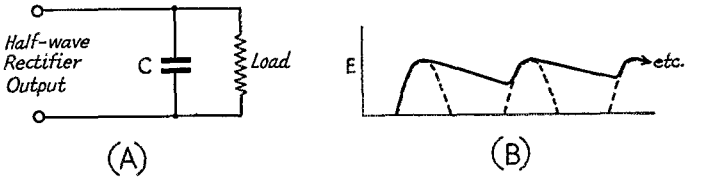


Fig. 1 — The discharge of a condenser connected across the load resistance helps to smooth out the bumps in the output of the rectifier.

A comparison of the output waveforms shown previously should make it clear why the output of a full-wave rectifier is easier to filter than that of a half-wave rectifier. In either case, the condenser will by-pass some of the ripple around the load. The greater the capacitance, the slower the RC decay and the shallower the ripple.

The action of a condenser in a filter circuit is analogous to that of shock-absorber springs in a wagon traveling over a cobblestone road. We can further smooth out the ride by adding weight to the wagon. This step is comparable to the addition of a choke (inductance) to the filter circuit, as shown in Fig. 2A. The elasticity of the condenser and the inertia of the inductor are being utilized to smooth out the ripples that would otherwise exists across the load. Further filtering and the consequent approach to pure direct current may be accomplished by additional sections of filter, as shown in Fig. 2B. (Suggestion: Consult your favorite textbook on the interesting subjects of resonant filters and swinging chokes.)

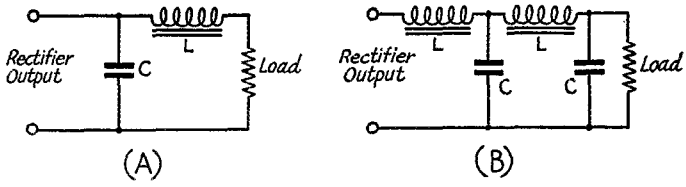


Fig. 2 — A choke in series with the load provides further smoothing. If additional filtering is required, a second filter section may be added.

If the full rectifier output voltage is applied to the condenser, as shown in Fig. 2A, the filter is said to be of the *condenser-input* type. If, instead, the ripple voltage first undergoes an IX_L drop before being applied to the condenser, as illustrated in Fig. 2B, the filter has *choke input.* (Suggestion: Look up the subject of critical inductance.)

A comparison of the voltage regulation of supplies having condenser and choke input is shown in Fig. 3 [p. 130]. With condenser input, the output voltage varies considerably with varying loads. With choke input, the output is almost constant for a wide range of load variation. The variation occurring in this flat range is caused by the d.c. resistance of the choke and rectifier resistances and the leakage reactance of the transformer. However, in well-designed components these are usually quite low. The load current at which the knee of the curve occurs is dependent on the inductance of the input choke. The greater the inductance, the smaller the value of load current at which the curve starts to flatten out.

In addition to providing a flatter characteristic, the use of choke input has another advantage. It reduces the ratio of peak to average current passed by the rectifier. If it were desired to design a rectifier for a fixed load current of I amperes and E volts, and if it were further desired that the peak rectifier current should exceed the average by only P per cent, then the inductance, L, in henrys, of the input choke, should be

$$L = E/10PI$$

The knee of the characteristic will occur at a current of PI amperes. If it were desired to have the knee at a lower current, a smaller value of P would be selected and a higher L would be called for. Where good regulation down to low values of load current is not of interest, and the values of full-load current and rectifier current rating

(*Continued on page 130*)

* 8309th AU, Post Signal, APO 958, % Postmaster, San Francisco, Calif.

[1] Rumble, "How Rectifiers Work," *QST*, October, 1952, p. 42.

Results – Sixteenth ARRL Field Day

Down through the years we have heard it said many times that "There's nothing like an ARRL Field Day!" To hams who have never experienced an "FD," this expression may well seem meaningless. However, to those of us who have taken part in this annual exercise dedicated to emergency preparedness it is plainly a superlative that calls to mind a June week end spent afield setting up radio gear and operating in an activity that is without peer for sheer enjoyment. True, Field Day operation is not without its trials and tribulations. Inclement weather, equipment difficulties and breakdowns that tax ingenuity to the utmost, all sorts of troubles crop up. In an exercise with the serious purpose of FD, however, such difficulties furnish just the kind of experience we need to prepare us for actual emergencies. And when it's all over, most of us begin looking forward to the *next* Field Day! Indicative of the ever increasing popularity of this annual activity is the growing number of amateurs who participate each year. The Sixteenth ARRL Field Day, held last June 21st and 22nd, was the largest ever, with a grand total of 6451 individuals taking part; this is a minimum figure, since all reports did not mention the exact number of participants. Entries were received covering the operation of 522 portable and mobile stations and there were at least 1575 separate receiver-transmitter combinations on the air operating independently of commercial power sources.

Under the rules, competition in the Field Day is considered to be among stations employing similar numbers of simultaneously operated transmitting set-ups. The final scores are therefore tabulated according to the number of transmitters in operation at each station. There is, however, always much interest on the part of FD participants in knowing which groups, regardless of transmitter classification, ran up the highest scores and what combinations of station gear and bands were used. Some of the top scoring groups in the various classifications will be mentioned and their field set-ups described. A special score tabulation lists the ten highest Class A and B entrants. In order that Class A entrants may compare their scores with those of leading groups on a geographical basis, the top scoring Class A station in each call area from which entries were received is listed below:

W1OC/1	9621	KH6WO/KH6	1374
W2GSA/2	12,663	KP4ID/KP4	762
W3FRY/3	20,816	KZ5KZ/KZ5	2010
W4KFC/4	8685	VE1ND	3861
W5SC/5	5730	VE2FX	3771
W6UF/6	10,638	VE3DC	7785
W7CO/7	5220	VE5AA	1215
W4FU/8	10,008	VE6NQ	1638
W9AP/9	10,134	VE7AQL	2595
WØTKX/Ø	4401	VO6H	210

Practically all entries in Classes B, C, D and E were from one-transmitter stations and the call area leaders in those categories may be determined readily from reference to the accompanying complete score tabulations.

Top scorer among all the entrants in the Field Day was W3FRY/3, operated in Philadelphia by members of the Frankford Radio Club. Thirty operators kept ten transmitters, each running thirty watts or less, in operation on all bands from 160 through 2 meters, chalked up 2249 contacts for 20,816 points. Antennas were half-wave doublets on 75 and 40, an end-fed half wave on 160, two-element beams on 20- and 15-meter c.w., three-element arrays on 20-, 10- and 11-meters, a four-element job on 6 and eight elements on 2. A breakdown of FRC's contact total by bands showed the following: 8 QSOs on 160 c.w., 21 on 160 'phone, 406 on 80 c.w., 317 on 75 'phone, 553 on 40, 293 on 20 c.w., 177 on 20 'phone, 75 on 15 c.w., 22 on 11 c.w., 22 on 11 'phone, 24 on 10 c.w., 173 on 10 'phone, 33 on 6 c.w., 39 on 6 'phone, 13 on 2 c.w., 78 on 2 'phone. Second highest score, 12,663 points, was reported by the Garden State Amateur Radio Association. Set up in the field at Crawford's Hill, Hazlet, New Jersey, 35 operators made 1436 contacts with nine transmitters operating under the call W2GSA/2. Contact totals by bands were as follows: 240 on 80 c.w., 144 on 75 'phone, 276 on 40, 230 on 20 c.w., 162 on 20 'phone, 28 on 15 c.w., 145 on 10 'phone, 2 on 6 c.w., 25 on 6 'phone, 194 on 2 'phone. Input to all transmitters was kept at 30 watts or less except on the 20-meter 'phone rig which ran 100 watts. Antennas used ranged from simple dipoles to ground planes, two-, three- and six-element beams.

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A *busy crew!* Set up at Foxchase School, Philadelphia, Pa., members of the Northeast Radio Club, W3PKV/3, made 814 contacts and a score of 7587 points for second place in Class 2A. This FD was a simulated emergency test for the group. The city had a practice "red alert" on Sunday afternoon!

The West Valley Radio Club, W6ARO/6, picked this spot in the Granada Hills of California for their FD operation. Seven transmitters, all powered from a 10-kw. alternator, were used to pile up 4146 points for seventh place in Class 7A.

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A nonclub group of 27 operators, the "Eimac Gang," tallied the third highest score. From a ranch at San Carlos, California, their FD station, W6UF/6, racked up 1157 QSOs for a total of 10,638 points. Eleven transmitters, all powered from a gas-engine-driven alternator, were operated simultaneously on 160 'phone, 80 c.w., 75 'phone, 40 c.w., 20 c.w., 15 c.w., 20 'phone, 15 c.w., 10 'phone, 50-, 144- and 220-Mc. 'phone.

The outstanding Class B station score, 5792, came from W6RW/6, located in the Hollywood Hills of California. Two operators, W6LDR and W6RW, kept one rig on the air and made 20 contacts on 80, 60 on 75 'phone, 90 on 40 c.w., 127 on 20 c.w., 12 on 20 'phone, 11 on 15 c.w., 80 on 10 'phone and 15 on 2-meter 'phone. The layout on bands from 80 through 10 consisted of a transmitter with 1625 final, an AR-88 receiver

TEN HIGH SCORES

Class A		*Class B*	
W3FRY/3	20,816	W6RW/6	5792
W2GSA/2	12,663	W3EIS/3	5238
W6UF/6	10,638	W2JBQ/2	4361
W2VDJ/2	10,476	W9EWC/9	3345
W9AP/9	10,134	W6QZQ/6	2952
W9IT/9	10,071	W2WZQ/2	2890
W4FU/8	10,008	W4MGT/2	2346
W1OC/1	9621	W7RT/7	2133
W9PCS/9	9171	W9ERU/9	2061
W4KFC/4	8685	W6HQN/6	2043

and folded dipole antennas; 2-meter gear included a 2E26 rig, home-built receiver and ground plane antenna. All equipment was battery-powered.

Runner-up in Class B was W3EIS/3, operated in an apple orchard at Beltsville, Maryland, by W3EIS and W3VES. All operations were confined to 80-, 40- and 20-meter c.w. and the final tally showed 363 contacts, 5238 points. Power for the 1626 osc.-1625 amp. Command transmitter and BC-342 receiver was supplied from dynamotors and the two 200-ampere-hour 12-volt storage batteries used lasted for the whole FD operation without recharging. Three skywires were employed, 132-foot center-fed, 66-foot center-fed, and a 33-foot ground plane. A 16-foot squad tent provided the necessary cover for operators and gear.

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Novices of the Kingsport Amateur Radio Club operated this station on 3.5 Mc. under the call WN4TYT/4 near the Tri-Cities Airport, Sullivan County, Tenn. The lad pounding brass is WN4UJT and the logging operator Fritz Pilgrim, son of W4JD. (Photo courtesy of Eastman Kodak *T.E.C. News.*)

Located near Scottsville, New York, W2JBQ/2 rolled up the third highest Class B score, 4361 points from 308 contacts on 80 c.w., 75 'phone, 40 c.w. and 20 c.w. A Vibrapack and dynamotor, supplied from a 6-volt battery charged by a gas-engine-driven generator, provided the power for the single transmitter used, a VFO driving a 2E26 at 25 watts input, and the Super-Pro receiver. The two operators, W2FBA and W2JBQ, set up an antenna farm for the FD: a half-wave Zepp and vertical for 80, doublet and vertical for 40, a Vee-beam and doublet for 20!

In the mobile classification, the W6s walked away with the top score honors. W6MBA/6 logged 241 contacts for a total of 3483 points, outclassed the rest of the field by a tremendously wide margin. The installation consisted of an all-band transmitter with 6AK6 VFO, 6AQ5 doubler and 2E26 final, 6AK6-6N7 modulator, home-constructed converter and i.f. strip, "hat-loaded" vertical for 80 and 40, a coil-loaded vertical for 20, and an 8-foot whip on 10. Operation was conducted on 80 c.w., 75 'phone, 40 c.w., 20 'phone and c.w. Runner-up in Class C was W6NSX/6, who made an even 100 contacts and 2066 points using 18 watts to a 2E26 on 10 and 11 meters. Right on the heels of W6NSX we find W6GVN with 95 QSOs and 1971 points.

The club aggregate mobile score of the Westpark Radiops deserves special mention. This group really went all out with their mobiles and topped all other clubs easily with their 6199-point aggregate. The standings of other clubs that submitted entries in this classification are listed in a separate tabulation.

FD Quotes

Perhaps half an issue of *QST* could be filled with the many interesting comments appended by participants to their FD reports. Since space permits quoting only a small portion of these, we shall try to pass along only those most typical of this biggest ARRL Field Day of all time: "A wonderful time. This is getting to be the big event in hamdom! Our generator ran 24 hours and 10 minutes with no failure. Gassed every four hours." *San Leon Gumbo, Grouper and Grounded Grid Radiation Society, W5IX/5* . . . "My first FD, but I assure you not my last. Especially appreciated the courtesy shown me by more experienced operators. QRS got immediate results. We got some nice publicity here in Tucson from KTKT and the Tucson *Daily Citizen*. FD is swell stuff." — *K7NRM/7* . . . "We tried two types of antennas this year, a 33-foot vertical and a 66-foot two-element beam for use on 40 and 20. Best all-around results came from the vertical, which by the way was much simpler to construct and erect than a beam." — *W5IER/5* . . . "The rig originally intended for use on 160 was not ready in time, so W1TTV brought along his home rig using p.p. 803s. The 803s were operated with 1000 volts at 25 mils (25 watts) on the plates, while the filaments drew 100 watts!" — *W1KQF/1* . . . "This was the first Field Day operation for the newly organized Midway Radio Club, and it was enjoyed by all. We made some mistakes, but are looking forward to next year in order to correct them." — *Midway Radio Club, W9DOR/9* . . . "Our first Field Day was a lot of fun. Our firm resolution for next year is to get our equipment all ready the day before." — *Farmington Radio Club, W1FZ/1* . . . "All beam antennas were knock-down type. Ten-meter rig was a combination transmitter and receiver. Complete unit in one box 9 × 11 × 14 inches weighed only 15 pounds. — *Morris Radio Club, W2FUS/2* . . . "Mice, bats and other animals were frequent visitors to our field location. In spite of difficulties, the enthusiasm of our group was very fine." — *Mike and Key Club of Santa Monica Calif., W6VB/6* . . . "Our club held this event at Fort Meigs State Park, Wood County, Ohio, in coöperation with the Wood County Emergency Coördinator. We experienced delightful weather and demonstrated to the four or five thousand visitors that amateur radio and TV can operate with no interference to each other." — *CARMARS Radio Club, W8WSX/8* . . . "Our group was strictly a last-minute get-together with no plans or checks of equipment prior to arrival at FD site. Results show need for definite planning for best results, but also show what can be done with available equipment at the last minute, which might well be the case in actual emergency." — *W9EPB/9* . . . "Everyone was assigned a two-hour watch. There were twelve pairs of two operators each, six for c.w. and six for 'phone. A contest was held for the highest and second highest number of stations worked at each 'phone and c.w. rig and prizes were awarded to the winning operators." — *Winston-Salem Amateur Radio Club, W4NC/4* . . . "This year a couple of our 'phone operators patrolled the 80-meter Novice band during periods when our c.w. rig was operating on 40 and we succeeded in working a few Novice stations to help our score along." — *Kenmore Buffalo Tonawanda Radio Club, W2EWT/2* . . . "Conditions impressed us as being poorer than last year. Activity was tremendous, however, and offset the poor conditions." — *Potomac Valley Radio Club, W4KFC/4* . . . "Advice to Novices: Too many other Novice stations would come back and try to rag-chew instead of just giving a report and the name of their section. This sort of thing loses many contacts." — *WN9RUJ/9.*

CLUB AGGREGATE MOBILE SCORES

Westpark Radiops	6199
Maryland Mobile Radio Club	4943
Associated Radio Amateurs of Long Beach	4037
Morris Radio Club	3147
North Seattle Amateur Radio Club	2355
Providence Radio Assn.	694
Philadelphia High Frequency Radio Club	608
Connecticut Wireless Assn.	459
Young Ladies' Radio Club of Los Angeles	365
North Suburban Radio Club	279
Johnson County Radio Amateurs Club	149
Rock Creek Amateur Radio Club	95
Coffee Dunkers of Detroit, Michigan	68

SCORES

CLASS A

Scores are tabulated according to the number of transmitters operated simultaneously at each field station. The figures and letters following each listing indicate the number of contacts, the power or power inputs used, the number of participants at each station, and the final score. The "power classification" used in computing the score is indicated by the letters A, B or C after the number of QSOs shown. A

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W5RFL does the talking as W5UXT keeps the log at the 20- and 75-meter 'phone position of the Sandia Base Radio Club FD station, W5MPZ/5, Sandoval, New Mexico. The Sandia group scored 5049 to win second place in Class 3A.

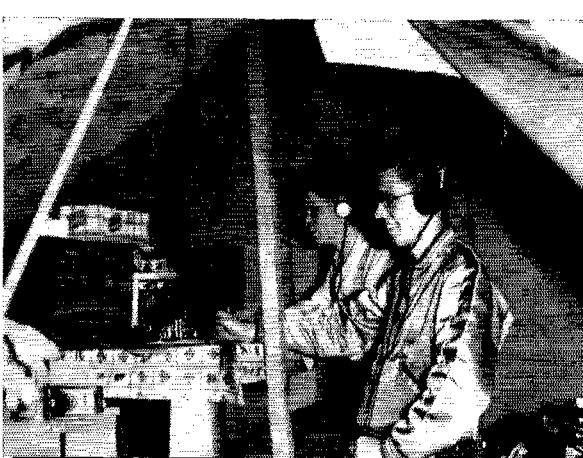
A Boy Scout camp at Crete, Nebraska, was the scene of operations for the Crete Amateur Radio Club, whose members are shown winding up operations of WØYHN/Ø. HQ-129X and NC-100X receivers, a Temco 75GA transmitter and a 130-foot end-fed antenna comprised the station layout.

♦

indicates power up to and including 30 watts (multiplier of 3); B indicates power over 30, up to and including 100 watts (multiplier of 2); C indicates over 100 watts (multiplier of 1). More than one letter indicates that at times power inputs fell within different classifications.

One Transmitter

WØTKX/Ø	Twin City Contest Club	464-	A- 6-	4401
W1TX/1	Connecticut Wireless Assn.	455-	A-13-	4296
W8II/8	(nonclub group)	455-	A- 9-	4230
W1EH/1	South Lyme Beer, Chowder and Propagation Society	439-	A- 7-	4176
W8HQ/8	Tusco Radio Club	344-	A- 4-	3231
W9JKV/9	New Albany Amateur Radio Club	314-	A- 4-	3051
W5IX/5	San Leon Gumbo, Grouper & Grounded Grid Radiation Society	300-	A-10-	2925
W8GQ/8	Dayton Amateur Radio Assn.	282-	A-12-	2763
W3FLY/3	Beacon Radio Amateurs	261-	A- 7-	2574
W8RTR/8	Canton Amateur Radio Club	261-	A- 7-	2574
VE3TM/3	Frontier Radio Assn.	259-	A- 5-	2556
W2WER/2	Oswego County Amateur Radio Assn.	258-	A-15-	2547
W6ILP/6	(nonclub group)	279-	A- 3-	2511
W8CEA/8	(nonclub group)	413-	B- 6-	2478
WØZWY/Ø	Sioux Falls Amateur Radio Club	397-	B-13-	2472
W1INM/1	Providence Radio Assn.	254-	A-13-	2421
VE3FS/3	(nonclub group)	263-	A- 4-	2367
VE3AVI/3	Frontier Radio Assn.	237-	A- 5-	2358
WØSO/Ø	Jayhawk Amateur Radio Society	392-	B- 9-	2352
W2CGK/2	Amateur Radio Society of Queens	234-	A- 7-	2331
WØTIU/Ø	Central Iowa Amateur Radio Club	231-	A- 9-	2304
WØWML/Ø	Newton (Iowa) Radio Club	229-	A-10-	2286
W2ODP/2	Irvington Radio Amateur Club	226-	A-10-	2259
W3GAG/3	Philadelphia Wireless Assn.	346-	AB- 5-	2235
W6HDT/6	Fullerton Radio Club	223-	A-12-	2223
W3EDU/3	York Amateur Radio Club	241-	A-14-	2169
VE3ZS/3	Deep River Radio Club	215-	A- 7-	2160
W6ALQ/6	(nonclub group)	237-	A- 4-	2133
W8OAJ/8	Mercer County Radio Assn.	206-	A-10-	2079
W6ELQ/6	(nonclub group)	225-	A- 3-	2025
W6HGY/6	Whittier Radio 50 Club	196-	A-16-	1989
W8ODJ/8	Buckeye Short Wave Radio Assn.	209-	A- -	1881
W8TOL/8	(nonclub group)	203-	A- 3-	1827
W7AH/7	Motorola Radio Club	202-	A- 4-	1818
WØFX/Ø	Jamestown Radio Club	202-	A- 9-	1818
W8VVL/8	Queen City Emergency Net	199-	A-17-	1791
WØDEP/Ø	(nonclub group)	169-	A- 4-	1746
W2TIO/2	(nonclub group)	193-	A-12-	1737
W8GYM/8	Lima Area Amateur Radio Club	167-	A- 9-	1728
W8MFB/8	Thumb Area Amateur Radio Assn.	279-	B- 7-	1674
W7LEV/7	(nonclub group)	248-	B- 5-	1638
W6JQX/6	(nonclub group)	242-	B- 3-	1614
W2OCD/2	(nonclub group)	176-	A- 3-	1584
W1QMF/1	Newington Amateur Radio League	149-	A- 9-	1566
WØDVL/Ø	Northeast Iowa Radio Amateur Assn.	148-	A-15-	1557
VE1DN/1	Dartmouth Amateur Radio Club	146-	A- 7-	1548
WØCOZ/Ø	El Paso Radio Club	251-	B- 7-	1506
W4SKT/4	(nonclub group)	210-	B- 3-	1422
KH6WO/KH6	Honolulu Amateur Radio Club	204-	B-25-	1374
VE2BB/2	Lakeshore Amateur Radio Assn.	126-	A- 6-	1359
W4VT/4	Mid-South Amateur Radio Assn.	197-	B-15-	1332
W5ND/5	Orange Amateur Radio Club	148-	A- -	1332
VE3RA/3	(nonclub group)	123-	A- 4-	1332
K5NBL/5	(nonclub group)	199-	B- 4-	1194
W3BLA/3	Old Timers of York, Pa.	172-	B- 7-	1182
WØNSN/Ø	Cedar Valley Amateur Radio Club	106-	A- 8-	1179
VE1JV/1	Pictou County Amateur Radio Club	100-	A- 5-	1125
W8HKT/8	Southwest Michigan Radio Club	159-	B- 4-	1110
W9IZE/9	(nonclub group)	155-	B- 8-	1080
W7OZK/7	Shywy Radio Club	153-	B- 6-	1068
W8HDQ/8	Morgan County Amateur Radio Assn.	100-	AC- 9-	1029
W8CIA/8	Louisville Amateur Radio Club	109-	A- 4-	981
W7PZ/7	(nonclub group)	133-	A- 4-	972
K5NAW/5	(nonclub group)	159-	B- 4-	954
WØYHN/Ø	Crete Amateur Radio Club	151-	AB- 4-	909
W2QXE/2	Oneida Amateur Radio Club	98-	A- 3-	882
W8VP/8	Cambridge Amateur Radio Club	98-	A- 4-	882
KH6RS/KH6	Maui Amateur Radio Club	141-	BC-10-	855
WØZSI/Ø	Mitchell Radio Amateurs' Club	90-	A- 7-	810
W4MOE/4	Ashville Amateur Radio Club	82-	A- 4-	738
WØKTI/Ø	Prairie Dog Amateur Radio Club	116-	B-10-	696
W3KYR/3	Boys' Club of St. Marys Amateur Radio Society	51-	A- 4-	684
W8URD/8	Radio Club of Case Institute of Technology	48-	A- 6-	657



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W2CCR (left) and W2FTY operated W2CCR/2 at Grand Island, New York, entered the eighth highest score, 2012 points, in Class 1B. Seven storage batteries powered the BC-696 and ARC-5 rigs, HQ-129X and home-built 12-tube super during the 24-hour FD period.

December 1952

W4UBT/4	Sandhill Amateur Radio Club	72-	A- 5-	648
W9DUA/9	Amateur Radio Emergency Assn.	105-	B- 7-	630
WØPQS/Ø	Rochester Radio Club	42-	A- 8-	603
K6WAP/6	(nonclub group)	100-	B- 3-	600
W3DSG/3	West Philadelphia Radio Assn.	63-	A- 3-	567
W3PSD/3	(nonclub group)	63-	A- 8-	567
VE6CS/6	(nonclub group)	173-	C- 5-	519
WN9RUJ/9	Milu Radio Amateurs Club	53-	B-30-	468
WØFFN/Ø	(nonclub group)	53-	B- 3-	468
W7MP/7	(nonclub group)	51-	B- 5-	456
W9WKR/9	Lane Tech "Ham" Club	22-	A- 5-	423
W4SHU/4	Woodberry Amateur Radio Club	43-	A- 3-	387
W3RVC/3	Allegheny Kiski Amateur Radio Assn.	37-	A- 6-	333
K5RNE/5	(nonclub group)	95-	C- 3-	285
WN4TYT/4	Kingsport Amateur Radio Club, Inc.	29-	A- 6-	261
WØCDA/Ø	St. Louis Amateur Radio Club	41-	AB- 6-	258
KH6IK/KH6	Kauai High School Radio Club	66-	C-15-	223
K5WAS/5	(nonclub group)	74-	C- 4-	222
WN3TOC/3	Amateur Radio Transmitter's Assn. of Pittsburgh	22-	A- -	198
WNØITG/Ø	St. Paul Radio Club	22-	A-14-	198
WN5UEP/5	Novice Group, W5USN	19-	A- 3-	171
W1TYN/1	Braintree Amateur Radio Club	30-	C-12-	90
Two Transmitters Operated Simultaneously				
W4KFC/4	Potomac Valley Radio Club	940-	A-13-	8685
W3PKV/3	Northeast Radio Club of Philadelphia, Penna.	814-	A-15-	7587
W4FJ/4	Richmond Amateur Club	629-	A-25-	5883
W8BWA/8	Cleveland Brasspounders Assn.	606-	A- 5-	5679
W1QOA/1	Bridgeport Radio Amateur Club	580-	A- 8-	5463
W1SKT/1	Narragansett Assn. of Amateur Radio Operators	555-	A-15-	5013
W2EWT/2	Kenmore Buffalo Tonawanda Radio Club	456-	A-12-	4329
W9UDU/9	Racine Megacycle Club	514-	AB-15-	4017
VE2FX/2	Montreal Amateur Radio Club	394-	A- 5-	3771
W2JC/2	Bloomfield Radio Club	389-	A-25-	3726
W1QI/1	Candlewood Amateur Radio Assn.	384-	A-16-	3699
VE2NI/2	Lakeshore Dartsand Draughts Radio Club	382-	A- 5-	3681
W1EFC/1	Quinebang Valley Radio Club	404-	A- -	3636
W3NMR/3	Lancaster Radio Transmitting Society	390-	A-25-	3510
W6TO/6	Fresno Amateur Radio Club, Inc.	357-	A-25-	3438
W3RQY/3	Abington Township Amateur Radio Assn.	331-	A- 5-	3240
W8ZZ/8	Detroit Amateur Radio Assn.	325-	A-13-	3150
W4PAY/4	Amateur Radio Club of Falls Church	313-	A-18-	3060
W7SS/7	Butte Amateur Radio Club	313-	A-10-	3060
W6SF/6	Stockton Amateur Radio Club	295-	A-20-	2880

Four operators kept this one-transmitter nonclub group station, VE3RA/3, on the air at Mary Lake, Ontario. The rig was a home-built job enclosed in a BC-375 tuning unit and the receiver an SX-24. Tuning the band after a CQ is VE3APK, while VE3AKO waits to chalk up another QSO.

W9KA/9	Chicago Radio Traffic Assn.	288-	A-13-	2817
W4UN/4	Jackson Radio Club	334-	AB-25-	2799
W8GW/8	Quarter Century Wireless Assn. Cleveland Section	279-	A- 3-	2736
W9NRA/9	Door County Amateur Radio Club	354-	AB- 8-	2565
W9NUW/9	Wisconsin Valley Radio Assn., Inc.	426-	A-20-	2562
W9TAK/9	Tri-Town Radio Amateur Club	490-	AC- 8-	2478
VE7AFC/7	Penticton Amateur Radio Assn.	250-	A- 4-	2475
W4NC/4	Winston-Salem Amateur Radio Club	387-	B-20-	2472
W2TFL/2	Walton Ham Group	274-	A- 7-	2466
W4DIJ/4	Chattanooga Amateur Radio Club	382-	B-12-	2442
W4RSS/4	Norfolk Naval Shipyard Amateur Radio Club	376-	B- 9-	2406
W1FVF/1	WTIC Radio Club	228-	A- 4-	2277
W1AQ/1	Assn. of Radio Amateurs of Southern New England	251-	A- 6-	2259
W8KS/8	Westlak Amateur Radio Assn.	275-	AB-10-	2247
W3ADE/3	Harrisburg Radio Amateurs Club	207-	A- 8-	2088
W4QR/4	Deland-Statson Radio Club	286-	AB- 4-	2055
W5USN/5	(nonclub group)	199-	A-10-	2016
W3QZF/3	Horseshoe Radio Club	223-	A-10-	2007
W5FQ/5	Meridian, Mississippi Amateur Radio Club	296-	AB- 6-	1992
W9TCR/9	Dells Region Radio Club	196-	A- 9-	1989
W4QAN/4	Murfreesboro Amateur Radio Club	246-	AB- 8-	1956
W8ZXI/8	The Michigan Whip Club	189-	A- 5-	1926
W9VTI/9	(nonclub group)	286-	AB- 3-	1878
W8DFK/8	The Brass and Java League	183-	A- 5-	1872
W7LAB/7	Ogden Amateur Radio Operators Club	182-	A-20-	1863
W2YVP/2	(nonclub group)	206-	A- 6-	1854
W9WXV/9	(nonclub group)	178-	A- 9-	1827
VE2CB/2	(nonclub group)	201-	A- 7-	1809
W8DM/8	Kalamazoo Amateur Radio Club	264-	AC- 8-	1743
W7NBZ/7	Kilowatt Club	168-	A-10-	1737
W2ZOJ/2	(nonclub group)	191-	A- 9-	1719

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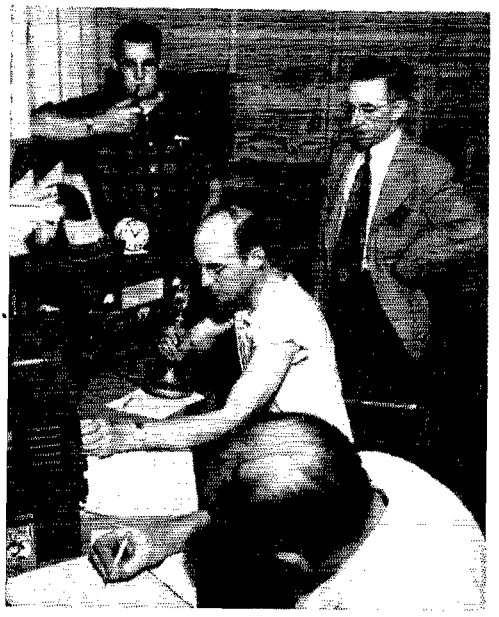
One of the most unusual stations in the FD was W5FQ/5, operated by six members of the Meridian Amateur Radio Club at Water Works Lakes, three miles east of Meridian, Miss. Radio gear, a stove, refrigerator, running water and two beds comprised the furnishings of this bus, owned by member W5CUU.

W9OAT/9	The Phoamblowers & Brass-pounders	191-	A- 4-	1719
W2ODV/2	Bayonne C.D. Amateur Radio Club	234-	AB- 7-	1701
W2BXK/2	Polytechnic Institute of Brooklyn Radio Club	162-	A- 6-	1683
W8ZHO/8	Muskegon Area Amateur Radio Council	426-	BC-10-	1659
W8CMA/8	Allegan Area Radio Club	184-	A-10-	1656
W3FQR/3	The Dit Happy Dash Hounds of Braddock Heights	275-	B- 8-	1650
W2IQ/2	(nonclub group)	183-	A-11-	1647
VE3CAQ/3	Kingston Amateur Radio Club	182-	A-12-	1638
WØRA/Ø	St. Paul Radio Club	180-	A-14-	1620
W8BFH/8	Buckeye Shortwave Radio Assn.	243-	B-24-	1608
W2GZP/2	Mid-Hudson Amateur Radio Club	264-	AB- 7-	1602
VE1RC/1	Moncton Amateur Radio Club	178-	A- -	1602
W4GSV/4	Albany Amateur Radio Club	266-	B-15-	1596
VE1IM/1	Annapolis Valley Amateur Radio Club	236-	B-15-	1566
W4HAW/4	West Palm Beach Radio Club	194-	AB-10-	1533
W9HOL/9	Sparta Amateur Radio Club	166-	A- 6-	1494
W1RO/1	The Worcester County Radio Assn.	150-	A- 9-	1350
W2SV/2	Sunrise Radio Club	406-	C-18-	1293
WØLFF/Ø	Iowa City Amateur Radio Club	163-	AB-12-	1254
W3CAB/3	Washington Radio Club	158-	AB-15-	1224
W5TSV/5	Pampa Amateur Radio Club	173-	AB- 6-	1200
W8KEA/8	Midland Radio Club	158-	AB-13-	1164
WØINR/Ø	Panhandle Amateur Radio Club	111-	A- -	999
W2WGE/2	Rip Van Winkle Amateur Radio Society	78-	A- 6-	927
W5BPM/5	East Texas Amateur Radio Club	129-	B- 7-	924
W2MHE/2	IBM Radio Club	327-	AB- 3-	892
W9HKA/9	Iroquois County Radio Club	104-	AB- 8-	873
W7AIA/7	Vancouver Amateur Radio Club	96-	A- 8-	864
W7LRA/7	Utah Amateur Radio Club	141-	B- 7-	846
W9TBY/9	Neenah-Menasha Amateur Radio Club	115-	AB- 5-	819
W9LDT/9	North Central Indiana Radio Club	107-	B- 4-	792
WØAJN/Ø	South St. Louis Amateur Radio Club	390-	B- 7-	780
W2LID/2	Wantagh Amateur Radio Club	59-	A-12-	756
VE3BXT/3	Scarboro Amateur Radio Club	116-	AB-18-	753
W7NGA/7	Snake River Keys and Mikes	84-	AB-11-	747
VE2AFO/2	(nonclub group)	82-	A- 6-	738
W9NIT/9	Point Radio Amateurs Club	199-	A-11-	672
W3QYK/3	Flood City Radio Club	96-	AB-16-	609
WØKUT/Ø	O.B.P. (Chapter No. 1) Radio Club	66-	A- 4-	594
W7PEF/7	(nonclub group)	75-	B- 5-	588
W2AU/2	Sidney Amateur Radio Club	64-	A- 4-	576
W9ODD/9	Radio Amateurs of Marquette	91-	B- 6-	546
W6BML/6	Mt. Shasta Amateur Radio Club, Inc.	270-	B- 4-	540
W9WWO/9	Western Illinois Radio Club	177-	C- -	531
WØSQN/Ø	Ottumwa Amateur Radio Club	55-	A- 3-	495
WN9OKD/9	Hamfesters Novice	80-	B-14-	480
W7IWU/7	(nonclub group)	66-	ABC- 3-	447
W6LIE/6	Kern County Radio Club	56-	AB-19-	408
WØBBZ/Ø	(nonclub group)	45-	A- 3-	405
W1UYY/1	(nonclub group)	29-	A- 3-	261
VO6H/VO6	Goose Bay Amateur Radio Club	35-	B-15-	210
KØWAQ/Ø	(nonclub group)	33-	B- 3-	198
W9PHE/9	Greene County Radio Club	34-	C- 3-	177
W9EPB/9	(nonclub group)	15-	A- 4-	135
W3ID/3	(nonclub group)	13-	A- 3-	117
W7FGQ/7	(nonclub group)	38-	A- 3-	114

Three Transmitters Operated Simultaneously

K2AA/2	South Jersey Radio Assn.	617-	A-30-	5553
W5MPZ/5	Sandia Base Radio Club	599-	AB-15-	5049
W8ICS/8	Westpark Radiops	482-	A-30-	4617
W2QYV/2	Niagara Radio Club	498-	A-18-	4482
W2WUX/2	Utica Amateur Radio Club	498-	A-19-	4482
W3DIM/3	Capital Key and Mike Club	472-	A- 7-	4473
W9GPS/9	Polecats Emergency Corps of the Hamfesters Radio Club, Inc.	465-	A-16-	4410
W9JZA/9	Lake County Amateur Radio Club	516-	AB-25-	4194



Five transmitters were operated by the Four Lakes Amateur Radio Club, W9SWQ/9, at a YMCA camp seven miles north of Madison, Wisconsin. Shown here is the 14-Mc. 'phone position with W9TPS at the mike, W9BVX handling the log, and W9LSV and W9HZS looking on.

W8MRM/8	Motor City Radio Club	487-	AB-14-	4065
W9CAF/9	Chicago Amateur Radio Club	427-	A-17-	3843
W4TRC/4	Kingsport Amateur Radio Club, Inc.	453-	AB-27-	3789
W1AA/2	Lake Success Radio Club	409-	AB-21-	3570
W4PLB/4	Orlando Amateur Radio Club	366-	A-20-	3519
W3PGA/3	Aero Amateur Radio Club	389-	A- -	3501
W9TCH/9	Rock River Radio Club	532-	AC-15-	3429
W8COE/8	Charleston Amateur Radio Club	469-	AB- 6-	3342
W9MD/9	Illinois Ham Club	369-	A-15-	3321
W2VNK/2	Livingston Amateur Radio Club	600-	ABC-25-	3267
W5MUZ/5	Ouachita Valley Amateur Radio Club	334-	A-15-	3231
W8FO/8	Toledo Radio Club	327-	A-25-	3186
W2NOO/2	Radio Amateur Club of Belleville, N. J.	324-	A-12-	3141
W7MPH/7	Valley Amateur Radio Club, Inc.	322-	A-20-	3123
W4BKM/4	Macon Amateur Radio Club	492-	B-17-	3114
W8OG/8	Springfield Amateur Radio Club	320-	A-15-	3105
W5DXD/5	Temple Amateur Radio Club	481-	B-17-	3036
W1RIA/1	Holyoke Amateur Radio Emergency Corps	499-	B-12-	2994

W5MRK/5	Bartlesville Amateur Radio Club	353-	AB-17-	2982
WØEQU/Ø	Ak-Sar-Ben Radio Club	303-	A-36-	2952
W9KAY/9	Twin City Radio Club	339-	AB-17-	2871
W6MLK/6	High Frequency Amateur Mobile Society	284-	A- 7-	2781
VE2BYØ2	Club Radio Amateur de Hull	281-	A- 9-	2754
VE3AT/3	London Amateur Radio Club	275-	A-15-	2700
K5NRDØ5	(nonclub group)	297-	AB- 6-	2649
W4MNØ4	Palmetto Amateur Radio Club	266-	A-25-	2619
W9REG/9	Tippecanoe Amateur Radio Assn.	408-	B- 7-	2598

The entire three-transmitter set-up of the St. Petersburg Amateur Radio Club, W4GAC/4, was installed in this tent. Operation was confined to 14, 28 and 50 Mc. A breakdown of the log by bands showed 115 QSOs on 28 Mc., 47 on 14 Mc. and 15 on 50 Mc.

W3VV/3	McKean County Radio Club	365-	AB-12-	2526
W4AY/4	Nashville Amateur Radio Club	390-	AC-14-	2488
WØBLK/Ø	Black Hills Amateur Radio Club	298-	AB-24-	2433
W9ART/9	Green Bay Mike and Key Club	303-	AB-15-	2424
W1TKA/1	Stamford Amateur Radio Emergency Corps	302-	AB-10-	2397
VE1FO/1	Halifax Amateur Radio Club	230-	A-14-	2367
W5UY/5	Lafayette Amateur Radio Club	306-	AB-17-	2349
WØFVT/Ø	Sioux Amateur Radio Assn.	628-	AC-75-	2337
W8LVI/8	Lorain County Amateur Radio Assn.	258-	A-14-	2322
W2QCN/2	Rochester Amateur Radio Assn.	355-	B-23-	2292
W4IZ/4	Jacksonville Amateur Radio Society	286-	AB-11-	2259
W8WSX/8	Carmars Radio Club	241-	A-19-	2169
WØFKB/Ø	Iowa Great Lakes Amateur Radio Club	392-	AC-28-	2151
VE1GH/1	Sackville Amateur Radio Club	214-	A- 8-	2151
VE7ZV/7	Vancouver Amateur Radio Club	230-	A-12-	2070
WØEDA/Ø	Rolla Amateur Radio Assn.	337-	A-10-	2022
VE1GM/1	Yarmouth Amateur Radio Club	205-	AB-12-	2019
KZ5KZ/KZ5	Cross Roads Amateur Radio Club	335-	B-25-	2010
W4RMJ/4	(nonclub group)	295-	B-11-	1932
W9DKR/9	Kokomo Amateur Radio Club, Inc.	377-	BC-21-	1887
VE1LC/1	Loyalist City Amateur Radio Club	206-	A-12-	1854
W6VB/6	Mike and Key Club of Santa Monica	205-	A-10-	1845
WØRVG/Ø	Heart of America Radio Club	205-	A- -	1845
W1SZQ/1	Eastern Massachusetts Radio Assn.	199-	A-11-	1809
VE3ZM/3	Guelph Amateur Radio Club	196-	A-18-	1764
W8AIJ/8	Niles Amateur Radio Club	279-	B-14-	1674
WØLMP/Ø	Boone Mike and Key Club	161-	A-12-	1674
W6LUC/6	Santa Barbara Amateur Radio Club	275-	B-19-	1650
VE6NQ/6	Calgary Amateur Radio Assn.	165-	A-12-	1638
W6IFZ/6	Richmond Amateur Radio Club	177-	A-14-	1593
W4FNR/4	Broward Amateur Radio Club	179-	AB-15-	1569
W4GAC/4	St. Petersburg Amateur Radio Club	177-	AB-13-	1548
W4CUE/4	Birmington Amateur Radio Club	257-	B-23-	1542
W7AQ/7	Yakima Amateur Radio Club	166-	A-10-	1494
W5HTK/5	Enid Amateur Radio Club	200-	AB-12-	1437
W9BBN/9	Tri-State Amateur Radio Society	211-	B-22-	1416
W3HER/3	Allentown Mike and Key Club	152-	A- 6-	1368
W8IGR/8	South East Amateur Radio Club	126-	A- 5-	1359
W4HBB/4	Amateur Radio Club of Savannah	206-	AB-20-	1320
W8CLR/8	(nonclub group)	193-	B- 8-	1308
VE2APQ/2	St. Hubert Amateur Radio Club	114-	A- 6-	1269
W6PXB/6	Placer Radio Club	152-	AB- 9-	1254
W6LKF/6	Paso Robles Radio Club	114-	A- 6-	1251
VE5AA/5	Saskatoon Amateur Radio Club	266-	AC-24-	1215
W9LZW/9	Kishwaukee Radio Club	181-	AB- 9-	1158
W4HZB/4	Whitehaven Radio Amateur Club	119-	A- 9-	1071
W5PGI/5	Ardmore Amateur Radio Club	143-	B-10-	1008
W1TQL/1	Lowell Radio Operators Club	163-	B-10-	978
W7NGS/7	Radio Club of Arizona	100-	AB-12-	909
WØWLY/Ø	North Iowa Radio Transmitting Assn. of Mason City, Iowa	128-	AB- 9-	852
VE2APX/2	St. Johns Amateur Radio Club	68-	A-11-	837
W5YM/5	University of Arkansas Radio Club	89-	A- 8-	801
WØNWC/Ø	South East Nebraska Radio Club	99-	AB- 6-	792
W5ZM/5	Pecos Valley Amateur Radio Club	114-	AB-28-	780
WØGEP/Ø	Band Hoppers Radio Club	55-	A- 8-	720
W5NZD/5	Mineral Wells Amateur Radio Club	74-	A- -	666
W8EOO/8	Belmont County Amateur Radio Club	125-	B-14-	552
WØCOM/Ø	CQ Amateur Radio Club	61-	B- 8-	528
W7OQI/7	Southern Montana Amateur Radio Assn.	86-	BC- 6-	519
W6CEE/6	Young Ladies Radio Club of Los Angeles	179-	AB- 6-	479
W3QAS/3	Philadelphia High Frequency Radio Club	48-	A-10-	432
W9AML/9	Central Illinois Radio Club	63-	B- 5-	378
W1AWQ/1	Oxford County Amateur Radio Assn.	23-	B- 6-	288
W9GBT/9	Whiteside VHF Radio Net	38-	B- 5-	228
W1SBF/1	Meriden Amateur Radio Club	84-	AB- 6-	222
W2KYN/2	Knickerbocker Amateur Radio Club	85-	AB-13-	181
W2RCX/2	Batavia Amateur Radio Assn.	121-	C- 5-	121

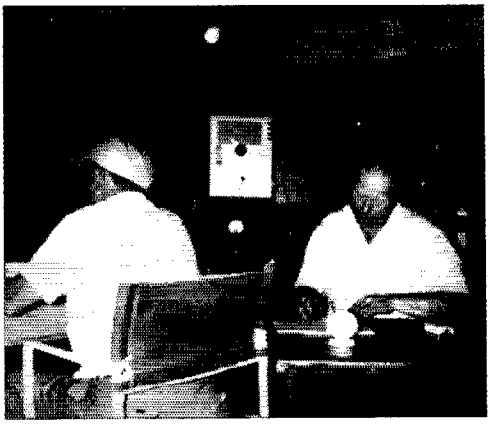
Four Transmitters Operated Simultaneously

W2DAY/2	Northern New Jersey Radio Assn.	806-	A-76-	7479
W6HDY/6	Citrus Belt Amateur Radio Club	749-	A-16-	6966
W6PD/6	Foothill Mobile Net	964-	AB-18-	6432
W2QW/2	Raritan Valley Radio Club, Inc.	697-	A-14-	6497

W2GLQ/2	Nutley Amateur Radio Society	685-	A-13-	6390
W6MGJ/6	Helix Amateur Radio Club	662-	A-15-	6183
W3NA/3	The DX Club	727-	ABC-10-	5901
W2JT/2	Passaic Valley Radio Club	676-	AB-16-	5646
W2KFR/2	Penn Jersey Amateur Radio Club	604-	A-15-	5436
W7CO/7	North Seattle Amateur Radio Club, Inc.	555-	A-19-	5220
W8DC/8	Grand Rapids Amateur Radio Assn.	569-	AB-20-	5121
W5PDO/5	Los Almos Amateur Radio Club	583-	AB-11-	5031
W2ZQ/2	Delaware Valley Radio Assn.	487-	A-16-	4608
W4QEE/4	Amateur Radio Club of Mobile	525-	AB-20-	4603
W7DK/7	Radio Club of Tacoma, Inc.	476-	A-16-	4563
W2FUS/2	Morris Radio Club	477-	A-23-	4518
W2GM/2	Albany Amateur Radio Assn.	459-	A-15-	4356
W9NQF/9	Lake County Amateur Radio Club	872-	AB-16-	4356
WØERG/Ø	Sioux City Amateur Radio Club	566-	AB-35-	4266
W8AW/8	Edison Radio Amateurs Assn.	409-	A-18-	3906
W3AJU/3	Amateur Transmitters Assn. of Pittsburg	461-	AB-23-	3876
VE1ND/1	Fredericton Radio Amateur's Club	429-	A-13-	3861
W9LUN/9	Joliet Amateur Radio Society	399-	A-15-	3816
W3PSG/3	Baltimore Amateur Radio Club, Inc.	400-	A-50-	3771
W2AFU/2	Ocean County Amateur Radio Assn.	559-	AB-10-	3555
W6BXN/6	Turlock Amateur Radio Club	348-	A-15-	3393
W5PFC/5	Jackson Amateur Radio Club	375-	A-12-	3375
W8TO/8	Columbus Amateur Radio Assn.	554-	B-25-	3324
W4FR/4	Amateur Radio Transmitting Society	363-	A-35-	3267
W2QLU/2	Ithaca Mike and Key Club	350-	A-20-	3168
W6PMK/6	North Peninsula Electronics Club	324-	A-14-	3141
W8ACW/8	Genesee County Radio Club	742-	ABC-20-	3108
W9RJY/9	Fort Wayne Radio Club	331-	A-15-	3104
W9HRM/9	Milwaukee Radio Amateurs Club	441-	AB-40-	3036
K5FBB/5	Keesler Amateur Radio Club	467-	B-28-	2976
W3QV/3	York Road Radio Club	316-	A-25-	2844
W1FZ/1	Farmington Radio Club	289-	A- 5-	2826
W6YME/6	Tamalpais Amateur Radio Club	369-	AB-13-	2820
WØCET/Ø	Kaw Valley Radio Club	424-	B-50-	2694
W5NFO/5	South Plains Amateur Club	388-	B-30-	2490
W2GLO/2	Levittown Amateur Radio Club	275-	A-11-	2475
W5HOT/5	(nonclub group)	364-	B-12-	2334
WØCNC/Ø	Southwest Missouri Amateur Radio Club	347-	AB-27-	2205
K5NBW/5	(nonclub group)	285-	AB- 9-	2145
W8PS/8	Mahoning Valley Amateur Radio Assn.	254-	AB-28-	2136
W4VTA/4	Confederate Signal Corps	207-	A- 9-	2088
W5AA/5	Oklahoma County Amateur Radio Emergency Corps Group	343-	B- -	2058
W2BFA/2	Eastern Suffolk Radio Club	233-	AB-11-	2010
W4KEK/4	Peninsula Amateur Radio Club	223-	A-18-	2007
W3KJJ/3	Schuylkill Amateur Radio Club	219-	A- -	1971
W8AM/8	Coffee Dunkers of Detroit, Michigan	266-	AB- 9-	1821
W4GCW/4	Pickens County Amateur Radio Club	283-	AB- 7-	1797
W1USS/1	Pittsfield Radio Club	420-	ABC-21-	1794
VE2CQ/2	Radio Club of Quebec	248-	AB-15-	1767
W1TRZ/1	Tri-County Amateur Radio Club	171-	A-10-	1764
W6CNY/6	San Luis Obispo Radio Club	496-	AB- 8-	1602
W6PML/6	Santa Maria Radio Club	212-	AB- 6-	1593
W3FRV/3	Frederick Amateur Radio Club	218-	ABC- 8-	1422
WØCKF/Ø	Minneapolis Radio Club	156-	A-25-	1404
W6LUF/6	Mount Diablo Radio Club	200-	ABC-10-	1371
W4GIV/4	Coastal Plain Amateur Radio Club	179-	AB-11-	1251
W1IA/1	South Shore Amateur Radio Club	134-	A-15-	1206
W9JAU/9	Streator Radio Club	109-	A- 8-	1206
VE3BNK/3	Roblin Radio Club	136-	AB- -	1094
W9MJL/9	Vermilion County Amateur Radio Assn.	171-	AB-13-	1032
WØMTI/Ø	Point of Rocks Radio Club	89-	A- 8-	801
W9ZSC/9	(nonclub group)	87-	B- 6-	672

Five Transmitters Operated Simultaneously

W4FU/8	Ohio Valley Amateur Radio Assn.	1087-	A-28-10,008
W2ARL/2	Somerset Hills Radio Club of Summit, N. J., Inc.	889-	A-20-	8226
W3VRZ/3	Beaver Valley Amateur Radio Assn.	868-	A-12-	8055
W2GTD/2	Ridgewood Amateur Radio Club	789-	A-15-	7407
W2BVL/2	Nassau Radio Club	760-	A-15-	7065
W9SWQ/9	Four Lakes Amateur Radio Club, Inc.	696-	A-30-	6489
W7AW/7	West Seattle Amateur Radio Club, Inc.	692-	A-25-	6453
W6GGK/6	San Diego Amateur Radio Club	646-	A-23-	6057
W6CG/6	Royal Order of Suds Club	925-	AB-20-	6009
VE3BRR/3	Nortown Amateur Radio Club	597-	A-30-	5598
W3OXO/3	Chesapeake Amateur Radio Club	645-	AB-18-	5313
W1OMI/1	El-Ray Radio Club	540-	A-21-	5085



A consistently high-scoring group in many previous Field Days, the Tusco Radio Club, W8HQ/8, operated this year near Dover, Ohio, scored 3231 points for fifth place in Class 1A.

W9AB/9	Michiana Amateur Radio Club	581-	AB-20-	4662
W9ESJ/9	Milwaukee Amateur Radio Emergency Corps	623-	AB-32-	4659
W2NGX/2	Jersey City Amateur Radio Assn.	506-	A-18-	4554
W2KOJ/2	Watchung Valley Radio Club	479-	A-23-	4536
W6OT/6	Oakland Radio Club	503-	AB-10-	4413
W2UBW/2	Mid-South Radio Club	422-	A- -	3798
W7OWT/7	Illinois Valley Radio Assn.	415-	A-20-	3771
W9BA/9	St. Clair Amateur Radio Club	500-	AB-23-	3693
W4SRX/4	Eglin Amateur Radio Society	430-	AB-13-	3672

(Continued on page 132)

• On the TVI Front

WASHINGTON (D.C.) TVI COMMITTEE SUCCESSFUL

Since its formation in March, the Washington, D. C., TVI Committee has successfully processed well over a hundred complaints, and as part of its over-all educational program, a TVI forum for manufacturers, distributors and servicemen has been held. Membership of the Committee consists of representatives of the following ham clubs: Capitol Mike & Key Club, Capitol Suburban Radio Club, Falls Church Radio Club, Potomac Valley Radio Club, Rock Creek Amateur Radio Assn., Washington Mobile Club, and the Washington Radio Club. An advisory committee for WTVIC is composed of representatives of the military, CAP, Civil Defense, ARRL, RTMA, NAB, telecasting services, FCC, and numerous TV manufacturers' distributors and service organizations.

The keystone for the orderly and successful processing of TVI complaints is the Committee Coördinator to whom all complaints are referred. The Coördinator receives information relative to the interference and turns it over to the Committee representative whose club serves the area in which the complaint originates. The advantages of a disinterested party adjudicating a complaint are readily apparent.

Plan of attack is as follows: (1) A high-pass filter is installed at the antenna terminals of the TVI receiver and, if effective, it is removed and FCC notified. (2) If the filter does not eliminate TVI, technical advice and assistance, if needed, are provided the amateur until it is demonstrated that a properly designed and operated TV receiver with adequate signal at the antenna terminals will not be interfered with on local channels. The successful handling of two complaints against the same amateur station is accepted as evidence that spurious emissions from the station are sufficiently attenuated.

TVI CAN BE LICKED!

10126 Colwell Dr.
Sun Valley, Calif.

Editor, *QST:*

. . . Things were going along quite well for me hamwise out here up to late 1948, or early 1949. As was to be expected from one who had been hamming for a number of years, I had quite a complete set-up, running about 250 watts on both c.w. and 'phone, working my share of the DX and enjoying things in general. All this came to an abrupt end when one of my neighbors showed up at my front door one night with the sad news that he believed I was ruining his wonderful picture on Channel 2. This gentleman had the only TV receiver in this vicinity at the time, and lived down the street some five houses away. A little checking on my part confirmed his conclusions were correct. It was only a matter of a few more months until we had not only Channel 2 in operation here, but Channels 4, 5, 7, 9, 11 and 13 as well, plus Channel 8 in San Diego, some 100 miles south of us. And while I am located only some 15 miles from Mt. Wilson, where all the Los Angeles TV transmitters are located, there are times when San Diego comes in better in my particular location than the L.A. stations; in other words, I'm in a fringe area for TV, regardless of my close proximity to the TV transmitters. With conditions such that even my 6L6 Tri-tet oscillator operating by itself in the rig, and not directly coupled to the antenna, was causing serious TVI next door on practically all channels, I soon decided ham radio was a thing of the past in my location at least, and I ended up by selling out lock, stock and barrel some time in early 1950. But when in late fall of 1951 it became necessary I again become active or give up my ticket, things really looked the blackest. I decided I couldn't give up my call, after all those years, so I built up a little rig consisting of a Tri-tet driving an 807 final, and running 50 watts input. I put this little rig on the air, and by operating after midnight and early mornings, I made some contacts and applied for and was granted my renewal. Insofar as the TVI was concerned, it was just as bad from this little rig apparently as it had been from my previous set-up. My Tri-tet washed out all channels, more or less, on my own TV receiver, and the complete rig did a remarkable job of it. I of course had built the rig on an open chassis and had used the usual assortment of by-pass condensers, most of which were the closest acceptable capacity available from a junk box I still had kicking around from my previous activities. Naturally, while I had saved my ticket, ham radio still wasn't much fun under those circumstances.

At about this time, January 1952, a copy of *QST* dated some time in the fall of 1951 was handed me by a friend. I had lost interest in ham radio to the point I no longer belonged to the League, nor did I go to the trouble of buying *QST* from the newsstands. In glancing through this particular copy I ran across your article describing the construction of a rig using a 6AG7 xtal osc., 6N7 doubler, and two 807s in parallel in the final, which you claimed to be practically "sure-fire" insofar as TVI was concerned. Frankly, I figured you were all wet, and that while it might do a passable job of cleaning up the TVI in a good location, it would fail at my QTH. But the manner in which you had shielded the final intrigued me. It looked like a complete shielding job to me, and was so simple even I could do it. So I eventually decided to build up the little rig.

For me to say that on its completion everything was rosy would be a gross misstatement of fact. But the improvement was a sight to behold. I, at that time, was coupling the output through 72-ohm coax to an antenna coupler into an end-fed antenna 66 feet long. In the months since, I have added a low-pass filter, improved the antenna coupler, and have tried numerous antennas and various methods of feeding them. At present I am using a 64-foot flat top, center fed with tuned feeders (the current being equal in both feeder wires), and am working 20, 40 and 80 meters with this antenna. The rig has been changed to a 6146 final, running 100 watts input. One end of my transmitting antenna is hooked to the same mast atop the house that holds up my stacked TV antenna. On my own receiver I put an easily discernible crosshatch on Channel 2 when operating 20 meters, but seven channels are clean. When operating 40, I crosshatch Channel 2 very faintly, and have some horizontal lines on Channel 5, with the balance of the channels clean. On 80, I am nonexistent on any channel. It of course is understood I found it necessary to use a high-pass filter, plus a line filter, on my own TV receiver, as the r.f. from my fundamental is such that neon bulbs light up like Christmas tree lights when placed anywhere near the feed line to the TV receiver. As for my neighbors, I now find a slight (very slight) crosshatch present on Channel 2 when I am operating on 20 meters. Other than this, TVI is nonexistent. This condition exists next door on an RCA, the TV antenna being located about 30 feet from my transmitting antenna. This happy state of affairs, by the way, occurred only after the RCA distributor had come out and installed a high-pass filter on that particular receiver. The neighbor to the other side of me, whose antenna is slightly farther away, and is off the "back side" of my transmitting antenna, gets along very nicely without even so much as a high-pass filter. So again ham radio is fun rather than a matter of contention, and I again want to join the ranks of ARRL.

— *P. T. Crosby, W6TC,*

YL NEWS and VIEWS

BY ELEANOR WILSON,* W1QON

WAS-YL Award

In answer to many requests, here are the complete rules for the *Worked All States-YL* award. The Young Ladies Radio League offers a certificate to any amateur who qualifies. Rules have been revised, so note well what the requirements are. The following rules apply:

1) The WAS-YL Award, Worked All States-YL, is available to all amateurs.

2) Two-way communications must be established on the amateur bands with all forty-eight United States, and any and all amateur bands may be used. A card from the District of Columbia may be submitted in lieu of one from Maryland.

3) Contacts with all 48 states must be made with stations operated by licensed women operators.

4) Contacts with all 48 states must be made from the same location. Within a given community one location may be defined as from places no two of which are more than 25 miles apart.

5) Contacts may be made over any period of years provided only that all contacts are from the same location as defined in Rule 4.

6) Forty-eight QSL cards, or other written communications from stations worked confirming the necessary two-way contacts, must be submitted by the applicant to Lou Littlefield, W1MCW, 19 State Avenue, Cape Elizabeth, Maine. Sufficient postage must be sent with the confirmations to finance their return. The YLRL will not be *responsible for any loss or damage to same.*

Keeping Up with the Girls

Congratulations to W5RJZ, Louisa, and her OM, WN5UCZ, on the birth of their second child — a boy. . . . W3RXV, Peg, has tagged her new home in Slatington, Penna., "Ham's Paradise." On top of a high hill, it promises to be a great radio location. . . . W1BCU, Peg, noted the following YLs at the ARRL Hudson Division Convention at

These smiling W3 YLs hope that they will form the nucleus of a Pittsburgh-area YL group, with the addition of W3s NXU, PVH, QPJ and others interested. The picture was taken at the South Hills Brass Pounders and Modulators Hamfest. *Rear, l. to r.:* WN3TTR, W3KNF, W3JSH. *Front:* W3UUG, W3QPQ, WN3SVY.

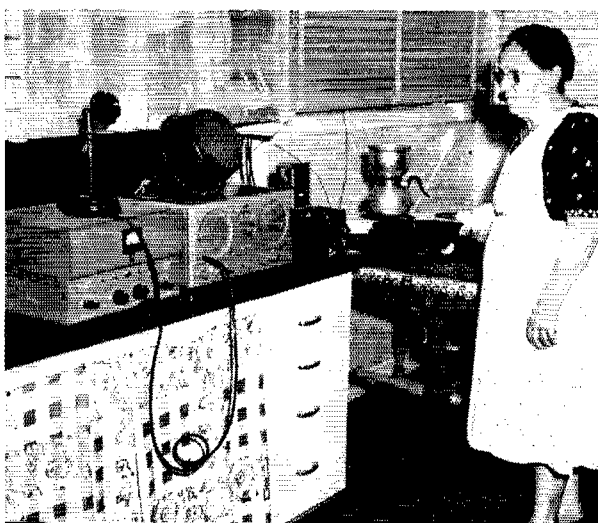
Albany: W1FTJ, W2s BNC BTB EEO EJL EWO KEG MLT RUF ZPR, WN2ONC, W3JSH, and VE2HI. The Women's Auxiliary of the Albany Radio Club did a fine job in programming a luncheon, fashion show and card party for YLs and XYLs. . . . OM W2FSL writes that he gives his 14-year-old daughter, KN2AOC, Pauline, 25¢ for each QSO she has and 50¢ for each QSL she receives. . . . Not to be outdone by each other, W8HWR, Lillian, and her OM, W8TWD, recently passed their Advanced Class exams together. . . . W3OQF, Barbie, reports that a check of some 2000 amateurs in "Metropolitan Washington" revealed about 24 YLs. . . . WN1VUT, Alice, is on the air from Whitinsville, Mass., with her home-built 20-watter. . . . W3QPJ, Kay, was pleased to meet the three licensed YLs of W. Va. at the Jackson Mills Hamfest, W8s EVR HFL and IES. . . . Latest choice bit of DX for W1MCW, Lou, was VQ6MY, British Somaliland, on twenty 'phone. . . . TF1CR, on 20 c.w., made it 100 countries worked for W1RYJ, Esther. . . . W1s FOF FTJ OAK QJY QON RYJ SVN TRE UBM UFM UPZ, WNs 1UGQ and VOS attended the N. H. State Convention at Nashua. . . . OM W2QAI writes of his pride in his wife, K2BBW, Frances, who received her Technician license in six weeks after developing interest from a "cold start". . . . WNØIKJ, Carol Millett, age 12, should be added to the list of young YLs published in October's YL column. . . . W1UBM, Norma, received her RCC as a result of a 3½-hour c.w. contact. . . . W2RUF, Clara, invites participation in the N. Y. State c.w. net on 3615 kc., Mon. through Sat., at 1900 EST and 2200 EST. . . . WØs CCK EQY HOD and JDB had a fine time at the Southwest Missouri Amateur Radio Club Picnic. They enjoyed scanning the YLRL Photograph Album and said that the OMs were duly impressed with what they saw in the book. . . . Fourteen-year-old W4TAV, Marty, is now Advanced Class. . . . W3JSH has been "struggling with the vagaries of a twenty-meter beam." Dottie expected it to work 100 per cent from the start but said she should have known better. . . . When

(Continued on page 188)

* YL Editor, *QST*. Please send all contributions to W1QON's home QTH: 318 Fisher St., Walpole, Mass.

♦

Hamming — and eggs too! Not every woman finds out what her husband wants for breakfast via amateur radio. But bright and early, Bessie Marshall, W7NLE, turns on her stove and rig and stands by. OM Elmer, W7EF, puts in his order for breakfast as he mobiles home from the night shift at the Air Force base, Mountain Home, Idaho. Bessie has put her rig and talents to work for more important causes, however. When all communications were disabled and fire threatened the entire town of Vale (Ore.), Bessie used a cool head and battery-operated gear to call for outside help — even as flames licked the wall in the room she was in. Help came and the town was saved, thanks directly to Bessie and a ham in Montana, who relayed the appeal for help. Today, at sixty-one, as AF7NLE, Bessie is one of the few YL operators in the Fourth Air Force network. A radio technician "by trade," she has built various pieces of equipment, but she is currently concentrating on working 40, 80, and 160.



U. S. N. R.

Earthquake

During the month of August, 1952, an earthquake was experienced at Bakersfield, California. The Naval Reserve radio stations at Bakersfield (K6NRW), San Diego (K6NRT), and Santa Monica (K6NRI), were manned as part of the Naval Reserve emergency communication network of the Eleventh Naval District. These stations handled a large number of messages between Headquarters, Eleventh Naval District, and the stricken community. Considerable traffic was also handled on local amateur nets by the Santa Monica station.

York, Penna., Fair

The York Interstate Fair, York, Penna., Sept. 9th–13th, featured coöperation between W3BLA and K3USN. Both stations accepted traffic for servicemen. Domestic traffic accepted by K3USN was forwarded to W3BLA by teletype for transmission, and overseas traffic accepted by W3BLA was forwarded to K3USN in a similar manner. W3CUL kept a schedule with K3USN to relay 218 overseas messages. The operator at K3USN was Chief Radioman J. G. McGettigan, USNR, W2VZM.

Code Practice

District Naval Reserve Master Control Stations of the Fifth, Sixth, and Eleventh Naval Districts conduct code transmissions, as shown below, for the training of Naval Reserve communications personnel. These broadcasts are available for use by amateurs desiring code practice.

Station	*Location*	*Frequency*	*Operating Periods*	*Speed*
NDC	Norfolk, Va.	3490 kc. 7385 kc.	8:00 P.M. EST until completed. Mon. thru Thurs.	12 to 14 w.p.m.
NDG	Charleston, S. C.	2916 kc.	9:00–9:30 P.M. EST Mon. thru Thurs.	10 w.p.m.
NQG	San Diego, Calif.	2096 kc.	8:15–9:30 P.M. PST Mon. thru Thurs.	5 to 10 w.p.m.

Here and There

WAVE members of Volunteer Electronics Platoon 12-42 of South San Francisco, Calif. (K6NAQ), are among the active amateurs in this Naval Reserve unit. Since joining the unit, the following WAVES have received their amateur licenses: Gwendolyn D. Hale, RMNSN, USNR (W6ALL); Marcella A. Hennager, RMNSN, USNR (W6LAD); and Dorothy M. Norton, RMNSN, USNR (W6MFW).

Naval Reserve mobile communications equipment at the 1952 ARRL Southwestern Division Convention, San Diego, Calif., operated under calls K6NCB and K6NRT.

— • • • —

Richard H. Harrup, of Volunteer Electronics Company 3-34, Riverhead, N. Y., was recently advanced from seaman recruit to radioman seaman, by his being a holder of a General Class amateur radio license.

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Cmdr. J. S. Dodge, USNR (W1VA), is one of the active operators of amateur radio station K4NBS located at the Naval Air Station, Norfolk, Va.

— • • • —

The call sign W4CRP is assigned to Irby H. Boyd, a member of Organized Surface Battalion 6-23 of Memphis, Tenn. W4CRP holds an Advanced Class ticket.

— • • • —

Amateur radio station K2NAL, located at Naval Air Station, Niagara Falls, N. Y., is operated by Rudell O. Blankenship, AC1, USNR (W2GJO).

Reminder — 10-Meter Worked All States Contest

Dec. 5th–6th–7th and 12th–13th–14th

How many states and how many stations can you work on Ten in two week ends? If you are located anywhere in the League's field-organization territory (see page 6), you are cordially invited to take part in this operating activity. C.w. to c.w., 'phone to c.w./c.w. to 'phone, or 'phone to 'phone can be used. Certificates will be awarded the highest scorer in each section. The total available operating time will be 96 hours. The week-end periods start Friday afternoon (3 P.M. PST or 6 P.M. EST) on the 5th and 12th of December and end on the same times the 7th and 14th.

Scoring is simple. One point is allowed for each contact and 1 multiplier point for each different state worked. The same station may be worked but once during the contest for credit. Total contacts multiplied by the total different states worked gives you your score. Exchange of reports and names of states are all that is necessary for scoring. For contacts that are made with other than the 48 states, for example, KP4 or VE1 through 8, 1 contact point is allowed but no multiplier point.

A complete announcement of the contest, including the rules governing participation, appeared in November *QST*. Contest reporting forms will be sent to all amateurs who request them by mail or radiogram. It is not necessary to make advance entry or to use these forms if the report form described in the November issue of *QST* is followed. Closing date of entries is January 12, 1953.

How many states can *you* work, OM?

The World Above 50 Mc.

CONDUCTED BY E. P. TILTON,* W1HDQ

THOUGH some have said that the contest provided the only bad conditions in the whole month of September, there are 208 calls in the tabulation of scores for the Fall V.H.F. Party, only two less than for its June counterpart. If propagation was none too good, the weather was fine almost everywhere, and the operation took on the aspects of a second Field Day. Scores of several section award winners ran as high as three times their 1951 totals, and the 5000-point mark was surpassed for the first time in a fall contest. Use of the bands above 148 Mc. was on the increase, 15 stations reporting contacts on 220 Mc., 21 using 420 Mc., and 11 working on both bands.

The record score for a September contest was made by W1MHL/1, of the Waltham Radio Association. As they have in several past contests, this group set up emergency-powered gear at the fire tower atop Pack Monadnock Mountain in Peterboro, N. H. A converted ARC-5 with a 12-foot stick-and-wire horn antenna was used on 50 and 220 Mc. An SCR-522 with a flop-over twin-5 array did the job on 144 Mc. A BC-645 with a 32-element horizontal beam accounted for a few points on 420 Mc. Because this is a group effort (the operating staff included W1s PYM QMN RUD RWO, WN1UMK and W2BVU) their score is not in line for a section award, but a fine time was had by all, and contestants from Maine to Pennsylvania have their hats off to this gang for a job well done.

The top competitive score was recorded by W1RFU, Wilbraham, Mass. Bill's splendid location, tireless operating and equipment for four bands enabled him to make 127 contacts for 4023 points.

Another familiar figure in v.h.f. competitions, W1FZ/1, was a close second. Operating, as many times in the past, from Blue Job Mountain, Farmington, N. H., Jim made 131 contacts on 50, 144, 220, and 420 Mc., for 3850 points.

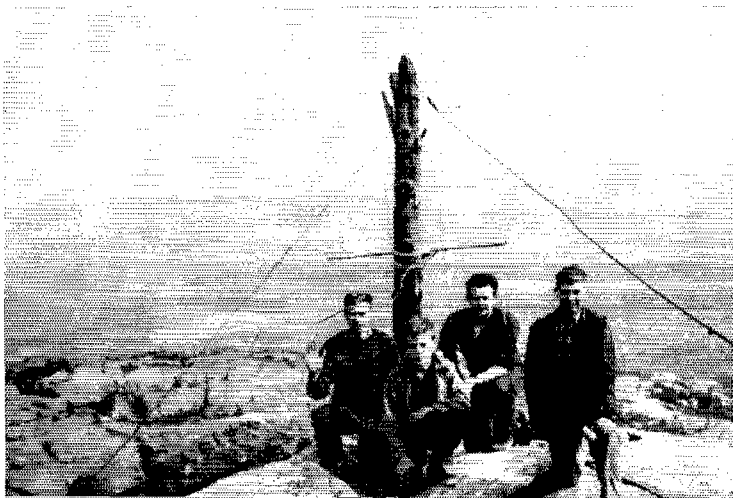
The highest two-band score was posted by W2UK, New Brunswick, N. J. Tommy used the 50-Mc. band for the first time in this contest, and was able to make 144 contacts on 6 and 2 with a multiplier of 22 for 3410 points. The top one-band score was made by W2LVQ, New York City, who worked 162 2-meter stations in 14 sections for 2268 points.

W8BFQ, Everett, Ohio, still holds the most-bands record. Margaret used 50, 144, 220, 420 and 1215 Mc. to make an even 100 contacts for 2660 points. Top western score was the 1524-point total of W6AJF, Sonoma, Calif., who worked four bands for his 12-section multiplier.

Group operation at portable locations in the Field Day manner was popular. Quite a few clubs and smaller groups now go out for the two warm-weather v.h.f. contests and the Field Day, one such session a year being insufficient for their enthusiasm for the mountain-top stuff. W3KX/3, manned by the Electric City Radio Club, at a high spot in the Poconos, near Stroudsburg, Pa., is one of these.

Perhaps the most ambitious mountain-climbing operations were those of W6BLP/6 and W1TQG/1. W6BLP packed a small battery-operated 2-meter rig on a 7-mile hike to an 8300-foot elevation in the Sierras, near Lake Tahoe. W1TQG/1 (see picture) operated from the summit of Mt. Monadnock, Jaffrey, N. H. Monadnock is a steep-sided and barren rock pile, the 3166-foot summit of which is a stiff mile-and-a-half climb from the nearest road. W1TQG, WN1WIO, and two soon-to-be Novices packed a 522, an S-20R receiver, a 2-meter converter and a 350-watt gas-engine generator up to this choice location in three trips. Working from 6 P.M. Saturday until 2 P.M. Sunday, these boys made 84 contacts in 13 sections, for 1092 points. Theirs was unques-

* V.H.F. Editor, *QST*.



This crew packed 144-Mc. gear up the rugged slopes of Mt. Monadnock to operate W1TQG/1 in the September V.H.F. Party. Left to right: Wayne Taft, WN1WIO; Alden Wentworth; Bob Taber, W1TQG; Larry Foster.

tionably the foot-pounds-of-work record, if not one of the highest scores. But you can't keep good v.h.f. men down — they're making plans for next June's Party, already!

220-Mc. Record Broken by W5RCI and W5BDT

Still think of our 220-Mc. band as useful only for backyard stuff? Then read on!

On Sunday morning, Oct. 5th, W4HHK, Collierville, Tenn., and W5RCI, Marks, Miss., found the 2-meter band open to Texas, so they got the Texas fellows who could do so to shift to 220 Mc. At 0830, W5RCI hooked up with W5BDT, Austin, a distance of 520 miles. This lifted the 220-Mc. record from your conductor and W8BFQ, who had held it for less than a month following their 450-mile 220-mc. contact of Sept. 9th.

W5BDT's 220-Mc. signal was copied during this period by W4HHK, at a distance of nearly 600 miles. W5AXY, also of Austin, was heard by W5RCI, though too weak for voice, and what was believed to have been his carrier was heard by W4HHK. At 0900, when W4HHK had to leave the air, W5BDT was still audible. All this transpired as the leading edge of a cold front extended from Western Tennessee to Northern Texas, the front passing Memphis at about 0930. W5RCI reported that the 220-Mc. signals faded out around this time. No signals were heard from Texas even on 144 Mc. that evening.

During a fine tropospheric opening from Michigan to Western New York on the night of Sept. 30th, W8DX, Detroit, heard W2RPO, North Tonowanda, N. Y., on 144 Mc., working W8BFQ, Everett, Ohio, crossband to 220 Mc. When this 190-mile contact was concluded, W2RPO said he would listen on 220 before going back to 144. W8DX then called him on 220, but Ralph could not read Dick's phase modulation, so W8DX went to c.w. A solid 15-minute crossband QSO resulted. It's around 240 miles, the best 220-Mc. DX at W8DX to date.

Horizons have been expanding on 420 Mc., too. During the month of September, W2QED, Seabrook, N. J., made 70 crossband or two-way contacts on 420, with 15 different stations in 7 states and 5 call areas. Get that last figure — *5 call areas* on 420 Mc.!

WØZJB.....48	W4BEN.....35	W8BQF.....41
WØBJV.....48		W8BFQ.....41
WØCJS.....48	W5VY.....48	W8LBH.....39
W5AJG.....48	W5GNQ.....46	W8LPD.....37
W9ZHL.....48	W5MJD.....46	
W9OCA.....48	W5ONS.....45	W9ZHB.....48
W6OB.....48	W5JTI.....44	W9QUV.....48
WØINI.....48	W5ML.....44	W9HGE.....47
W1HDQ.....48	W5JLY.....43	W9PK.....47
	W5JME.....43	W9VZP.....47
W1CLS.....46	W5SFW.....43	W9RQM.....47
W1CGY.....46	W5VV.....42	W9ALU.....47
W1LLL.....45	W5FAL.....41	W9UIA.....45
W1HMS.....43	W5FSC.....41	W9UNS.....45
W1LSN.....42	W5HLD.....40	
W1DJ.....40	W5HEZ.....38	WØQIN.....47
	W5LIU.....37	WØDZM.....47
W2AMJ.....46		WØNFM.....47
W2RLV.....45	W6WNN.....48	WØTKX.....47
W2MEU.....45	W6UXN.....47	WØKYF.....47
W2IDZ.....45	W6ANN.....45	WØHVW.....45
W2FHJ.....41	W6TMI.....45	WØMVG.....44
W2GYV.....40	W6IWS.....41	WØJOL.....44
W2QVH.....38	W6OVK.....40	WØJHS.....43
W2ZUW.....35		WØPKD.....43
	W7HEA.....47	WØIPI.....41
W3OJU.....45	W7ERA.....47	
W3NKM.....41	W7BQX.....47	VE3ANY.....42
W3MQU.....39	W7FDJ.....46	VE3AET.....38
W3JVI.....38	W7DYD.....45	VE1QZ.....34
W3RUE.....37	W7JRG.....44	VE1QY.....31
W3OTC.....35	W7BOC.....42	CO6WW.....21
W3FPH.....35	W7JPA.....42	XE1GE.....19
	W7FIV.....41	
W4FBH.....46	W7CAM.....40	Calls in **boldface** are holders of special 50-Mc. WAS certificates listed in order of award numbers. Others are based on unverified reports.
W4EQM.....44	W7ACD.....40	
W4QN.....44		
W4FWH.....42	W8NSS.....46	
W4CPZ.....42	W8NQD.....45	
W4FLW.....42	W8UZ.....45	
W4MS.....40	W8YLS.....41	
W4OXC.....40	W8CMS.....41	
W4FNR.....39	W8RFW.....41	
W4IUJ.....38		

Here and There on 6 and 2

It appears that Massachusetts leads all other states in number of active 50-Mc. stations. The Boston area has always been good v.h.f. territory, and several towns and cities throughout the state have standardized on 50 Mc. for their c.d. operation. The Arlington Radio Club now has a control center, W1VPT, on 53.4 Mc. (local net frequency) and 50.675 for the sector net. W1s BAQ BZQ CTW FWQ GEO KNW LLY LXR OGI OEX PEQ and THO now operate in Arlington on 53.4, and W1PIJ, Medford, and W1WB, Belmont, tie in with them. Nearly all the rigs are duplicates of the set-up described by W1CTW in *QST* for May, 1952. They are the property of the individual club members, the rigs having been built as a group project at their own expense.

Region 9, north-central Massachusetts, also has a group of 50-Mc. stations set up for emergency purposes. Several of these have converted prewar TR-4s to 50 Mc., using a 2E30 in the final, working as a doubler. Even this small amount of power does very well for mobile service over the distances usually encountered in local civil defense net operation.

There is still some DX talk going on on 50 Mc., despite the low state of F_2 DX prospects at this stage of the sunspot cycle. The newly-formed Japanese Amateur Radio League is sponsoring an award for the first JA–W 50-Mc. contact. No details on this one as yet. W2TXB writes that OQ5RA and OQ5LL are both operating on 6. W1WKF has been trying to drum up some 50-Mc. business out on Guam without success. He is looking forward to getting in some regular licks when he returns to his home in Taunton, Mass., in the near future.

Is there such a thing as an "impossible path" on 144 Mc.? We know that the line-of-sight business has long been discredited, but there are some kinds of terrain that still look quite formidable. Reasoning that you never know what you can do in a seemingly hopeless location until you try, Bob Turk, W7LEE, put a 2-meter rig on the air in Parker, Arizona, late last summer. His location is a mile east of the Colorado River, and only 450 feet above sea level. There are high mountains in all directions, and almost anyone would say that this is one spot from which you'd never work out on 144 Mc. Bob put up a 48-element array that could be used either horizontal or vertical, to give it the college try, and he made his first 2-meter contacts on September 1st, with W6NLZ and W6NTC, Los Angeles, located 240 miles to the west.

These were made with a 522, running 20 watts input, but the rig now has a pair of VT-127As at up to a full kilowatt. Since the big job went on the air, Bob has found it possible to work W6NLZ and W6CDB of Compton on schedule. He has also heard W6BUT, who is 300 miles distant. Schedules are kept with W7FGG, Tucson, 225 miles. When he is not keeping schedules, Bob turns his big array in various directions, puts the rig on automatic c.w. and lets it run until he figures the band has been awakened. When he stands by it usually has been!

W6NLZ says that high power is breaking down other paths that were impossible on low power. W6EFS at Armona, 175 miles over the mountains, has created quite a stir in the Los Angeles area since he put on his 500-watt rig. It is probable that many difficult paths might be broken down on 144 Mc. if more fellows would put on high power, big antennas and the best possible receivers. There must be considerable scattering involved in DX work over mountainous

terrain, and in such cases high power is almost a necessity. W7LEE has heard a severe echo with a delay of about one second on the signals of W6NLZ. Where were the signals going all *that* time?

It may not be impossible for the W6s to run up respectable totals of states worked on 144 Mc. after all. W6PJA, who was one of the participants in the opening to Texas in 1951, now has three states and three call areas on 2. A 1400-mile radius from the West Coast includes a lot of states, and it has now been proven that those mountains are not a completely impassable barrier!

The Purple Glow V.H.F. Club of Albuquerque, N. Mex., launched its v.h.f. balloon on Oct. 25th at 1245 MST, from a point 10 miles north of Stanley, N. Mex. It carried a 7-pound automatically-keyed transmitter having a power input of about 0.2 watt, sending the call AF5CA and a special cipher on a frequency of 143.99 Mc. The signal was heard until 1830 MST by W5VWU, Sandia Park, W5KCW, Santa Fe, and W5LQW, Albuquerque. W5MJD, Amarillo, Texas, picked the signal up not long after launching, and followed it until it sputtered and died after 5 hours and 45 minutes on the air.

This information was sent in shortly after the flight, so it is possible that many other operators also monitored the transmissions from the balloon rig. Special cards will be sent to any reporting operators. The project was carried out with the coöperation of Air Force MARS, and special bulletins on launching and progress thereafter were transmitted over W1AW.

The Novice Class license has made a big difference in the occupancy of the 2-meter band in the Chicago area. Jim Stubner, then W9QKM, left Glenview, Ill., just before the Novices put in their appearance, taking up residence in Pennsylvania, where he became W3RRA. He returned home again, just in time for the September V.H.F. Party, and was mightily pleased to find it possible to make 63 contacts over a contest week end, practically all of them on the 2-meter band. Several of the WNs did all right in the contest, too. Note that WN1UIQ worked 80 different stations, WN6QZE 61, WN1VNH 56, and WN9RXS 54. Working above 145 Mc., with crystal control only, and 75 watts or less, that's going!

Everybody likes to make more contacts, and work better DX, but many of the 2-meter gang still pass up the best means of doing both these things: yes, we mean making full use of the advantages of c.w. (not keyed tone, *c.w.!*). When you bear in mind that c.w. has been demonstrated to have a 17-db. advantage over 'phone it is strange that it doesn't get a bigger play in v.h.f. operation.

Use of 144-Mc. c.w. is catching on gradually, however, and with good reason. You can hear quite a few of the gang calling CQ on c.w. these days, even when they are not looking for anything particularly hot. A few even are doing a bit of rag-chewing that way. There's nothing like it for skeds over distances that are a bit uncertain, and some surprising hops are being covered regularly. That W7LEE-to-Los Angeles path, for example. And W3RUE, Pittsburgh, working over the Alleghenies to W2UK and others. W2s AZL UK NLY TP QNZ, and others in New Jersey find that the haul up the Hudson to Upstate New York is negotiable under the most adverse conditions. W2s OPQ YXE SFK PV, and others from Albany up to Glens Falls are regulars for the New Jersey boys on c.w. W3PYW, Silver Spring, Md., is worked frequently at W1HDQ during our morning skeds, though it's nearly 300 miles down the Atlantic Seaboard. W3LZD, Dunmore, Penna., is another staunch advocate of c.w. and high power.

There are many others, and their numbers are growing. More extensive use of c.w., higher transmitter power, bigger antennas, and high receiver selectivity and low noise figure can work wonders in extending the range of 2-meter operation. If you can't key your rig you're missing half the fun of 2-meter DX.

The big antenna department is coming along nicely, too. W1CCH, Springfield, Mass., is the champ here, with 60 elements — 12 5-element arrays in phase! W2UK recently got a new 40-element job going, picking up at least 6 db. over his previous 5-over-5. W2NLY and W2ORI are experimenting with tilting their arrays, a feature that may have considerable virtue in aurora work, particularly with large arrays having narrow vertical patterns.

But just a word of caution to the big-antenna boys: Remember that those pigeon puzzlers don't receive much except in the direction they're aimed. A sharp antenna pattern carries with it the necessity for frequent rotation.

All too often fellows who come on the air somewhat off the beaten paths may go long periods of time without contacts, simply because many of us get into the habit of looking only in certain directions. A group in this category is now trying to attract attention from the area around Poughkeepsie, N. Y. W2MHE writes that nearly 20 stations now can work on 2 in and around that city, as a result of their c.d. organization, but they have a rough time making contacts, despite the fact that Connecticut, New York and New Jersey stations are heard there regularly. The out-of-town signals are usually weak, however, because the beams are turned away from them. W2MHE says that around 9 P.M. is a good time to watch for the Poughkeepsie stations.

(*Continued on next page*)

2-METER STANDINGS

	Call	States	Areas	Miles
W1HDQ		18	6	850
W1IZY		16	6	750
W1RFU		15	7	1150
W1MNF		14	5	600
W1BCN		14	5	580
W1DJK		13	5	520
W1CTW		12	4	500
W1KLC		12	4	500
W2NLY		22	7	1050
W2UK		21	7	1075
W2QED		18	7	1020
W2AZL		18	7	1050
W2ORI		16	7	830
W2PAU		16	6	740
W2QNZ		14	5	400
W2SFK		13	6	—
W2DFV		13	5	350
W2CET		13	5	405
W2UTH		12	7	880
W2DPB		12	5	500
W2FHJ		12	5	—
W2BVU		12	4	260
W3RUE		19	7	760
W3NKM		19	7	660
W3QKI		17	7	820
W3KWL		16	7	720
W3LNA		16	7	720
W3FPH		16	7	—
W3GKP		15	6	650
W3OWW		13	6	600
W3KUX		12	5	575
W3PGV		12	5	—
W3LMC		11	4	400
W4AO		20	7	950
W4HHK		19	6	710
W4JFV		18	7	830
W4MKJ		16	7	665
W4OXC		13	7	500
W4JDN		13	6	—
W4IKZ		13	5	650
W4JFU		13	5	720
W4CLY		12	5	720
W4JHC		12	5	720
W4OLK		12	5	720
W4FJ		12	5	700
W4UMF		11	5	600
W4LRR		5	2	900
W5JTI		14	5	670
W5RCI		14	4	790
W5QNL		10	5	1400
W5CVW		10	2	1180
W5MWW		9	4	570
W5AJG		9	3	1260
W5ML		9	3	700
W5ERD		8	3	570
W5ABN		8	2	780
W5VX		7	4	—
W5VY		7	3	1200
W5FEK		7	2	580
W5ONS		7	2	950
W5SWV		7	2	—
W5FBT		6	2	500
W5IRP		6	2	410
W5FSC		5	2	500
W5DFU		5	2	275
W6PJA		3	3	1390
W6ZL		2	2	1400
W6WSQ		2	2	1390
W6NLZ		2	2	237
W6GCG		2	2	210
W6EXH		2	2	193
W6ZEM/6		1	1	415
W6GGM		1	1	300
W6YYG		1	1	300
W8WJC		21	7	775
W8BFQ		21	7	775
W8WRN		19	7	670
W8WXV		18	8	1200
W8UKS		18	7	720
W8DX		17	7	675
W8EP		17	7	—
W8WSE		16	7	830
W8RWW		16	7	500
W8BAX		15	6	655
W9FVJ		22	7	850
W9EQC		21	8	820
W9BPV		20	7	1000
W9UCH		20	7	750
W9LF		19	—	—
W9WOK		17	6	600
W9MBI		16	7	660
W9BOV		15	6	—
W9LEE		14	5	780
W9AFT		14	—	—
W9UIA		12	7	540
W9GTA		11	5	540
W9JBF		10	5	760
WØEMS		21	8	1175
WNØGUD		20	7	1065
WØIHD		16	6	725
WØNFM		14	7	660
WØZJB		12	7	1097
WØINI		12	5	830
WØWGZ		11	5	760
WØOAC		11	5	725
WØJHS		9	3	—
WØHXY		9	3	—
VE3AIB		17	7	850
VE3DIR		14	7	790
VE3BPB		12	6	715
VE3AQG		11	6	800
VE1QY		11	4	900
VE3DER		10	6	800
VE3BOW		8	5	520
VEBQN		7	3	540
VE3TN		7	4	480

Montana on 50 Mc. — A Correction

In August *QST*, page 54, we credited W7JRG, Billings, Montana, with having made the first 50-Mc. contacts east of Ohio when he worked several W1s and 2s in June, 1952. This brought responses from W7CJN and W6NUI, formerly W7KKB, who were active on 6 from Butte, Montana, for several years. W7CJN wrote that while he had not worked the East Coast he was sure that W7KKB had. W6NUI sent along QSLs to prove him right. W7KKB worked VE1QZ in an F_2 opening in November, 1947, and W4GJO, Orlando, Fla., via double-hop sporadic-*E* earlier the same year.

We offer our apologies to the operators concerned for the *misstatement in the August copy. We are also glad to pass* along W7CJN's assurances that, though his location just west of the Continental Divide is not favorable for working east, he will continue to be in there *trying on 50 Mc.* whenever conditions indicate an opening.

More Hints on the 50-Mc. Portable

Because of its unique usefulness in c.d. work, the 50-Mc. portable described in May, 1951, *QST* has been widely duplicated. The original design was the result of much thinking aimed at bringing the total battery drain down to an irreducible minimum. If one is willing to tote a little more weight there are several ways the performance can be improved, provided somewhat larger batteries are used to handle the extra drain.

Probably the first thing to add is an r.f. amplifier stage for the receiver. W1QVF built a 959 acorn r.f. amplifier into his portable and is well pleased with the results. The sensitivity of the receiver is somewhat improved, and the isolation from the antenna afforded by the r.f. stage makes tuning much less critical. Receiver radiation, while not completely eliminated, is substantially reduced.

Quite a few users have been surprised to find that half a watt or less can do a creditable job in mobile, as well as portable operation. W1AXA, who does quite a bit of traveling around New England, always has his little portable along. He has made a number of contacts at distances up to 75 miles or so from elevated locations, and he finds that a 10-mile working radius is not unusual in open-country driving, using a regular car-radio whip antenna. Mobile operation was rough on the batteries, however, so Red now operates his rig from a dynamotor while it is used in the car, saving the self-contained batteries for emergencies. A No. 6 dry cell is used for the filament supply. The dynamotor is a 28-volt surplus job from one of the SCR-274 rigs. Operated on 6 volts, it provides 135 volts for the little rig, with a battery drain of around four amperes.

V.H.F. Nets

To promote interest in year-round v.h.f. operation we publish the principal details of known active v.h.f. nets every few months. If you have a group of stations operating on 50 Mc. or higher, won't you send us the facts regarding the schedule, so that we can list it in this space?

Name or Area Served	*Frequency*	*Control*	*Date and Time*
Minute Men (E. Mass.)	51 Mc.	W1IN	Sun A.M.
N. E. 50-Mc. Net	50–54	W1CLS	Mon. 2000
Horsetraders (W1, 2)	50–51	W1HDQ	Tues. 1930
Arlington, Mass.	53.4	W1VPT	Tues. 2030, Sun. 1000
Swampscott, Mass.	53.44	W1AXA	Tues. 2000
Mass. CD, Region 9	50.5	Rotates	Wed. 1830
Providence, R. I.	144–148	Rotates	Thurs. 2000
Cape Cod	144–148	Rotates	Mon. ?
Brookhaven, N. Y.	50.4	W2IVX	Sun. 1000
N. Y., N. J.	50–54	Rotates	Nightly 2200
N. Y., Zone 9	144 ?	?	Fri. 2000
N. Y., Zone 10	145.26	W2TBD	Mon. 2200
Poughkeepsie, N. Y.	145.35	W2HZZ	Mon. 2000
Phila. High Freq. Club	147.3	?	Thurs. 2000
Intercity (Phila.)	147.3	?	Mon. 2000
York Road Radio Club	146.6	?	Wed. 1930
RTTY W1, 2, 3, 4, 6	147.96	None	Random
Oak Ridge Em. Net	50.7	W4NDE	Tu. & Fri. 1900
2 Meters & Down Club	144–148	W6IHK	Mon. 2000
Jackson, Mich.	145.6	W8BBY	Wed. 1930
Columbus, Ohio	146.34	?	Mon. 2000
Muncie, Ind.	145.86	W9GSY	Mon. 2000
144 Megacyclears (St. Louis)	145–148	WØKYF	Tues. 1930

September V.H.F. QSO Party

Scores to follow are listed by ARRL divisions and sections. Unless otherwise noted, the top scorer in each section will receive a certificate award. Columns are the total score, the number of contacts made, the section multiplier, and the bands used. A is for 50 Mc., B for 144 Mc., C for 220 Mc., D for 420 Mc., E for 1215 Mc.

ATLANTIC DIVISION

Eastern Pennsylvania

W3KX/3[1]...2889–107–27–AB
W3UKI.....1908–106–18–AB
W3SAO.....704– 88– 8–B
W3QMO.....92– 23– 4–B
W3NOK.....90– 15– 6–B
W3IHF/M....15– 5– 3–B

Md.-Del.-D.C.

W3PYW.....825– 75–11–B
W3LMC.....672– 84– 8–B
W3RKQ.....210– 19– 6–BD
W3RUA.....160– 32– 5–B
W3NH.....36– 12– 3–B
W3GKP.....10– 5– 2–B

Southern New Jersey

W2UK.....3410–155–22–AB
W2NYY/2[1].2760–115–24–AB
W2QED....2295–103–17–ABD
W2QW[1].....800–100– 8–B
W2HEK.....455– 45– 7–BD
W2EWN.....329– 47– 7–B
W2DMU.....120– 20– 6–AB

Western New York

W2RPO....1040– 84–10–ABD
W2ORI.....945– 81– 9–ABD
W2UPT/2...714– 51–14–AB
W2TSY.....693– 63–11–B
W2UTH.....594– 66– 9–AB
W2QNA.....366– 61– 6–AB
W2OWQ.....280– 70– 4–B
W2OWF.....222– 37– 6–B
W2FCG/2...204– 34– 6–B
W2CCR.....192– 48– 4–B
W2ALR.....126– 42– 3–B
W2ERX.....100– 20– 5–B
KN2ALZ.....54– 27– 2–B
KN2AJF.....52– 26– 2–B
W2TBD.....52– 26– 2–B
W2ZHB.....34– 17– 2–B
W2QY.....11– 11– 1–B

Western Pennsylvania

W3RUE.....410– 41–10–B
W3FPH.....320– 40– 8–B
W3QYR.....120– 24– 5–B
W3KWH[1].....92– 23– 4–B
W3CJF.....28– 14– 2–B
W3KUQ.....6– 3– 2–B

CENTRAL DIVISION

Illinois

W9PK.....330– 66– 5–AB
W3RRA/9...315– 63– 5–AB
W9QM.....162– 54– 3–B
W9KCW.....129– 43– 3–B
W9JGA.....123– 41– 3–B
WN9RXS....108– 54– 2–B
W9VNW.....108– 36– 3–B
W9CT.....102– 34– 3–B
W9MUN.....70– 35– 2–B
W9MBI.....66– 14– 3–BD
WN9USI.....52– 26– 2–B
WN9SEF.....32– 32– 1–B
W9ADO.....28– 14– 2–B
W9PEN.....24– 24– 1–B
W9CX.....21– 21– 1–B
WN9SSI.....15– 15– 1–B
W9FVU.....14– 14– 1–B

Wisconsin

W9UJM.....117– 39– 3–B
W9BTI.....96– 32– 3–AB
W9FAN.....45– 15– 3–B
W9TQ.....44– 22– 2–B
WN9UEK.....10– 10– 1–B

DELTA DIVISION

Tennessee

W4HHK.....144– 16– 6–BCD

GREAT LAKES DIVISION

Kentucky

W4PCT.....180– 36– 5–AB
WN4VLA.....48– 24– 2–B
W4SMU.....44– 11– 4–B

Michigan

W8RMH.....680– 60–10–ABC
W8DX.....592– 58– 8–BCD
W8NNF.....246– 42– 6–AB
W8GNN.....152– 38– 4–B
W8BGY.....140– 28– 5–B
W8GYU.....140– 28– 5–B
W8IEE.....124– 31– 4–B
WN8JXU.....87– 29– 3–B
W8ZND.....87– 29– 3–B

Ohio

W8BFQ.....2660–100–19–ABCDE
W8LPD.....342– 57– 6–AB
W8SRW.....252– 42– 6–B
W8BLN/8[1]...240– 40– 6–AB
W8WRN.....238– 26– 7–ABCD
W8SVI.....145– 29– 5–B
W8SDJ.....99– 33– 3–B
WN8INQ.....84– 28– 3–B
W8EDS.....80– 20– 4–B
W8BMO.....57– 19– 3–AB
W8FKC.....57– 15– 3–BD
WN8KJT.....44– 22– 2–B
W8MFV.....44– 22– 2–B
WN8JSW.....38– 19– 2–B
W8PBU.....14– 7– 2–B

HUDSON DIVISION

Eastern New York

W2MHE/2[1]..768– 64–12–AB
W2YXE.....301– 43– 7–B
W2PV.....245– 35– 7–B
W2OPW.....64– 16– 4–B

N.Y.C.-L.I.

W2LVQ.....2268–162–14–B
W2GMT....1230–123–10–B
W2DHB....1150–115–10–B
W2DLO....1036– 74–14–AB
W2GLU.....800–100– 8–B
W2CET.....700– 70–10–B
W2BNX/2...637– 91– 7–B
K2AQK.....255– 51– 5–B
WN2MFN...210– 42– 5–B
W2ZWB.....164– 41– 4–B
WN2OME...156– 39– 4–B
W2IN.....100– 25– 4–B
W2MWK.....54– 18– 3–B
W2LID/M...36– 18– 2–B
W2ONG.....28– 14– 2–B
W2LGK.....12– 6– 2–B

(*Continued on page 142*)

The Novice Round-Up

January 10th through 25th

It's Novice Round-up time again from January 10th through January 25th! Yes, this is the time to corral *Novices and Old-timers alike* to take part in *the* operating activity tailored to the newcomers to amateur radio.

How many of the League's 72 sections can you work? A certificate award will go to the high-scoring Novice in each section. All participating stations submitting reports will be listed in *QST*. Last year's top scorers were WN3SBE and WN6NLO. It would be more accurate to call them W3SBE and W6NLO this year. Congrats!

If you'll follow the rules carefully, you will find that number of contacts, code proficiency credit and the number of different sections worked will all help raise your scores.

Many Novices now hold Code Proficiency awards. This entitles them to extra scoring credit equal to their certified speed. If you do not now hold a Code Proficiency award, you can apply for the extra credit by attaching a copy of one of the qualifying runs sent from W6OWP on December 5th or January 3rd, or from W1AW on December 19th or January 19th, to your contest reporting forms, available free from ARRL Headquarters upon request. Look for the complete details of the Code Proficiency runs in the Operating News section of this issue of *QST*.

ROUND-UP PERIOD

Starts	*Ends*
Jan. 10th	Jan. 25th
6:00 P.M.	9:00 P.M.
Local Time	Local Time

Forty operating hours are available to help build your operating skill as well as fill out those Worked All States lists. Remember to check the frequencies immediately above and below the 3700–3750 kc. region for contacts with non-Novice stations. Last year's contest proved that stations (other than Novice) could use one to two hundred watts *for purposes of Novice contacts* in the 3.70–3.75 band without undue QRM. Higher-power stations are again requested to use frequencies above or below. No special precautions about contest work on 11 and 2.

Join the fun, and send for your contest forms as well as a map of the United States, suitable for posting. Circle this two-week period on your calendar and head for the Novice Round-up.

♦

Sample of reporting form that must be used by all contestants.

STATION WN1ABC — SUMMARY OF CONTACTS, NOVICE ROUND-UP

BAND	*Date, Time of Contact*	*My NR Sent*	*My Section*	*NR Rcvd*	*His Call*	*His Section*	*Number of Each Different New Section as Worked*
	Jan. 10						
80	1800	1	Conn.	5	WN8AAA	Ohio	1
	1810	2	"	3	WN4ABC	E. Fla.	2
	1815	3	"	6	W2CD	W. N.Y.	3
	1825	4	"	2	WN9DDD	Ill.	4
	1835	5	"	10	WN3RRR	E. Penn.	5
	1840	6	"	4	WN3TTT	E. Penn.	-
	1852	7	"	7	WN2OOO	W. N.Y.	-
2	1855	8	"	11	W1BDI	Conn.	6
	Jan. 13						
80	0800	9	"	14	W2RRR	E. N.Y.	7
	0810	10	"	21	WN1CCC	Maine	8
	0820	11	"	15	WN2RRR	N. N.J.	9
	0835	12	"	14	W1XXX	Maine	-

Total operating time: 1 hour 30 min.
Bands used: 80 and 2

Total Points 12
CP Credit 15
Diff. Sections 9

Claims score: 12 points plus 15 CP = 27 × 9 (sections) = 243

I have observed all competition rules as well as all regulations established for amateur radio in my country. My report is true and correct to the best of my knowledge.

Signature.....

Address.....

Rules

1) *Eligibility:* The contest is open to all radio amateurs in the ARRL sections listed on page 6 of this *QST*.

2) *Time:* All contacts must be made during the contest time indicated elsewhere in this announcement. Time may be divided as desired but must not exceed 40 hours total.

3) *QSOs:* Contacts must include certain information sent in the form as shown in the example. QSOs must take place on the 80-, 11-, or 2-meter bands. Crossband contacts are not permitted. C.w. to 'phone, c.w. to c.w., 'phone to 'phone, 'phone to c.w. contacts are permitted. Valid points can be scored by contacting stations not working in the contest, upon acceptance of your number and section and receipt of a number and section.

4) *Scoring:* Each exchange counts one point. Only one point may be earned by contacting any one station, regardless of the frequency band. The total number of ARRL sections (see page 6 of this *QST*) worked during the contest is the "section multiplier." A fixed scoring credit may be earned by entrants who hold an ARRL Code Proficiency certificate. If an entrant does not hold a CP award he can apply for credit by attaching to his Round-up report a copy of qualifying run from W6OWP, December 5th or January 3rd, or from W1AW, December 19th or January 19th. CP credit equals the w.p.m. speed indicated on the latest certificate or sticker held by the entrant. The final score equals the "total points" plus "Code Proficiency credit" multiplied by the "section multiplier."

5) *Reporting:* Contest work must be reported as shown in the sample form. Reporting forms and a map of the United States will be sent gratis upon request. Indicate starting and ending times for each period on the air. All Round-up reports become the property of ARRL and must be postmarked not later than February 16th, 1953.

6) *Awards:* A certificate award will be given to the highest-scoring Novice in each ARRL section.

7) *Disqualifications:* Failure to comply with the contest rules or FCC regulations shall constitute grounds for disqualification. ARRL Contest Committee decisions are final.

DX Century Club

The following list contains the call letters and countries totals of all holders of the Postwar DX Century Club award as of October 15, 1952. The calls of new members as well as those receiving endorsement credit during the period September 15 through October 15, 1952, are included in this listing.

249
W1FH

245
W8HGW

244
W6VFR

243
W3BES

242
WØYXO

241
W6ENV
G2PL

238
W6AM

237
W3GHD

235
W3CPV
W3JTC

234
W2BXA
W4BPD
W6MEK

233
W3KT
W6SN
W8NBK
G6ZO

232
W3EVW
PAØUN

231
W2AGW
W2QKS
G6RH

229
W6GRL

228
W6MX
W6SYG
W7AMX

227
W1ME
W6TT
W8BRA
LU6DJX

226
PY2CK

225
W5ASG
W9RBI

224
W6EBG
ZL2GX

223
W1TW

222
W9KOK

221
W3GAU
W8JIN

220
W1ENE
W6ADP
W6DZZ
W6TS
CE3AG
F8BS
PY1AJ
PY1GJ
ZL1HY

219
W3EPV

218
W3DPA

217
W2DS
W2NSZ
W5FNA

216
W3JNN
W5MIS
W9ANT

214
W2WZ
PY1DH

212
W1CLX
W8BTI

211
W3OCU
W6CUQ
WØPNQ
G4CP
VK2DI
ZS2X

210
W2AGO
W2QHH
W5ENE
W5JC
W6ZCY
VE4RO
VK2ACX

209
W5KC
W6AMA
WØNUC

208
W4AJT
W9FID
WØDAE

207
W2AQW
VE7HC

206
W4NNN

205
W6TI
SM5LL

204
W1BIH
W2HHF
W3IYE
W4MR
KV4AA
SM5KP

203
W3GRF
HB9J
KH6IJ

202
W6NNV
CX1FY
ZS6BW

201
W1JYH
W3BXE
W3OP
W6PQT
KH6BA
PY1AHL

200
W1ADM
W1GKK
W1HX
W2YW
W3DKT
W5EGK
W5KUC
W6GAL
W6MJB
W6MVQ
W6PB
W6VE
W8DMD
CE3DZ
G6QB
HB9X

ON4QF
VE3QD

199
W2IYO
W6SAI
FA8IH
G8IG

197
W1CH
W4BRB
WØUOX

194
W2CYS
W7PGS
VK2NS

193
W3LTU
G8KP
LA7Y

192
W4PN
W6BPD
W9FKC

191
W2HMJ
W6EPZ
W6TZD
W8BKP
G2MI
I1KN
VE7ZM
ZL1BY

190
W1AXA
W2HZY
W2IOP
W3JKO
W4OM
W5BGP
W6CEL
W6ANN
W6DI
W6GFE
W6OMC
W6RBQ
W6UCX
W7GUV
W8DX
W8WZ
W9LNM
G3DO
HB9EU
LU7CD
VO6EP

189
W5ADZ
4X4RE

188
W2TXB
W2CWE
W9IOD

186
W8HFE

185
W2ALO
W6EHV

184
W1ZL
W7GUI
W9MXX

183
W2CTO
W2EMW
W4TM
KH6CD

182
W5JUF
W6QJU
W6SRU

181
W2UFT
W8UDR
WØAIW
G6YQ

180
W1LOP
W2DKF
W3KDP
W6EYR
W6RM
W9RBQ
WØEYR
G2EC
G5RV
KP4KD
ON4JW
PY4IE
VE7VO

179
W2GWE
W2CSO
KZ5CP
SM5WI

178
W2COK
W4CYU
VK3BZ

177
W1JLT
W2BJ

176
W2GUM
W3QJV
W6CYI
W9AEH

175
W2JVU
W4CYY
KH6QH

174
W2RWE]
W8CVU
W8RDZ
W9AND
W9TJ
F8PQ

173
W3KQF
W4NNH
W8ACE
OK1FF

172
W2CNT
W2DSB
W3DRD
VE3IJ
KP4CC
PAØGN
VK4FJ

171
W1AB
W1FTX
W2LJR
W2PWP
W3JTK
W4DKA
W4LZF
W5FFW
W6NTR
W8DAW
W8KPL
W9HUZ
HB9CX
PY1HX

170
W1HA
W1MB
W2IMU
W2IWM
W2PRN
W3ALX
W3LPF
W6IBD
W6KUT
W6LDD
W8EWS
W8SDR
W9TQL
G3YF
KH6VP
PY2OE
PY7WS
VE3AAZ

169
W1IAS
W2PUD
I1AY

168
W4JDR
W8UAS
WØTKX
MI3AB

167
W2RGV

166
W1BLF
W4HA
W5NMA
W7HIA

165
W3LBG
ZS6A

164
W9VND
KH6LG

163
W1WK
W3HRD
W8AJW

162
W2LSX
W3NOH
G2AJ

161
W1DQH
W2RDK
W4VE
W5MPG
W6BZE
W6GHU
W6WKU
W8EYE
W8FJN
GM3AVA
HB9DO
I1OJ
OK1LM
ON4NC
OQ5LL
ZL3GU

160
W1TX
W2GFW
W2GVZ
W2REF
W2TQC]
W3JYS
W5CEW
W5KUJ
W5LGS
W6BVM
W6CIS
W6CTL
W6EAY
W6JK
W6KYG
W7DET
W7ENW
W7KTN
W9ABA
CP5EK
G2FSR
G3BKF
GM3CSM
HA1V
I1IR
ZL4GA

159
W1DX
W4JFE
W5LXY
W6PZ
G3FNN
GW3ZV
I1XK
OK1HI
OK1VW

158
W3ALB

157
WØTJ
KL7PI

156
W2SAI
W3WU
W6KEV
WØLLN
ZS2AG

155
FA8DA
G6GN

154
W1CUX
W2QCP
W5EB
W8GLK
PY2NX

153
W1DEP
W1QF
W2LV
W5CKY
W7DL
G4ZU
G5VT
OH2NB
VE3ZW

152
W1MUN
W2MYY
W2WC
W6JZP
W7AH
W8JBI
W8WWU
DL1AU
EA2CA
KG4AF
ON4GU
PAØLB
SM7MS

151
W2OST
W3FLH
W4AZK
W5CGC
W6MHB
W7AC
W8HUD
W8MPW
W8UPN
W9YNB
G6LX
GW3FSP
ON4TA
VK3JE
VK6SA
ZL3BJ

150
W1KFV
W2ADP
W3ADZ
W3CGS
W3MLW
W5NW
W6ATO
W6BJU
W6DE
W6EAK
W7GBW
W9CIA
W9GRV
W9IU
G2IO
G2VD
G3COJ
G6RC
HK3CK
IS1AHK
KH6MI
KZ5WZ
LA6U
ON4AZ
ON4FQ
OZ7EU
VK4EL

149
W2UEI
W4FVR
W8DEN
PAØIF
ZL2QM

148
W1BFT
W6NIG
W7FZA
W8BWC
HB9CE
ZL4AW

147
EI5F

146
W1HRI
W3FYS
W3RCQ
W6LV
CN8MI
G6RB

145
W1ATE
W3FGB
W4JXM
W6RW
W6WO
W9BQE
G3BI
G3DCU

144
W6GPB

143
W2PJM
W5ACL
W5BZT
W7BE
W9PSR
LU3DH
NY4CM
4X4BX

142
W1NW
W4GMA
W4HVQ
W5LVD
CX1BZ
EI4Q
G4JZ
G8GB
I1AMU
KZ5IP
SM6HU
VK5RX
VP5FR

141
W1IKE
W2GNQ
W4ZD
W6NGA
WØCU
G2AJF
I1UA
TA3GVU

140
W1AH
W2BRV
W2GTL
W2OMS
W2ZA
W3IXN
W3LVF
W3LVJ
W4IWO
W5FXN
W5IGJ
W5LGG
W6DUB
W6LVN
W6WWQ
W8FJL
W9RQM
WØERI
WØGKS
WØOUH
G2AKQ
G3AKU
G3DOG
G5YV
G6GH
G8KU
HP1BR
JA2KG
KH6PM
PAØRC
VE2BV
ZL3CC
ZS2CR

139
W2GUR
W3FUF
W4DHZ
W6PBI
W8ZZU
DL1QT
G3AWP
G5FA
OK1CX
OZ7CC

138
W6FSJ
SM5CO
VE1HG
ZL3AB
ZL3LR

137
W1RY
W6LMZ
W9LI
ON4PA
ZS2AT

136
W4IUO
W8IB
W8TJM
WØNTA
G3AH
SM5WJ

135
W1BAV
W2UWD
G5OO
G6XA
SM5PA

134
W3LNE
W4CYC
W5CPI
G2BXP
G5VQ
PAØGT
ZE2JN
ZS5YF

133
W1CJK
W1KWD
W1PKL
W2AW
W2MEL
W5LV
W7HXG
W9CYU
W9FJB
G3AIM
G5SR
ON4GC

132
W1BGW
W1JNV
W2ICO
W2PBG
W3KZO
W3LMM
W4AIS
W6CEM
W6KEK
W9UZS
WØAIH
G3CBN
G6UT
HA4SA
VK5KO

131
W1BOD
W2BYP
W2DSU
W2QKJ
W4CKB
W6MHH
W6RLQ
W6VOE
W7GPP
W8CKX
W9AHP
W9NZZ
G6BS
I1IZ
KH6PY
SM5VW
VP7NM

130
W2CZO
W2ARK
W2LTP
W2TJF
W3HOX
W3MZE
W4IYT
W5MET
W6ETJ
W6LER
W6NZ
W6OBD
W6WJX
W7AYJ
W8LAV
W9UIG
WØQVZ
EA9AI
G2BQC
G5LH
G8FW
GM3DHD
I1LT
IS1FIC
OH2PK
OH4NF
OZ3Y
SM5DZ
VE5QZ
VQ2DH
VQ8AD
ZS6CZ
ZS6EU
ZS6FN
ZS6OV

129
W1JMT
W1ODU
W1OJM
W4BGO
W8OCA
W8ZMC
OK1SV
VQ4SGC
ZL1MR
ZS3K

128
W2OCI
W4TP
G6BB
G8VB
PAØJQ
SM3ARE
VK4RF

127
W3AFU
W4FIJ
W6ID
W6YX
G5PP

126
W1BDS
W1RWS
W2AZS
W5GZ
W7AHX
W9EXY
WØMKF
G3BNC
G6VQ
LA5S
VP6CDI
ZC1CL
ZS6LW

125
W2BLS
W2LPE
W3EYF
W3RNQ
W5AWT
W6MUF
W8CED
W8MFB
W9CYT
W9FDX
G3LP
GM2DBX
I1BEY
OH2QQ
OK1WX
PY1HQ
ZL3GQ
ZS5CU
9S4AX

124
W3KQU
W6BAM
W6CEO
W6KYT
W8AE
CE7AA
F8SK
G5VU
OK1SK
VE7VC

123
W1EOB
W1LQ
W1NLM
W4AAU
W4ITR
W6UZX
W6VDG
W9UX
DL3JV
PAØMZ
SM6AKC
ZS6GI

122
W2FBA
W6EAE
W6IFW
W6QDE
W9FKH
W9GDI
W9NDA
DL4TL
EA5BE
F9AH
GM3CIX
I1ZZ
VE1PA
VE5JV

121
W1QV
W2AFU
W2QCF
W3DGM
W3GHS
W4AAW
W4LYV
W4ML
W6KYV
W6MEL
W6TXL
W6ZBY
W7KWC
W8EKK
W9BRD
WØAZT
WØDU
F3RA
G3BXN
I1IT
KG6AI
LA5Q
PAØCP
PAØLR
SM5KX
VE3ADV

120
W1BLO
W1MRP
W1ZW
W2ABS
W2ATE
W2BUY
W2RQH
W2WPJ
W3AOO
W3EVT/1
W3MDE
W3MNO
W4DCW
W4EPA
W4IZR
W4LQN
W6BIL
W6YZU
W7RT
W8DFQ
W8NJC
W9UXO
WØGUV
F9QU
G2HNO
G3BQ
G3TK
G6XX
G8ON
G8PL

HB9FE
HB9B
KL7IT
OH2RY
OK1AW
OK1RW
PAØCB
PY1ADA
VE3AGC
VE3SR
VK3NC
YV5BZ
ZL1MB

119

W4OG
W8ZJM
DL7AB
G8DR
HB9MQ
HB9P
KG6DI
SM6ID
SV1RX
VE7KC

118

W6LDJ
W6PH
EA4BH
KV4AQ
VE4XO

117

W2CGJ
W2PQJ
W4GOG
W6LS
W6SR
W9NRB
WØDGH
PY4RJ
VE7ZZ
VO3X
ZS2EC

116

W1LQO
W1LZE
W1VG
W2AGU
W2AUH
W2ITD
W3TIF
K6CU
W6RDR
W7BD
G8IIG
ZS1FD
ZS6BJ

115

W2NFR
W9LNH
DL1BQ
LU6AX

114

W2ABM
W4NKQ
W9ELA
W9LVR
DL7BK
G3AJP
VE1EK
VK4RC
ZS6HO

113

W1FTJ
W2PZM
W2TUD
W4EV
F8TM

G8OJ
ON4SS
OX3MG
TF3EA
VE3ACS
VQ3HJP
ZS5BS
ZS6J

112

W1APA
W3BEN
W6AUT
W6BUO
W6JJB
DL1CS
F9KQ
G2CDI
G2CNW
G4FN
G6QX
GI6TK
LA2B
PAØVB
VK5FM
4X4CR

111

W1AWX
W1CDX
W1QXQ
W2MA
W2UAT
W2YTH
W3AYS
W3CTJ
W3DYU
W3KEW
W3ZN
W4LIM
W7BDW
W7JYZ
W8PNT
W8TTS
W9DUR
W9ERV
W9HUV
WØSBE
EK1AO
F3SM
F9DN
G2FFO
G2IM
G3CEG
G4AR
G4AU
HB9AO
HP1LA
I1PG
PAØDA
SM2OS
SM7QY
VE3BBR
ZL1QW

110

W1BIL
W2EQS
W3VZD
W4DPE
W4KWC
W4LVV
W4QT
W5BNO
W5KTD
W5KWY
W5LHP
W5RX
W6AAO
W6AOD
W6AX
W6MUB
W6UQQ
W6UYX
W6ZUI
W7BTH

W7NKW
W7PEY
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W8FGX
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W9HLR
W9HQF
W9JUV
W9MXP
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WØOST
WØGBJ
WØRIA
WØSRX
DL1VU
DL6HJ
G2AJB
G2HKU
G3CCO
G3CDG
G3CMB/A
G4QK
G5CW
G5PQ
G8IL
HB9FI
HB9GJ
I1ADW
I1VS
ON4JD
ZS1M

109

W2AYJ
WØMCF/C1
CO6AJ
EA3FL
F9ER
FA8CK
FA9VE
G2DC
G2DHR
G3AMM
G8GP
G8IH
HB9BN
HB9EI
HB9KU
LU8EN
ON4FL
PAØPN
VS7NX
ZL2CU
ZS1BK
ZS6DW
ZS6KK

108

W1EZ
W2AOX
W3HER
W5OLG
W6LGD
W6LN
W6PUZ
W6YMD
W8MKY
W9TLT
WØMJM
DL1LD
F3MS
F9FY
G2BOZ
G5GK
G6KSI
GI4RY
KZ5KS
OH1NK
OK2DD
PAØOK
VE6GD
VE8AW
ZL4BO
4X4CJ

107

W1KLY

W1MIJ
W1PDF
W1ZD
W4AUL
W6CUL
W6DBP
W6PWR
W8BNA
W8SYC
W9CKP
DL1FK
F3FA
G8IP
G8OZ
JA3AA
ON4PZ
SM7YO
VE1EP
VQ2GW
VS6AE
ZL3OA
ZS2IW

106

W1KQY
K2BU
W2DPS
W2GTP
W2JB
W3HTO
W4CS
W4DXI
W4FPK
W5NUT
DL1SC
EA3CY
F8BQ
F9FS
F9RS
G2CBA
G2HFO
G2ZF
G3DDK
G3ETU
G3QP
G5JU
G8TD
HB9BJ
I1AEG
I1RY
KH6DQ
OH3NY
OK1CG
OK3SP
OZ3RO
SM3AKM
SM5UHJ
SM6DNJ
VE2WW
VE3AHV
VE3PK
VK5BO
VQ1B
VQ2HW
ZB1AJX
ZE1JI
ZS1FR
ZS5FS
ZS6RI

105

W1APU
W1TS
W2BXY
W2KJZ
W2QXB
W4COC
W4DYM
W6BUD
W6CPL
W6DFY
W6DOT
W6KPC
WTAJS
W7HJC
W7PGX
W9ABB

W9DUY
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DL7AA
EI3R
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G6CB
G6IC
G8QW
GM6MS
GW3JI
HZ1KE
MI3ZJ
OH6NZ
OK2QS
OK2XF
ON4MS
PAØALO
PY1MK
SM5AQV
SM5FL
VE3KF
VE6AO
VK2AD
VK2PV
VK3YL
VK6DX
ZL1RD
ZS6JZ
ZS6QF
ZS6SB

104

W1AFB
W1DF
W2MLO
W2RWN
W2TSL
W3IDT
W4AWS
W4IPR
W6DYP
W6KRI
W6LRU
W6MUC
W6RRG
W7KEM
W7KVU
W8JRG
W9GA
W9KA
W9RYK
W9TFU
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WØGYL
WØSQO
CR7BC
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DL1YA
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G3AZ
G3CQF
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KG6CU
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OK1OP
OK1PN
OQ5RA
PY2DV
SM5AQW
TF3SF
ZL3HC
ZS5U

103

W1BTE
W1IAP
W2JJC
W2PIN

W2PXR
W2UPH
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W3LTW
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W6LMV
W6MLY
W6WB
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W7GEB
W8CLM
W9YFV
WØCFB
WØRBA
CM2SW
CN8MZ
CT1SQ
DL1GU
DL4FS
DL7AH
F8DB
FA8RJ
G2FYT
G3DAH
G8RC
G8VG
GC4LI
GM3AWW
GM3CFS
GM3DZB
GM6MD
HB9HC
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I1ARA
I1NU
I1UP
KP4HU
LA3Y
MD1D
MD5KW
OH2TM
OH5NK
OH6OA
OK2SO
ON4JU
PAØXE
SM5AOI
SM5FA
SM5HH
SM6AWE
VQ4HK
YV5AE
ZB1AH
ZL3IA

102

W1CEG
W1SU
W2CC
W2HY
W2JA
W3AFW
W3AZG
W3HUV
W3LXE
W3MFW
W3TVB
W4INL
W4KKX
W5BDI
W5DGV
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W6UHA
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W9VW
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WØFET
WØZDM
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CN8EJ
CX6AD
DL1AT
DL3BK
DL3HZ
DL3LM
DL7AP
EA1BC
EI6G
EI9J
FA9RW
G2YS
G3ABG
G3ATU
G3CFK
G3CVG
G3EYN
G3HK
G4JB
G5CI
G6XS
G8WF
GM2FHH
GM3EST
GM3RL
GM8CH
GW3AHN
I1ALU
KG6GD
KG6LC
KS4AI
KZ5AU
OE1AD
OE1ZZ
OK2EL
OK2MA
OK3AL
OK3DG
OZ2LX
PAØRU
PAØSU
PY7LJ
SM3FY
SM5TQ
TA3FAS
VE1DB
VE2WA
VE3RM
VE6FK
VK2YC
YU1CAG
ZL2BH
ZL3CP
ZS2FH
ZS2U
ZS6VR
4X4CZ

101

W1EFQ
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W1ODY
W1PKW
W2CDP
W2EQG
W2IYG
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W2LWI
W2QKE
W2ROM
W2TNA
W2UVE
W3KAT
W3OPM
W3TXQ
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W4GD
W4GHP
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W4JV

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W5IIP
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W5WI
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W8HRV
W8PM
W8TAJ
W8WSL
W8YHQ
W8YIN
W9FNR
W9TWC
WØCWW
WØDIB
WØVDC
CE3AX
CT3AA
DL1CR
DL1DA
DL1KV
DL1YQ
DL3RK
F8CW
F8IW
F8PA
FE8AB
G2DM
G2DVD
G3BQR
G3CHW
G3CSE
G3VA
G4GI
G4GJ
G4LP
G5RM
G5UF
G6XY
G8CD
G8NV
G8TS
GW4CX
HB9BX
I1ADX
I1AFQ
I1BCB
I1CJW
I1FO
KH6EL
KH6LF
OE3CC
OE5CA
OZ1W
OZ7SN
PAØFD
PAØMOT
PK6HA
PY1ARZ
SM3EP
VE1BV
VE1EX
VE1OK
VE3HB
VE6MN
VE6MZ
VK5MF
VP9OO
VQ8CB

VS7NG
ZL2GH
ZS6CT
ZS6OS
ZS7C

100

W1BBN
W1BUX
W1COM
W1EQ
W1EYP
W1IOZ
W1JOJ
W1NS
W1PEG
W1PPZ
W1RAN
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W2CBS
W2CWK
W2EGG
W2GSN
W2HZN
W2JJI
W2LRW
W2QJM
W2RA
W2SGK
W2TJK
W3AFM
W3AS
W3ETD
W3FJU
W3GRS
W3HA
W3JLJ
W3KHU
W3KJJ
W3ORU
W3QLW
W3RBF
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W4GXB
W4JUJ
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W4KIT
W4POF
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W6VZG
W6ZTW
W6ZZ
W7JUO
W7KEV
W7ONG
W7PZ
W8AL
W8HRC
W8HSW
W8ICC
W8IQS
W8JM
W8LCN
W8LYP
W8NKU
W8OPG
W8PXP
W8RVU
W8ZIY
W9ALI
W9JNB
W9KXK
W9MZP

W9NN
W9QLW
W9TMU
W9UAZ
W9VIN
WØBFY
WØBMQ
WØFFV
WØIDI
CE4AD
CO2BM
CR9AG
CT3AV
DL1DC
DL3FM
DL3OO
DL3QQ
F8PI
FG7XA
GZAO
G2BJY
G2GM
G3AAE
G3AAG
G3ACC
G3BNE
G3CSL
G3CUG
G3CWW
G3FXB
G3RB
G5CR
G5WC
G8JO
G8JR
G8UK
GI3BKG
GI4NU
GM3EDU
GM8AT
GW8UH
HB9DH
HC2KJ
HC7KD
I1IV
I1PL
KH6SO
KL7PJ
KL7UM
OA4AK
OE1CD
OE1FF
OE1KF
OE5LV
OK1GT
OK1MB
OK1WF
OZ4KX
OZ4PA
OZ7KV
PAØBK
PAØZL
PK4KS
SM3ACP
SM5IZ
SM6DA
SM7ACO
SM7IA
SP1JF
VE1EA
VE1NE
VE1PQ
VE2ADQ
VE2BK
VE3ADM
VE3ARS
VE3OR
VE3QB
VE3TB
VE7AAD
VE7CN
VE7SB
VQ4HJP
VQ4KRL
YS1O
YU3AC
ZS6IH
ZS6OW

RADIOTELEPHONE

222
W1FH

218
PY2CK

216
VQ4ERR

213
XE1AC

203
W1NWO

202
W8HGW
LU6AJ

200
W9RBI

198
W1JCX

195
ZS6BW

194
W2APU
SM5KP

192
W2BXA

191
W1MCW
W6LTU

188
W3BES

187
W5BGP

186
G2PL

185
W6AM

184
W2AFQ

181
W6DI

180
ZL1HY

175
PK4DA

173
HC2JR

172
W4EWY
CX2CO
ZS6Q

170
W1MB
W3DHM
W8BF
W9HB
W9ROQ

167
G6RH
I1SM

166
G8IG

165
W3GHD

163
W1LMB

161
W3JNN
W4HA
W7HIA
GZZB

160
W1ENE
W4AZD
G3DO
ZL2GX

159
LU8CW

158
W4CYU

156
G6AY

155
W8REU

154
W1ADW
W8AJW
W8GZ

152
W5NMA

151
W2QF

W3KT
W5ASG
W5JUF
W7MBX
CM9AA
EA2CA
EA2CQ

150
W4ESP
W5EFC
W6KQY
W6MBD
W9RNX
CT1CL
F9HE
G5RV
GM3AVA
HB9J
I1YJ

149
G4ZU

147
W1HKK
W3EVW
LU4MG

146
W2AEB

145
W1ATE
CE3AB

143
G3FNN
TI2RC

142
W1BEQ
G5VT
TI2TG

141
W8KMY
CT1PK

140
W1EKU
W2AKX
W4MKB
W8HUD
WØPRZ
I1AMU
I1UA
LU4DD
ON4PJ

OZ7TS
VP6SD
YV5AB

139
W6TT

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W2RGV

135
W2ZKG
G2MI
HC2OT
TI2HP
VE3KF

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W6BET
I1RM

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I.A.R.U. News

QSL BUREAUS OF THE WORLD

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Uruguay: R.C.U., Casilla 37, Montevideo
U.S.S.R.: Central Radio Club, Postbox N-88, Moscow
Venezuela: R.C.V., P.O. Box 2285, Caracas
Virgin Islands: Richard Spenceley, Box 403, St. Thomas
Yugoslavia: SAJ, Postbox 48, Belgrade

How's DX?

CONDUCTED BY ROD NEWKIRK,* W1VMW

How:

The calendar year of DXing now drawing near to close is one during which h.f. propagation conditions have been lamentable, to say the most. Yet, for those DXers who habitually see only the seamier side of things — QSL problems, DX hogs, TVI and what have you — "In *QST* 25 Years Ago This Month" for this issue deserves some reference here.

From a situation in the late Twenties where 48 of 52 concerned nations either favored the withholding of all but token (and we mean *token*) h.f. allocations from transmitting amateurs or preferred their complete exclusion, we have progressed to a status where but few nations are not represented on the amateur bands today.

It took a long time for some countries to come around; it will take longer for a few others. For one, the Lebanese Republic has ham radio back in good standing and it is again permissable for Ws to contact OD5s. Japanese authorities are once more licensing amateurs and we may work them, too.

The fact that nearly two thousand amateur stations have earned membership in ARRL's DX Century Club is not, therefor, solely a triumph in technical and operational achievement. Moreover, it is a testimonial monument to some hard-won long-ranged skirmishes in the realm of ticklish international-communications diplomacy.

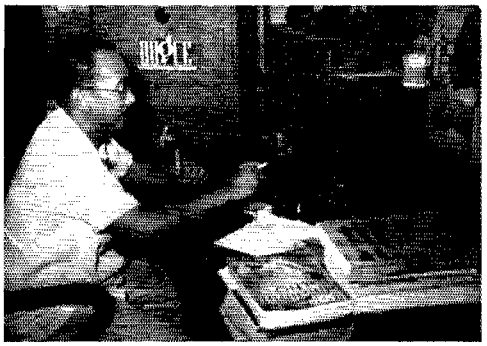
Savor that DX!

What:

Fifteen deserves more than passing comment this month. If you slaved away on other bands trying to raise **ZD7A** you might easily have knocked him off with your buffer on 21 Mc. W2WZ found him on 21,008 kc. Al has picked off over 43 countries among over 500 15-meter QSOs. Some good ones worked: CE7AA, CN8MI, CT3AB, FF8AG, OQ5s CP GU, KT1UX, ZC4XP, ZEs 2JV 3JO, ZS3K and 9S4AX. W2WZ can push it up to 800 watts and so far hasn't felt the need for a beam — they usually come back! "Vertical angles are tricky on 21 — can choose between about 10 antennas for receiver. Looks like a good band but definitely different than either 10 or 20." . . . . KP4KD sums up the autumn 21-Mc. situation down his way: "Band openings as early as 1030 GCT for Europe and Africa, with W/VE around 1430. Some days no openings until as late as 1430 to 1600. Europe, Africa, Asia, So. America and No. America usually all in between 1700 and 2100 with Oceania (ZLs, but no VKs yet) in around 2200 or 2300." Choice jobs in Ev's log are **CN2AP** (025), **FA8IH** (045), **GC3EML** (030), **I1BCB**/Trieste (030), **ZC4RX** (030) and **VQ4HJP** (030). Other prefixes accounted for: DL2 EA5 F9 G GI GM GW HB9 I1 LU1 ON4 OZ PAØ ZL1 and ZS1 . . . . ZL2AFA puts a hefty signal into Oahu with a mere two watts, says KH6ANZ. Dick, who is ex-WØENT, reports several good openings to the States as well as excellent signals belonging to the KZ5 and LU boys . . . . The OVSV (Austria) *OEM* bulletin lists OQ5BQ, SU1XZ, VQ4AQ, VU2RX, ZE3JE and ZS3J 15-meter entries . . . . W3MFW was another who picked off ZD7A. Russ is up to 37 countries on 21; CR7AF and 3V8AN are still being stalked . . . . 4X4RE's 21-Mc. QSO with KP4KD made it *five* bands on which the two stations have QSOd and we learn that fifty-three countries have QSOd W4COK on fifteen — the stuff is there if you want it!

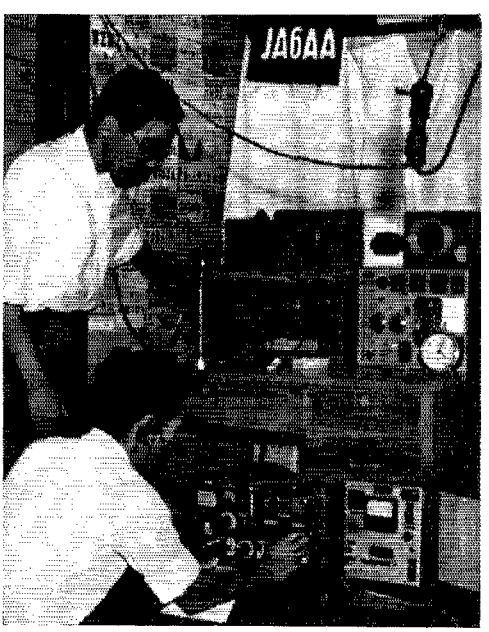
Twenty has been good to DL4JN. Bill, who signs W4LAP on this side of the pond, worked **CRs 5JB** (14,050), **7CI** (020), **9AF** (070), **EAs 6AM** (030), **8BF** (100), **9AP** (030), **9BD** (050), **ØAB** (008), **EK1CW** (020), **EL2A** (060), **FB8ZZ** (050), **FF8s AG** (040), **AJ** (100), **FK8AC** (045), **FQ8s AE** (041), **AP** (078), **FR7ZA** (020), **HZ1MY** (055), **I5OC** (100), **IS1FIC** (029), **IT1SEM** (065), **JY1BB** (090), **MB9BJ** (040), **MI3LK** (010), **MP4BBD** (008), **MT2KH** (395), **OQ5RA** (010), **SP9KKA** (061), **SU1GB** (090), **TA1SS** (032), **VP8AT** (095), **VQ4RF** (030), **VSs 6CG** (040), **7GQ** (035), **9AM** (040), **VU2EJ** (060), **ZBs 1BI** (017), **2A** (050), **ZE3JL** (030), **ZK1BC** (038), **ZS3U** (105), **3V8AN** (025), **4W1MY** (120) and **9B3AA** (040) . . . . St. Helena's ZD7A raised a furor on 14 Mc., as was to be expected, and one of the early birds to grab him was ubiquitous W5ASG. Bill reports conditions generally poor but few rare ones seem to elude him . . . . W3MFW found ZD7A playing it cagey, hopping to and fro with two crystals as the going got rough and rougher. Russ nailed him as well as **CR6CZ** (050), **HZ1AB** (040), FG7XA and VP5BF on Turks . . . . **CRs 4AE** (108), **5AD** (012 t8), **EA8BC** (030), **GD3UB** (015), **FQ8AG** (090 t8), **OE13HL** (020), **YU1BX** (050 t8) and **ZD2DCP** (045) replied to W4AUL. John's borrowed VFO had to be returned but not until he had stashed away DXCC . . . . W1ONV emerged with **FM7WD** (020), **FY7s YB** (022), **YC** (027), **OE13HP** (018) and an MB9. He'd like a QTH for **FY7YX** (035). Art needs but eight more for the century mark . . . . **HZ1MY/VQ6** (046) and **VQ4DO** (096) boost K2BU to 141. Pulling in the QSLs is Ken's big problem . . . . W8DLZ scored with **EA8BE** (120), **OE13USA** (025), **VE8MW** (070), **5A3TC** (055) and some FP8s . . . . **KM6AX** (080), OX3MW and **VP5BH** (120) of the Caymans spiced things up for W9NSL . . . . The 2-element fixed squirter at W2AYU accounted for CT2BO, DU3JS, KM6AH/KB6, LB7BD, **LU4ZI** (070), VS6AE, **YU4BN** (080), a ZB2 and an FQ8. Walter must have a corner on the Japanese market; KAs 2KW 2RH 3AC 9AA and JA2KE were also QSOd . . . . W3RNQ did right well with FM7WF, FO8AC, HR1RL, KH6CB/KJ6, MF2AG, SP5AB, **ZP6CR** (018), ZC4RX and 5A2TS. He could use a hint on how to coax QSLs from YO3RI ('50), MD1E ('48) and MD2JB . . . . FG7XA was number 200 for

* DX Editor, *QST*.



This view of DU1CE, Manila, was snapped by visitor W2HOB. DU1CE's 250 watts and dipole produce a well-known A1 and A3 14-Mc. signal.

W5MPG. Rex has **F9QV/FC** (090), **HB1IL/HE9** (010), **LB6XD** (020), **ST2GL** (021), **LZ1KAB** (038) and **VQ3BM** (055) salted away. Pasteboards are already on hand from FB8s BB ZZ, EA9DC, HE9LAA, LZ1KAB and VP5BF but W5MPG still pursues **JY1AJ** (060), ET3R, I5PR and VQ8CB . . . . . Belleville's W9HUZ is back under full steam. Van knocked off **CR7LU** (056 and a YL), **CT3AA** (038), **DU6CO** (042), **FB8BB** (066), **FK8s AB** (042), **AI** (045), **HH3L** (040), **KR6IT** (040), **KW6AZ** (102), **PJ2s AD** (011), **CB** (068), **TA3AA** (015), **TG9AC** (106), **VPs 2KM** (018), **2MD** (054), **8AE** (054), **8AN** (033), **VQs 2JN** (045), **2KR** (036), **4CW** (024), **VR2BZ** (034), **ZC4GT** (020), **ZD4AE** (054), **ZPs 5CL** (050), **9AW** (008), **ZS3HX** (066) and **4X4DK** (054) in addition to others already mentioned . . . . . West Gulf DX Club's *DX Bulletin* latched onto these candidates: **CRs 6AI** (058), **6BZ** (045), **7CH** (150), **7CR** (048), **DU1s AP** (030), **GT** (040), **EAs 8BK** (057), **ØAC** (110), **ET2KZ** (090), **FB8s BA** (104), **BI** (050), **FF8s AN** (100), **AQ** (090), **GP** (055), **HB1KX** (056), **HE9LAA** (030), **IT1AGA** (025), **IS1CYN** (066), **JY1AJ** (057), **LB8QC** (079), **MP4KAE** (020), **OD5AB** (090), **OQ5CZ** (053), **ST2HK** (040), **TF3MB** (052), **VKs 1EM** (046), **1JN** (085), **9DB** (089), **VPs 1AA** (000), **2OI** (010), **3VN** (085), **8AP** (009–062), **8AU** (050), **VQs 2AH** (089), **4FCA** (105–197)



Yasu Itahashi, JA6AA, looks on as his Kumamoto station stands rigid inspection by radio inspectors preliminary to their endorsement of his new ticket.

VSs 7GV (049), **7LB** (062), **9AW** (088–148), **YI2AM** (080), **ZC4DT** (050), **ZE4JE** (024), **ZK2AA** (005), **ZP5AY** (090), **ZS7D** (083), **2Z2AA** (062), **3A2AF** (062), **4UAJ** (120) and **9S4AL** (033–052) . . . . . On the stalk list of DL4JN we see **AP2K** (050), **CRs 4AD** (075), **9AE** (090), **9AH** (050), **FD8AA** (055), **KG6s ABW** (069), **ABY** (095), **VSs 1CO** (018), **2CY** (030), **6DA** (078), **7XG** (015), **VQs 2GW** (010), **5CK** (028), **VU2CP** (040), **YK1AH** (020), **ZC6JR** (050), **ZD2GAJ** (050) and **ZE4JT** (085) . . . . . Seventy-three countries is the score at W8HEV. **SL3AU** (004), **TI2ES** (007), **VP5BL** (030), **VP7NB** (025), **MI3US** (020), ZS3W, an FF8 and a CT2 are among Tom's recent new ones.

Twenty 'phone is a pretty tough nut to crack but the stout hearts are still in their pitching. W5ASG scraped up **FR7ZA** (14,145) and **FB8ZZ** (200) QSOs to help raise his total . . . . . **HB1JJ/HE9** (150), **HZ1MY/VQ6** (120) and sundry others worked W5ASG's archrival, W5MPG — both stations certainly keep Arkansas on the DX map . . . . . W4RNP slugged away for **CS3AC** (297), CN8FI, **FM7WF** (130), HI6TC, **KL7AAQ** (265), **VPs 3YG** (320), 7NB, **9AV** (260), **9HH** (260) and VE8AO. Now up to 58 worked on 'phone, Don is really beginning to roll with his new 8JK . . . . . OVSV's *OEM* has the European gang hot after VQs 2DC 3CH 4BV 5DQ, VS7EA, ZD2TTE and AP2J, while No. Calif. DX Club's *DXer* specifies VS7s EA and SP as lads quite likely to succeed . . . . . **AG2AB** (100–168), **AP2L** (110–280), **CR6s AT** (120), **BX** (195), **CS2AC** (184), **EA8BB** (265), **EL9A** (325), **FB8s BA** (250–300), **BE** (220), **FF8s AP** (325), **AR** (140), **AS** (305), **FM7WF** (122) **FQ8AD** (150–205), **GDs 3UB** (280), **6IA** (155–177), **HB1IV** (200), **IS1s AY** (310), **EHM** (180), **KB6AO** (223), **KC6QY** (210), **KM6BE** (220), **KT1LU** (224), **KW6BC** (218–290), **MF2AA** (350), **MI3s KE** (180), **US** (181), **MP4s BBI** (090–250), **HBK** (160), **KAC** (250), **OD5s A** (170–200), **AB** (150), **AD** (300), **AK** (150), **OQ5BG** (190), **PJ2AA** (143), **SP9KKA** (140–210), **ST2GL** (120), **SUs 1PP** (175), **5EB** (100–150), **TA3AA** (206–330), **VK9DB** (170), **VPs 1SJC** (135), **2AF** (185), **2AJ** (182), **2LE** (135–184), **2SE** (195), **3LF** (200), **5BF** (106–149), **VQs 4DQ** (123), **4ERR** (125), **5AU** (140), **5CY** (135), **6MY** (118), **8AL** (195–340), **VSs 1EZ** (135), **9AW** (140), **XZ2KN** (310), **YJ1AC** (315), **YK1AA** (150–200), **YU1AG** (310), **ZCs 4DT** (080), **5VR** (190–284), **ZDs 2CD** (080), **4AB** (180), **6EF** (170), **6HJ** (150), **6HN** (200), **ZD6RD** (140–250), **7A** (075), **9AA** (146), **ZK2AA** (195), **ZSs 3F** (121), **7C** (290), **8D** (162) and **5A2TH** (325) are all highly recommended by WGDXC's *DX Bulletin*. Note the availability of Lebanon and Nyasaland voicers.

Forty is pretty good at times, but you have to sneak up on it. W9HUZ recorded **CE4AD** (7009), **CR7BC** (038), **PJ2AD** (011), **YUs 2CE** (050), **3CV** (050) and ZD2DCP . . . . . **G3AAT/OX,** Britain's North Greenland Expedition, sticks close to 7000 and 7200 kc.; **ZB2I** prefers the vicinity of 7030 . . . . . One HL1SP was observed goofing around by W6ZOL. Roger worked **KS4AQ** (015), **KG6FAA** (064), **W2AOS/KG6** (030) and numerous LU-ZL-KP4 fellers . . . . . **HK5CR** (041) and **VP9AL** (041) worked W9LMC. So did ship **SM8LS** (041) . . . . . Africa would have given W1ORP a quick WAC after successive 4X4DH, DL6UJ, PY1LF, YU1AHI, DL4EF, ZL2KX and W4VQP/VO6 QSOs . . . . . **SV5UN** (010) of Rhodes caused quite a ruckus at W1TX . . . . . The *DX Bulletin* puts the finger on **LZ1KAB** (035) and **CE7ZS** (035) . . . . . An **HV1AD** (040) aroused DL4JN's curiosity. Bill hooked **ZC4XP** (013), **ZD4AB** (010) and **9S4AL** (012).

Ten 'phone is a good place to clean up on Central and South Americans these days but other openings are rare. W1ONV flushed **CXs 4CS** (28,290–305), **5AF** (440), **PJ2AA** (340), **VP6NA's** 5-watter (350), **ZE3JT** (390) and **ZP5DC** (455) . . . . . **HCs 1OW** (300), **1OX** (265), **2JR** (380) and **TI2RL** (270) came back to W9LMC . . . . . W5KUC adds **CR4AC** (220), **YI2AM** (430) and **ZD2CDI** (250) as possibilities.

Eighty and *one-sixty* are just rounding into shape at this writing. DL4JN found **F9QV/FC** on 3508 kc. and W9HUZ made good with **OA4DW** (3512). W1BB announces the annual *160-Meter Transatlantic Tests* and furnishes the following details: The Tests will run through January and February, 1953, with concentrated efforts recommended on January 11th and 25th, February 8th and 22nd. A preliminary session will be held on the 28th of this month — all 160-meter stations throughout the world are invited to participate. "Attempts at contacts will be made between the hours of 0500 and 0800 GCT each day. W and VE stations should call DX on the hour and each succeeding ten

minutes thereafter; all DX stations call W and VE stations at five minutes past the hour and each succeeding ten minutes thereafter." South American, African, New Zealand and much European activity is expected. British stations, limited to 10 watts input, may transmit between 1717 and 1795 kc. but are usually found around 1775–1795; other DX will be found below and above U. S. band segments. Reports from all participating W/VE stations may be sent to W1BB, 36 Pleasant St., Winthrop, Mass. DX stations overseas write to the attention of Austin J. Forsythe, 49 Victoria St., London S. W. 1, England. Stew will keep us informed on results as this season, a potentially poor one propagation-wise, progresses. Good luck and good fishin'!

Where:

REF (France) has changed its QSL bureau address to 3 Avenue Hoche, Paris 8, France; IRTS (Eire), likewise, to EI5Z, 23 Orwell Gardens, Rathgar, Dublin, Republic of Ireland . _ . _ . _ FQ8HC has offered his services as a QSL bureau for all French Equatorial Africa stations; AP5B, we understand, the same for Pakistan-bound pasteboards . _ . _ . _ KR6VC, Okinawa Radio Club prexy, calls the attention of all ex-KR6s to the load of cards now on hand for operators of stations no longer active on the island. Some postage and forwarding addresses will ensure delivery to you of your souvenir files . _ . _ . _ Bill Storer, ex-VK1BS, hasn't been able to stir coöperation from VK1ADS but he may well be able to give you a hand with other VK1 QSL difficulties. Bill's QTH: 117 Doncaster Ave., Kensington, Sydney, NSW, Australia . _ . _ . _ We hope these addresses will bring rapid results:

AP5B, D. T. Boffin, 4 Race Course Rd., Lahore, Pakistan
CE3QC, (QSL via RCC)
CR5JB, Box 37, Bolama, Portuguese Guinea
CR6CZ, Box 32, Lobito, Angola
CS3AC, 1936th AACS Sqdn., APO 406, % PM, New York, N. Y.
DU6CO, Box 239, Iloilo City, Philippines
EI5H, W. P. Kennedy, B. Comm., 7 Morley Terr., Waterford, Eire
FB8BE, (QSL via REF)
FP8AW (ex-HB9AW), Box 248, Harmon, N. Y.
JY1BB, E. Stevens, RAF Station, Amman, Jordan
ex-KA8AB (W4NLY), Lawrence R. George, Apt. 17B, Turner City, Albany, Ga.
KB6AY (ex-KM6AH/KB6), Fred V. Carpenter, USPO 06-50000, Canton Island
KL7AON, Box 299, Sitka, Alaska
KS6AA, Art Fillebrown, 316 Auwinala Rd., Lanikai, Oahu, T. H.
ex-MS4FM, Allan G. Mackie, Braddell Hill, Braddell Rd., Singapore 11, Malaya
PAØZL, J. Smit, Zonneweg 15, Ilpendam, Netherlands
TG9AC, Box 12, Guatemala City, Guatemala
VP8AE, QSL to 56 Walker Dr., Leigh-on-Sea, Essex, England
VP8AN, % PM, Port Stanley, Falkland Islands
VQ2AH, Harry Cain, P. O. Box 95, Ndola, No. Rhodesia
XE1JK, Puebla 407, Apt. 3, Mexico 7, Mexico
YU4BN, P. O. Box 240, Sarajevo, Yugoslavia
ZD7A, (QSL to ZS6GV)
5A3TC, Neil Davis, USAF, Box 372, Tripoli, Libya

Our sleuthing team this month: W1RWS, W2TXB, W3MFW, W4RNP, W5MPG, W8DLZ, W8NOH, W9HUZ, F9HC, *Short Wave Magazine*, *DX Bulletin*, *DXer* and *OEM*. Come again, men!

Tidbits:

Asia — HZ1MY continues to cover the Middle East and vicinity like a blanket. He speaks of imminent VQ9 activity and the operation of VS8VB on Red Sea's Kamaran Island. After a mid-Winter Stateside visit, Dick has CR8 and YA3 intentions for '53 . _ . _ . _ Note that Cambodia, Indonesia, Iran, Laos, Thailand and Viet-Nam are Asiatic areas still "out of bounds" for communications by U. S. amateurs; watch out for FI8s, EQs, PKs (except PK7) and HS prefixes . _ . _ . _ Don't forget that Qatar is a new one (6L6MY active so far). Separate Countries List designation for Oman and Trucial Oman is a good possibility at this writing but Kamaran Island, we learn, is administratively tied up with Aden.

Africa — In a letter to W1NJM, poor nighttime DXing conditions on the higher frequencies in Tanganyika are described by VQ3BM. Cliff is the only regularly active VQ3 on 20 c.w. — his nearest ham neighbor is 450 miles away . _ . _ . _ During one of his recent excursions to British Somaliland, HZ1MY found it much easier going in the pile-ups to minimize use of the VQ6 label. So, if you worked HZ1MY on the 18th, 19th or 20th of September, he was "rarer" than you thought! . _ . _ . _ According to the *DX Bulletin*, VS9MQ is perking on the Maldives and VQ8AL is the only regularly active ham among five Mauritius licensees . _ . _ . _ ZS8D is in the market for a good receiver. FR7ZA is on again hot and heavy and FB8XX is too pre-occupied with commercial skeds to do much hamming.

Oceania — No VR5 (Tonga) hamming goes on at present, according to ZL1MQ. VR5s IP and PL are in New Zealand and GA is a recent Silent Key . _ . _ . _ Niue contacts should continue to be available as ZK2AA is to remain there until some time in late '53. ZK2AB helps things out with a lot of 20-meter 'phoning . _ . _ . _ In the New Hebrides, VK2QZ has a QRP c.w. layout cooking as YJ1AB on 40 c.w. — he may be catchable after his 1000 GCT schedules with VK2YC. VK2QZ also signed VK2QZ/VK9 at Trobriand (Papua) during October and November with 15 watts input on 20, 40 and 80. While traveling, his QSL chores are handled in part by friend VK2YC . _ . _ . _ KB6AY (ex-KM6AH) is set up comfortably with his family on Canton Island and is prepared to settle accounts still pending for his Midway-activity QSLs (see "Where"). Fred reports Canton now has three active hams, all on 14 Mc. KB6AO keeps a kilowatt 'phone warm, KB6AX hops about with a Viking on c.w. and voice, while KB6AY works the low edge, c.w. exclusively. Fred has a c.c. 45-watter and says all three KB6 stations look forward to a busy Winter season. "Conditions have been mostly poor on 20 for the past few months with occasional lapses into what 20 ought to sound like. Europe comes through rarely with very weak signals. South America is fair. Asia, fair to good. Australasia, good. North America, good but erratic. Africa, poor." . _ . _ . _ Capt. Thomas B. Barnes, USAF, Philippines-area Director of Mars, reports that some 35 licensed MARS members there bide their time, just listening to the ham bands in lieu of on-the-air operation. Amateur activity by U. S. citizens is still not permitted and Philippines amateurs may communicate only with other DUs, the U. S. and U. S.

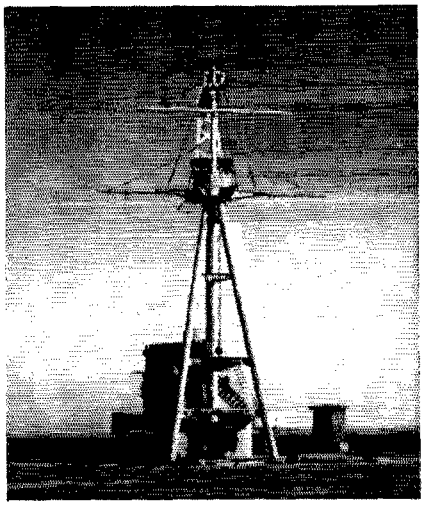
Frank Soltis, ex-HL1BA-J2AAY-W2MQD, here operates his most recent DX installation, VP9OO. He'll undoubtedly be heard from other DX spots henceforth.

♦

Spain's first and second 'phone DXCC memberships were achieved by EA2CA (right) and EA2CQ with this well-equipped station in San Sebastian.

possessions . . . . . Sixty-three per cent of the 281 Ws worked by VK1BS have QSLd. Bill has verified 59 of the 75 countries worked at his old Macquarie Isle diggings.

Europe — Austrian nationals are still taboo for W/K communication although OE13s, MB9s and FKS8s are still available . . . . . OE13JR believes that DLs get a slightly better break in h.f. propagation conditions than the OE gang. The States have been pretty tough to work from Salzburg for over two years . . . . . DL4JN finds there is a pipeline from Wiesbaden to South America's PY-LU contingent but slim pickings so far as the Caribbean and North American areas are concerned . . . . . This is the month, you know, of the All-European DX Contest as detailed in November. Let's hope the North Atlantic path gives us a good break (for a change) on the week ends of December



If you're looking around for something sturdy in the line of war-surplus beam towers you may be interested in this item. It's KA2KW's unique antenna mast — beams for 10 and 20 meters are mounted atop a "converted" Japanese training ship's superstructure. (*Photo via W1APU*)

6th–7th and 13th–14th. Incidentally, 75-meter stalwarts should find European 'phones quite workable on their 3600–3630- and 3690–3800-kc. A3 segments . . . . . G3CMT, writing to W6YYN/1, made his DXCC using but 25 watts of c.w. and 20 watts 'phone. Now he goes to 150 watts for a little relaxation . . . . . According to G6QB, YU stations are also getting the brush-off from U and LZ amateurs. The possibility of any Albanian amateur activity in the near future appears remote.

South America — When and if **CEØAA** fires up on Easter Island, CE3AG will do the c.w. work on 10, 15, 20 and 40 meters. CE3CZ will take care of the mike duties around 14,100 and 28,100 kc. Luis and Arnold are going all out for fast QSOs and no calls on or near their frequencies will be heeded. "Don't ragchew with CEØAA and don't ask for 'phone while on c.w.," specifies CE3AG. "Plans are to have CEØAA 24 hours [per day] on the air." . . . . . W1AW's code practice was of valuable assistance in enabling VP3WO to obtain his ticket. Shem is rebuilding his rig for higher efficiency; he receives with a British Navy war surplus B21B. VP3LF, he informs, is British Guiana's senior licensee . . . . . LU8CW of RCA (Argentina) gives us the lowdown on Argentine "Z" call signs. On Isla Laurie, Islas Orcadas del Sur (South Orkneys) we have LUs 1, 2 and 3ZA. Isla Observatorio, Archipiélago de Melchoir, has LUs 1ZB, 3ZH and 4ZH. Isla Decepción, Islas Shetland del Sur, features LUs 1ZC and 3ZI through 7ZI. Bahia Margarita, Tierra de Graham, supports the activity of LUs 1, 4 and 5ZD; and LUs 3ZJ through 9ZJ. Punta Proa, Tierra de Graham, is the QTH of LUs 1 and 2ZE. Punta Esperanza, Tierra de Graham, bases LUs 1 and 2ZF. For filling in on the VP8-CE7Z-LU?Z story see 1952's July *QST*, p. 73 . . . . . PY1ADA, top South American scorer in our most recent ARRL DX Test, nabbed much-needed North Dakota for WAS in the closing minutes of the competition. Walter's installation is parked on the 10th floor of a building facing famed Copacabana beach. He has a 6F6-6F6-6N7-807-812As 500-watter modulated by 812As; the receiver is an HQ120-X inhaler. His 45-foot flat-top tuned doublet puts out plenty of signal on four bands. PY1ADA was first licensed in 1935 as PY2GS.

Hereabouts — OX3SF's only regular outgoing mail leaves by boat once a year — usually in mid-Summer — from Kangerdlugssuak. Greve has a three-stage 50-watt rig and a Super Pro receiver with Hertz skywire. As native resident Greenlanders aren't favored with the mail service available to U. S.-based personnel you'll have to be very patient in the QSL department . . . . . W9HUZ hears that VP2s GH and SG of the Leewards would become more active DXwise if they could arrange with some W/K DXer(s) for assistance in their QSL chores. Any Good Samaritans about? . . . . . The British North Greenland Expedition has G3AAT along and G3AAT/OX hits the air, 80 through 10 meters, 'phone and c.w., from a location 77° north and 19° west. G3AAT, you may remember, caused quite a ruckus some time back by signing KV4AAT from Britain's Virgin Islands. This via W1JCX . . . . . Never give up on that QSL, advises W2TXB. Al got CR5UP's card in three years while MS4FM and VK9FM confirmations took two years each to arrive . . . . . Ex-KS4AI (W5KWY) knows of no Swan Island hamming in progress now. Ralph is still making good on KS4AI cards gone astray — ship him full QSO particulars if you are one of the unlucky . . . . . CO2PY likes the idea of all W/K DX men signing their states at the end of every call or CQ. Guys in rarer states often do but those in some others would rather not! . . . . . The Second Informal Get-Together of Massachusetts DXCC members took place at Cambridge in mid-October. All New England DXCC members were invited to attend. It was quite an evening — W1HX saw to the details and attending QSL Manager W1JOJ found himself quite popular! . . . . . The Northern and Southern California DX Clubs will hold their annual joint DX Conference at Fresno's Californian Hotel on the week end of Jan. 17th–18th. It's always a gala affair and DXCC amateurs throughout the world are invited to be present. For reservations and/or information, write the 1953 meeting's host, Northern California DX Club, P. O. Box 75, Oakland, for the attention of W6TI, chairman. . . . . Phil Battey, W4TFX, was a winner of Hallicrafters Company's Novice Class Radio Amateur Merit Award for 1951–'52 activity as WN4TFX. He found this out after he had joined his OM, Stateside W4IA, in Japan. Phil's prize, an S-76, was shipped all the way . . . . . Erstwhile DXer WØFID eased up on the books long enough to dive into the SS. Schoolmate KH6OJ/WØ joined in the fun at the U. of Minn. . . . . W4KE worked ex-G3MG, now VE7APL, for our new neighbor's first W QSO from Canada . . . . . Ex-W2AIS finds that QSLs arrive no faster even when you have a call like KH6ARA . . . . . W6UQQ won the quiz contest run by W6QD at the ARRL 1952 Southwestern Division Convention DX Breakfast at San Diego in October. W6s AMI BZE and ENV helped rig up the entertaining meeting.

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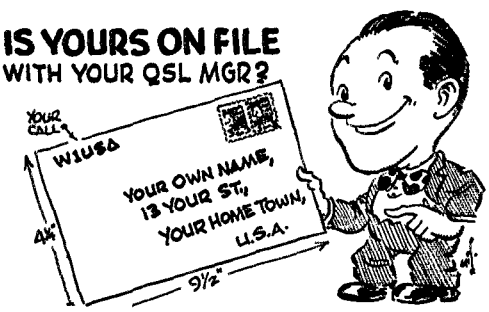
Jeeves has his special Christmas socks out on the line again — the ones that conveniently take an 833A each.



See page 71 for ARRL QSL Bureau managers listing.

Hints and Kinks For the Experimenter

UNTUNED AMPLIFIER TO TUNED FREQUENCY MULTIPLIER

MULTIBAND transmitters that employ plug-in coils are sometimes tricky to handle when the output frequency demands straight-through operation of all stages. Frequently, one or more of the circuits must be critically tuned to prevent either over-drive or self-oscillation somewhere within the exciter line-up. Although either of these problems may be solved by using a switching system that permits cutting out a stage or two, there remains the possibility of inadequate isolation between the frequency-control and the amplifier stages when the number of active intermediate circuits is reduced.

Fig. 1 shows a circuit diagram that provides a suitable solution to the problems outlined above.

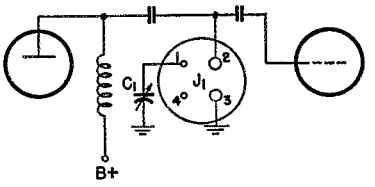


Fig. 1 — This simple arrangement converts an exciter stage for use as either a straight-through amplifier or as a frequency multiplier.

The stage is converted from an untuned amplifier to a tuned frequency multiplier merely by inserting a coil in J_1. Output at the fundamental and the harmonic frequencies is more nearly balanced and stability at the fundamental is improved by the tuned and untuned modes of operation. Naturally, the improvement in stability and the reduced output at the fundamental usually allow the stage to remain in operation during straight-through operation of the rig.

The coil which allows the circuit to perform as a multiplier must be so arranged as to connect between Prongs 2 and 3 of the four-prong socket, J_1. The base of the inductor must also have a jumper connected between Pins 1 and 2 so that the variable capacitor, C_1, will be automatically connected across the coil when the latter is inserted in place. — *Jose A. Vivares, LU1EP*

SIMPLE CODE-PRACTICE SET-UP

NEWCOMERS who are in need of a code-practice set-up should not overlook a simple system that employs the station receiver — providing it has a beat oscillator — a pair of headphones and a key. With the key and 'phones connected in series and then plugged into the receiver 'phone jack, the receiver is tuned to a steady signal such as that transmitted by a broadcast station. The b.f.o. and the main tuning of the receiver are then both adjusted until a tone of the desired frequency is audible in the headset. If the receiver has a selectivity switch, it is usually possible to clear the beat note of any bothersome modulation that rides through the receiver. Even without a selectivity adjustment available, it is possible to adjust a receiver so that a perfectly usable tone is obtained. Naturally, the tone so generated is interrupted by the key for code-practice work. — *George E. R. Jarrett, RM2, USNR, W6HCU*

115-VOLT A.C. TEST LAMP

ONE of the most simple and inexpensive test units for 115-volt a.c. sources is shown in Fig. 2. To construct the gadget, solder two insulated wires to a 6-watt lamp bulb and then

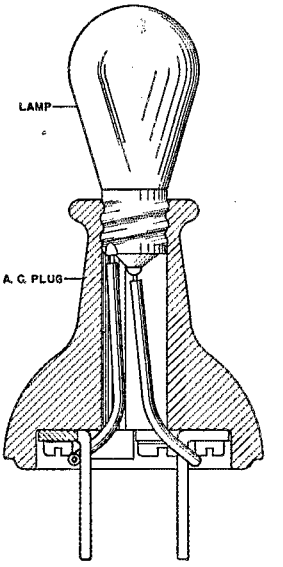


Fig. 2 — An inexpensive 115-volt a.c. test unit.

force the bulb down into the grip of a rubber a.c. cap. Naturally, the wire leaders are fed through the assembly and then connected to the regular terminals of the cap. The unit will be more convenient to handle if the a.c. plug is one having a long, grip-type neck. — *Walter C. Downes, W3UVD*

MORE ABOUT THE PE-103 DYNAMOTOR

MANY owners of PE-103 dynamotors have the impression that it is necessary to reverse the high-voltage brush connections if the dynamotor is to be used in a car which employs a negative-to-chassis battery installation. This is only true if the user wishes to take a hot 6-volt

lead from Terminal 7 of the output socket and if the microphone push-to-talk switch is connected directly between Terminals 4 and 5 of the same socket. Actually, it is not necessary to reverse the high-voltage brushes if the filament voltage for the transmitter is taken directly from the car battery and provided that an external relay is used to complete the circuit between Terminals 4 and 5 of the dynamotor output plug. One side of the field coil for the relay may be grounded. When using this system, the PE-103 is connected with the positive and negative input terminals connected to the positive and negative terminals of the battery and high-voltage is obtained between the chassis (ground) and Terminal 8 (positive) of the dynamotor output plug.

The above modification of the PE-103 control circuit is especially well suited to installations which place the transmitter under the dash and the dynamotor at the rear of the car. —*George Hart, W1NJM*

CALIBRATED DUMMY ANTENNA

AN unusual but exceedingly practical dummy antenna is shown in Fig. 3. The device consists of an exposure meter, a 115-volt lamp bulb, and a cardboard damper, all housed in a wooden box of appropriate size. The meter fits snugly inside of a felt-lined hole at the front of the box, and the lamp mounts in a socket located on the inside rear wall of the case. The damper, located between the meter and the bulb, may be mounted on a panel-bearing assembly which has its shaft protruding through the top of the box.

After the assembly has been completed, the bulb should be connected to a 115-volt a.c. line and the damper adjusted to allow a ¾-scale reading on the meter. A lower-than-full-scale adjustment is recommended because this will allow the lamp to be overloaded (during testing of a transmitter) without endangering the exposure meter. Naturally, the lamp installed in the unit must have a wattage rating suitable for the power level of the transmitter with which it will be used.

Fig. 3 — W5TAY's dummy antenna uses an exposure meter as a means of registering power output from his transmitter.

When the unit is coupled to a transmitter, the meter will respond to the slightest changes in coupling or tuning. By comparing the meter reading obtained with the 115-volt input with that obtained from the r.f. power, it is possible to estimate closely the power output of a transmitter. — *Harold G. Hodges, W5TAY*

OPERATING AMPLIFIER SCREEN GRIDS FROM THE EXCITER SUPPLY

THERE are times when it is advantageous to employ the exciter plate supply as the voltage source for the screen-grid circuit of a tetrode or pentode final amplifier. However, this system presents the problem of how to remove amplifier screen voltage during periods when the transmitter is operated with the final plate supply turned off.

Fig. 4 shows a circuit that does protect the amplifier screens during the tuning or testing of the low-level stages. Ry_1 has the coil connected in series with the bleeder resistor, R_1, for the amplifier plate supply and the contacts connected in series with the lead which runs from the

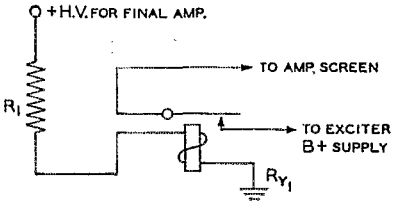


Fig. 4 — Relay connections which permit safe operation of the amplifier screen-grid circuit when the latter is powered by the exciter supply.

exciter supply to the amplifier screen circuit. Thus, screen voltage is applied to the final only when the high-voltage supply is turned on. Surplus relays having 5000- or 10,000-ohm coils are well suited for the job. Of course, the value of resistance for R_1 must be one which permits adequate bleeder action and, at the same time, must drop the high voltage output to a value suitable for safe operation of the relay. Caution: The bleeder circuit for the high-voltage supply will fail if the relay winding is opened because of overload or other misuse. — *D. D. Andrews, W6NCV*

IMPROVED SHIELDING WITH COPPER SCREEN

IN an effort to reduce harmonic radiation from a modified BC-457 transmitter, the rig was shielded with copper window screening, but the results did not come up to expectations. Probing the fields around the case showed that the harmonics were apparently leaking through the screen. The screen, although newly-purchased, showed a slight tarnish, and it was suspected that the screen had lost much conductance between cross-wires, thus acting like insulated wires connected only at the ends and allowing

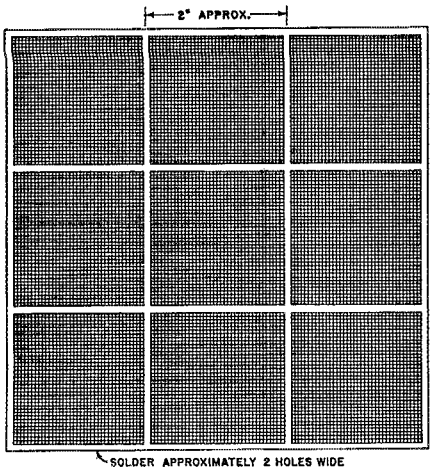


Fig. 5 — The shielding properties of copper screening can be improved by running solder lines across the screen at regular intervals.

significant leakage. To check this, narrow lines of solder, spaced about 2 inches apart, were added to the screen, as shown in Fig. 5. With the encouragement of Mr. T. H. McNary (Boeing staff engineer), measurements were made up to 150 Mc. under identical conditions to the previous tests. They showed an improvement at practically every harmonic, ranging from 4 to 30 db.

A search of the literature shows that this degradation of copper-screen shielding with age is known, but has failed to show previous disclosure of this preventive or repair method. — *David T. Geiser, WØNZQ*

RESETTING LOOSE GRID AND PLATE CAPS

When you next run across a loose grid or plate cap on an otherwise perfectly good tube, try an application of Rutland black asbestos furnace cement. After the lead to the center of the cap has been unsoldered, fill it with cement and return it to its normal place on the bulb. Now turn on the filament or the heater voltage and allow about one-half hour of warm-up time before the cap is resoldered to the anode lead. When the soldering operation is being performed, leave the iron on the cap long enough to set the cement really hard. — *W. R. Booher, W9NTI*

HOLDING BUGS IN PLACE

The following method of keeping bugs from walking has been used on shipboard and has held the key even during a 47-degree roll.

First remove the dust from the feet of the bug and from the desk or table by using a damp rag. After these surfaces have been dried, small pieces of regular friction tape should be placed under the feet of the bug. Now, hand pressure should be exerted to make the works stick together. — *W. J. Davenport, W3PFA*

FISHBOX SHIELDING

One source of metal boxes is — of all places — the local fish market! The shipping containers for some of the market products are made of completely tinned metal that takes to solder as fish take to water. Various sizes are available — the 40-lb. can is about 7 inches high — and they may be had for practically nothing. — *Roy L. Gale, W1BD*

CRYSTAL ADAPTER FOR ARC-5 TRANSMITTERS

The task of changing crystals in a modified ARC-5 transmitter can be greatly simplified by employing an adapter of the type shown in Fig. 6. The device consists of a discarded crystal holder, a crystal socket, and an aluminum bracket. The bolts that were used to hold the name plate on the holder are used to lock the bracket in place, the name plate being discarded. Two wires connect between the socket at the top of the assembly and the contact plates of the crystal holder. It is advisable to shorten the length of the contact plates before the soldering operation is performed. The rest of the construction is evident from the sketch.

This adapter may be plugged into any of the octal sockets at the rear of the transmitter. To remove a crystal, merely brace your hand against the top landing and then pull on the crystal. In this way, the device remains in the rig during crystal changing. For Novices using converted ARC-5s, this adapter will facilitate QSYing. — *John R. Abbott, W6ZOL*

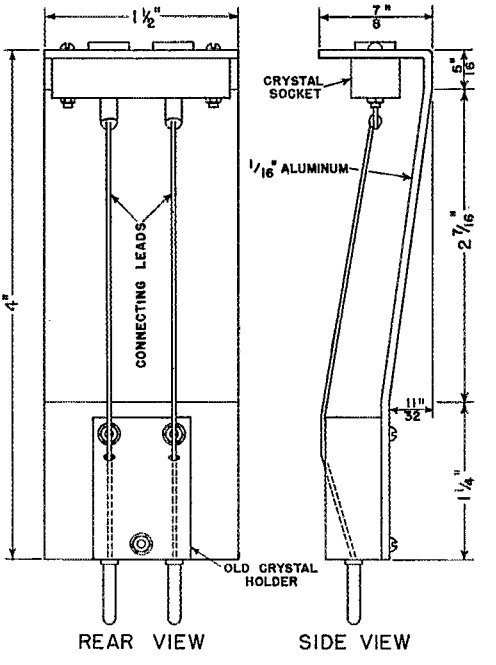


Fig. 6 — A crystal adapter of this type will simplify crystal changing in converted ARC-5 transmitters.

Correspondence From Members-

The Publishers of *QST* assume no responsibility for statements made herein by correspondents.

MORE ON ECHOES

Route 12, Box 170
Kirkwood 22, Mo.

Editor, *QST:*

With reference W9FUR's letter in the September issue, the time delay of about 2 seconds is particularly interesting. At the speed of light, the round trip to the moon would take just over 2½ seconds.

On two separate occasions I have noticed echoes which followed by about this time interval. One case involved my own signal on c.w., the other a 900-watt local station on 'phone when the phrase "calling and standing by" came back as a ghost S2 while the main signal was 30 db. over S9. At the time of both these cases the moon had just risen above the horizon in the east. For both send and receive I use a resonant rhombic, 210 feet per leg, running approximately east and west.

People with whom I discussed these phenomena at the time they occurred thought I had been looking at the moon too long. What do you think?

This echo of the 'phone signal occurred while in contact with WØAVF at 7:18 P.M., 25 November 1949, on 28.6 Mc. I told WØAVF of it immediately and we tried to get a repeat of the occurrence without success. WØAVF (now KW6BC) thought I was a little balmy.

— *Larry Trombly, WØDCB*

IMPROPER TRAFFIC

111 Albemarle Road
Brooklyn 18, N. Y.

Editor, *QST:*

My comments are directed to you as a result of the item in September *QST* enumerating a half dozen countries that permit third-party amateur radio traffic.

I have never refused and have been grateful for the opportunity to QSP any messages from these countries. However I am most upset by the requests of hams in others than those mentioned to handle their traffic. Why do these hams keep calling Ws to take their messages? Don't they know that their governments have not approved such handling? It is most difficult to refuse their requests without being rude. And to jeopardize our position as amateurs isn't worth the trouble of taking a chance of being caught by the FCC. I know whereof I speak!

So you hams in foreign countries that do not permit third-party traffic please do not put us on the spot of having to refuse your request for QSP and also do not ask us to lose our licenses.

— *J. Abramowitz, W2IAU*

NOVICES

4 Harvey Road
Chelmsford, Mass.

Editor, *QST:*

Finding enough parts in the junk box to build the midget fifty-watter and to include a power supply all in the same cabinet and to reduce the voltage on the plate to about 300 volts, it has become my mighty fifteen watter! Like most hams I had quite a few xtals around and proceeded to try it out and I find the few hours time was well worth it. One of the xtals is just on the edge of the Novice band and it has resulted in some very pleasant contacts with the newcomers. My operation is not as regular as I would like but it is a pleasure to find these stations asking for one to QRS and in return to oblige. My frequency is such that it will not cause any interference to the Novice stations yet can get calls on the lower edge of that band. Also some of the fellows ask for advice, such as how their fist is and accept any criticism nicely whereas older hams would resent such and show it by signing off rapidly with you. From here I think the Novice idea is very good and is here to stay.

Keep up the good work with articles for these fellows in *QST* and it will more than repay all amateurs with new strength of numbers when use of frequency will prove a conclusive factor in presentation of facts to the FCC and any future world conferences.

— *Melvin P. de Jager, W1DBY*

180° LIST

At Sea

Editor, *QST:*

As a long-time ham and reader of *QST*, can I make one little suggestion? Your "Quist Quiz" is very good, but why print the answer upside down?

I had just returned to the ship, and was reading the answer, when the mate walked in. Naturally, being freshly returned from shoreside, I was under suspicion of imbibing a little too much, and when he saw me holding *QST* upside down, it confirmed his suspicions. He always knew the radio men were a screwy bunch, anyway.

— *Ben Lane, W6WLG, ex-W7FNE, HS1LN*

[What gave him that idea? — Ed.

OLD GLORY

1829 Cornelia Street
Ridgewood 27, New York

Editor, *QST:*

In the few years that I have been a ham I have visited — and seen photographs of — many radio dens. Each one was characterized by the oblivion concerning the American flag.

All of us proudly exhibit our station licenses by the operating position . . . why don't we also display the flag there if only to remind us to be thankful to be living in a country in which amateur radio, as a hobby, is allowed to function as it does here?

— *John J. Schultz, W2EEY*

TAKING STOCK

185 Early Street
Providence, R. I.

Editor, *QST:*

I have been an active amateur since the tender age of 13, some 20 years. This period was interrupted of course by the war, during which I served in the regular Army Signal Corps as both an enlisted man and officer. I have met many hams both of the United States and foreign countries. They number in the hundreds. I knew these men as hams and as individuals. I cannot remember one I have ever met I did not like and respect. They all displayed the amateur spirit. It was indeed "The greatest fraternity in the world." Today this picture has changed. It is in evidence on all amateur bands.

Inflation has not only affected our personal economy but an insidious form has crept into our hobby. We are no longer a group but a split faction, and as such have weakened ourselves to a critical point. It is time that we took stock and gave the situation some serious thought.

In a period when we are enjoying miraculous advances in equipment and experiences, we are losing valuable time by having to defend our hobby. We have become involved in a game of politics, even to the extent of "mud-slinging." I remember the days as a teen-ager when I was treated as an equal by an adult. Today adults fail to extend that courtesy to other adults.

I cannot remember such goings on prior to the days of the "cheap kilowatt"—in other words, when high power was the exception rather than the rule. There were the

"wheels" who garnered the DX wreaths of glory to be sure; there were the little cliques on the "high end" but they were all pulling in the same direction. No one felt persecuted because they didn't raise a choice one because so-and-so had the edge on power, etc. Immediately after the war kilowatts sprung up all over the place. Rotary beams became commonplace. (I remember pedaling a bicycle 30 miles to see a 20-meter rotary.) As a result of all of this our bands shrunk, signals were spreading, it was work to make a QSO, DX or otherwise. Our receivers are just catching up. It takes more watts per minute per QSO. As a result nerves tightened up, hair bristled and the ham bands snapped and crackled with the tension. I heard speeches on the air panning "this" or "they." The amateurs, long under a single banner, were now on the march in small groups. In some cases I feel, as do others, counterproposals were made just to be contrary. The war between 'phone and c.w. was like the arguments between the "sailors and operators of stinkpots," only the latter group could be found at the end of the day laughing over a friendly "tall cool one."

During emergencies involving life and property these arguments prevailed. Some hams under the cloak of righteous indignation found fault with the emergency operations and failed to heed pleas to clear a frequency. During organized simulated emergency drills, some hams in the towns concerned did not extend the courtesy of QSYs to spots that would not interfere with those amateurs who were doing their share of fulfilling the amateurs' obligation to the community.

Some time ago, when TVI threatened the security of the amateurs, a prominent amateur and then editor of an amateur magazine posed the question, "Will the amateur be legislated off the air?" We licked the TVI problem by a concerted effort, but we are again faced with legislation which will further restrict and dictate our operations. Unless we once again band together and become the fraternity of the past our hobby will suffer.

For many years we have benefited by the efforts of the ARRL. I do not agree with some of the positions taken by them in the past as to what legislation should be passed for or against us, but I feel they have represented the majority. If objections are to be raised, let us raise them *amongst* ourselves and not between. Let us direct our efforts to improving our representation as a group, thereby maintaining our strength. Let us not fall victim, unwittingly, to the "United we stand, divided we fall" theorem. Let us by the intelligent election of officers correct any faults that may lie in our representation. Above all let us conduct ourselves as amateurs under the code of ethics that prevailed for so many years. The newcomers to our ranks cannot help but adopt the dog-eat-dog attitude when they find the old-timers engaged in such activities. Let's get together, work together and stick together, do the job we have to do and enjoy ourselves.

— *Carl M. Getter, W1MIJ*

40-METER DX

43 Haverford St.
Hamden, Conn.

Editor, *QST*:

I would like to suggest to the fellows operating 40 meters that some thought be given to the following:

All of the DX seems to come through on 7000 to 7050 kc. Generally the signals are on the weak side compared to W stations. It would be a big help if W stations would work above 7050 kc. when working other W stations. There is considerably less QRM and it would make a tremendous difference reading the DX sigs on the low end of the band.

— *W. C. Gosch, W1CUX*

AERONAUTICAL RADIO

32C Betsy Ross Ct.
Bound Brook, N. J.

Editor, *QST*:

Maybe your readers can help me. I have been going all out for the miniature-i-zation of my ham gear. I have been making smaller and smaller electronic gear until last Thursday when I *lost* the power amplifier-oscillator rig just finished. Don't know if it blew off the bench and out the window (heading S.W. with the prevailing wind) or if it is still here but out of range of my microscope's power. Any suggestions?

— *Edwin A. Kirchhuber, W2KJY*

A.R.R.L. QSL BUREAU

The function of the ARRL QSL Bureau system is to facilitate delivery to amateurs in the United States, its possessions, and Canada of those QSL cards which arrive from amateur stations in other parts of the world. Its operation is made possible by volunteer managers in each W, K and VE call area. All *you* have to do is send your QSL manager (see list below) a stamped self-addressed envelope about 4¼ by 9½ inches in size, with your name and address in the usual place on the front of the envelope and your call printed in capital letters in the upper left-hand corner. For a list of overseas bureaus see p. 62 of this *QST*.

W1, K1 — J. R. Baker, jr., W1JOJ, Box 232, Ipswich, Mass.
W2, K2 — H. W. Yahnel, W2SN, Lake Ave., Helmetta, N. J.
W3, K3 — Jesse Bieberman, W3KT, Box 34, Philadelphia 5, Penna.
W4, K4 — Thomas M. Moss, W4HYW, Box 644, Municipal Airport Branch, Atlanta, Ga.
W5, K5 — Will A. Shaw, W5ARV, 1610 Eighth Ave., Fort Worth 4, Texas
W6, K6 — Horace R. Greer, W6TI, 414 Fairmount St., Oakland, Calif.
W7, K7 — Mary Ann Tatro, W7FWR, 513 N. Central, Olympia, Wash.
W8, K8 — Norman W. Aiken, W8LJS, 701 East 240th St., Euclid 23, Ohio
W9, K9 — John F. Schneider, W9CFT, 311 W. Ross Ave., Wausau, Wisc..
WØ, KØ — Alva A. Smith, WØDMA, 238 East Main St., Caledonia, Minn.
VE1 — L. J. Fader, VE1FQ, 125 Henry St., Halifax, N. S.
VE2 — Austin A. W. Smith, VE2UW, 6164 Jeanne Mance, Montreal 8, Que.
VE3 — W. Bert Knowles, VE3QB, Lanark, Ont.
VE4 — Len Cuff, VE4LC, 286 Rutland St., St. James, Man.
VE5 — Fred Ward, VE5OP, 899 Connaught Ave., Moose Jaw, Sask.
VE6 — W. R. Savage, VE6EO, 329 15th St., North Lethbridge, Alta.
VE7 — H. R. Hough, VE7HR, 1330 Mitchell St., Victoria, B. C.
VE8 — Roy Walton, VE8CZ, Box 534, Whitehorse, Y. T.
KP4 — E. W. Mayer, KP4KD, Box 1061, San Juan, P. R.
KZ5 — P. C. Combs, KZ5PC, Box 407, Balboa, C. Z.
KH6 — Andy H. Fuchikami, KH6BA, 2543 Namauu Dr., Honolulu, T. H.
KL7 — Box 73, Douglas, Alaska

MIDWEST DIVISION CONVENTION

Topeka, Kansas, December 6th-7th

An ARRL Midwest Division Convention, sponsored by the Kaw Valley Radio Club, will be held on December 6th and 7th at the Hotel Kansan, Topeka, Kansas. A full week end of activities of interest to the OM, YL, and XYL has been planned, including the midnight Royal Order of the Wouff Hong ceremony. At the ARRL meeting Midwest Division Director Schmidt and ARRL Secretary and General Manager Budlong will speak on League matters. Featured in the "eats" department will be a buffet dinner on Saturday and a Sunday banquet.

Pre-registration ends at midnight, November 30th. Regular registration starts at 8 A.M., December 6th. The prices are $7.50 in advance, $8.50 at the door, and $6.00 for Sunday alone. For registrations and information write to the Convention Chairman, Dean Calvin, WØOBO, 1829 Burnett Road, Topeka, Kansas.

Operating News

F. E. HANDY, W1BDI, Communications Mgr.
R. L. WHITE, W6YYN, Asst. Comm. Mgr., C.W.
GEORGE HART, W1NJM, Natl. Emerg. Coördinator
J. A. MOSKEY, W1JMY, Deputy Comm. Mgr.
ELLEN WHITE, W6YYM, Asst. Comm. Mgr., 'Phone
LILLIAN M. SALTER, Administrative Aide

Novice Round-up! Quite a number of Novices got into the operating fray during the November Sweepstakes. They will be interested in comparing notes with other Novices who submitted reports when we have all the scores in hand. The "SS" is for *all* amateurs. Here, now, is a get-acquainted opportunity for both older amateurs and Novices. On *January 10th-to-25th the second Novice Round-Up is being scheduled* by ARRL (see announcement elsewhere in this issue). *This* activity is devoted especially to Novices, with the radio work covering *just the bands* in which Novices are licensed. To reduce QRM and permit a more leisurely test of stations we have spread out the times; total hours have been kept to 40 so non-amateur activity will not be neglected. This is a simple operating activity and can be a sort of Get-Acquainted Party for already-licensed amateurs and the newcomers. Non-Novice amateurs may vie for the best lists of Novices Worked and Novice Licensees will be eligible for *ARRL Award Certificates* for the best work in each ARRL Section.

Scoring is just *one point* for each contact, proved by two-way exchange, and one multiplier point for each Section worked. Stations worked count but once each for QSO credit. However, to points accumulated from the station-worked list, a Code Proficiency credit equal to the top speed shown on ARRL CP certificates can be added to QSO points (before multiplier), where a Novice has made the grade on such certification. This credit is included because a lot of Novices have patronized our program of code certification, and we encourage all to go as far as possible. The whole activity is dedicated to helping Novices progress rapidly toward their code-speed goals and the General Class License. All Novice Class licensees are cordially invited to get new states and contacts with each other as well as with old-time hams . . . a chance to step up your accomplishment and fun and test your station over a 15-day period! Logs in our activities are welcome from all, even if they show but one contact. They help the other fellow and show your good will and fraternalism.

10-Meter Gang, Your WAS Contest; Also On TVI Treatment. The WAS Contest is a good time to put the Dallas Plan (page 26, June '51 *QST*) in effect, *provided* you and others have done your part as hams in completing your transmitter clean-up of harmonics first, for compliance with FCC's Section 12.133. Get set individually; also if there's a club in your city, try to get a *Club TVI Committee* organized and working for you in a community plan to meet these problems. Rigs like the one shown on the cover of October *QST* (4–250A) can run 750 watts on the worst choice of frequency from TV considerations (see Oct. *QST* story); also see W1DBM's article on TVI-proofing, page 20, June '52 *QST*. *You* can do much to TVI-treat your own rig, if not already done. Make it a point to ask the Communications Department, ARRL, for the free bibliography of articles on this subject! ARRL offers other circulars on TVI Approach, and on forming Club TVI Committees. There's plenty of know-how to apply. Send a message for it today. Fix up the rig, or operate as necessary for best public relations. A TVI-treated mobile has proved the solution for some. Plan to get back on the air for this December activity, and for the coming ARRL DX Competition.

Two week ends, *Dec. 5th–7th and Dec. 12th–14th*, have been set for the 10-meter WAS Contest. It will be an operating highlight for the month of December, to dedicate to working *as far as you can go toward Working All States* or other objective using this band exclusively. If you have found conditions tough on "ten" perhaps this was only in part due to the sunspot cycle and vagaries of propagation. A *big* factor is occupancy and use, which makes hundreds of ground-wave contacts feasible, also let's hope for a good band opening at this time. This test should help pick up some states on ten, is sure to be plenty of fun, and many will renew old friendships on this long-popular band. So see the announcement, page 54, of November *QST* and give it the big try. Let's have your WAS Contest Report so we can tell the world about your activity in *QST*.

Emergency Equipment Utilization. *Regular use* of emergency equipment in the amateur service or other services is essential for its proper maintenance. To make sure equipment is ready and operative it just has to be used. Our emergency power supplies at W1AW, for example, are given a workout at least twice each month just to insure readiness on the rare occasions of commercial power failure. The car rig gets scheduled use, even in winter. The annual Field Day is a great event for testing all kinds of equipment but *all-the-time-readiness* should not depend altogether on such special events. Daily or regular use is the best insurance that batteries will be charged, connections operative and operator familiarization with controls high, if and when emergency shall require. One good West Coast operator we know set up a complete battery-

powered home station, separate from the main rig, but for daily operation, to insure instant readiness in emergency.

Another thing, about those controls, does *your* mobile or portable lend itself easily to operation by others? Any rig, especially one not used daily, can well be provided with a set of condensed operating instructions. A post-card-size list of "simplified instructions" is good to have on almost any ham rig, a sure time saver for tune-up or operation. A small notebook may help, but lest loose papers become lost we suggest also recording these data on the left-hand page of the log book together with the telephone numbers of your ARRL Emergency Coördinator, your Radio Officer (of RACES groups) and also the numbers of people or agencies likely to be served under emergency conditions.

Re W1AW Code Practice Material. If you are following the hour of daily code practice at various speeds (sent simultaneously on 3555, 7130, 14,100 kc., etc., starting 9:30 P.M. EST daily) you will have noticed that during November we stepped up the proportion of our transmission given over to numerals. We have increased the length of the section devoted to numerals taken at random from the tube tables in the *Handbook*, so these constitute 20% of the copy sent, which itself is not devoid of numerals. Likewise we're adding in some material from "How's DX?" which with its mixed groups of calls and frequencies should give ample variety in the practice. Hope you like it! Use of ARRL's program may help many get their license. Additionally many follow through to gain top proficiency which aids their enjoyment in rag chewing, DX, and message handling work. This is by way of extending the invitation to all amateurs, new and old, to patronize the monthly proficiency run and submit copy for certification (or endorsements) until you have them all the way to 35 w.p.m.

— *F.E.H.*

A.R.R.L. ACTIVITIES CALENDAR

Dec. 5th: CP Qualifying Run — W6OWP
Dec. 5th-7th, 12th-14th: 10-Meter WAS Party
Dec. 19th: CP Qualifying Run — W1AW
Jan. 3rd: CP Qualifying Run — W6OWP
Jan. 10th-11th: V.H.F. Sweepstakes
Jan. 10th-25th: Novice Round-up
Jan. 17th-18th: CD QSO Party (c.w.)
Jan. 19th: CP Qualifying Run — W1AW
Jan. 24th-25th: CD QSO Party ('phone)
Feb. 6th-8th: DX Competition ('phone)
Feb. 8th: CP Qualifying Run — W6OWP
Feb. 11th: Frequency Measuring Test
Feb. 17th: CP Qualifying Run — W1AW
Feb. 20th-22nd: DX Competition ('phone)
Mar. 6th-8th: DX Competition (c.w.)
Mar. 13th: CP Qualifying Run — W6OWP
Mar. 18th: CP Qualifying Run — W1AW
Mar. 20th-22nd: DX Competition (c.w.)
Apr. 3rd: CP Qualifying Run — W6OWP
Apr. 11th-12th: CD QSO Party (c.w.)
Apr. 16th: CP Qualifying Run — W1AW
Apr. 18th-19th: CD QSO Party ('phone)

MEET THE SCMs

J. W. "Tony" Sikorski, WØRRN, SCM South Dakota, procured his first license in December of 1946, although his interest in amateur radio dates back more than a quarter of a century.

A past-president of the Sioux Falls Amateur Radio Club and now serving his second term as secretary, he still finds time to engage in such ARRL activities as CD Parties, Sweepstakes, and Field Days. In addition to Code Proficiency (35 w.p.m.) and WAS certificates, he also holds a Public Service Certificate for his work in the South Dakota ice storm emergency of March, 1949.

WØRRN's transmitter is a Meissner Signal Shifter driving an 814 final on 10-, 20-, 40-, and 80-meter c.w. and 10-meter 'phone while the receiver is an HQ-129X and the antenna a 135-foot center-fed job with tuned feeders.

When not hamming Tony likes to go fishing, play cribbage, attend baseball games, or do a bit of woodworking. He has had some experience as a telegraph operator, teletype operator and repairman, and is now toll terminalman for the Northwestern Bell Telephone Company and part-time engineer at a local b.c. station.

SEPTEMBER FMT RESULTS

The second 1952 ARRL Frequency Measuring Test, open to both ARRL Official Observers and other amateurs, brought entries from 132 participants who made 427 measurements; 73 entries were received from Official Observers and 59 from non-OO entrants. Each entrant has received an individual report comparing the accuracy of his measurements with those made during the test by a professional frequency-measuring laboratory.

Among the OOs taking part in the FMT, the leading entrant was Don Fenton, W1MUN. Don's measurements show an accuracy of 0.1 parts per million. Heading the non-OO group was Lloyd W. Root, W8HB, with 0.5 parts per million. The standings of other leaders in the test are given below. Since the official readings can only be accredited to 0.4 parts per million, the decimal is shown only to permit establishment of listing order. In accordance with the announced rules, no entry consisting of a single measurement was considered eligible in the competition.

Observers	*Parts/ Million*	*Non-Observers*	*Parts/ Million*
W1MUN	0.1	W8HB	0.5
W2FE	0.2	W4HER	1.5
W6CIX	0.8	W4AXU	1.6
W9CSU	1.4	W6NCP	3.8
W6CK	1.6	W2UOL	5.0
KZ5RM	2.6	W2IWH	7.1
VE6HM	2.6	W2CTE	7.3
W8DTD	2.7	W4QN	7.6
W5FMO	3.1	W9PBI	11.3
W4JUI	4.5	W1QQO	12.1
W4HQN	4.7	W6KWQ	13.0
W6YSK	5.9	W4GVU	13.6
W3LVF	10.0	W2DOM	15.6
W2AIQ	10.1	W4FWZ	16.3
W6VG	10.9	W1MGN	17.9

The following ratings are based on a single measurement: OOs — W9PFK 2.0, VE2AAO 6.7. Non-OOs — W1NGH 2.8, W2RJL 5.0.

Early in October a conference of FCDA Regional Communications Officers was held at the National Civil Defense College, to which your Communications Manager and NEC were invited as observers and advisory participants. We were treated with the greatest respect and deference, as though we were members of the official family, and during the conference were happy to be able to assist from time to time when matters concerning amateur radio or RACES were discussed.

Three of the nine RCOs are amateurs, with whom we had had previous correspondence; but *all* of them expressed much interest in the organized aspect of amateur radio and were keen to know more about it, particularly about the AREC and how it is set up. We feel that we contributed to the conference in this respect, and that we learned many new things about civil defense communications and made several new FCDA acquaintances. Ours was the only continuing non-government representation at this conference, which lasted four days.

A complaint made as an aside by one of the RCOs sticks in our mind particularly. He said that in his region many AREC groups were demanding that they be taken into civil defense all together or not at all, thus denying local c.d. directors the privilege of screening them individually as required by the RACES regulations. While this was but one of many matters discussed on the side during the conference, let's dwell just on it for a moment.

We had no idea that any ECs were so misinterpreting the pleas we have been making for "a single strong facility," that we had given anybody the impression that either the AREC runs the show or we don't play. We are not in a position to adopt any such attitude. Local civil defense officials, while usually very happy to be offered AREC facilities for civil defense, usually do not feel that they must accept ultimatums or conditions imposed by such groups, and usually will not do so. They will instead turn to local non-AREC amateurs, if any, or to other services and ignore RACES entirely.

It is right and proper that we should stick to our own amateur organization, the AREC, and that we should be proud of it, and that we should work to make it succeed as a public service; but it is *wrong* for us to become arrogant, chesty or demanding. It is right that we should seek and cultivate official contacts, but wrong to do so to the extent of being obnoxious. It is desirable to protect our own interests, but we will not do so by remaining aloof where there is a possibility of our rendering a civil defense service, even though the local situation is not entirely to our liking, or local civil defense officials the people we would have picked for their jobs.

Many have asked us what relationship RACES bears to the AREC, where one leaves off and the other begins. Let's put it this way: each is a part of the other. So far as the AREC is concerned, RACES is one of our functions — a *big* function right now, and in the event of war our *only* function. While we still have other duties to perform, it seems we should not allow ourselves to be swallowed, and so the best way to approach the RACES program is for willing and acceptable AREC members to sign up for RACES *without* abandoning the AREC program.

So far as RACES is concerned, the AREC is an amateur facility which can be utilized to supply *part* of the communication envisaged by this new service; but the AREC is not the whole show.

The ideal situation is to have the AREC and RACES groups identical, and the EC and RACES Radio Officer one and the same person. Such a group then serves a dual purpose of emergency service in natural disasters while preparing for and being ready to be the local RACES group should we be confronted by a civil defense emergency. Where this cannot be done there is any number of ways in which the local situation can be ironed out to the satisfaction of all concerned — but in the final analysis it takes some give and take on both sides, and above all a *desire* to come to an agreement. And remember this — no matter *whom* you have to work with, or under what conditions, the ultimate objective of the whole civil defense program is *survival*, the saving of our collective skins; and that includes your individual skin. So we must do our best to correct a bad situation, and if we cannot correct it, then we must make the best of it. What we *cannot* do is remain aloof from our own destruction for *any* reason.

Meanwhile, we are here to help you if we can. Don't hesitate to let us know your problems.

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At 1330, Sunday, June 15th, Wichita Falls, Texas, Municipal Airport reported "enemy" aircraft approaching the city. The red alert was given to the American Red Cross, the Texas State Guard, Salvation Army and the Civil Air Patrol, and the prearranged plans of these organizations were activated. Within 10 minutes after the "bombing," equipment had been unloaded, an antenna put up and a 75-meter 'phone station put on the air in the State Guard communications van using the club call, W5US. Contact was maintained with other fixed stations in Wichita Falls, and test messages were sent throughout the city. The station was kept on the air for about an hour and a half before being disassembled. W5KZC and W5TLW operated from their cars. The entire operation was praised highly by Major W. R. Spencer of Shepperd Air Force Base. It was the first of any type of tests in this part of the state and was considered well done. Thanks should be expressed to the following amateurs who assisted: W5s ARS AVA CJE KZC QJY and TLW.

— *W5TLW*

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During the typhoon which swept a wide swath through the Pacific in mid-September, communications were lost with Wake Island for several hours. We have recently learned that first word of the typhoon damage on Wake came by way of amateur radio. W6LW informed us that at approximately 0330 GCT he heard KW6BI's distress call on the 14-megacycle band, followed by information concerning typhoon damage. He established contact at 0345. Since then, we have gotten further information on this operation direct from James Russ, KW6BI. It seems that

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In early September, amateurs of Rochester, Minn., performed a valuable service to the U. S. Weather Bureau, to the "Flying Farmers" and to thousands of spectators at the "National Plowing Contests" by supplying communications for the relay of weather information to hundreds of amateur pilots. This is the station set up in the Weather Bureau office at the Rochester Airport. That's WØFWN holding the mike back in the corner, and WØCWH sitting in front of the receiver. The others are Weather Bureau personnel.

♦

during the height of the storm he got on the air with aircraft equipment on aircraft frequencies, using makeshift antennas which frequently blew down. Experiencing no luck on any commercial frequency, he shifted to the 20-meter amateur band and worked W6EZJ, asking him to deliver messages to PAA, CAA and Standard Oil. Then contact was made with W6LW, who delivered a message to Russ' family. KW6BI's communication reached the mainland some eight hours ahead of any other word. KW6BI was formerly W6WYK of Redwood City, and also KL7MK of Nome, Alaska.

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On June 28, a civil defense drill was held in Rochester, New York, in which AREC members of the Rochester area played a big part. Twenty-eight local amateurs participated in the test which covered air raid zones, advance command posts, rescue squads and Department of Public Works. Approximately 90 messages were handled, 17 to the State Net. Several local amateurs, not alerted for the drill, were on frequency for service if needed. The following local amateurs took part: W2s BDY CEZ COW CZT DYD FBA FTF NES OWF PSD PZC QY RDG RMS SCZ SFA TEX UAD UTF UTH VBH VTR VVG YPR YPW ZHB ZS and ZUR.

— *W2QY, Monroe County, N. Y.*

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The Birmingham Amateur Radio Club and the Birmingham Emergency Mobile Net participated in a drive to raise funds for a historic shrine on September 13th. A fixed station operating under the club call W4CUE was set up at radio station WBRC, and mobile units were spotted at various places in Birmingham. Contributions pledged by telephone were promptly picked up by the mobile units. Over $3000 in cash was brought in by the mobile units from 1300, Sept. 13th, to 0100, Sept. 14th. Twenty-one mobiles were in operation, and a staff of 14 operators kept W4CUE in action during the 12-hour period.

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Fifteen SEC reports of August activity have been received so far, the lowest number since January (14). The record was established in July, when 21 reports were received. August reports represented 3172 AREC members. Twenty-seven different SECs have submitted formal reports since the first of the year — less than *half* of the total. Six SECs are 100% for 1952.

NATIONAL CALLING AND EMERGENCY FREQUENCIES

C. W.	*'PHONE*
7100 kc. (day)	3875 kc.
3550 kc. (night)	14,225 kc.
14,050 kc.	29,640 kc.
28,100 kc.	

During periods of communications emergency these channels will be monitored by stations of the National Emergency Net for personal-inquiry traffic. At other times, these frequencies can be used as general calling frequencies to expedite general traffic movement between amateur stations. Emergency traffic has precedence. After contact has been made the frequency should be *vacated immediately* to accommodate other callers.

The following are the National Calling and Emergency Frequencies for Canada: *c.w.* — 3535, 7050, 14,060; *'phone* — 3815, 14,160 kc., 28,250 kc.

CODE-PROFICIENCY PROGRAM

Twice each month special transmissions are made to enable you to qualify for the ARRL Code Proficiency Certificate. The next qualifying run from W1AW will be made on December 19th at 2130 EST. Identical texts will be sent simultaneously by automatic transmitters. Frequencies of transmission from W1AW will be 1887, 3555, 7130, 14,100, 28,060, 52,000 and 146,000 kc. The next qualifying run *from W6OWP only* will be transmitted on December 5th at 2100 PST on 3590 and 7248 kc.

Any person may apply; neither ARRL membership nor an amateur license is required. Send copies of *all* qualifying runs to ARRL for grading, stating the call of the station you copied. If you qualify at one of the five speeds transmitted, 10 through 35 w.p.m., you will receive a certificate. If your initial qualification is for a speed below 35 w.p.m., you may try later for endorsement stickers.

Code-practice transmissions are made from W1AW each evening at 2130 EST. References to texts used on several of the transmissions are given below. These make it possible to check your copy. To get sending practice, hook up your own key, and buzzer and attempt to send in step with W1AW.

Date	Subject of Practice Text from Oct. *QST*
Dec. 2nd:	*Pi-Network Tank Circuits* . . . , p. 11
Dec. 4th:	*Pi-Network Tank Circuits* . . . , p. 15
Dec. 10th:	*The Shunt "Selectoject,"* p. 18
Dec. 12th:	*A B.F.O. for Your Mobile*, p. 24
Dec. 15th:	*What Price Precision*, p. 26
Dec. 18th:	*A Novice-Built Test Meter*, p. 34
Dec. 23rd:	*How Rectifiers Work*, p. 42
Dec. 26th:	*Sugar-Coated Single Sideband*, p. 38
Dec. 29th:	*Codan Elimination of Intersignal Noise*, p. 36

DXCC NOTES

On page 23 of February 1951 *QST* appeared an FCC Public Notice, released December 21, 1950, which forbade communications with amateurs in certain countries. On March 11, 1952, FCC announced modification of this Notice to permit contacts with amateur stations in the Netherlands Antilles and DXCC credit is allowed for PJ contacts made after that date. On October 15, 1952, FCC announced a further modification to permit contacts with amateur stations in Lebanon (OD5) and Japan (JA, KA); DXCC credit for contacts with these two countries after October 15th therefore will be allowed. The countries still affected by the Public Notice are PK (except Netherlands New Guinea), FI, EP, EQ, HS, and OE (except allied occupation forces stations in Austria).

A.R.R.L. AFFILIATED CLUB HONOR ROLL

Following publication of this notice, each of the following clubs will be awarded the new "100% ARRL Club" certification . . . see facsimile of the certificate on page 71, July 1952 *QST*. It is with great pleasure that we here present the second section of our Honor Roll listings for 1952 in accordance with the Board policy for a special recognition of all affiliated clubs whose *entire membership* consists of members of the League. Refer to page 67 of June *QST* for the earlier results, listing additional active clubs with 100 per cent ARRL membership, these also determined from the '52 Annual Information Survey conducted to meet Board requirements. In early '53 a new survey will be initiated, a form sent each active affiliate for the filings on which continued affiliation and new Honor Roll listings will be based. Very many clubs will now be engaged in midseason activities, code and theory classes for newly-interested persons, civil defense, building and technical programs for members, and the '53 survey also will provide for reporting all such for ARRL information and bulletin purposes.

Azalea City Wireless Club, Palatka, Fla.
The Band Hoppers Radio Club, Ferguson, Mo.
Binghamton Amateur Radio Association, Binghamton, N. Y.
Candlewood Amateur Radio Association, Danbury, Conn.
Chesapeake Amateur Radio Club, Inc., Towson, Md.
Door County Amateur Radio Club, Sturgeon Bay, Wis.
Electric City Amateur Radio Club, Dunmore, Pa.
Gaston Amateur Radio Club, Gastonia, N. C.
Grumman Amateur Radio Club, Bethpage, L. I., N. Y.
Illinois Valley Radio Association, Inc., La Salle, Ill.
Inglewood Amateur Radio Club, Inc., Inglewood, Calif.
Moose Jaw Amateur Radio Club, Moose Jaw, Sask., Canada
Mound City Radio Amateurs, University City, Mo.
O.B.P. Amateur Radio Club, Chapter No. 1, St. Louis, Mo.
Palmetto Amateur Radio Club, Inc., Columbia, S. C.
Sandhill Amateur Radio Club, Inc., Hamlet, N. C.
Sunrise Radio Club, St. Albans, N. Y.
Sussex County Amateur Radio Association, Sparta, N. J.
The University of Toledo Amateur Radio Association, Toledo, Ohio

BRASS POUNDERS LEAGUE

Winners of BPL Certificates for September traffic:

Call	*Orig.*	*Recd.*	*Rel.*	*Del.*	*Total*
W3CUL	309	2990	2959	356	6614
W6IAB	63	2024	1826	65	3978
KG6FAA	821	1258	1038	171	3288
W6KYV	187	1262	348	911	2708
W6HK	121	1265	1095	149	2630
WØTQD	9	1086	1075	11	2181
W4USA	19	876	778	25	1698
W9JUJ	24	686	594	23	1327
W6WPF	47	632	617	15	1311
K4WAR	189	428	350	78	1045
W7IOQ	37	441	8	444	930
W4PL	4	432	357	68	861
W2ZOL	5	421	405	16	847
W6GYH	17	384	333	51	785
WØQXO	18	383	268	114	783
W5MN	27	339	216	110	692
W7FET	9	325	321	4	659
W7ETK	7	272	262	10	551
WØBVE	11	268	259	3	541
WØSCA	6	272	256	7	541
W6IZG	12	259	222	29	522
W2BTB	21	249	238	11	519
W7ONM	2	257	256	0	515
W1SJO	2	253	237	15	507
Late Reports					
W2BTB (Aug.)	42	1041	1016	25	2124
WØTQD (Aug.)	7	891	864	21	1783
K4WAR (Aug.)	184	724	642	82	1632
W2ZOL (Aug.)	3	473	463	10	949
W8ZGT (Aug.)	10	297	290	5	602

The following made the BPL for 100 or more *originations-plus-deliveries:*

W9DGA 162	K2NYS 135	W2VNJ 107
W9NZZ 151	W8ARO 134	W7BA 102
	W3PZW 111	

A message total of 500 or more or 100 or more *originations-plus-deliveries* will put *you* in line for a place in the BPL. The Brass Pounders League is open to all operators who qualify for this monthly listing.

TRAFFIC TOPICS

During the early fall months is the time when nets start casting about for a "better" frequency than the one they have been operating on. While they are looking and listening, they refrain from registering their net with ARRL, because they would only have to change it later, and by the time the registration got listed in *QST*, or in the lithographed Net Directory, it would be obsolete. But in order to know where all the *other* nets are operating, and when, they write ARRL for a copy of the "latest Net Directory," failing to consider that dozens of other nets are *also* looking for greener pastures, have *also* refrained from registering, and have *also* written us for a Net Directory. So any Net Directory we produce in the early fall would not only become quickly obsolete, but worse, it would be misleading. That's why we have to wait until the first of December to get out a new Net Directory, because it is not until then that the many nets have settled down after the seasonal flurry of reorganizing and relocating and re-registering.

It is mid-October as we write. Most nets should have returned to regular operation and settled down for the winter season. But have they? As of right now, 175 nets have been registered (since August 1st), and 174 nets which were registered with us last year have not re-registered. Draw your own conclusions — but we'll bet that better than 50% of those nets which have not re-registered are still in operation, and that every net member is leaving the re-registration to someone else. *Nets are registered or re-registered only upon request.* On several occasions we have been bawled out for registering nets without proper authority.

By the time you read this it will be late November or early December, and the new cross-indexed complete Net Directory will be well on its way toward completion, if not already in distribution. Although it may be too late to make the Net Directory, you can still register, and get a listing in March *QST*. What can you lose? See September *QST* (page 69) and lose no more time in sending us your net information.

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National Traffic System: Twelve out of a possible 14 high-level NTS nets submitted reports for September activities. These reports, surveyed over a long period of time and analyzed, show some interesting comparisons and trends. Just recently we have spent a couple of hours getting up statistics for the 22 months during which we have been keeping these detailed records. Perhaps we can present them in the next Emergency and Traffic Bulletin, or in *QST* if space permits. For now, suffice it to say that the period from December, 1951, through March, 1952, represented the high point in NTS activity so far. This was considerably higher than the activity during the same period from December, 1950, through March, 1951. NTS has had its ups and downs, its successes and its failures, its satisfactions and its disappointments; but, considering everything, we *are* making progress — a lot of it.

Net	*Sessions*	*Traffic*	*High*	*Low*	*Average*	*Most Consistent*
EAN	22	619	59	2	28	All
CAN	22	592	80	4	26.9	All
1RN	29	201	17	0	6.9	Conn., W. Mass.
2RN	44	309	21	0	7	NJN
3RN	36	200	26	0	5.6	E. Pa.
4RN	40	194	15	0	4.8	Va.
RN5	27*	129	12	0	4.8	Ark.
RN6	50	686	56	0	13.7	All
RN7	40	297	21	0	7	Wash.
9RN	26	466	134	1	18	All
TEN	26	408	27	5	15.7	Ia., Kans.
TRN	24	24	5	0	....	OSN, QON
MSN (Minn.)	24	56	10	0	2.3	
QIN (Ind.)	45	591	47	0	13.1	
Total	455	4772	134	0	10.5	
Record	455	4772	197	..	15.2	

* Out of 37 sessions held.

Note the new entry, below the totals. The "records" so indicated are on the basis of quarters; that is, the total of 455 net sessions in September is an all-time record for the quarter-year of July-August-September. Similarly, the total traffic reported of 4772 is a record for this quarter, but the high-traffic-per-session of 134 made by 9RN in September does not beat the 197 figure made by TEN in July, 1951; and the average-per-session of 10.5 does not beat the 15.2 average, also made in July, 1951.

Eastern Area Net: All regions were 100% in September except 3RN (which missed one session) and TRN (which missed three sessions). A record to be proud of.

Central Area Net: All regions reported 100% in September. CAN certificates have been issued to W4TAV, W8UPB and WØBVE.

Third Regional Net: Certificates have been earned by W2IVS/3, W3s HKS PZW RCG and RJA. All section nets are again in operation.

Fourth Regional Net: The roster of 4RN looks a lot different these days. The boys down South are really giving W4AKC some support.

Sixth Regional Net: W6ELQ has resigned as Manager. W6JQB is acting pending selection of a new manager.

Seventh Regional Net: W7CZX reported into RN7 *forty* times (100%) in September. W7FRU and W7PYV turned in 95% performances. VE7QC helped represent British Columbia, but representation from Alberta, Saskatchewan and Alaska is still zero.

Ninth Regional Net: Certificates have been earned by W4s OAO PRT, W9s CXY LGR OKQ PTS and YWE.

Tenth Regional Net: Poor conditions have handicapped TEN's late session, which was resumed October 1st.

Thirteenth Regional Net: A very well-written TRN bulletin was issued by manager VE3BUR in September. It is hoped that this will increase activity. More traffic is needed.

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Learning the code is a lot like learning a new language. One does not acquire a vocabulary in a language being learned by memorizing the various sounds which go into each word and translating them into a meaning. One learns the sound of the whole word, its meaning automatically

registering on one's consciousness. The same procedure is adaptable to learning the code: not to memorize the number of "dots" and "dashes" in each character, and the order in which they are sent, but to learn automatically to translate the *sound* of each character into a letter — eventually to translate the sound of whole words (as sent in code) automatically, without thinking too much about the long and short sounds and integrated spacing which make them up.

In the Los Angeles Section, the beginners' net (El Capitan) is referred to as *restricted* speed, not *slow* speed. The code characters are sent at a speed which would be equal to 25 w.p.m. with normal spacing; but the spacing between them is greatly exaggerated in order to give the sound of each character time to register. The learning process thence becomes one of learning each character by its own distinctive sound, rather than by counting the dots and dashes and translating that into a character.

W6FYW (Manager) and W6ESR (SCM) report good progress with this system, an increase in speed being effected by decreasing the spacing rather than by decreasing the length of the short and long sounds. Those sections running slow speed nets might consider giving this method a try.

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Most of us traffic men are creatures of habit, and once the habit of doing something a certain way is firmly imbedded, it takes a little more than a statement of recommended procedure by ARRL or anyone else to change it. Nevertheless, we would be remiss in essential services to the amateur if we did not make such recommendations.

W4MVM points out that there are many different methods of correcting an error on c.w. Some use the standard signal (. . . . . .) and start over with the incorrect word. Some use the interrogatory signal (IMI), some use a commercial signal (.. ..), etc. Mark says he could not find any recommended method in ARRL publications.

Okay, here is our recommended method: When making an error during the transmission of any word (especially in sending a message), send the standard error signal (a string of dits), then start over *with the last word sent correctly.* If you merely wish to repeat an unusual or difficult word, follow it with the interrogatory (IMI) and repeat the word.

TRAINING AIDS

We are pleased to announce new additions to the ARRL Training Aids Library. Two films now available to affiliated club groups are: "Standing Waves on Transmission Lines" (F-27), and "The Effect of the Ionosphere on Radio Wave Propagation" (F-28). Each of these 16-mm. sound films runs for thirty minutes. The new quiz titled "The Novice" consists of ten multiple-choice questions designed to supply helpful information to all amateurs, although designed specifically for the novice. When requesting this quiz, ask for Q-10. From the response our last quiz, Q-9 (TVI), received, requests should be brisk!

ELECTION RESULTS

Valid petitions nominating a single candidate as Section Manager were filed by members in the following Sections, completing their election in accordance with regular League policy, each term of office starting on the date given.

Nebraska	Floyd B. Campbell, WØCBH	Aug. 15, 1952
Kansas	Earl N. Johnston, WØICV	Oct. 29, 1952
Western Massachusetts	Roger E. Corey, W1JYH	Nov. 10, 1952
Saskatchewan	Harold R. Horn, VE5HR	Dec. 15, 1952

In the Rhode Island Section of the New England Division, Mr. Merrill D. Randall, W1JBB, and Mr. Alfred E. Coe, W1RVQ, were nominated. Mr. Randall received 60 votes and Mr. Coe received 39 votes. Mr. Randall's term of office began Oct. 1, 1952.

In the Canal Zone Section of the Southeastern Division, Mr. Nelson W. Magner, KZ5NM/ W4QBS, Mr. Roger Howe, KZ5RM, and Mr. Everett Kimmel, KZ5AW, were nominated. Mr. Magner received 24 votes, Mr. Howe received 20 votes, and Mr. Kimmel received 8 votes. Mr. Magner's term of office began Oct. 1, 1952.

SANTA BARBARA SECTION AUTHORIZED

This announcement establishes a new Section of the League's operating territory, effective April 12, 1953, for field organization purposes. All members in San Luis Obispo, Ventura and Santa Barbara counties will be members of the Santa Barbara Section of the Southwestern Division, as of this date. Nominations for the new SCM to take office April 12th next are solicited below.

Also effective April 12, 1953, the Los Angeles Section will consist of the territory comprised in the following counties: Los Angeles, Riverside, San Bernardino, and Inyo. Notice is hereby given that signers of petitions for SCM candidates must reside in the respective territory so indicated, responsive to the above notice soliciting nominating petitions for SCM.

ELECTION NOTICE

(To all ARRL members residing in the Sections listed below)

You are hereby notified that an election for Section Communications Manager is about to be held in your respective Sections. This notice supersedes previous notices.

Nominating petitions are solicited. The signatures of five or more ARRL full members of the Section concerned, in good standing, are *required* on each petition. No member shall sign more than one petition.

Each candidate for Section Communications Manager must have been a licensed amateur for at least two years and similarly a full member of the League for at least one continuous year immediately prior to his nomination.

Petitions must be in West Hartford, Conn., on or before noon on the closing dates specified. In cases where no valid nominating petitions were received in response to previous notices, the closing dates are set ahead to the dates given herewith. The complete name, address, and station call of the candidate should be included with the petition. It is advisable that eight or ten full member signatures be obtained, since on checking names against Headquarters files, with no time to return invalid petitions for additions, a petition may be found invalid by reason of expiring memberships, individual signers uncertain or ignorant of their membership status, etc.

The following nomination form is suggested: (Signers will please add city and street address to facilitate checking membership.)

Communications Manager, ARRL [place and date]
38 La Salle Road, West Hartford, Conn.

We, the undersigned full members of the.....
.....ARRL Section of the.....
Division, hereby nominate.....*.....
as candidate for Section Communications Manager for this Section for the next two-year term of office.

Elections will take place immediately after the closing dates specified for receipt of nominating petitions. The ballots mailed from Headquarters to full members will list in alphabetical sequence the names of all eligible candidates.

You are urged to take the initiative and file nominating petitions immediately. This is your opportunity to put the man of your choice in office.

— *F. E. Handy, Communications Manager*

Section	*Closing Date*	*SCM*	*Present Term Ends*
Yukon *	Dec. 15, 1952	W. R. Williamson	Mar. 17, 1949
San Francisco	Dec. 15, 1952	R. F. Czeikowitz	Apr. 14, 1952
West Indies	Dec. 15, 1952	William Werner	Aug. 15, 1952
Colorado	Dec. 15, 1952	M. W. Mitchell	Sept. 15, 1952
San Diego	Dec. 15, 1952	Mrs. Ellen White	Oct. 16, 1952
Maritime *	Dec. 15, 1952	Arthur M. Crowell	Oct. 16, 1952
Sacramento Valley	Dec. 15, 1952	Ronald G. Martin	Nov. 1, 1952
Minnesota	Dec. 15, 1952	Charles M. Bove	Feb. 17, 1953
Oregon	Dec. 15, 1952	J. E. Roden	Mar. 1, 1953
Wyoming	Dec. 15, 1952	Arlen D. Gaddis	Mar. 1, 1953
Missouri	Dec. 15, 1952	Clarence L. Arundale	Mar. 1, 1953
British Columbia*	Jan. 2, 1953	Wilf Moorhouse	Resigned
Mississippi	Jan. 2, 1953	Norman B. Feehan	Mar. 8, 1953
Western Penna.	Jan. 15, 1953	Ernest J. Hlinsky	Mar. 17, 1953
Md.-Del.-D. C.	Jan. 15, 1953	James W. John	Mar. 21, 1953
Los Angeles	Feb. 2, 1953	Samuel A. Greenlee	Apr. 12, 1953
Santa Barbara	Feb. 2, 1953	.....	.....
Maine	Feb. 2, 1953	Orestes R. Brackett	Apr. 16, 1953
Southern Texas	Feb. 16, 1953	Dr. Charles Fehrmaglich	April 29, 1953
Wisconsin	Mar. 2, 1953	Reno W. Goetsch	May 12, 1953

* In Canadian Sections nominating petitions for Section Managers must be addressed to Canadian Director Alex Reid, 169 Logan Ave., St. Lambert, Quebec. To be valid such petitions must be filed with him on or before the closing dates named.

• All operating amateurs are invited to report to the SCM on the first of each month, covering station activities for the preceding month. Radio Club news is also desired by SCMs for inclusion in these columns. The addresses of all SCMs will be found on page 6.

ATLANTIC DIVISION

EASTERN PENNSYLVANIA — SCM, John H. DuBois, W3BXE — SEC: ISE. RMs: AXA, BIP. E. Pa. Nets: 3610 kc. On Sunday, Sept. 21st, a highly successful picnic and transmitter hunt was held by the Lancaster RTS at Long Park, Lancaster. The Delaware-Lehigh ARC reports a handy-talkie building contest is in full swing, also that the members have completely rebuilt their Net Control Station at the Court House in Easton. EPA Net is back in full swing. ELI is back on 80 meters after a long absence. PMG and UKI report many 144-Mc. openings with several long-haul contacts. PDJ, RFI, and PSH are all attending Temple Tech. and the latter has just completed a radio-controlled model plane and an all-band mobile rig. He does one-armed paperhanging in his spare time! PYF is now NCS for Eastern Section, 3rd call area, of TCPN. PXY has new QTH in Springfield, Del. Co. QLZ is putting up new multi-band antenna. QVN is reporting into EPA Net for Wilkes-Barre. SCJ and SSE dropped the "N" from their calls. WN3TEC passed Technician Class exam, and is putting 65 watts on 144 Mc. The TVI Committee, under the leadership of QV, reports good results. We regret to record the passing of IPE, of York. Traffic: (Sept.) W3CUL 6614, BIP 266, AXA 58, QLZ 44, RJB 43, PDJ 26, DUI 17, ADE 13, BFF 13, PVY 10, ELI 9, AD 7, CDT 5, QEW 4. (Aug.) W3RCG 29.

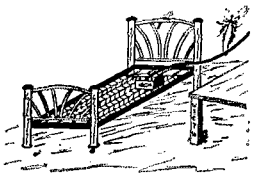
MARYLAND-DELAWARE-DISTRICT OF COLUMBIA — SCM, James W. John, W3OMN — A. H. Hargroves demonstrated 160-Mc. f.m. walkie-talkie at the Sept. 22nd meeting of the Chesapeake Amateur Radio Club. Col. Van Deusen, ECP, discussed RACES at the Washington Radio Club meeting of Sept. 27th. WRC conducts a Novice class with an age limit of 13 years. Information can be obtained at regular meetings on the 2nd and 4th Saturdays of the month — 930 H St., N. W., Printcraft Building. On Sept. 26th Bob Karvwatt, LQK, gave the Rock Creek Amateur Radio Assn. a very interesting talk on amateur radio in Greenland as OX3BQ. LUL and LUI presented a lecture on modulation fundamentals for the Sept. 12th meeting. PSP discussed code training methods at the Baltimore Amateur Radio Club meeting of Oct. 6th. Those amateurs interested in code classes in Baltimore should see or call PSP, Hopkins 9814. Net Control Stations of MDD C.W. Net are QZC, ECP, MCD, MCG, PZW, and AKB. BWT is Net Manager. PRT again is /3 from Easton, Pa., where he is attending college. DRD is active along with the Delaware Amateur Radio Club in setting up c.d. stations for the State of Delaware. While erecting a new antenna PSP had the misfortune to fall off his roof and broke his ankle. Traffic: W3PZW 429, ONB 127, CVE 117, RCN 67, JZY 55, JE 47, DRD 36, COK 35, NOE 33, QZC 21, AKB 12, RJA 12, CQS 11, PRT 7, HC 6, NNX 6, PTZ 2.

SOUTHERN NEW JERSEY — SCM, Lloyd L. Gainey, W2UCV — The Penn-Jersey Amateur Radio Club is the latest club in this section to become affiliated with the League. The Atlantic Radio Club set up emergency communications stations in Atlantic City at Columbus Plaza and the City Hall during the SET using the club call K2BR. Mobile and fixed stations were active in the Camden County Area handling traffic for c.d. and the American Red Cross. Mercer County MARS Net resumed activity Oct. 1st, with A2VU Acting Net Control. It is requested that all active Mercer MARS members report in Wednesdays at 8:30 P.M. ASG is back home after some post-graduate work at Ohio State University. HAZ is on the inactive list because of family illness. RG and K2BG attended State Civil Defense meeting in Newark recently and their report indicates a lot of planning still is needed at top State levels before local areas can really get rolling. This column needs a monthly report from all club secretaries in order to give full coverage to the section. I have never intentionally excluded any news items sent in and as long as room is available will print them all. Traffic: K2BG 216, W2RG 141, ZI 23, ASG 19.

WESTERN NEW YORK — SCM, Edward G. Graf, W2SJV — SEC: UTH. RMs: RUF, COU. PAM: GSS. NYS, 3615 kc., 7 and 10 P.M.; 3980 kc., 6:30 P.M. NYSS, 3595 kc., 8 P.M. NYS C.D., 3509.5 and 3993 kc., 9 A.M. Sun. K2NYS, the amateur call at N. Y. State Fair, handled 135 messages to overseas GIs. Those responsible for the station's operation deserve our thanks for a job well done. COU is on 75 meters, received a commission in NYNG, and was awarded two prizes at the Oneida 'fest, consisting of two waste-paper baskets. He has attended MARS advisory committee meetings in N. Y. C. QNA is back on 2 meters after a business trip to Michigan. Under the leadership of AFY the following 75-meter mobiles from the Buffalo Area furnished communications at the Regional Sports Car Races on Grand Island: AFY, BHQ, BZE, DEQ, EAW, FMF, JPE, OZR, PPL, PYB, QBC, RIB, SKN, SNC, SYT, TAX, TMI, UGB, UJR, UQV, UYG, QQQ, VUN, VYL, WVH, WN2KIO, and NMO. Also at the National Races at Watkins Glen for the Grand Prix the following assisted: AFY, UQV, DYD, NM, 3MFD, 3PUZ, 3CPL, 3GH, 3ZS, 3TOD, 3KFR, and 3DXT. GRH is heard from Valparaiso on 9SAL. PYC is a lieutenant in CAP. UTH worked some 9s and 9s on 2 meters. A group of 32 from Utica attended the Central N. Y. Hamfest at Oneida. ICE entertained with a color movie and UTH addressed the meeting on the October SET. New officers of KBT are CIH, pres.; JHI, vice-pres.; PPL, secy.; SYT, treas. CEZ is home from the hospital. ZYX moved to Ohio. ACO, DPR, and HKA have been issued NYS net certificates. DHQ is tinkering with low pass-band pass filters on his modulator. GSS, UTH, and SJV resigned as C.D. Zone Coördinators for Zones 8, 9, and 10. BTB has been appointed medical communications officer in Onondaga Co. C.D. ODR is the call of the University of Buffalo Radio Club. KN2AZA has an S-38B. UTH has 20-, 10-, 6-, and 2-meter beam on new 45' tower. YUE is 2-meter mobile. VVG has 24-element beam for 2 meters. SNI/M calls CQ while assisting the jr. operator in delivering the Sunday morning paper. PPR has an Elmac transmitter. ZS came in first and SGJ second in the transmitter hunt conducted by the Rochester Mobile Club. Traffic: (Sept.) W2ZOL 847, BTB 519, RUF 381, K2NYS 135, W2GSS 127, ZRC 122, DJF 61, QAA 60, KEL 50, SJV 48, COU 44, MSF 40, CPN 24, DHQ 15, RJJ 15, K2DG 13, W2UNF 7, CFY 5, ZHU 4. (Aug.) W2BTB 2124, ZOL 949, UNF 13.

WESTERN PENNSYLVANIA — SCM, Ernest J. Hlinsky, W3KWL — RMs: NUG and GEG. PAM. AER. The Western Pennsylvania traffic net resumed operations Sept. 29th, with NUG acting as NCS. Net time is 7 P.M. Mon. through Fri. on 3585 kc. ORS appointees are KQD, LOD, JSH, KNQ, UVD, LXE, 2IVS/3, NUG, MIZ, ODU, GEG, VNL, NRE, NCD, UHN, KUN, LEV, CA, NCJ, and KWL. This is the last warning on overdue endorsements. All appointments that fail to meet this or any other requirement will be cancelled. The Upper Ohio Valley Emergency Net held its first fall drill on Sept. 14th at 8:30 A.M.; the c.w. net on 3590 kc. and the 'phone net on 3965 kc. NUG and MPO are NCS. The hamfest at Lake LeBouef held by the Erie and Conneaut Radio Clubs was a success. Judges for the events were Atlantic Division Director GEG, 8HVK, and MEF. The mobile winner was KLD. NZK has a controlled-carrier rig working beautifully. RIV is recovering from a bad throat infection. The Steel City Amateur Radio Club's election is forthcoming with the following running for office: MTP and LOR, for pres.; NRQ, OUA, and UHM, for vice-pres.; LKA, and UJM for secy.; RIK and MPK for treas.; and SDV and SVU for corr. secy. It was a sad day as far as Pittsburgh was concerned during the v.h.f. openings and V.H.F. Contest. RUE, KWH, and FPH were the only ones carrying the mail. Heard working 2-meter DX were QYK, LNA, WN3SXF, KXI, and LST. LNA is completing his new p.p. 826 final and rebuilding to a 66½-inch enclosed rack for 2 meters. LXE reports CN8GF visited him. NCJ was visited by VE3SF and KP4KD. SYU says his BC-458 is working wonders. A monthly report by QN, Erie County EC, shows 25 AREC members, 8 supporting, 10 mobiles. Your SCM is disappointed in the failure of ECs to report monthly either to the SCM or to Headquarters. It seems to me that the responsibility of each EC is to advertise his emergency organizing activities. Also in the *QST* listing of Section Emergency Coördinators W. Pa. is one of those which does not have an SEC. So far, there have been three good SECs appointed only to have them resign. There's lots of talk of how things should be done, gang, but not one good suggestion as to how they should be done, and

(*Continued on page 85*)



WE WISH to compliment the editor of Radio and Television News for writing such a fine and effective editorial in the September 1952 issue of that magazine. We have overheard complimentary comments from many hams on this writing. We hope that all amateurs who read it will take it to heart.

The part of the editorial concerning the value of the ARRL is straight-forward and to the point. Any slackening of League support could be due to the same sort of indifference and shirking of responsibility that has caused the drastic falling off in the percentage of voters in this country who use their right to vote at election time — a percentage that has reached such a low value as to become a national disgrace. Let's hope that this year witnesses an upward trend in both of these matters.

The loss of contact with our fellow hams due to the increased diversification or our interest in ham radio is unfortunate. Truly, it is in many cases justified. A fellow ham may not have the time or the financial ability to operate on more than one or two bands or in more than one or two phases of amateur endeavor. It can also be said that it may be better to become an expert at one phase than a "Jack of all trades" in many. However, the writer feels that it would be beneficial for those who can, to travel around a bit and see how the "other half" lives. It can be lots of fun and quite enlightening.

The writer did just this during vacation this fall. Having spent most of my time in the past years in the neighborhood of the VHF bands, it was decided to try something entirely different. A command transmitter, 3.0 to 4.0 mc., was acquired and suitably altered. All VHF equipment was left at home. The Command transmitter, power supply, modulator, NC-173, XYL and accessories were packed into the car and we headed for a cabin at Lake Elmore in Northern Vermont. Soon after arrival, the transmitter and power supply were set up. A piece of wire was strung through the rafters of the cabin for an antenna and a CQ was sent out on 80 meters C.W. No answers! The final would only load up to 100 ma. The bulls-eye on the power supply doubled in brilliance every time the key was pressed and the light over the kitchen sink flickered. More CQ's. Still, no answers! Then came a bright idea. The power supply was pushed half-way off the bench so that one corner rested on and made contact to the bed spring on a nearby half-size cot. Up went the loading to 175 ma. Meanwhile the bulls-eye had burned out so we no longer worried about that. Now, we got answers!. "Ah! It's great to be an Engineer." Our counterpoise had put us into business. Some daytime work was done on 75 meter phone, but this mode of operating was hopeless at night. The 70 watts input and hay-wire antenna system were squashed flat as a pancake by the kilowatters. Not so on C.W. Everything from New Brunswick to Indiana and Virginia was worked easily. Of course, the code was quite rusty at first but it was starting to polish up by the end of the week. One QSO I will always remember was on 80 C.W. with our New England director Percy Noble, W1BVR. I have never copied a smoother fist. The stuff just seemed to write itself down. Of course, I had to put up with a lot of good natured kidding about getting so low. My answers were that it saved bringing along R.F. amplifiers and besides it might come in handy to charge the storage battery in the car, but it was really a lot of fun. It did bring out the fact that any phase of ham radio can be fun, if you will take the time and pains to try it. After all, we are all one happy family and that is as it should be.

CAL HADLOCK, W1CTW

P.S. In the old days, the C. W. boys used to kill time sending "Dah dit dit dit da." Now it has become "TV TV TV". Guess this is just the trend of the times!

SELECTIVITY...
in a Communications

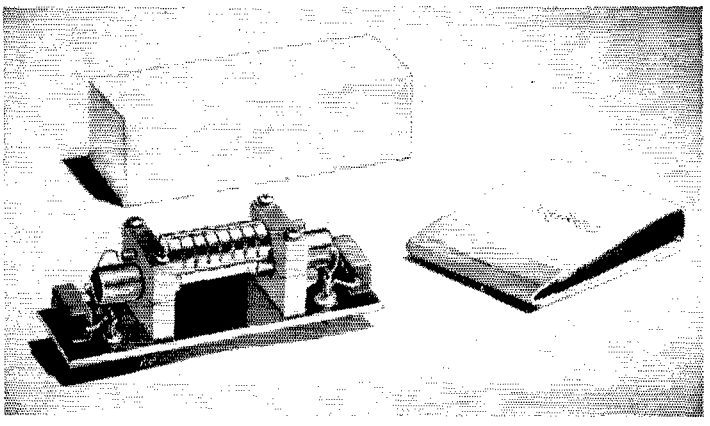
The selectivity curves shown here tell the story of a new concept in receiver performance. The Mechanical Filter recently developed by Collins and incorporated in the 75A-3 receiver represents an entirely new approach to the attainment of selectivity. Using resonant mechanical elements rather than tuned electrical circuits, the Mechanical Filter gives a close approach to the ideal rectangular selectivity curve. Each 75A-3 receiver has plug-in provisions for two Mechanical Filters. A 3 kc Filter is standard factory equipment and when still greater selectivity for CW operation is desired, the 1 kc plug-in unit is available as an optional accessory. With both the 1 kc and 3 kc Filters in the receiver, a switch on the front panel provides instantaneous choice of selectivity characteristics. When required, the crystal filter may also be switched into the circuit to notch out interfering signals and heterodynes.

The nearly flat top and sharp cutoff at the sides of the selectivity curve of the 3 kc Mechanical Filter permit all AM signals to be tuned so as to accept the carrier and either one of the sidebands at will, while the other sideband is rejected. Thus much distortion due to fading is eliminated, and susceptibility to interference is greatly reduced. Alternatively, both AM and SSSC signals may be received with carrier supplied by the BFO; and the ideal selectivity curve of the Mechanical Filter permits full advantage to be taken of the benefits of local carrier reinsertion.

Because of the Mechanical Filter's straight-sided selectivity curve, the 75A-3 receiver can be tuned near a strong signal without responding to that signal. As the receiver is tuned across the band, signals suddenly appear and disappear. This is because of the absence of broad skirts which "drag out" the tuning of conventional receivers.

All of the proven features of the 75A-2 have been retained in the 75A-3. These features, such as crystal controlled front-end, highly stable variable frequency oscillator, and accurate dial calibration, to name but a few, combine with the new Collins Mechanical Filter to give unequalled performance.

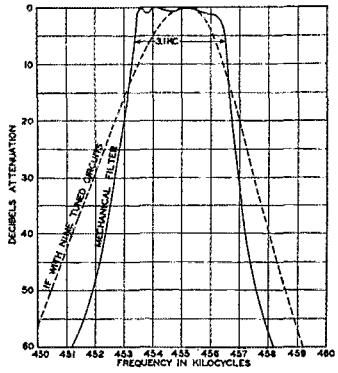
Whether you ragchew, handle traffic, or work dx, here is the receiver for solid contacts. The straight-sided, flat-topped, selectivity curve and the excellent frequency stability of the 75A-3 make it a natural for the single-sideband operator.

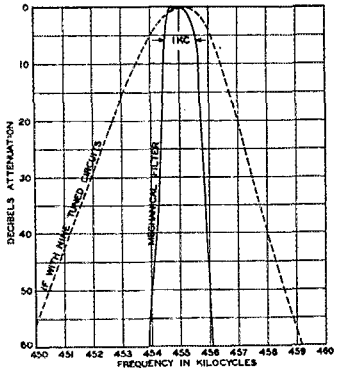


The Mechanical Filter is a resonant mechanical device that is coupled into the receiver's 455 kc IF strip by means of magnetostriction. As shown here, it consists of three general sections: an input transducer, a mechanically resonant section consisting of a number of metal disks, and an output transducer. A 455 kc electrical signal applied to the input terminals is converted to a 455 kc mechanical vibration at the input transducer. This mechanical vibration travels through the resonant mechanical section to the output transducer, and is converted to a 455 kc electrical signal which appears at the output terminals. The Mechanical Filter is enclosed in a hermetically sealed case and requires no adjustment.

never before achieved Receiver

The Collins 75A-3 with Mechanical Filter. A 3 kc Mechanical Filter is installed at the factory. The Filters are plug-in units, and a 1 kc Mechanical Filter may be installed at any time.





The curves above show a comparison between the selectivity curve of a good IF strip using nine tuned circuits, and typical selectivity available in a Collins 75A-3 receiver incorporating a 1 kc and a 3 kc Mechanical Filter. When both Mechanical Filters are installed in the receiver, either one may be selected at the flip of a switch. These curves show performance without the crystal filter. When required, the crystal filter may be called into play to phase out unwanted signals or heterodynes.

ATTENTION 75A-2 OWNERS

75A-2 owners can return their receivers through the Distributor to be modified at the factory to incorporate the new Mechanical Filter arrangement. Modifications can be made, effective immediately, and will consist of the installation of a 3 kc Filter, minor repairs and complete realignment of the equipment. Modification, F.O.B. Cedar Rapids $125.00

Net Domestic Prices:

75A-3 receiver including 3 kc Mechanical Filter $530
1 kc Mechanical Filter plug-in unit, $75
10-inch speaker in matching cabinet, $20
8R-1 plug-in crystal calibrator $25
148C-1 plug-in NBFM adapter .. $22.50

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(*Continued from page 78*)

who is to do them. Traffic: (Sept.) W3LXE 39. (Aug.) W3LXE 32.

CENTRAL DIVISION

ILLINOIS — SCM, H. F. Lund, W9KQL — Section Nets: ILN, 3515 kc.; IEN, 3940 kc. SEC: QLZ. Asst. SEC: HPG. RM: BUK. PAM: UQT. SXL has returned to traffic activities after having been hospitalized. STZ stopped by on his way to W6-Land. LHB is operating from KG6FAA and looking for Illinois contacts on 40-meter c.w. or 20-meter 'phone. YIX sparked activity for relaying reports of the air-raid siren tests in the Chicago Area. IFA is running on-the-air tests of eight- and twelve-element beams on 144 Mc. ICF puts most of his time on the construction of a super-multimeter. New officers of the Springfield Club: JSD, pres.; MAE, vice-pres.; MCE, secy.-treas.; and WN9PPM, custodian of the pot. GBT and his XYL are the proud parents of a new baby girl. UFH is a new ham in Rochelle working 160-meter 'phone and 40-meter c.w. ECP holds down WSDR at Sterling. BPT is de-TVIing the rig with shielded corner in the room while GNU has a double-shielded shack in the basement. DOR and GC both received Extra Class tickets. New calls in Zion are VAX and WN9UYV. The XYL of AAH dropped the "N" and now is RXY. REP also is "N"-less. UCP is a newcomer to the 430-Mc. band with an 832A in the final. OUR is doing a lot of mobile operating because of TVI at home. YAP can now do OO work on all bands, 160 through 2 meters. UHT and WN9TMY are newly-licensed in Clinton. OCG operated portable in Wisconsin during the summer months. Traffic: (Sept.) W9YIX 273, LGR 151, CEE 83, CSW 62, W4MXU/9 57, W9BUK 35, KQL 28, SXL 24, LXJ 18, CTZ 16, BGN 7. (Aug.) W9UFM 73, STZ 40.

INDIANA — SCM, Clifford C. McGuyer, W9DGA — KAS made DXCC on 'phone and has new 'phone patch. DOK reports the Muncie group mobiled to Lake Tippecanoe. FYM is Early Bird 'Phone Net member. 2STK, ex-SVU, visited the Garrett hams. PPS has a new receiver. NZZ received his Extra Class license. OHT now is working for WEOA in Evansville. NXU has a commercial license. QLW is working for the Naval Department in Fort Wayne. JBQ reports RFN traffic as 87. QID works for the New York Central Railroad. The Evansville Club had a booth at the hobby show and had a grand hamfest. JUJ received Public Service award for her work during the Ohio River Flood. NRD left for the Army. LOZ has a new 70-foot tower. NTR has Collins 32V-3. ANH reports Vigo County has a dozen mobiles on 50.6 Mc. BKJ reports IFN traffic as 149. PPS is building new 813, 150-watt final amplifier. The Indianapolis Radio Club now meets each Friday at the Marine Armory. FZW has a new mobile transmitter. New ECs are LOZ, LaPorte County; IFR, Wabash County; QID, Pike County; JFJ, Vanderburg County; JLV, Montgomery County; and VJX, Randolph County. BDP is new ORS. LOZ is new OES, and QID is new OPS. ZIB has a new pair of 813s on with no TVI. KLR and NJS totaled 33 hours of ragchewing during September. JUJ reports QIN traffic as 591. IZC is a member of the Overseas Net. HKQ is deputy sheriff of Jasper County. New calls in the section are W9PRY, WN9STC, and SSW. TT grinds crystals for QIN and QRFN members. JUJ and WN9TKO have a new home near Muncie. RDJ handled traffic from the Evansville Hobby Show. New Castle, Muncie, and Richmond Clubs are forming a Tri-City Club. MJU and MOH are co-editors of *TARS Sparks*. ZZY and JTU mobiled out West. GFS is a papa. JUH is en route overseas with the Air Force. GWL has a new Collins receiver. OVB received his General Class license. UMS was in charge of the Evansville Hamfest. SEC: LZI. REC: TT. PAMs: BKJ and DOK. RMs: JUJ, JBQ, and WWT. 'Phone Net (IFN) 3910 kc. 6:30 P.M.; c.w. (QIN) Net 4, 6:30 and 10 P.M. UMS is building new p.p. 250TH final for 75-meter 'phone. WN9UHY works 3719-kc. c.w. Traffic: (Sept.) W9JUJ 1327, YWE 312, TG 256, TT 240, NZZ 230, DGA 190, JBQ 109, BKJ 100, HSC 84, KDV 66, LZI 66, UMS 42, ZIB 33, WBA 31, DKR 25, DOK 25, FZW 25, FYM 24, IZC 24, QLW 24, FSA 21, NTA 19, VNV 18, KLR 15, PPS 7, BDP 6, MUR 4, WN9UQP 3, WN9UHY 2, W9YVS 1. (Aug.) W9KAS 8, PPS 6.

WISCONSIN — SCM, Reno W. Goetsch, W9RQM — SEC: OVO. PAM: ESJ. RMs: IQW, SFL. 'Phone Net (BEN) 6 P.M. daily 3950 kc. C.W. Net (WIN) 3625 kc. 7 P.M. daily; slow-speed 6:30 P.M. Mon.–Fri. State mobile emergency and c.d. frequency is 29,620 kc. FCF is on both 'phone and c.w. with new 500-watt final. LSK is on 75-meter 'phone and 40-meter c.w. with new Eldico 250-watt rig. His brother, OPS, is building an identical unit. BKD is pondering antenna problems because of a small lot at his new QTH. BVL has new variable center-loaded whip on 4-Mc. mobile. ODD, at Marquette U., has been active on 4 Mc. ILR has new Globe Champion transmitter. Wisconsin Council of Clubs' election results are as follows: JXY, pres.; ART, vice-pres.; BCC, treas.; ONY, secy. New ARRL appointments: PTZ/9 as ORS, TPS as EC. Appointment renewals: VHA, NRP, and GJY as EC,

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FCF as ORS, OVO as OPS. CXY has among his schedules the following nets: WIN, 9RN, CAN, 8RN, 10RN, MSN, QMN, BN, MDD, NCN, ILN, and QIN! UTV is on 7 Mc. CW is new in Madison. NLA reports the DRRC has its emergency unit set up in a trailer, antennas and all. The Racine Megacycle Club furnished communications for the Racine Motorcycle Club's annual "Turkey Run" Sept. 21st. Participating were BVG, LXY, KZZ, NNJ, OVZ, HFL, IYP, WWH, and SZL. LEE has a new 75A2 and is working on p.p. 4-125A final for 144 Mc. NYS has a new converter and is back on 144 Mc. W5QNL/9 is working 144 Mc. from Warrens, Wis. WN9TTP is on with a 522 and Gonset converter from Rib Lake. FAN worked New York and New Jersey on 144 Mc. Sept. 8th. SBQ and his XYL, PVR, soon will be W8s, having moved to Michigan. IQW and SFL are lining up NCS for WIN operation. OVO reports good participation in the SET through the efforts of all ECs in the section. Hidden transmitter hunts have been the highlights of several weekly drills of the Wisconsin Valley Emergency Corps. Traffic: W9CXY 92, CBE 27, ODD 27, SFL 20, FCF 17, RQM 16, HDV 15, CFP 12, ERW 11, IFS 7, LSK 4, MUM 1.

DAKOTA DIVISION

NORTH DAKOTA — SCM, Everett E. Hill, WØVKP — All club secretaries and individual hams are urged to send in reports of their activities to your SCM. Report on new equipment, changes in QTH, and operating accomplishments. IMPORTANT — all Novices interested in a Novice net, notify the SCM. All hams in the State are requested to drop a post card to the SCM for AREC registration form. We desire that every ham do this for the information file. Send your name and QTH to the Sioux Amateur Radio Assn., Box 73, University Sta., Grand Forks, and get on their free mailing list for their FB paper *The Feedline*. LHS has teletype apparatus to experiment with. HWT is on 'phone from GF. BVW has Johnson rotator and 10–20 beam on steel tower. New officers of RRRA are GGI, pres.; LHS, vice-pres.; WNØECG, secy-treas. I wish to thank the hams who turned out for my meetings in Minot, Bismarck, and Grand Forks. I again urge you to register with me for operating appointments. Please send reports each month as I cannot write this column without your assistance.

SOUTH DAKOTA — SCM, J. W. Sikorski, WØRRN — SEC: GCP. RM: OLB. Approximately 40 South Dakotans attended the Dakota Division Convention and had an enjoyable time. South Dakota nets are in full operation with the 75-meter 'phone net on 3870 kc., 1830 CST, Mon. through Sat., and 9:30 A.M. Sun.; and the c.w. net on 3615 kc., Mon., Wed., and Fri. at 1930 CST. Black Hills ARC officers are IWE, pres.; YQR, vice-pres.; MFZ, secy.; FJZ, treas.; and QHX, act. mgr. Sioux Falls ARC officers are MPQ, pres.; ZIQ, vice-pres.-secy.; and RWE, treas. RWE now is trustee of ZWY, succeeding ZFE, who has moved to California to go into TV business. CSB, GFS, and WNØIZQ are engineering students at U.S.D. The Prairie Dog ARC conducted a "traffic-fest" and handled more than 100 messages. IZA has a new jr. operator and EUJ a new jr. YL. I'm still not receiving activities from South Dakota clubs. Please help me out with this column. Traffic: (Sept.) WØPHR 7, OLB 6. (Aug.) KØFAL 8.

MINNESOTA — SCM, Charles M. Bove, WØMXC — Asst. SCM: Jean Walter, ØKYE. SEC: BOL. RMs: DQL, RPT. WNØLHT, LPX, LJX, KMP, KNC, and KMN are new Novices. TOZ has been working the boys in St. Paul by mobile from California on 20 meters. ELC is now Advanced Class. Ken is using a Harvey-Wells with 80 acres for antenna space. UYU, of Ogilvie, has moved to St. Anthony. DQL now is RM of the MSN. RQJ and HFY are new ORS. ETF, of Davenport, now is living in Minneapolis. OBM is now 5VVV and recently paid the home town a visit. HFY is running 180 watts to a pair of 6146s. Bill also has just received his Code Proficiency certificate for 20 w.p.m. 5BAM, from Dallas, is now located in Minneapolis. TJA is on 6 meters. ATD has a 10-watt rig on 2 meters feeding a twelve-element beam. IRJ is the proud parent of a new baby girl. UCV is busy building a 2-meter converter. HXY and SV work each other nightly on 2 meters. There are now ten nets operating in Minnesota. The Minneapolis Radio Club, Inc., is publishing a call book covering all the amateurs in the Twin Cities and suburban areas. The Minn. Junior Net meets Wed. at 5:00 P.M. and Sat. and Sun. at 3:00 P.M. on 3708 kc. Everybody is invited to check into this net. BWM won a Johnson Viking and HKF won an NC-183D at the convention. UMK is trying to put up a 75-meter antenna that her neighbor can't see. GGQ has a new antenna designed by NJQ which is a honey. It is composed of four ¼ waves in phase fed in parallel. They are two doublets one above the other. We need more members in the Emergency Corps. Write your SEC, Bob Prehm, BOL, 1130 Delaware St., for application blanks. Traffic: WØDQL 208, ITQ 152, HFY 88, UCV 34, TJA 27, WQM 26, JDO 24, GGQ 18, RQJ 18, BUO 16, RXL 16, BRA 15, IYP 13, MXC 13, DYD 12.

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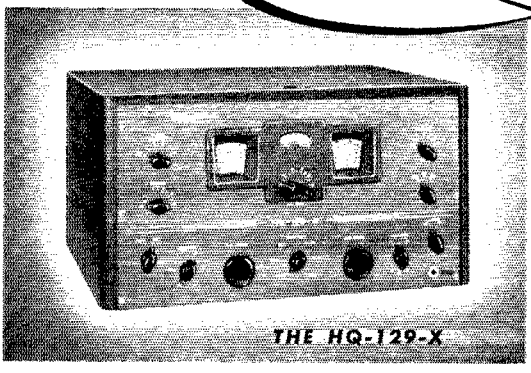

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DELTA DIVISION

ARKANSAS — SCM, Fred Ward, W5LUX — SEC: EA. RM: RWJ. PAM: FPD. The slow-speed net is not starting off as well this year as last. Let's all try to help the boys get started. The emergency 'phone net needs stations in Little Rock and Pine Bluff to take traffic for those places. VCG, at Conway, has a new rig on the air using 304TLs and running a kw. WUB is a new call at Mountain Home. QIP is building a new modulator, but with his classes at Teachers' College and his work as EC for Conway it may be a while before we get to hear it. ULA and the boys at Camp Chaffee are putting out a swell bulletin for the State. They will need your help to keep it up, so send any news you have to Ken or Jack. TNM reports the U. of A. Club planning a big year. Besides the club station they will have three mobiles and an emergency power plant. PFZ, of Danville, now is at Lakenheath AFB in England. MU is new EC for North Little Rock. Thanks for the reports, fellows, and keep them coming. Traffic: W5EA 60, LUX 54, RWJ 41, MRD 4.

MISSISSIPPI — SCM, Norman B. Feehan, W5JHS — New appointee is RIM as ORS. We regret that we have to list WA in the Silent Keys. The traffic season has opened up and we hear many new calls on the various nets. RIM is Net Control Station of the Mississippi MARS Net and is doing a bang-up job. PFC is on with his new rig and is putting out a very good signal. More news from Korea: RUT will be back in the States in December and will be in Mississippi for a short time, then will be sent to WØ-Land. JFE is on at Johnson AFB. Tokyo, with BC-610 and a nice beam on 117-ft. tower. Look for him on 20 meters. RMC should be slated for the States next. Thanks, Jim, for the information. The Kessler AFB Club put on a very successful picnic at West Beach Park in Gulfport with almost 100 hams and about half as many XYLs present. Let's have more news. Traffic: W5RIM 103, JHS 32.

TENNESSEE — SCM, Mark M. Bowelle, W4CXY — SEC: AEE. RM: AGC. PAM: PFP. Both the c.w. (3635 kc.) and 'phone (3980 kc.) nets are rounding into mid-season form and moving lots of traffic with good representation over the State. Our outstanding traffic man, PL, is back in form and taking BPL in stride. Other old-timers such as FX, AKJ, APC, and DIJ are back in there pounding brass on the c.w. net, while PFP and IIB remain the heavy hitters of the 'phone net team. WAX and VAB are new members of the c.w. net who, we predict, you will hear more about in future traffic totals. OGG has his new 75-watt rig going but isn't too satisfied with it except that it has no TVI. RHO has cured his TVI by going mobile. WTI and WTJ are a new husband-and-wife Novice team in Memphis. WWV is not a Tennessee branch of the Bureau of Standards but the new call of ex-W7QNY. The Memphis gang has a well-edited club bulletin; one of the best we have seen since the days of the *Squinch Owl* (Dixie "Pop" Jones' old 4th CA bulletin). Reports this month indicate that the emergency boys all over the State went out for a big time during the SET. Traffic: (Sept.) W4PL 861, PFP 460, AGC 135, IIB 92, WAX 68, OGG 61, ODR 40, CXY 31, AKJ 20, RMJ 16, VAB 16, SQB 9, RHO 8, FLW 4, PMR 2. (Aug.) W4AGC 84, ODR 15, RHO 14.

GREAT LAKES DIVISION

KENTUCKY — SCM, L. W. Lyle, jr., W4KKG — Let's lead off this month with a great big bunch of orchids to MWX, our RM. Sprig kept the KYN going all summer, just got out an FB net bulletin and has been NCS most nights of the week on KYN. NBY gets KYB going again with the good help of RRU, RFI, and others. TAV is in the hospital with injuries suffered in a fall while horse-back riding. The gang wishes you a speedy recovery, Marty. PRT gets back in gear again. MGT has TV super beams strung all over his place. He still is very active on KYN despite that! MDB is engaged in hi-fi work and is secretary of the local club. CDA has had the receiver over-hauled and is ready to roll. KZF has the new shack finished and now is punching big holes in the ether with his new rig. KQI is working lots of DX on his mobile rig. WBG, with new operator ØMWV, is ready for all activities. WHC is a new KYN member. We are sorry to inform you that SKE is in an iron lung at Louisville General Hospital with polio. He listens on 75 meters all day and most of the night and the local fellows always end each ragchew with a few pleasant words for Dick. If you have a minute or two drop him a QSL card. His home QTH will be O.K. It will be appreciated! KMX, MOP, LVP, CNE, and KKG handle installation and operation of first theater-television loop for Southern Bell in Kentucky. Traffic: K4WBG 157, W4MWX 143, WHC 30, PRT 25, RFI 12, CDA 9, KZF 1.

MICHIGAN — SCM, Norman C. MacPhail, W8DLZ — Asst. SCMs: M. C. Wills, 8CPB; R. B. Cooper, 8AQA; J. R. Beljan, 8SCW. SEC: GJH. RMs: ELW, YKC, UKV. PAM: UTH. New appointments: EC to ZDQ, MNQ, CYL, and BBY. Asst. SEC to RTN. GJB reports the Great Lakes Emergency Net started Oct. 7th, on 1880 kc. at 2000 EST Mon. through Fri. QBO and his XYL, ATB, mobiled through the Far West during the entire month. Esther and John came home with plenty of fodder for QSOs. The QMN hit full stride again Oct. 1st, with UKV managing the six o'clock net and YKC resuming duties for the seven o'clock net. Both operate on 3663 kc. Sun. through Fri. ZZU left for Muskogee, Okla. Oct. 13th and Michigan has lost one of its top DX men. CPB is busy wiring up a Viking for c.d. work in the Soo. FGB reports th Berrien County emergency net is meeting on 1890 kc. Blossomland Club officers for the 1952–53 season are GLV, pres.; BKL, vice-pres.; HAT, secy.-treas.; FGB, act. mgr.; VBW, pub. mgr. HK plans to leave 20 meters for traffic work on 80. NQ has had enough cold weather to suit him and will leave for a permanent Florida QTH in December. EXZ/8 plans to QNI the QMN from school in Ohio. SWF plans a 21-Mc. 'phone job soon. JUQ and AQA are putting excellent signals on 3930 kc. with Vikings. We need a few active Official Observers in Michigan. HIW dropped the "N" from his call after quite a struggle. Traffic: (Sept.) W8NZZ 427, ELW 164, DAP 98, NOH 65, SPF 52, UKV 45, QIX 38, ILP 36, GNS 34, IV 34, GJB 21, DLZ 18, EEF 11, AHV 10, AQA 7, HKT 4, FX 2. (Aug.) W8ZGT 602, YIN 82, QIX 41, IKX 36, CPB 18, COW 6, FFG 2, FGB 2, HK 2, SCW 1. (June) W8SCW 100.

OHIO — SCM, John E. Siringer, W8AJW — Asst. SCMs: C. D. Hall, 8PUN, and J. Erickson, 8DAE. SEC: UPB. PAM: PUN. RMs: DAE and PMJ. One BPL certificate was issued this month and that, of course, to ARO. Unfortunately, Ross will curtail activity for several months so we hope someone else will be able to carry on for him. New appointments are MCG as OBS, BN as OO (III and IV), LMB as OPS, and EKA as ORS. The last-named makes possible the much-needed BN outlet in Columbus. During the past 30 days a number of hamfests were held. The GCARA enjoyed a splendid turnout of 615 at its Stag Hamfest on Sept. 14th. Director Brabb was the main speaker. Forty-two amateurs registered at the Tiffin Hamfest, which also was held Sept. 14th. More than 100 amateurs attended the Findlay Hamfest, which occurred on Sept. 21st. Jack Brabb was the headlined speaker. About 325 people attended the Cleveland Hamfest on Oct. 4th. Emery Lee, of the FCC, and Great Lakes Director Brabb were the main speakers. Our SEC, Carty, we might add, delivered lengthy and interesting orations at both the Cincy and Cleveland affairs. 5RIQ/8, currently operating out of Columbus, soon will be heard from KR6. Several clubs have sent in copies of letters sent to the FCC stating their opposition to Docket No. 10237. JNF wishes to thank his many friends for sending him matchbook covers. A newly-organized club is the Morgan County Amateur Radio Assn. of McConnelsville, which hopes to become an ARRL affiliate. Our sympathies are extended to WE, whose mother is critically ill. SVK now is mobile on 160 meters. CARMARS station, WSX, was operated by VDR, VDT, and TZO for the Toledo Boy Scout Camporee. About 600 scouts attended. DG, ex-CBI, received his Extra Class ticket. YGR has added three new countries, EA9, KB6, and FQ8. FYW is State Radio Officer under RACES. On Oct. 3rd Director Brabb addressed a group of 80 amateurs at the West Park Radiop meeting. The Canton bulletin tells us that AL/8 handled 43 messages at the Canton Filter Center Open House on Sept. 16th, and that AL is their lone DXCC member and holds an Extra Class license. Toledo's *Shack Gossip*, edited by those personable YLs, HWX and HUX who, incidentally, your SCM had the honor, privilege, and pleasure of meeting at Findlay, relates the following: TKS acquired a ball and chain, HML is dickering for a new power mower and YAZ has worked 40 states on 7 Mc. with 6½ watts. The gals also came forth with a novel recipe for a double open face (breadless) corn beef sandwich. The Columbus *Carascope* states that IGN won the mobile "egg hunt" of Aug. 5th and the club picnic of Sept. 7th was well attended. Springfield's *Q-5* comes forth with the club's new officers: BFP, pres., GLT, vice-pres.; BLN, secy.; and OKB, treas. CSA has retired as *Q5* editor and VZM has taken over the duties. FJX, popular Cleveland operator, soon will be leaving for overseas duty. Our SEC, UPB, is planning on a series of EC lectures in the East Liverpool-Steubenville Area. Traffic: (Sept.) W8ARO 426, AL 71, LMB 53, DAE 34, CTZ 33, WE 22, EQN 20, HOX 18, AJW 12, GZ 10, FJX 7, RN 6, YGR 6, ET 4, BUM 1. (Aug.) W8YGR 7, WAV 6, PBX 4, BUM 1.

HUDSON DIVISION

EASTERN NEW YORK — SCM, Stephen J. Neason, W2ILI — RMs: TYC, KBT. PAMs: IJG, K2CA. KN2BEC is a new ham in Cairo, KN2AYM is new in Catskill. W1DWO and his XYL, TUD, of Milius, Mass., were visitors at NOC while on vacation. The AARA extends its sincere thanks to those who attended our recent Hudson Division Convention. NYS resumed full scale operation Oct. 6th, with two sessions Monday through Friday and one on Saturday. NYS meets on 3615 kc. Monday–Saturday at 7 P.M.; Monday–Friday at 10 P.M. NYSS meets on 3595 kc. at 8 P.M. (EST) daily. NYS 'Phone Net meets on 3980 kc. at 6:30 P.M. daily and 8:30 A.M. Sunday. This is

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(*Continued from page 88*)

an emergency traffic net and all ECs are urged to coöperate; more outlets are urgently needed. KN2BDJ has advanced to General Class. New officers of the IBM Radio Club are RTE, pres.; K2BAR, vice-pres.; HJO, secy.; EDT, treas. PGV, HUB, and APF have returned from a fishing trip in Canada. MHE is active on 144 and 420 Mc. YXE, AWF, and PV are working DX on 144 Mc. JQI is mobile on 144 Mc. How about some news from the Novice gang? WIK is working 3.8 Mc. these days. A new call in Hampton Manor is WN2ONE. Appointment: IFP as ORS. Endorsement: JPX as EC. Traffic: (Sept.) W2TYC 106, LRW 95, EFU 49, APH 30, ILI 28, HEI 12. (Aug.) W2PHO 26.

NEW YORK CITY AND LONG ISLAND — SCM, George V. Cooke, jr., W2OBU — Asst. SCM, Harry Dannals, 2TUK. SEC: KTF. RM: VNJ. PAM: YBT. Nassau County has 110 AREC members registered with civil defense, of which 17 are mobiles. QBR, Hempstead EC, has operated County Control for a full year, not missing a single drill. Brooklyn, BIV EC, had 20 mobiles out for a city-wide drill, simulating a bomb-drop exercise, and 150 AREC members are enrolled in that Borough. Brookhaven Township, IVX EC, reports 10 mobiles reporting in on 50.4-Mc. drills and in the process of licensing in RACES with the call K2BEL, as control, and PDU, HWR, HCA, ZUN, YQY, DFX, QGF, and INT outstanding in drill participation. SJC sends 73 to the NLI gang from D. C. after sailing the seven seas. BO, just back from an 8400-mile tour, missed BPL by 21 points. Mac now holds Extra Class ticket. VNJ takes over as RM for the NLI Traffic Net, replacing TUK, and invites all with messages to call in on 3630 kc. Mon. through Fri. at 1930. JBQ now is in the new QTH at Baldwin. IVS got 30-w.p.m. sticker, WAS, and Class A ticket all in one month. AEE, Columbia University Club, is starting Novice and slow-speed net on 3710 kc. Contact the SCM for details, crystals available. RQJ cleared TVI and is on the way for DXCC, with 7 new countries the first week. DIC is working on low *cost filters* for TVI in 50 Mc. and is revamping 144-Mc. gear for winter operations. The ROWH team of KW, BJ, ARW, AGW, and UD, headed by PF, did a bang-up job on the initiation team at the Hudson Division Convention in Albany. Dave has just worked HZ1MY for the best DX this year. DDJ transferred to Oakland and expects a W6 call soon. JBP is in KG6-Land after two years at JA2FU. EEY earned his Extra Class ticket the hard way. OGX contacted 1500 volts at 1A, and tore ligament in his back. SAFETY FIRST, GANG. AEE received Section Net certificate for operations in NYSS Net. WØBEN now is K2AQK. Response to FCC on Docket 10237 was terrific. New members of the New York Radio Club are AWI, BMH, and NWM. JXM has received ORS and OPS appointments. OJM/W4HQN, now in Douglaston, holds appointments as ORS and OO Classes III and IV, and will receive OO Class I when FMT reports arrive. SIM earned his OPS appointment for efforts in the NYC-LI Section 'phone net, which meets on Sundays at 1000 on 3910 kc. YBT, PAM for the net, invites stations in all parts of the section to join. GP now is OO, Class IV, in Garden City. AOD is heading up a program to activate operations on 420 Mc. Send George a line on your gear and help get that band livened up. The L. I. YLRL joined the FLIRC. Section Net certificates have been issued to BQM, CLG, ELT, SIM, UCB, WL, YBT, and ZJJ for steady continuous QNIing the section 'phone net. KN2AZT/AZT is a new call in Baldwin. SNO, well-known 2-meter mobile, now is in the W1 call area. Traffic: (Sept.) W2BO 479, VNJ 399, IVS 243, EC 189, AEE 122, RQJ 55, LGK 48, OBU 41, BIV 30, DIC 28, PF 23, IN 20, OJM 14, BQM 7, WL 7, EEY 5, LRI 4, OJX 4. (Aug.) W2DIC 18, BQM 16.

NORTHERN NEW JERSEY — SCM, Lloyd H. Manamon, W2VQR — Asst. SCM: Donald V. Reid, 2FMG. SEC: NKD. After 20 years CVF again is active on 75-meter 'phone. He reports the Bergen County Net drill Sept. 24th set a new record with 99 stations checking into the County Net. The Net has 17 Headquarters stations now operating with three more under construction. NIY, OO, reports six discrepancies. GVZ, OO, reports twenty-two discrepancies. JYW reports on the Belleville emergency test program with NCS located at the Recreation House, 407 Joralemon St., Belleville. Red Cross, c.d. officials, and the general public inspected fixed and mobile stations and witnessed a very successful test. NIY reports ADP now is assistant operator of a theater in Hackensack, causing him to cut down on his ham operating time. HXU worked TA3AA to qualify him for WAC certificate. VYB is on the USS *Cowell*, down Cuba way. WN2MNN is waiting for his General Class ticket. BLL now is on 3.5-Mc. c.w. BCK, ex-KH6ADY/2, was in KV4-Land for three weeks. JUC, mobile, is looking for stations on 10 meters at 6 A.M. daily while en route work. JGP for the past year has been building c.d. stations for his town on 147 Mc. WBD, WJD, JQE, WAA, WOB, LKO, FHK, LQN, and JGP are active in this project and are about ready for mass tests. YJC's brother took the Novice Class exam. DXD is a member of the 1st Army MARS Advisory Committee. EAS is active on c.w. and s.s.b. 'phone. JKH reports KXD just bought a new home in Little Falls, N. J. OUS, Monmouth County Emergency Net Control Station, 147.150 Mc., now has emergency power for his 75-meter 'phone rig, and 80-meter c.w. with 3 watts producing excellent results. RQI is very busy with Lakeland Amateur Radio Assn. and c.d. activities. The Association held a dinner and dance Oct. 25th at its club house. LSH ran a very successful test demonstrating for Security Officers of the Du Pont Plant and Warin Plants of Kearny, and reports Kearny AREC and c.d. consists of HIG, GCV, OUO, MRG, IBB, BGJ, IXD, SWE, KRK, and FZV. Your SCM and SEC attended the Hudson Division Convention held in Albany, N. Y., Oct. 3rd, 4th, and 5th. GUM is on an extended trip to Phoenix, Ariz. GSARA held its regular meeting Oct. 15th with demonstration of 2-meter portable gear for c.d. use by PAT. October notes from the Raritan Valley Radio Club: A group of 9 RVRC members visited the Tri-County Radio Club meeting recently to hear an FB talk by HNY on receivers. RVRC ran its club station, QW, in the V.H.F. Contest for September and the gang had plenty of fun and its non-u.h.f. active members learned how interesting 144 Mc. can be. BEP tied up his boat for the winter, which means more time for 144 Mc. AJB is back at his E.E. studies at Villanova. GUZ needs the schematics for a BC-654. DWJ has a new crystal converter for 144 Mc. KAV is active on 144 Mc. RVRC completes its first quarter century and is going strong. Traffic: (Sept.) W2DXD 166, CUI 151, NKD 92, EAS 70, OUS 10, K2BCK 3, W2LSH 2, NIY 2. (July) W2WCL 124.

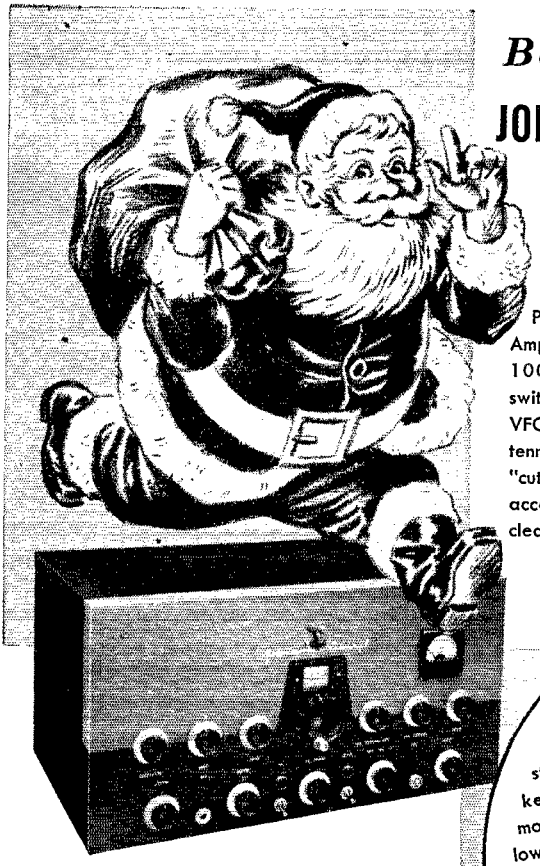
MIDWEST DIVISION

IOWA — SCM, William G. Davis, WØPP — CQL sends the schedule of the Iowa Great Lakes Amateur Radio Club training course, which is a wonderful project. This club has turned out quite a few Novices and there are several who have their Class A's as a result of the training they received from the club training course. BBZ is doing graduate work at Nebraska Medical School. AUL has new 50-watt mobile rig. BDR, NYX, and SCA attended the convention at Minneapolis. BDR's XYL came home with a mix-master, which was second prize for the ladies. DRV now is working in South Carolina. MVE is back in Burlington after a second hitch in the Navy. QQZ now is in practice at Burlington. TLCN resumed normal winter sked, with NYX, BVE, AUL, and QVA as NCSs. VRA is working DX on 20 meters. NYX is sending code practice on 3.5 Novice band, 4:55 to 5:30 P.M. Mon. through Fri. PZO got his modulator working. PP is about ready to get back on the air. BVE finds that making BPL constitutes a lot of work. YBV is back from three weeks in N. Y. C. and rarin' to go. QVZ reports from Ft. Dodge but says his other reports didn't get through to me. It is the desire of your SCM that all clubs in Iowa get behind our Director's efforts to establish a federation of clubs in the division. Now that vacations are over why not get your reports in to the SCM. Traffic: WØSCA 541, BVE 541, BDR 248, BBZ 26, QVA 26, NYX 18, PZO 11, SEF 4.

KANSAS — SCM, Earl N. Johnston, WØICV — We wish to announce the appointment of CIK as the new PAM and KXL as the new RM for Kansas. I'm sure both of these fellows are going to make the Kansas 'phone and c.w. nets tops in the Midwest and will need your support to achieve that goal. The Jayhawk Amateur Radio Society announces the election of HIK as president, succeeding CAG. The second meeting of the Midwest Federation of Clubs was held in Kansas City Sept. 14th with nine clubs being represented. The business consisted mainly of discussing the proposed constitution, and later discussion on Docket 10237. IFR, of Chanute, is very active on 75 meters with his Viking II. FSE, of Oberlin, is on 40 and 80 meters with a new Globe King 400B. KDW, EMY, OCU, and enthusiastic radio-minded neighbors of FSE helped him get on and he is indeed grateful for their help. New stations in Sabetha are WNØLHX and WØLFN. QKS members are back on regular skeds 1845 Mon. through Fri. on 3610 kc. The Kansas 'Phone Net is on 3920 kc. Sun. 0800, Tues. 1230, Thurs. 1845, and Fri. 1230. Fellows, let's make this a record traffic year. All of you can help by reporting your traffic totals at the end of the month — 'phone men as well as c.w. men. Remember our traffic totals advertise our ability to perform a public service for those in the armed services as well as in times of an emergency. Traffic: WØNIY 159, BLI 78, BEO 60, HS 51, WMQ 46, BET 23, ZGK 22, FDJ 12, GHR 10, ICV 8, LIX 7, EBB 6, FUF 4.

MISSOURI — SCM, Clarence L. Arundale, WØGBJ — SEC: VRF. The HARC held its regular meeting Sept. 19th and BYM addressed the group on the subject of ignition troubles, their cause and cure, etc. The Texas County Amateur Radio Club recently was organized and the following officers were elected: FNK, pres.; KIH, vice-pres.; LCU, secy.-treas.; JGD, public relations. The Egyptian Radio Club, on Sept. 15th, conducted a very successful scavenger hunt with ten 10-meter mobile stations participating. The group was divided into two teams and each mobile given a scavenger hunt task consisting of numbered messages which asked for an inscription on a cornerstone or advertising sign, etc. The hunt was won by team "One"

(*Continued on page 92*)



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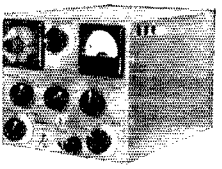

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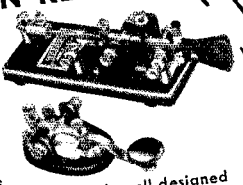

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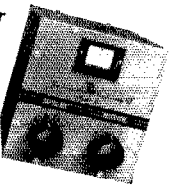

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(Continued from page 90)

with a score of 33 to 28. JEU now has accounted for 32 states with his 3 watts. OJC is reported to be in the hospital. WIS is erecting a 40-ft. steel tower for his 20-meter beam and anticipates DX contacts. ZLN has resumed traffic schedules. PME is operating EDA. EBE has his 10-meter beam repaired and is in operation again. PLJ has worked his 12th state on 2 meters. Continuing his fine traffic work, QXO makes BPL again. Ex-W5BMI is located in Rolla. NDS has installed the mobile rig in the new Cadillac. WNØIHB runs 40 watts and uses NC-73 receiver. WNØIFP is running 12 watts. SYK has a 1-kw. rig under construction. New AREC members are WNØLDY, WØNNH, CTP, EAN, and DMV. WNØLDY still is under the V. A. doctor's care. DXW has moved to Kansas City and is with the Veterans Hospital. Traffic: WØQXO 783, CPI 354, JXJ 208, CXE 95, KØWBD 65, WØGBJ 62, EDA/PME 43, KIK 31, GAR 30, HUI 21, BVL 17, NNH 17, OUD 15, QMF 14, CKQ 12, WIS 11, IQY 10, RMX 10, EBE 1.

NEBRASKA — SCM, Floyd B. Campbell, WØCBH — The NEB c.w. net opened Oct. 1st on 3520 kc. and meets Mon. through Fri. with LJO as Manager. The NSS (slow-speed net) opened Oct. 10th on 3745 kc. and meets Mon., Wed., and Fri. with JDJ as NCS until a suitable substitute can be found. Two new calls at North Platte are KWQ (Mike), with Elmac fixed and portable, and KXD (Lefty), with Viking I. Both have Workshop beams. EWO now is Extra Class. EWO and GPX carry on two-way contacts on 144 Mc. with very little QRM. EWO has clamp-tube modulation during the process of rebuilding. EXP is Net Control Station for MARS-c.d. net, with CBH as alternate. SAI is all-band mobile. The North Platte gang is in full swing on 28 Mc. TQD is mobile again after having traded cars. PAY has new VFO to go with his HT-9. KDW has his new antenna, including telephone poles, up now. Traffic: (Sept.) WØTQD 2181, CBH 11, KDW 5. (Aug.) WØTQD 1783.

NEW ENGLAND DIVISION

CONNECTICUT — SCM, Roger C. Amundsen, W1HYF — SEC: LKF. PAM: FOB. RM: KYQ. CN-3640 kc., CPN-3880 kc., CEN-29,680 kc. SJO again made BPL. NLM, FWH, and RQJ are new ECs. LIH, OAX, and CGD renewed EC appointments and CGD also renewed OBS, OPS, and OO appointments. ORP is back as ORS. UNG, of Westport, is interested in ORS. 6YYN/6YYM are on the air /1. Bob and Ellen are at Headquarters. Ellen was SCM of the San Diego section. SQL is in the Army. VXJ is ex-2CVO and is on 2 meters from Cheshire. LXB is recovering. BDI and NJM visited FCDA again. An FB section meeting was held at NEM's on Sept. 20th. OAX sold his rig to WP. CTI promises to be active shortly. DAV is already. WBM is new in Willimantic. CUH put up a new pole. IKB reports CBP now is at Monmouth. LWW has a Viking on 75 meters. BVB has a new GP antenna. NQO is getting FB publicity for c.d. work. TJR is off to Boston. HYF is on the local zoning board. CPN NCS Mon. through Fri. are ABZ, RRE, LIG, FOB, and RMZ; Sun. STU, VW, QV, SJO, and RTB. CN 7 P.M. NCS are CUH, QJM, KYQ, LV, and KV. 1RN representatives and 10 P.M. NCS are AYC, LV, HYF, CUH, KYQ. Traffic: (Sept.) W1SJO 507, KYQ 95, AYC 94, AW 84, LV 75, HYF 69, RRE 40, BDI 35, QJM/1 35, EMF 32, FOB 28, BVB 26, CUH 25, RFJ 20, KV 18, NEK 18, IKB 5, ODW 1. (Aug.) W1KV 5.

MAINE — SCM, Orestes R. Brackett, W1PTL — SEC: BYK. PAM: OLQ. RM: LKP. Pine Tree Net meets on 3596 kc. at 1900 Mon. through Fri. Sea Gull Net meets on 3960 kc. 1730 Mon. through Fri. WAS reports that he has made his first 220-Mc. contact with FZ/1 who was located at Mt. Blue Job in Farmington, N. H., from Portland, Me. New officers at the Androscoggin Amateur Radio Club are SWZ, pres.; OLT, vice-pres.; BYK, treas.; LIZ, Secy. KYO is back in Maine. 5UZK, ex-W1IXE, has made a visit to Maine from New Mexico and was putting out a very nice signal from his mobile. LRG, one of our best c.w. men, has moved to Wisconsin where he is working as electrician in some industrial plant. A new ham in Fairfield is Don Witham, WFA. Reta, UZR, has spent some time in the hospital for an operation. BWI made a trip to Washington and we are very anxious to get all the dope. We hear that AWR has that Extra Class license also. TVB sure is doing a swell job on 28 Mc. He finally made that tenth contact with members of the Abusive Net and now is ready for one of those super certificates. The Annual Hamfest of the NEAR Association, Boothbay, was held Sept. 14th. Those taking part were MLP, RHA, LHA, AMR, TQH, and several SWLs. Traffic: W1LKP 89, QQY 86, OHT 65, BX 17, VV 11, EFR 10, KYO 8, HXQ 7, SUK 6, PTL 5, SEJ 5.

EASTERN MASSACHUSETTS — SCM, Frank L. Baker, jr., W1ALP — New appointments: As EC: VYS, Weston; MVQ, Beverly; RZZ, Newburyport; RSY, Bedford; ATP, Holliston; FWS, Milton. As ORS: UTH. Endorsements: As ECs: MF, Salem; BAQ, Arlington; QQL, Lynn; MME, Hull; TQP, member of Region 5 Comm.

(Continued on page 94)

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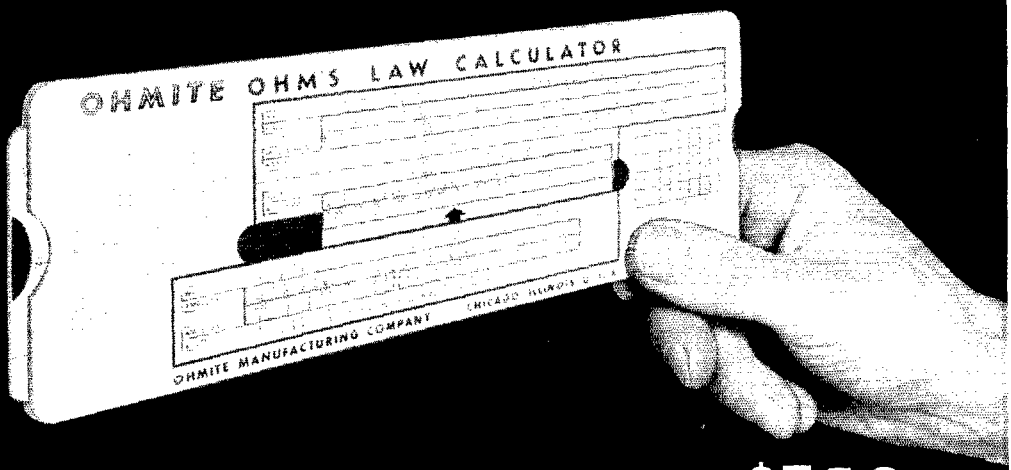

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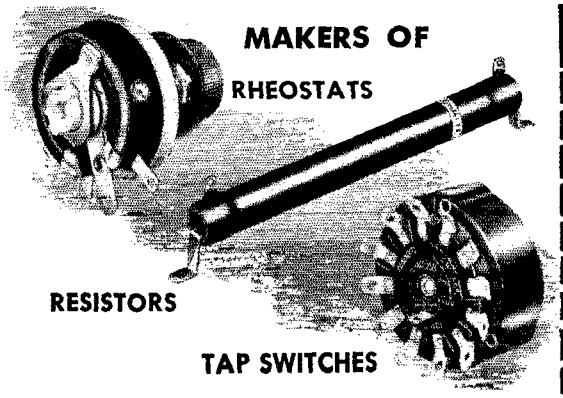

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As OBS: ALP. As ORS: EMG. As OPS: MME. WAE and UIE are mobile on 28 Mc. KZ5LP-W1UOH is home and is going to work in Connecticut. WN1WJJ is the XYL of AJA. APM moved to New Hampshire. On 144 Mc.: WN1VZQ, QCC, and VKE. On 28 Mc.: VUF, TUE, TTS, TBD, FXB, and LKT. JDS now is in Canton. CTW, KNW, and BGW are on TTY on 50 Mc. The Brockton Radio Club meets the 1st and 3rd Mon. at the YMCA. Braintree Radio Club, TYN, now is affiliated with the ARRL. New officers of Framingham Radio Club are MHC, pres.; RVA, vice-pres.; RCJ's XYL, treas.; SBW, secy.; RCJ, act. mgr. The T-9 Radio Club met at MVQ's QTH. MF has been ill for several months. The South Shore Club had its first regular meeting with a "Ham Radio Forum." The panel was CTW, OOP, and WK, with AKY as moderator. WN1VVI, a new ham in Salem, has an Eldico transmitter and S-38C receiver. The Eastern Mass. Club had a talk by FWI of the Navy. The Quannapowitt Radio Assn. held its first meeting. Our sympathy goes to UE on the death of his wife. QQL reports a net on Tues. at 6:45 P.M. on 28,690 kc. in Lynn. WFU, a new ham in Wellesley, has a mobile rig going on 2, 6, and 10 meters. WB has gone to Europe for a few months. Paul Corbett passed his Novice Class exam. Lt. Comdr. Phillip Legare passed his Class B exam. The following Gypsy Radio Club members attended the MVARC cook-out at QWR's QTH: SRH, SNZ, REI, TOY, RLT, SIX, IWR, and QWP. EMG has a B. & W. multiplier. BAQ won a mike at the Nashua Hamfest. The Arlington c.d. net meets on 53.4 Mc. Tues. at 9 P.M., also 28 Mc. Control center call is VPT. BSY now is a professional engineer in Massachusetts. LJH, Plymouth EC, and RJC will build a rig for 50 Mc. QVA is active. RSY, Bedford EC, has KYX, TCG, OG, QZV, NAD, NDI, and UHV working with him. The following helped out with mobile and fixed stations in a "Jimmy Day Parade" in Newburyport: JOT, SIX, HQO, RZZ, SRH, TWQ, and QW. MTI has mobile on 28 and 144 Mc. TPZ has a rig from 3.5 through 28 Mc. MEG has a Meissner 150B on 3.5 Mc. He has WNH certificate No. 31, also worked WAR, AIR, and NSS, and has a Dept. of Defense certificate. WN1WJZ is a new ham in Winthrop. VXA says he is going across the pond for a year with the Army. Region 5 committee held its monthly meeting with TQP, RM, NJN, KTG, ALP, BL, and DFS present. MAN is working on frequencies for Region 4 cities and towns. TSB is on 28 and 7 Mc. LAZ is on 3.9-Mc. 'phone each morning. AVY is on daily. HPH has TBS-50D. UID is on 3.5-Mc. c.w. EK, Newton EC, sent in his certificate for endorsement. Traffic: (Sept.) W1EMG 265, UE 127, AVY 109, MME 78, JCK 72, TY 17, RDV 16, BY 12, CTR 12, WU 12, UTH 10, LM 3, DWO 2. (Aug.) W1SS 66, RDV 14, BGW 4.

WESTERN MASSACHUSETTS — SCM, Victor W. Paounoff, W1EOB — SEC: KUE. RM: BVR. PAM: RDR. WMN meets at 7 P.M. on 3560 kc. Mon. through Fri. WMNS (West Mass. Slow-Speed Net) meets at 8 P.M., 3560 kc., Mon., Wed., and Fri. I am happy to welcome 3DVW, ex-1DVW and again 1DVW, back in the section in Amherst. SWJ has mobile rig perking in fine shape. MUN made excellent measurements in the last FMT with an average error of only 0.1 part per million! SPF is sporting a new Viking, as is JYH. TVJ, with new BC-457, worked 5THY on 80 meters. BVR is busy traveling the convention circuit to Burlington and Nashua. TVI slowly is being licked by CO1 and several others in the section, including myself. Congratulations are in order on the reëlection of BVR as New England Division Director. New ORS are HRV and TZA. UNB is EC for Dudley. BBT is having real fun with s.s.b. on 75-meter 'phone. DXW (Diapers Xtra Washing) has added a new pin-up girl to his collection. Traffic: W1BVR 92, TVJ 39, HRV 25, TAY 21, MNG 19, DVW 8, EOB 6.

NEW HAMPSHIRE — SCM, Carroll A. Currier, W1GMH — RM: CRW. The Nashua Mike and Key Club members should be congratulated on the way they put on their first State Convention. Good work, gang. HS has new 40-ft. poles up and with the high location should work plenty of DX. APK and BFT are busy assembling teletype set-up. UNV was copied in England on 80-meter c.w., according to the *Short Wave Listeners Magazine*. POK has a new rig on 40 meters with pair of 814s in the final. GTY is new EC for Grafton County. IJB is lining up Radio Officers for RACES, and would be glad to have some volunteers. FZ, with the assistance of KEX and UON, worked 21 sections for a score of 3850 from Blue Job Mt. in the V.H.F. Contest. TRM now is Advanced Class. MCS has taken up permanent residence in Cambridge, Mass. ARRL appointments should be endorsed when due. Please send certificates in to me when endorsement is needed. Thanks! Would be glad to hear from anyone who is interested in an ARRL appointment. TA has a Gonset Commander. Traffic: W1JNC 29, GMH 19, POK 9, QJX 8, FZ 3, UNV 2.

RHODE ISLAND — SCM, Merrill D. Randall, W1JBB — BBN, BVI, JRZ, OIK, OMC, ONZ, OUR, QLD, and TRX participated in the Northeastern States C.D. Test of Sept. 27–28. OIK's (EC) and TRX's reports indicate the need for better planning. Comments from you net

(*Continued on page 96*)

experts interested in helping to establish a net to include Novices would be appreciated; also applications from those Novices wanting such a net. The Newport County Radio Club (VBN, pres.) is engaged in collecting parts to send to Miss Frances Spoffard of Fitchburg, Mass. Frances, a polio victim, wants to be a WN and NCRC is betting she'll make it soon! JFF and OMC are handling details. No news has been received from other R. I. Clubs. What say, secretaries? ULS and his XYL visited Boston. Results — ULS, General Class; XYL, Novice Class. Your new SCM wants to thank all those who have written and called to offer congratulations and coöperation. He also wishes to thank CJH, his predecessor, for his help and good wishes. In the near future, it is his intention to visit all of the clubs and as many of the certificate-holders as possible. He will need all of your help. Traffic: W1OIK 39, BTV 25, BBN 18, TRX 18, TGD 9.

VERMONT — SCM, Raymond N. Flood, W1FPS — SEC: JEN. PAM: AXN. RM: OAK. Asst. RM: TAN. Hi, gang, it looks like a bang-up season opened this fall. Club membership is climbing fast, net activity is building up, and there are a whole lot of new licensees for us to initiate. Well, let's show 'em how it's done. VIP is going to Navy Radio School. JLZ, TQD, TXY, and TYI have received Advanced Class tickets. UES, UCC, and VTP have General Class licenses. QRM is increasing around Middlebury as SPK says all twelve of his pupils passed the Novice Class exam at Burlington. AREC membership now totals 57, with 13 mobiles and 19 emergency units. This sounds good but we need still more. Rutland CWRC has 14 members; 10 have received licenses in 1952. The CARC holds meetings the 1st and 3rd Sun. of each month at 7 P.M. at C. Vt. Hall in St. J. Visiting hams are welcome. The TCARC meets the 1st Mon. of each month at 8 P.M. in the Armory, Brattleboro. Drop in sometime. Traffic: W1OAK 95, RNA 88, AVP 71, IT 16, TXY 9, TAN 7.

NORTHWESTERN DIVISION

ALASKA — SCM, Glen Jefferson, KL7NT — Chuck Sappah, ex-KL7PJ, reports via BK that he is settled near Washington, D. C. Chuck says he now is W4WRA, and Marge, the XYL and formerly KL7YG, now is W4WRC. They are on 20-meter 'phone and c.w. and are looking for contacts with their Alaskan friends. Look for them on week ends. Chuck also reports that KL7AJQ is attending CREI and suggests that a lot of former KL7s are in that section of the country. Been talking 2 meters around Anchorage and would like to hear from all of those interested in moving up to 2 and/or 6 meters.

IDAHO — SCM, Alan K. Ross, W7IWU — At this writing (Oct. 12th) the SET still is going State-wide, with 26 Idaho towns having already received their message from Col. Doddridge, the State Director of Civil Defense. Nets used were FARM on 3935, Gem on 3638, and Inland Empire Net on 1995 kc. Thanks to all who participated. If you have not already done so, please join one of the above-mentioned nets for still greater Idaho coverage. Information will be sent you for the asking. Lewiston: FRM is asking out on his EC and PAM jobs because of other work. Applications will be accepted for an Idaho PAM up until Jan. 1st. Moscow: MVA is back to finish school. He was 3QCW while in Washington, D. C. Boise SET and Idaho results will be given next month. Traffic: W7NH 145, MKS 30, FIS 10.

MONTANA — SCM, Edward G. Brown, W7KGJ — NPV and his XYL, OOY, are forming a club in Harlowton and plan to give code and theory for those interested. BNU plans to set up a rig in his new trailer and just bum around the country and ham. Deck will retire from his railroad agent job soon. KUH is installing bigger and better mobile rig and says his old transmitter and receiver are for sale. OPM has new Morrow converter and has his PE-101 going. Fred is starting on his transmitter so he soon will be mobile on 75 meters. PTW has dropped the "N" from her call and is active on 7 Mc. RJL is a new call heard in Billings. Now that colder weather is here maybe we will have a few activities reports. Reports from the Novices would be greatly appreciated. Traffic: (Aug.) W7NPV 8, OOY 6.

OREGON — SCM, J. E. Roden, W7MQ — BUS is new president of the Pendleton Amateur Radio Club. BKD is treasurer; KTF is vice-president; PZM is secretary. ONM makes BPL with a total of 515. REG is a new member of the AREC. JLU is doing FB work as OO according to the reports he has turned in. Besides making BPL for September, ONM also made BPL for July with a count of 729 and for August her count was 612, showing a great deal of activity on Pacific Trunk Line. GDV spends his time hopping between RN7 and OEN and soon will start a CAP radio class. ASG is a new ORS and OPS. Traffic: (Sept.) W7ONM 515, HDN 77, GDV 50, GNJ 45, AMF 32, MQ 16, EUG 12, OLU 6. (Aug.) W7ONM 612, OJG 223. (July) W7ONM 729.

WASHINGTON — SCM, Laurence M. Sebring, W7CZY — SEC: BTV. RM: FIX. PAM: NRB. ETK reports traffic on PTN is picking up. BTV lost his antenna farm and has only the use of his own lot. PYV, ETK, CZX, OEB, HNA,

(*Continued on page 98*)

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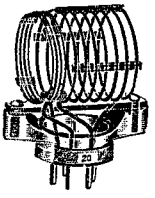

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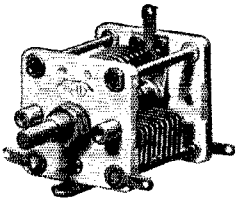

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and EAU are new ORS. The Clark County Amateur Radio Club holds meetings on the 1st and 3rd Wed. of each month at the Red Cross Headquarters at 1310 E. 10th, Vancouver. Visitors are welcome. NWP has 40 watts on 160 and 80 meters. CWN is too busy bowling and painting the house to handle any traffic. GVC reports 68 amateurs turned out for the Walla Walla annual picnic. EAU is back on the air. EKT checks into WARTS and the local c.d. net. FWD sends Novice code practice on 3646 kc. PRZ entered Cornell University to study E. E. so has no time for hamming. LVB tossed out his modulator and mike and is back on WSN. Sixteen cars turned out for the last North Seattle mobile transmitter hunt. JNC was first, PGY second, and OYO third. OYO is getting fine results with his 20-meter ground-plane antenna. PFZ joined the Air Force, next stop Parks AFB, Calif. PHP is at Keesler AFB. MCU is at Key West. OEB is building a mobile rig. PHC has a new NC-125 receiver and a 10-over-20 beam. VARC had a fine turnout for the SET. Traffic: W7IOQ 930, FET 659, ETK 551, BA 224, FIX 134, TH 100, JPC 76, KCU 75, OPO 67, MSI 52, ETO 33, AIB 31, EAU 26, FWD 26, EKT 24, MDZ 18, QGN 18, ZU 18, AQN 16, JPA 16, APS 15, MCC 13, LVB 11, FFE 10, IYK 10, GWE 8, EVW 7, AVM 3.

PACIFIC DIVISION

HAWAII — SCM, John R. Sanders, KH6RU — The Maui Club is reaching new heights of activity with NW, ER, and OL as the programming committee. Three contests were held recently. A 7-Mc. WAS Party was won by MG, who worked 29 states. ANK ran a close second. A perpetual trophy is offered for the station working the fastest WAC and is currently held by MG. A week-end 3.8-Mc. 'Phone Contest is next on the agenda. The Club also is operating an amateur training program with 17 currently enrolled. A certificate is offered any amateur who works 15 of the Maui Club members. The Honolulu Club is discussing the feasibility of an All-Island Hamfest for next year. The Honolulu Mobile Club adopted a new constitution. The Honolulu YL Club will include code and theory instruction for aspirants at its regular meetings. The FCC gave amateur exams to 15 in Hilo and 10 in Wailuku on the fall tour. *Far Pacific Area:* The KG6FAA staff now includes W9LHB, W6HUG, W1WKF, W1VZL, and WN5WHA. Traffic: KG6FAA 3288.

NEVADA — SCM, Ray T. Warner, W7JU — SEC: HJ. ECs: KOA, MBQ, OXX, TJY, VO, LGS, and ZT. OPS: JUO. Nevada State frequencies: 3660, 7225, and 29,360 kc. RZR is heard on 80-meter c.w. in Las Vegas. WN7RKE is Boulder City's latest Novice. QIH is building 6-meter transmitter and converter. NMJ now is heard regularly on 75 meters from Camp Desert Rock. ØCHP is active on 80-meter c.w. in Reno. ZT will boost ham radio in Carson City at the Nevada Day Hobby Show with the help of MRN's Collins gear. The Annual Colorado River Marathon from Needles to Parker, Calif., held Oct. 5th, again was a big success, with ham radio playing a major part in the plans. Six stations were spotted along the isolated 120-mile course to check through the 118 boats which took part in this race. The use of these stations helped greatly in picking up disabled craft at the close of the race. Much credit is due 6CE, 6CMN, 6DDE, NMJ, JU, and LGS for their time, equipment, and efforts under adverse conditions.

SANTA CLARA VALLEY — SCM, Roy I. Couzin, W6LZL — The ECs have been holding extensive drills on 144 Mc. and 75-meter mobile. Come on, gang, sign up in the AREC and make your mobile available on check-in nights. Your SEC is AEV, your EC for San Mateo County is QIE, your EC for the Palo Alto Area is JWD, your EC for the San Jose Area is IXJ, your EC for the Salinas Area is CLJ. A little coöperation on your part makes the EC's job a lot easier, and goes a long way to make a better relationship between the amateur and the public. WMM is OO Class IV. YSQ is settled in new QTH and has a new 150-watt 'phone and c.w. rig ready to fire up. YHC has a Viking II on order. DZO really is sold on single sideband and says AM means ancient modulation. DHR of South San Francisco is building up a single sideband rig. RJW is a new call in our section from Sacramento. MMG still is able to check in on the Bay Area Net. IXJ has put his final on 144 Mc. HC checks into BAN and RN6. At the Sept. 16th meeting of the Monterey Bay Radio Club plans were made for a forthcoming ham picnic. The SCCARA did not hold a meeting this month because the County Fair opened the same night. The booth put up by the Club drew a lot of interested people. NPEC club meetings were kept to business the first meeting and election of officers for the coming year at the second. Congratulations to JKC and ZXS — it's a girl. Traffic: W6HC 31, MMG 28.

EAST BAY — SCM, Ray H. Cornell, W6JZ — The weather was perfect for the East Bay Section Annual Picnic on Sept. 21st. A good time was had by some 300 hams. UHM was winner of the hidden transmitter hunt. Runners up were MFZ, DDO, BMY, CBF, with EY and FXX. BEZ and VCG hid the transmitters on 75 and 2 meters. Suggestions for improving next year's picnic will be gladly

(*Continued on page 100*)

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received. The Northern California DX Club has a plan for a 2-meter transmitter-receiver. Purpose, a stand-by channel to talk about DX openings! HJM will be operating portable back at Notre Dame during the coming school year. NTU now is working at Livermore. QVQ is on the air with a 32V-2. TVI committees received a boost from the visit of Philip Rand, 1DBM, in October. MXQ was active on 220 Mc. briefly during the summer. VSV is substantially recovered from his automobile accident. CJI is building a house. RLB reports progress on the 53.65-Mc. c.d. net planned for in the communication plan for the Bay Area counties. The mobileers of the Bay Area meet the first Sunday of the month at "Perkin's Drive-In" in Redwood City and at the "Percolator" in East Oakland on the third Sunday of each month for breakfast. The idea originated sometime ago when AAQ, NTU, and other old-time mobileers first met to discuss common techniques and problems. The group now has grown to about 60 participants, including XYLs, YLs, harmonics, and OMs. Field trials held directly after each breakfast account for the potent signals put out on 3995 kc. by mobileers such as AAQ, NTU, BMY, PAZ, FXX, VS, and DNX. Interested persons are welcome to attend the breakfasts where many hints and kinks about mobile operations can be learned. AAQ's recently published list of do's and don't's for 75-meter mobile operation should be of special interest to anyone contemplating getting started on this band. The Northern California DX Club is to be host for the annual DX Conference at Fresno, Jan. 17th and 18th. KG6ABW now is Stateside and lives near W6IDY. BUY is building a TVI-proof rig. NIG is rebuilding and tuning up for the DX Contest. LDD moved to a new hilltop QTH. MHB has worked 180 countries. WGM is moving to Oakland. CAN has been appointed EC for Napa County. CBF participated in the recent FMT. Traffic: W6IPW 186, JZ 84, HHX 47.

SAN FRANCISCO — SCM R. F. Czelkowitz, W6ATO — SEC: NL. Phone PL 5-6457. *Eureka Area:* EC: SLX. Betty Wilson, now REF, has finished wiring her new Viking I, and has reported in with traffic — in fact, more traffic than any other station reporting in the section. Congratulations to JTD and PKJ on advancing to General Class. Don now has a new three-element close-spaced Hy-Lite beam. Soon to become a resident of the Area is 9DTT/6. Crystals for the Novice net are now on hand. The club was guided through the new P. T. & T. Co. dial office and demonstration was given for their benefit. FYY made contact in 15 minutes with Bakersfield for an anxious citizen inquiring about his family at the scene of the earthquake there. Many thanks from the SCM to the Humboldt Amateur Radio Club, which sends news in more consistently than any other group in the section. The Club meets on the second and fourth Fri. in the YMCA rooms, rear of Municipal Auditorium, entrance on "E" St., Eureka. *Santa Rosa Area:* EC: LOU. The September meeting of the SCRA was honored by the attendance of Fred Emery, Mayor of the City of Tucson, Ariz., and the brother of the SCRA president. LZL and ATO, SCMs of the Santa Clara Valley and the San Francisco sections, respectively, also attended and debated c.d. problems, Arizona vs. California style, with His Honor. The Sonoma County Radio Amateurs meet the first Wednesday in the Board of Supervisors room (temporarily) in the County Court House, Santa Rosa. *Marin County Area:* EC: KNZ. Tamalpais Radio Club EC: ZUB. Activity still is somewhat slow, because of poor conditions on all bands and the vacation season. The Marin Radio Amateurs meet the second Friday in the American Legion Hall, Larkspur. The Tamalpais Radio Club meets at the home of the secretary, OZC, 7 Loma Ave., Tiburon. *San Francisco Area:* EC: BYS. The c.d. and Bay Area 2-meter nets operate alternate Monday nights, with operation on the band growing rapidly in the Bay Area. The Northern California DX Club, with members in San Francisco, the Peninsula, Marin County, and the East Bay is building 2-meter transceivers on a production line basis to avoid using the DX bands for local communication and thereby reducing QRM in the heavily overcrowded lower frequency bands. It should be noted that the NCDX Club was third high in the nation in the 1951 ARRL DX Contest. Another successful picnic is history for the SFRC — again held at the South SF Orange Ave. playground. The SFRC meets, until the end of 1952, on various nights of the week at the auditorium located at 71 Lakeshore Plaza. After that date they have been promised the fourth Friday of each month. The High-frequency Amateur Mobile Society meets the second Friday at the local Red Cross Bldg., 1625 Van Ness Ave., San Francisco. Traffic: W6REF 26, ATO 9.

SACRAMENTO VALLEY — Acting SCM, Willie van de Kamp — W6CKV — The Sacramento mobile gang supplied communications for the sport car races at Clear Lake. BLW now has Advanced Class license. KTR is recovering from an operation. IZC is back in Chico. QJD is having good results with 40-ft. top-loaded vertical on 160 meters. GERC held its annual barbecue with ILVQ as guest of honor. The Lone Pine Net on 29,224 kc. is active again. The Sacramento Club stages a hidden transmitter hunt on 28.8 Mc. every Wednesday night. JEQ is taking

(*Continued on page 102*)

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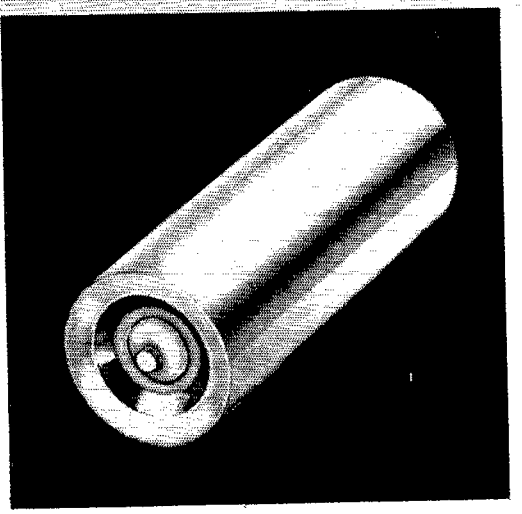

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his EC appointment seriously. Traffic: W6PIV 279, JDN 20.

SAN JOAQUIN VALLEY — SCM, E. Howard Hale, W6FYM — SEC: FYM. Your SCM is in Chicago on business and is visiting with Ed Dervishian, 9VSU, formerly 6GXL of Turlock, and Ed sends 73 to all his old friends. A lot of the Bakersfield gang did an FB job during the recent shakes but failed to send reports to the SCM/SEC with the exception of a traffic report from MGP. Activity reports for both August and September were very light. Traffic: (Sept.) W6LDI 174, GIW 28, FYM 9. (Aug.) W6LDI 191, K6FAJ 153, W6MGP 108, EXH 68, GIW 45, FYM 11.

ROANOKE DIVISION

SOUTH CAROLINA — SCM, T. Hunter Wood, W4ANK — AUL has DXCC with 107 countries and reports from Florence that VAM is a new ham and works 10 meters. ULH is trying to put a beam atop his 100-foot TV mast. TSU is working 75 meters and the Florence Club plans a booth at the county fair. The Anderson Radio Club has been organized and meets from 8 to 9:30 P.M. the 1st and 3rd Fri. at the Naval Reserve Unit in the Post Office Bldg. SSN is the secretary and sends copies of minutes to the SCM. 5PLG is stationed in Charleston with the Navy. A picnic was held near Columbia Sept. 28th with 70 amateurs present, which included a business session with FFH, the PAM, discussing 75-meter net, DX emergency preparation, and HWZ handling license plate proposals. Plans were made to start a slow-speed c.w. net on 3750 kc. Wed. and Sun. at 7 P.M. UNO is Net Manager and those interested should contact Jane. Novice stations are especially invited to join this net. Thanks to EDQ and DX for their work in making this gathering possible. CHD, ANK, RXO, NTD, and K4WBN are active on MARS frequencies. Traffic: W4ANK 42.

VIRGINIA — SCM, H. Edgar Lindauer, W4FF — Some 327 hams, XYLs, YLs, and YFs strode into Richmond Oct. 11th and 12th to participate in convention activities following an eleven-year lull. Representatives of the Military Departments explained the function of MARS. ARRL dignitaries included "Bud," our genial Secretary and General Manager, and "Jake," CVQ, Roanoke Division Director, winding up with SCM reports on activities and future planning. Major Ollsen of the Swedish Embassy enlightened the gang on how civil defense is handled in Sweden. The land south of the Potomac played host to many from the north banks. Raids were made on the prizes by the W3 delegation. W3FVD carried off the drawing for the Collins 75A-2, while W3AEL struggled down the aisle with a Halli S-76. New ORS are 9OLU/4, IJK, UHG, MLE, TVI, EBH, UWS, TVX, and WBC. Endorsements: FV, LRI, PYN, PNK, PXA, RYS, KSW, NAD, KX, and BZE. K4FCC, OGX, ONV, and FV are assisting JAQ, newly-appointed PAM, with NCS work on VFN. VN reopened its second session of activities at 2200 on 3680 kc. MLE returned to VN after an absence of two seasons but makes up for it by working out as Thursday night NCS. SDK's XYL is making a try for General Class; her code speed is 20 w.p.m. She is expected to take an assignment as NCS on one of the nets. The Richmond Radio Club was host to local Novices with a program designed to help them tackle the hobby with ease. MWH, our hard-working capable RM and manager of VN, takes office as Roanoke Division Director Jan. 1, 1953. UHH is leaving for Florida by way of military transfer. Traffic: W4IJK 103, SDK 103, SHJ 75, FF 58, MWH 47, PWX 40, UWS 32, KFC 26, OGX 25, JAQ 17, HQN 16, GR 12.

WEST VIRGINIA — SCM, John T. Steele, W8MCR — Your SCM wishes to apologize for his inactivity during the past two months, having QTH trouble. At present located at Hansford temporarily, he hopes to become active again very soon. A recent c.d. communication test (Sept. 27–28) pointed up the need for more than 10 kcs. as well as considerably better coverage. Only three or four stations in West Virginia are on the c.d. net. 8AUJ was Net Control on c.w. and 72 messages were handled during the five sessions. The local EC group in Weston is on 6 meters with a station manned by two operators in each of the following: Net Control Station, Court House, Fire Department, and 'Phone Liaison Station BWD. On a suggestion by INJM, WVN frequency has been changed to 3570 kc. The net is active on this frequency Mon. through Fri. at 1900 EST. West Virginia 'phone is going fine with FYD as NCS; 58 messages were handled during September. Traffic: W8AUJ 135, FUS 18.

ROCKY MOUNTAIN DIVISION

UTAH — SCM, Floyd L. Hinshaw, W7UTM — Sorry to have missed last month's write-up, but vacation came at the wrong time. QDY has a new 10-meter 'phone rig with 27 watts and is new AREC supporting member in Tremonton. FYR renewed ORS appointment and is ready to handle traffic again this winter. WN7QVT is a new station in Ogden with 30 watts to 807. A very interesting discussion of "Interesting Aspects of Amplitude Modulation" by Mr. John Reinartz, K6BJ, was held under the

(Continued on page 104)

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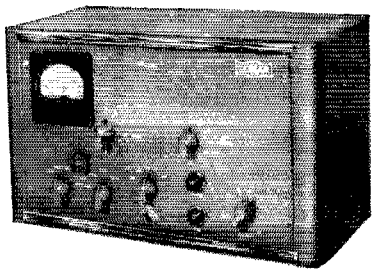

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Radelco, Inc.
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Westchester Electric Supply
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Hughes Peters, Inc.
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Toledo, Ohio

Ack Radio Distributors
Birmingham, Alabama

Radio Parts of Arizona
Phoenix, Arizona

Henry Radio
Los Angeles, Calif.

Kierulff & Co.
Los Angeles, Calif.

Radio Products Sales
Los Angeles, Calif.

Electric Supply Co.
Oakland, Calif.

Scott Radio
Long Beach, Calif.

Western Radio & Electric Co.
San Diego, Calif.

Frank, Quement, Inc.
San Jose Calif.

Valley Electronic Supply
Burbank, Calif.

Offenbach & Reimus
San Francisco, Calif.

B. J. DeJarnatt Wholesale Co.
Stocton, Calif.

Harry's Radio, Television
Miami, Fla.

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Washington, D. C.

Electronic Wholesaler, Inc.
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Allied Radio
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Greenmill Radio Supply
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Council Bluffs, Iowa

Amateur Radio Equip. Co.
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P. I .Burks & Co.
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Radio Wire
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Terminal Radio
New York City, N. Y.

Harrison Radio
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Arrow Electronics
New York City, N. Y.

Harvey Radio Co.
New York City, N. Y.

Radio Wire & Television
New York City, N. Y.

Concord Radio
New York City, N. Y.

Rand Radio
New York City, N. Y.

Niagara Radio Corp.
New York City, N. Y.

Olsen Radio Warehouse
Akron, Ohio

Cameradio Radio Co.
Pittsburgh, Pa.

Seattle Radio Supply
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co-sponsorship of the Utah Amateur Radio Club and Standard Supply Co., of Salt Lake City. SP reports the MARS c.w. net now is in full swing with SP, JJD, NQD, LQE, and DAD participating. OSI, in Heber, is busy with college studies, but has requested supporting membership in AREC for week-end activities.

WYOMING — SCM, A. D. Gaddis, W7HNI — PBZ is on 75 meters at Gurnsey. ØEXX is working portable at Laramie. An EC application was received from WN7TAD. ØCPH now is at Sundance. 7ROK, KFV and XYL, and JDB and XYL attended the Greeley Hamfest GZG, ROK, KFV, and ØERA are keeping 75 meters warm around Laramie. JDB has a new 75-meter vertical. TVI has arrived in full force in the Cheyenne Area. This is a real challenge to you fellows and we're all watching to see how you handle it. This will be the last report from your present SCM because of a major change in business set-up. Thanks lots for all your help and keep the good work up, fellows.

SOUTHEASTERN DIVISION

ALABAMA — SCM, Dr. Arthur W. Woods, W4GJW — The Birmingham Club has a new meeting place in a room provided by Birmingham Southern College. The Club now has an inventory amounting to some $1600.00 worth of gear, including a completely mobile, self-powered station in a trailer. The mobile group has selected 29.560 kc. for a constant-monitoring frequency for its Emergency Corps. The same frequency will be used by many other Gulf cities, and eventually it is hoped that the entire State will be bridged by a net on this frequency. The recently-organized Huntsville Club again proved its aggressiveness by securing ARRL affiliate standing. KNW has a new Elmac. 21-Mc. mobile stations in Birmingham recently were utilized in a community drive to raise money, the cars being dispatched from the club station, CUE, located in WBRC studios. BMM claims he may go mobile. Traffic: W4GJW 7, DID 2.

EASTERN FLORIDA — SCM, John W. Hollister, jr., W4FWZ — For those working 28 Mc. don't forget the WAS Party starting Dec. 5th. Here is the MARS State Net per AA4WAP, Jacksonville: AA4WAN Bartow, AA4WAQ Tampa, AA4WAS Miami, AA4WAX West Palm Beach, AA4WAY Tallahassee, AA4WAZ Gainesville, AA4WBB St. Petersburg, AA4WBE Orlando. Ray left Jacksonville Oct. 1st for his old home QTH at New York City and will be K2BBC. SLV replaces him at Jacksonville, Daytona: Bob Witt reports MSP, RWM, ETB, and SOR addressed the CAP meeting Sept. 10th. LZT wants those interested in Volusia 144-Mc. net to write. Deland: WS will be on the Early Bird Transcon Net again for your QSPs. Jacksonville: The ham reunion put on by DAA at WPDQ was really a big deal with fun for all. Miami: SAT worked his 100th country. Okeechobee: PZT says he, LMT, and FPC (of Sarasota and St. Petersburg) got a pat on the back from 4RN for being the most consistent summer QNIers. Sarasota: LMT says the club bought 12 taxicab rigs and is retuning for 147-Mc. c.d. net. St. Petersburg: EYI reports Elichi Komori, of Japanese Red Cross, talked over the West Coast 29-Mc. round table from VDF. This is a very active round table and includes St. Petersburg, Madeira Beach, Sunset Beach, Indian Rocks, and McDill Field. HUY got nice publicity on WARN Wx Net. The WxBu Net now has 48 members. Umatilla: TKD put a vertical on 14 Mc. The 'phone net on 3945 kc. is leading off again. The trouble on 3675 kc. is lack of NCS. We need one. Several will take alternate. Maybe we will have one by the time this is in print. Let me hear from you. Traffic: W4FPC 220, PZT 150, DRD 133, LMT 72, KJ 70, TKD 42, FJC 18, TRP 14, WS 11, FWZ 10, IM 8, IYT 3.

WESTERN FLORIDA — SCM, Edward J. Collins, W4MS/RE — SEC: PQW. EC: PLE. AXP now is sporting two receivers. TTM has passed the Advanced Class exam. Comdr. Klunk, his XYL, and harmonic all passed the Novice Class exam. Their instructor was VCB. Ev has a new HRO-60. PQW has a brand-new son. 3NDK now is in our midst. QK has the beam up and is getting on 2 meters. UCY meets the emergency net. UTB has ten projects going and has joined MARS. BFD is interested in 2 also. WN4UYS has the 2-meter bug. PTK is going to miss operating 75 meters now that his XYL has Advanced Class ticket. NJB runs about 900 watts on 75 meters now. PLE is buying parts as usual. MS has new three-element beam on 14 Mc. up and grabbed country No. 99. FHQ has been QRL work. VR keeps 7 Mc. hot. MUX sold most of his gear to WN4VCZ. QCB is being heard on 14-Mc. 'phone. RZV still keeps 75 meters hot. HJA has repaired the beam. KC has left our midst. NOX and NYZ are spending their time on 75 meters. ODO is dusting off the rig again.

GEORGIA — SCM, James P. Born, jr., W4ZD — The AREC in Georgia is being completely reorganized and all Georgia hams are asked to contact their local EC, SEC, or SCM and take an active part in the emergency preparedness program in their community and the State. The following is a partial list of new ECs and counties covered in the new set-up. Others will appear next month. OSE as EC for Towns, Rabun, Union, Lumpkin, White, Habersham, Stephens, Franklin, Hall, Banks, Dawson, and Forsyth

(*Continued on page 106*)

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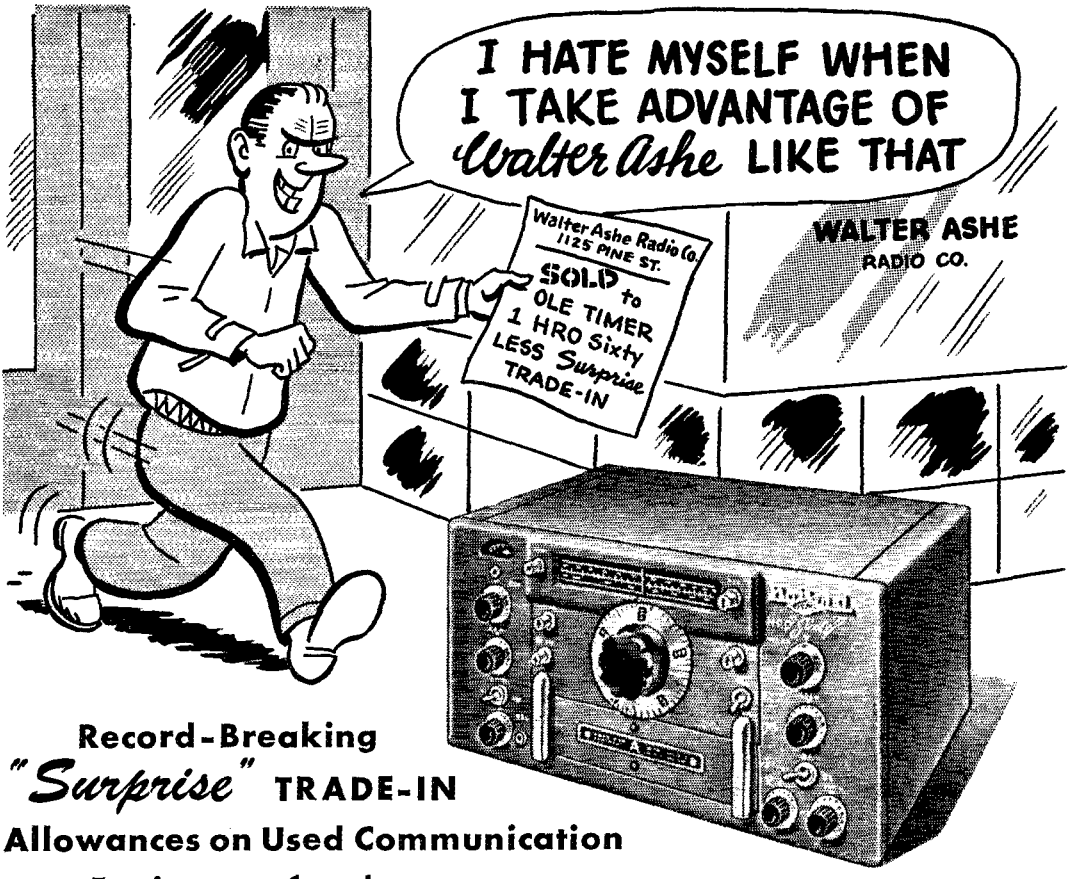
WEST INDIES — SCM, William Werner, KP4DJ — SEC: ES. DJ resurrected 6L6 p.p. crystal oscillator and is pushing 100 watts into antenna on 80 and 40. DV's 200-watt mobile checked out O.K. on a.c. and now is being installed in the car. ZK has a new TBS50-D. PZ upped power to 400 watts. KD has 32 countries on 21 Mc. W6CYX/KP4 reports to the 3559-kc. net. ES and PQ, at Ponce, kept the town in contact with the rest of the Island when floods crippled telephone and telegraph lines. Red Cross traffic from Ponce in quantity came via KP4ID, Red Cross Headquarters, San Juan. LT is a new station on 3925 kc. PRARC directors met at Guarigua Sept. 14th. WP4TO complains that WNs don't seem to know that WP4 is a legitimate prefix. CAP is organizing Rio Piedras Wing and needs Communications Officer. CO, returned from a European vacation, is back on 3925 kc. AZ changed to "gamma" match for 20-meter beam. FF has returned to Ft. Buchanan. PQ is trying to get MARS station for Camp Tortuguero. FAA, Ramey AFB, is on 3925 kc. with 32V-2. DL, long-time mobile, finally has a home station. The 10-meter Metropolitan Net members end the net with code practice in preparation for taking the Advanced Class test. Traffic: KP4ID 10, DJ 8, DV 4, CP 3, CY 2, ES 2, GP 2, PJ 2, RA 2, SK 1.

SOUTHWESTERN DIVISION

LOS ANGELES — SCM, Samuel A. Greenlee, W6ESR — Asst. SCM: Kenneth L. Kime, 6KSX. RMs: FYW, GJP, JQB. Mgr. LSN: FMG. Section Traffic Nets: L. A. Section Net (LSN), Mon. through Sat., 3600 kc. at 2030. El Capitan Net (ECN), Mon. through Fri., 3655 kc. at 2030. BPL this month was made by KYV, HK, WPF, and GYH. We regret to announce that because of moving, business affairs, etc., KSX has resigned as SEC. Under his able leadership AREC has risen to new heights in c.d. and disaster activities. Ken has accepted the post of assistant to your SCM. JQB now is Manager of RN6. NJU says that he, KPM, ORB, HII, and QXY were on 2-, 10-, and 20-meter portable at Mt. Pacifico and darn near froze! GK finally is on 40 and 80 meters (per GJP). Grin of the Month Dept.: What traffic man took a slug of "fair" traffic and, finding nobody would take the stuff, gave it to what 'phone traffic man — in a sealed envelope? Wowie!! WRT reports that the YL 'phone net meets Wednesdays on 3915 kc. at 9 A.M. Those usually present are NLM, CEE, VHA, VBN, and KER. (Thankya, Ruby.) Several of the AREC mobiles have gone VFO, with power, too! Some mighty fine meetings are held for the v.h.f. gang at the 2-Meter & Down Club (1st and 3rd Wed.). VHN is going full blast on c.w. and 'phone traffic nets with a Viking. LPV is going strong on 40 meters with a 10-watter, and says PNW has a hot 10-meter mobile. KYV now has 135 countries confirmed. COF says his 20-meter groundplane is "muy bueno." LZS is back on 80 and 40 meters. Teen-agers, ask DPL or HHK about joining their new high-speed net on 40 meters. It's nice to hear LDR on the traffic nets again. AM says the Headquarters gang is FB. From BLY: BWQ is on 144 Mc. RTTY, CAW now is NC for Whittier 75-meter Net. FLW is on 2 now — no likee other bands. HJR licked his parasitics; got his appendix out. FMQ's OM wants in on the act — he's studying for his license. KJK now is in traffic and that Radio 50 No. 2 Club still is getting top talent at meetings. (Gracias, Ira). DPL doesn't like the way meters blow up in the new rig. NCP reports a visit from another of his skeds, KL7AIR. CFL is experimenting with receivers for ham TV. COZ reports that CZP has TVitis. PMS has a new SX-28, SW's half-kw. really puts out, WXG now sports a Collins kw. (y'don't get THEM on surplus), new WNs are SQA and SQF, and GAE is temporarily QRL because of a brand-new wife. (Thankya, Gene). SML uses all kinds of sky wires on all bands. He needs 'em the way his coax feeders explode! GJP, the RM, and FMG, Manager of LSN, announce the following have qualified for Section Net certificates: BHG, CMN, DDF, DPL, ESR, FCT, FYW, FMG, GJP, GWB, JQB, OFJ, QIW, VHN,

(Continued on page 108)



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and WPF. AREC Notes: Long Beach (NSX, EC). New Asst. ECs: PGM and FEI. The net operates on 2 and 10 meters. The R.C. station (PMO) and C.D. Control Center are fully manned. The net is going places! Whittier Emergency Net (BLY, EC) still is growing. New members are LDG, IHW, and EYP. Hexagon Emergency Net (NCO, EC), besides being one of the hottest AREC nets in LAX with umteen control stations, handles such things as official traffic for U. S. Embassy in Paraguay, helicopter crashes, etc., in stride. Memo to all nets: If your net isn't here, tell your EC to report. Also reporting: BUK, EBK, EPL, CIX, KQS, MU, and PIB. Traffic: W6KYV 2708, HK 2630, WPF 1311, GYH 785, FMG 233, VHN 131, BHG 115, JQB 92, GJP 88, BLY 68, FYW 51, ESR 46, PMS 46, QIW 41, HLZ 38, LDR 36, CMN 34, NTN 29, DPL 22, NCP 21, COZ 19, PWZ 19, HOV 18, COF 12, AM 8, WRT 8, LZS 1.

ARIZONA — SCM, Albert Steinbrecher, W7LVR — Asst. SCM: Dr. John A. Stewart, 7SX: SEC: OIF. RM: JGZ. Arizona 'Phone Net: Tues. and Thurs., 7 P.M., 3865 kc. Arizona C.W. Net: Mon., Wed., Fri., 8 P.M., 3515 kc. Phoenix Net: Tues., and Thurs., 7 P.M., 29 Mc. Tucson Net: Thurs., 8 P.M., 29 Mc. Arizona YL Net: Wed., 7:30 P.M., 3865 kc. Arizona 6&2 Net: Nightly 7 P.M. Arizona MARS: Tues. and Thurs., 9 P.M., 4025 kc. We certainly regret to announce the death of Fayette W. Keller, BH, who was a great c.w. operator and teacher of code. Pop had just gotten his Extra Class license. PZ is back on 'phone to rest up on his DXCC adventure. HUV is back on the air after an extended trip through the East and a visit to 6APW in New Jersey. LSK has a new mobile rig. SX has gone "under ground," i.e., his coax feeders only. OMP has a new 500-watt rig on all bands. MES has a new gallon with 4-250As. PKM is building for 40 and 80 meters. PVD got his 15-w.p.m. certificate. NPA is back on the air. HYQ is electronics engineer for Pipe Line Co. in Flagstaff. UR is now at Grand Canyon. RCG and RCH are new calls in Ashfork. TLY has a new mobile on 75 meters. Novices: Look for NBZ daily 11-12 Noon. New Tech. C1: PVD. New Novice: SEX. Traffic: K7FAG 51, W7LAD 46, MLL 32, PZ 22, BH 19, LVR 10, NYK 3.

SAN DIEGO — Acting SCM, Thomas H. Wells, W6EWU — Asst. SCMs: Shelley E. Trotter, 6BAM; Richard E. Huddleston, 6DLN. RM: IZG. SEC: SK. EC: DEY. This section will feel the loss of its regular SCM Ellen, and her OM, Bob; but their joining the Headquarters staff will benefit the League and thus offset the loss to San Diego. Oct. 4th saw the 75-, 10-, and 2-meter mobiles assisting the Air Games Flying Meet. Rigs were spotted along mountain peaks and airports. There were no casualties and two lost planes were carefully tracked until they found their way back to the airport. NBJ net-controlled 75 with 6 stations; WYA was on 10 with 12 stations, and BLK was on 2 meters with 6 stations. BTN acted as liaison with the Junior Chamber of Commerce, which sponsored the races. DLN says the Valley hams have held their fall election. IQL is pres.; QKY, vice-pres.; and ZXC, secy.-treas. This club is an ARRL affiliate and holds its regular meetings the second Thurs. of each month at the Red Cross Headquarters in El Centro. NSK has moved up to Barstow and reports he is very QRK on 7-Mc. mobile; he worked ZL1AH and KH6P . BVI says Costa Mesa is sporting 5 new Novices, which is a good showing per capita. NIC and NQK have joined the Navy. The Southwestern Division Convention was held Oct. 11th and 12th. Balboa Park is the site for the meet and is the same place the expositions were held, the beauty spot of San Diego Traffic: W6IAB 3978, IZG 522, BAM 256, EWU 14, BVI 3.

WEST GULF DIVISION

NORTHERN TEXAS — SCM, William A. Green, W5BKH — SEC: JQD. RM: QHI. PAM: IWQ. The emergency nets, under new leadership, are off to another year of drill and preparedness. FQT is reorganizing the 160-meter group in Northwest Texas. Wichita Falls High School has organized a radio club with TLW, VGU, VNL, TFV, and TFB as founders. Under a simulated emergency the CAP conducted an Air Search operation with Sweetwater, San Angelo, and Abilene hams providing the communications between bases. Participating were DN and PCC at Sweetwater; ETL, IHG, CMV, and SHN at San Angelo; AAO, GFL, FOQ, and RYJ at Abilene. The three base stations all set up at their respective airports operating portable, all with less than 100 watts A3. Supporting were CMS aero/mobile, with LUN as co-pilot. VRX and UFP were in stand-by for long-haul traffic. The Air Force gave the boys a score of 100 per cent, which speaks well for the operation and again proves that ham radio can do the job better than any other source of communications without prior elaborate preparation. ASA and QHI report to RN5 regularly for this section, with QHI acting as NCS on Mondays. Traffic: W5BKH 186, QHI 98, PAK 83, VRX 83, SRQ 65, TFB 56, LEZ 39, UTW 36, PXI 25, IWQ 23, ARK 22, TGV 22, QJY 21, RUM 20, UFP 17, RRM 15, ETL 13, ONA 3.

OKLAHOMA — SCM, Jesse M. Langford, W5GVV — SEC: AGM. RM: OQD. PAMs: GZK and ATJ: This

(Continued on page 110)

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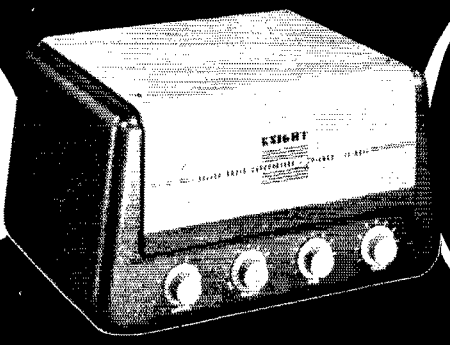

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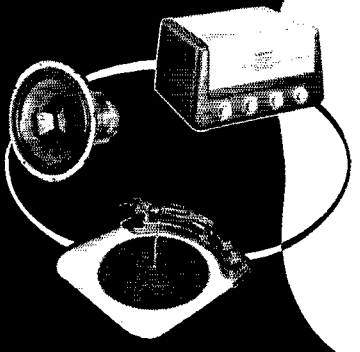

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has been a month of much excitement and progress in our Emergency Corps organization. The changes in civil defense state planning lay the groundwork for continued progress. Every amateur service licensee should identify himself with public service work. The future emergency needs will call for each of us to use our know-how in our organization plans. On Sept. 29th the Governor spoke to the Oklahoma 'Phone Emergency Net from the station of W5IWJ commending them for their past performances and requesting their coöperation in civil defense. The Pioneer Radio Club furnished the communication for the 59th Annual Cherokee Strip Parade in Ponca City and members were commended highly for their work. The Canton Club has been showing a series of ARRL instructional slides. SVR reports his son, RRC, is on 75-meter 'phone. HXT and UEK made a trip to Chicago. UZV is an ex-military operator. UNR and VCL are keeping 1.9 Mc. alive in Yukon. RTQ is using s.s.b. on 3995 kc. VWB is in Norman going to school. SNL and SNM now are Advanced Class. Lawton-Ft. Sill lost TVM and gained MEO and 2HCL. KS is back from Philly. FEC will be on with a Viking soon. Traffic: (Sept.) W5GZK 212, PML 105, OQD 62, SWJ 59, ROZ 57, MRK 53, PA 47, MFX 43, MQI 33, QAC 31, GVV 30, HFN 24, KY 20, QJR 15, SVR 11, RST 10, ADC 9, EHC 8, ESB 8, FEC 6, LWG 2.

SOUTHERN TEXAS — SCM, Dr. Charles Fermaglich, W5FJF — SAH reports that UMW recently received his General Class ticket. WN5URL has been doing FB on 3.7-Mc. c.w. The 8th Regiment of the Texas State Guard is sponsoring a radio school for those wishing to get ham tickets. All those in the vicinity of Houston may contact the SCM. 4RZU/5 was elected secretary of SAEN. RWS recently was elected president of HARC, with QZG, vice-pres.; MDZ, secy.; JYM, treas.; SDA, publicity; and VWF, program. Some of the boys are organizing a new traffic net. PMG/5 reports the formation of a radio club at San Marcos AFB. He is activities manager and has been appointed EC for the area. VIR recently worked some FB DX on his Viking I and HQ-129X — OX3, F8, and CE, also every district. RID worked YS for his 52nd country. TPF has been appointed EC for the Lufkin Area. The following are new AREC members: W4PMG/5, W5TPF, VWC, VFG, OKL, and WN5VFS. NHB reports AYU and HPE on 144 and 432 Mc. NPX is at A. & I. TNR has been appointed OO Class IV. OBS/5, new OES, is at KORA in Bryan. He experiments on antenna applications for fixed locations and polarization of signals on 144 Mc. C. V. Clark, chief transmitter engineer of KXYZ and KPRC, recently gave a swell talk on antennas to HARC. NPX, who transmits Official Bulletins Mon., Wed., and Fri. on 7100 kc. at 2000 CST, reports EIV, FYE, NPX, and WN5TYI on 2 meters in Alice, all using converted 522s except NPX, who uses 522 receivers and ARC4 transmitter. UTR recently was appointed ORS. RFG was in ground and flight school in Denver during October. MN still is making BPL. Chuck is new operator at AF5FKF. UUK (14 years old) recently got his General Class ticket. He is on 2- and 10-meter 'phone and 20- and 40-meter c.w. RWS is temporary Zone Control for Zone 2 STEN. Plan now to attend the ARRL National and West Gulf Division Convention in Houston July 10–11–12, 1953. Traffic: W5MN 692, FJF 37, RID 8, W4RZU/5 1, W5RFG 1.

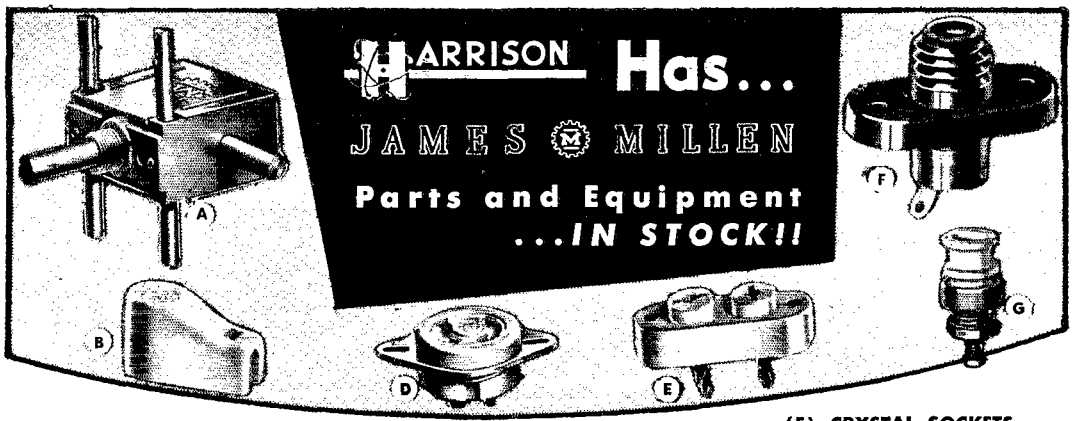
NEW MEXICO — SCM, Robert W. Freyman, W5NXE — The State hamfest held at Los Alamos was attended by about 130 amateurs. SUC emerged as top QLFer of New Mexico at 12.8 w.p.m. and the Santa Fe team walked off with top honors in extemporaneous construction. Mobile honors went to WGW, JXO, and ØAZE/5. VWC won the Novice code contest. PXN was on leave from boot camp during the hamfest. Since ye SCM and his XYL will be out of the State for several months BIW has been requested to serve as Acting SCM. Publication of *CQNM* will be temporarily suspended. RZJ and WN5UZC are the proud parents of a new harmonic.

CANADA

MARITIME DIVISION

MARITIME — SCM, A. M. Crowell, VE1DQ — SEC: FQ. EC: EK. RM: OM. Recent visitors include W1QYN, in port with the U. S. N. The M. T. N. meets Mon., Wed., and Fri. at 2000 AST on 3525 kc. Our RM, OM, requests that all interested in net operation check in. Many of the AFARS groups continue their 'phone nets under c.d. names with little change in personnel. The St. John boys, under EE and FN, meet Sun., usually at 1:00 P.M. AST. The Halifax C.D. Net continues on 3845 kc. Wed. at 7:00 P.M. This is fine work, fellows, and will show up to our advantage when we all get in on another trial test run as was so well conducted in St. John recently. ZO has a new NC-183. AA recently visited Halifax. ABR and ZM are on with TBS-50s. YV has been quite active with one of the rigs in his car on 3.8-Mc. 'phone. The Cabot C.D. Net is continuing nets and drills as usual. DB still is on 14-Mc. c.w. after a recent visit to the U. S. A. DQ and PT are working on new light-weight loading coils for mobile rigs. Traffic: VE1FQ 149, MK 82, OM 11, DB 3

(*Continued on page 118*)



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Pin Dia.	Spacing	Cat. No.	Price
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.094"	.487"	33102	.36
.125"	.500"	33202	.36
.050"	.487"	33302	.24

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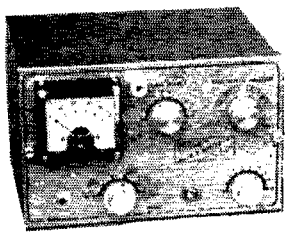

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ONTARIO DIVISION

ONTARIO — SCM, G. Eric Farquhar, VE3IA — We record with regret the passing of DGI. We extend sincere sympathy to AEM on the death of his father. The v.h.f. boys of Southern Ontario held a very fine get-together in Oakville recently. BSF, in Hanover, is a newcomer to our traffic column. VZ edits the *H.A.R.C. Bulletin*. Congrats to Walt and his staff on a club bulletin that is eagerly awaited each month by many. SG is busy with a new job. BUR gathers in choice DX. DU is back in harness after a long spell of illness. AVS, after overhauling antennas, reports all is in readiness for winter operation. Toronto amateurs provided radio communication for the National Air Show Light Airplane Race from Toronto to Kitchener and Brantford. Those taking part were IL, RG, VL, AOH, IZ, and AIB. KM, WE, and IA spoke to Grand River Valley Radio Club members on emergency work. DEX does a nice job as NCS on the Ontario 'Phone net. HARC conducted a smooth-running SET in September. Canadian Director Alex Reid was speaker of the evening at the Kitchener-Waterloo Radio Club meeting. The affair, well attended, brought hams from Windsor, Clinton, Fergus, Guelph, Hamilton, Toronto, and Stratford together. A general discussion during the evening, followed by a session at the festive board, rounded the successful evening. BFW qualified as a real auctioneer at the Ottawa Club meeting. Reports from London reveal a good tie-in with civil defense authorities. The Trans-Canada Net, meeting nightly on 7290 kc., is shaping up well. This net meets at 2000 EST and is looking for a VE2 outlet. So far it covers VE1, 3, 4, 6, 7, and down to Texas. You are invited to give the Maple Leaf Net your traffic. Traffic: (Sept.) VE3ATR 191, WY 173, IA 98, BUR 93, BJV 51, AHO 16, EAM 16, DU 14, EAU 12, DFE 5, BSF 3, SG 2. (Aug.) VE3VZ 17.

QUEBEC DIVISION

QUEBEC — SCM, Gordon A. Lynn, VE2GL — ZF has resigned as EC because of the pressure of business and has been succeeded by AFT. BK reports that his mobile is operating reasonably well, and that he has a new exciter under construction. AQE, AQT, and AMH are back at McGill. XM and QQ have changed QTH to Lachine, within 100 yards of BK! CA reports his activity is at low ebb, but that his XYL still works the northern skeds and gets in some DX, too. PQN has resumed operation on 3570 kc. Mon., Wed., and Fri. Drop in on this net with your traffic or to ragchew when net is concluded. AMB has been NCS of PQN with LO and others reporting in. BB is rebuilding with an 813 in the final. EC reports daily activity with the local gang in his area. AFV has had his call changed to BN, the one held by his father 25 years ago. TA reports increased activity on QEN Sundays at 11 A.M., and that he reports into QON and MLN nightly. GL has acquired a teletype machine and is busy equipping it with noise filters, after which will follow construction on receiver adaptor and transmitter frequency shift keyer in the hopes that FSK will be permitted on the h.f. bands before too long. Traffic: (Sept.) VE2CA 42, GL 7, AMB 2, LO 1. (Aug.) VE2AO 14.

VANALTA DIVISION

ALBERTA — SCM, Sydney T. Jones, VE6MJ — The Alberta 'phone net has changed its time to 1930 for the winter season. GJ is eager to hear from amateurs interested in forming a c.w. net. PE lost one of his antenna poles in a recent storm. LQ has moved into his new home and expects to be back on the air within a reasonable time. DZ and MJ have acquired BC-221 frequency meters which should help them in their Official Observer work. OD enjoyed a well-earned rest visiting amateur friends in British Columbia. CP has qualified for his Class A ticket and is active on 3.8-Mc. 'phone. HM still leads the Alberta gang in message-handling, having kept daily skeds with the VE8 gang for eleven months. Let's get behind the Alberta Provincial Amateur Radio Association by joining this worthwhile organization. HM will be pleased to accept your annual dues at 10806-125th St., Edmonton. BV is going great guns again after a long spell of silence. Guess mobile will be Reg's next venture. BW was a recent visitor to Vancouver. Your reports for inclusion in this column will be very much appreciated by your SCM and should reach him not later than the seventh of the month. Traffic: VE6HM 125, GJ 32, OD 8, MJ 7.

BRITISH COLUMBIA — SCM, Wilf Moorhouse, VE7US — AOB has no mobile while contemplating a new car. PNE's QSLs are in the mails. AKI is an OO and asks the c.w. boys to check into the net on 3625 kc. QC is out of the hospital and active on AREC. FP is Asst. EC. YM is experimenting. AC is active on the ML Net. AMJ is active in AREC. ALJ reports on District 7. 2-meter Valley activity is reported each Monday evening. Mobile tests were conducted by ECs for Districts 5 and 6 with good results. US tried Rothman, clamp-tube, series cathode, and other types of modulation on 813. APN is on at White Rock with 500 watts on 75 meters. New AREC net rosters

(Continued on page 114)

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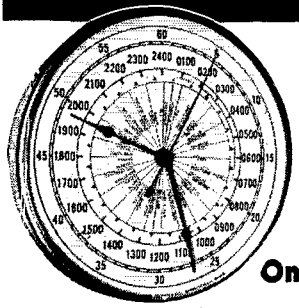

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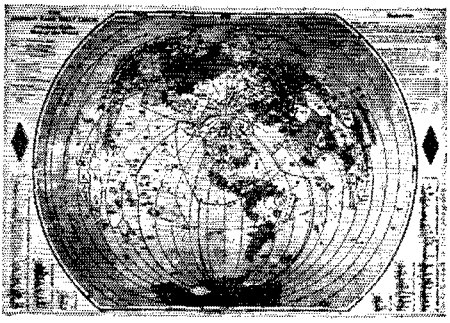

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and membership lists are being mimeographed for all members' use. The 5PX Net still is active on 3797 kc. The PNE hobby exhibit was well accepted. Your SCM has submitted his resignation effective Nov. 1st. See closing date under Election Notice. The SEC post has been filled by US. All clubs are asked to submit nominating petitions for the SCM office to precipitate an early election. The Vancouver Amateur Radio Club, through the BCARA (Council), installed and operated the annual exhibit at the Pacific National Exhibition Hobby Show. Public interest was greater this year. Amateurs were encouraged to discuss the hobby with the public instead of merely operating the gear. The exhibit was under the direction of AOB. Three stations were operating on 75, 20, and 10 meters, simultaneously. Traffic: VE7QC 102, AC 15, AKI 12, AOB 6, US 5, AMJ 2.

PRAIRIE DIVISION

SASKATCHEWAN — SCM, Harold R. Horn, VE5HR —The Saskatchewan section extends its sympathy to RH and his XYL on the loss of their little boy. RM sends in news of the Moose Jaw gang: TD was elected president of the MJARC. The club station, MA, runs 300 watts and will be working all bands. OM has a new local QTH. KR and TK are sporting new receivers. We wish to thank JW for his good work as PAM. Because of other activities Jim has asked to be relieved of his appointment. TE has taken over as PAM and we wish Mac good luck. TE has new 20-meter beam. JK sends in an FB report on his mobile/W7 trip and v.h.f. work. Jack says W7 power lines have a good S9 signal. Between QSOs BL and JK got in some good fishing. HR has the new rig working and finds 20-meter 'phone a tough band for low power. FG raised new skywire and had a dog chew up his new 72-ohm line right after. BZ is raising a 2-inch dural tubing vertical after his eavestrough pipe attempt bent four times. If members of the 'phone net find their calls missing it's because of inactivity on your part and to speed up the roll call. Traffic: VE5HR 20, TE 18, FG 8, QL 6, GI 4, BV 3, PQ 1.

WWV–WWVH SCHEDULES

FOR the benefit of amateurs and other interested groups, the National Bureau of Standards maintains a service of technical radio broadcasts over WWV, Beltsville, Md., and WWVH, Maui, Territory of Hawaii.

The services from WWV include (1) standard radio frequencies of 2.5, 5, 10, 15, 20, 25, 30 and 35 Mc., (2) time announcements at 5-minute intervals by voice and International Morse code, (3) standard time intervals of 1 second, and 1, 4 and 5 minutes, (4) standard audio frequencies of 440 cycles (the standard musical pitch A above middle C) and 600 cycles, (5) radio propagation disturbance warnings by International Morse code consisting of the letters W, U or N, together with digits from 1 through 9, indicating present North Atlantic path conditions and conditions to be anticipated. (See June, 1952, *QST*, p. 19, for details on interpretation of forecast symbols.)

The audio frequencies are interrupted at precisely one minute before the hour and are resumed precisely on the hour and each five minutes thereafter. Code announcements are in GCT using the 24-hour system beginning with 0000 at midnight; voice announcements are in EST. The audio frequencies are transmitted alternately: The 600-cycle tone starts precisely on the hour and every 10 minutes thereafter, continuing for 4 minutes; the 440-cycle tone starts precisely five minutes after the hour and every 10 minutes thereafter, continuing for 4 minutes. Each carrier is modulated by a seconds pulse, heard as a faint clock-like tick; the pulse at the beginning of the last second of each minute is omitted.

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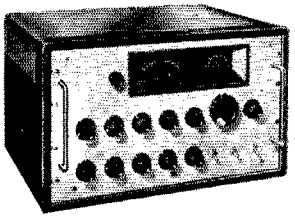

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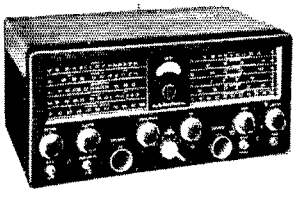

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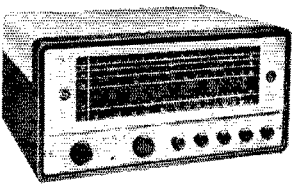

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(*Continued from page 14*)

antenna system uses a balanced line of any sort it should be fed through an antenna coupler that will permit proper matching.

In setting up the amplifier for on-the-air operation, the capacitance of the main tuning condenser, C_9, should be estimated for a circuit Q of 10 or so, according to information given in *QST* [4] and the *Handbook*. This will depend on the plate voltage to be used, of course, but it will be 7 to 12 $\mu\mu$fd. for 50 Mc., 10 to 15 for 28 Mc., and around 20 for 21 Mc.[4] This will be nearly "all out" on C_9 for 50 Mc., about midway for 28, and down to about ¼-inch spacing of the two plates for 21 Mc. The capacitor should be set at about these points, and then the variable inductor adjusted for resonance.

Adjustment of the variable inductor should be done at low power, as high levels may cause arcing of the roller contact, and early destruction of the assembly. Once the correct settings for the coil contact have been found they can be logged in terms of turns from either end of the range. The approximate setting can then be made by reference to the chart, and either the condenser or the coil adjusted for resonance. The setting of the loading condenser, C_{10}, should be made in the same way as would be done with the variable link in the common swinging-link method, readjusting either C_9 or L_9 for resonance whenever a change in loading is made.

The adjustment of the neutralization is not particularly critical. The indications are the same as for other neutralization systems, though the method is different in this case. The plate of the tube is coupled back to the low side of the grid coil, the amount of coupling being determined by the ratio of capacitances in C_{17} and C_1. In addition to being a by-pass, C_1 is thus a critical part of the neutralization system. Its value should be such that neutralization is achieved with C_{17} near the middle of its range. The most sensitive check on neutralization is made with the amplifier operating normally, varying the setting of C_{17} until maximum grid current and minimum plate current occur at the same setting of the plate tuning capacitor. With all circuits resonated, tune the plate circuit to the high-frequency side of resonance; if the grid current increases, more neutralizing capacitance is needed in C_{17}.

In actual use a wide range of operating conditions can be used, but the typical operation recommendations of the maker of the 4-250A should be followed in general, particularly as to screen and plate dissipation. The grid may be operated with resistor bias only, or with a combination of resistor and fixed bias. The latter is necessary if c.w. is to be used. In either case the total bias should be approximately that recommended by the tube manufacturer. The screen voltage to be used will be dependent on the plate voltage, and

(*Continued on page 118*)

[4] Technical Topics, "Pi-Network Design Curves," *QST*, April, 1952, p. 54.

the value on the screen should be anything under the rated maximum that will cause the tube to draw the desired plate current. With a tetrode amplifier the screen input, the plate input and the grid current are mutually dependent factors, and each should be monitored at all times to be sure that it is within safe limits.

There is no great change in plate efficiency over a considerable range of plate voltage, provided the other elements are taken care of properly. This amplifier operates nicely at plate voltages as low as 1000. Contrary to the popular belief, it is not necessary to push these tubes to the limit to make them run at good efficiency. The frequency range for which this amplifier is designed is one where good communication can be maintained much of the time with moderate power. In such a spot the flexibility of an amplifier like this is very handy. You can "pour it on" if you need to; if conditions don't require it you can let up on the power without loss of efficiency.

TVI Measures

Note that nothing other than shielding and bypassing has been done to prevent TVI. As it stands, the rig will generate harmonics, but they can leave only through the output cable. If the output is taken off through a properly matched line, fed through a low-pass filter, and then to an antenna coupler, the TVI potentiality is low, despite the high power. Be sure the shielding is complete, however. Cracks in the case, or holes around tuning shafts can leak harmonics aplenty. A strong third harmonic of 28 Mc. (smack in the middle of our one locally-used Channel, 6) was chased for hours until it was found to be leaking out around the shaft of the plate tuning capacitor, C_9, where it projected through the panel. Though it appeared to be making contact with the front wall of the case, there was enough clearance to permit harmonic radiation. A piece of copper braid wrapped around the shaft in the manner of "electronic weather stripping" cut the level of this harmonic to the point where it was not visible with the transmitter putting 300 watts into a dummy load right alongside the TV receiver. This with the transmitter on the low edge of the 10-meter band. Users of 28 Mc. in Channel 6 areas will know that this is a rough test, indeed.

Strays

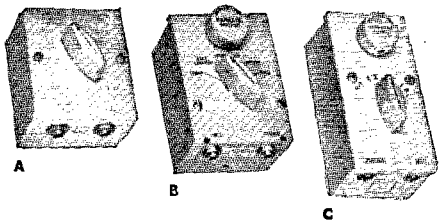
In filling out one of ARRL's "What do you like in *QST*?" questionnaires, one correspondent wrote "by no means eliminate Jeeves, Silent Keys and humorous fillers." We'll keep on trying to *minimize* Silent Keys, nevertheless!

—•••—

To belay further inquiries on the *QST* ARRL Membership advertisement which appeared on page 105 of the November issue, Assistant Circulation Manager W1DJV, who prepares all League house and institutional advertising, points out that a recent amendment to the law prohibiting the photographing of money now permits the publication of such photographs.

LOOK STEINBERGS LOOK

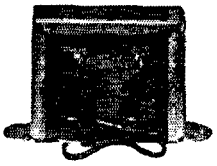
JACK BOXES



A B C

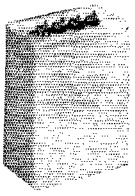
(A) BC-345. 3½" x 3½" x 1⅞" aluminum, 2 standard open-circuit jacks, 3-position switch, 6-contact banana plugs and jacks.
(B) BC-1366. 4¼" x 3" x 2¼" aluminum, 1 standard open-circuit jack, 1 3-circuit mike jack, 150,000 ohm volume control, 5-position switch, 11-contact banana plugs and jacks.
(C) BC-213. 5¼" x 2⅝" x 2⅛" aluminum, 1 standard open-circuit jack, 1 3-circuit mike jack, 150,000 ohm volume control, 4-position switch, 8-contact banana plugs and jacks.

YOUR CHOICE 30¢



8 HENRY 100 MA

200 ohms D.C. resistance choke. 2¼" wide, 2" high, 2⅛" mounting centers..... **95¢**
15 H. 50 Ma..... **59¢**



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Triple 8 mfd. 500 working volt D.C. oil-filled condenser, common negative, solder terminals, hermetically sealed, 5" x 3⅜" x 2¼"..... **$1.95**

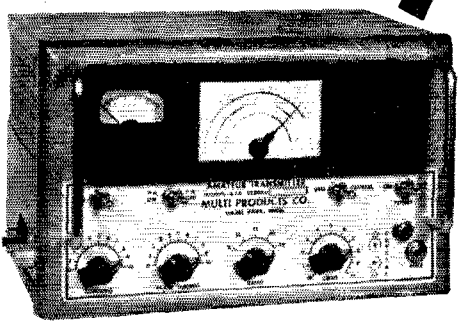
PHOSPHOR BRONZE AERIAL

125 ft. of the finest aerial wire obtainable. 42-strand phosphor-bronze with linen center. Will not stretch, very high tensile strength, diameter approximately same as No. 14 copper, very flexible. Excellent for transmitting or receiving antenna, control cable, guy wire. Regular list $4.95..... **90¢**

Triple 8 mfd. 450 V. electrolytic upright can condenser, separate negatives, all leads insulated from can. Nationally known mfr. Reg. dealer net $2.58.....ONLY **59¢**
10 for **$5.00**

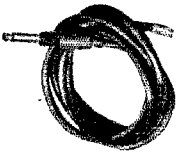
MINIMUM ORDER $2.00. *Send 20% deposit with* COD orders. Please include sufficient postage or *instruct us to ship by Express* Collect. Overpayment will be refunded by check.

ELMAC-A54



VFO or Crystal control. Direct-reading VFO on all bands—75, 20, 11, 10 • Plate modulation • Completely band-switching, fone or CW • 50 Watts max. input. Power required: 300–500 V.D.C. at 250 ma., 6.3 V AC or DC at 4.5A • Uses 3-6AG5, 6AR5, 6C4, 12AU7, 2-6L6G, 807 (included) • Only 7½" x 7½" x 12", 14½ lbs.

For carbon mike input.....**$139.00**
For Dynamic or crystal mike..... **149.00**
Power Supply, 110 Volt AC..... **39.50**



PL-55 PLUG AND CORD

Standard plug with 6 ft. rubber, 2-wire cord with spade lugs..... **85¢**

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COLLINS 32V3 TRANSMITTER	**$775.00**
COLLINS 75A2, WITH SPEAKER	**440.00**
HRO-60, WITH SPEAKER	**499.50**
NC-183-D, WITH SPEAKER	**385.50**
NC-125, WITH SPEAKER	**160.50**
RME-50, WITH SPEAKER	**199.50**
SX-71, LESS SPEAKER	**199.50**

MAYNARD PREAMPLIFIER

Self-powered; 4-position equalizer plus mike or tuner input; 20 db bass or treble increase or decrease; 3-12AX7, 6X4. Regularly $62.50.

Limited quantity. **$49.50**

LIMITED QUANTITY

4D32 tubes. Brand new	**$19.95**
RG8/U coax, 12", plug each end	**.70**
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Coax angle plug	**.45**
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3-gang heavy 365 mmf variable	**.60**
4-prong steatite socket	**.15**
110V. relay, DPST 20 Amp contacts	**5.95**

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Your order will receive my personal attention and will be shipped the same day order is received. We distribute all top-flight amateur lines . . . let us know what you need.
73, Jule Burnett, W8WHE

Novice Station

(*Continued from page 17*)

in the rear right-hand corner. Since none of the original sockets was conveniently located, I had to hack out holes for both tube and crystal sockets.

Adjustment and Results

None of the trimmers in the receiver's tuned circuits had been disturbed, so no adjustments were required. After a check of the circuits, a set of tubes was installed, antenna and 'phones were connected and the power switch thrown. The amazement of actually receiving a station as soon as the tuning crank was moved can hardly be overstated. In fact, signals on all three bands were very gratifying.

After a few voltage checks to establish that nothing was running too far outside its ratings, the chassis was slipped inside its natty grey case and I settled down for a solid evening's listening. The triumph was short-lived.

QRM

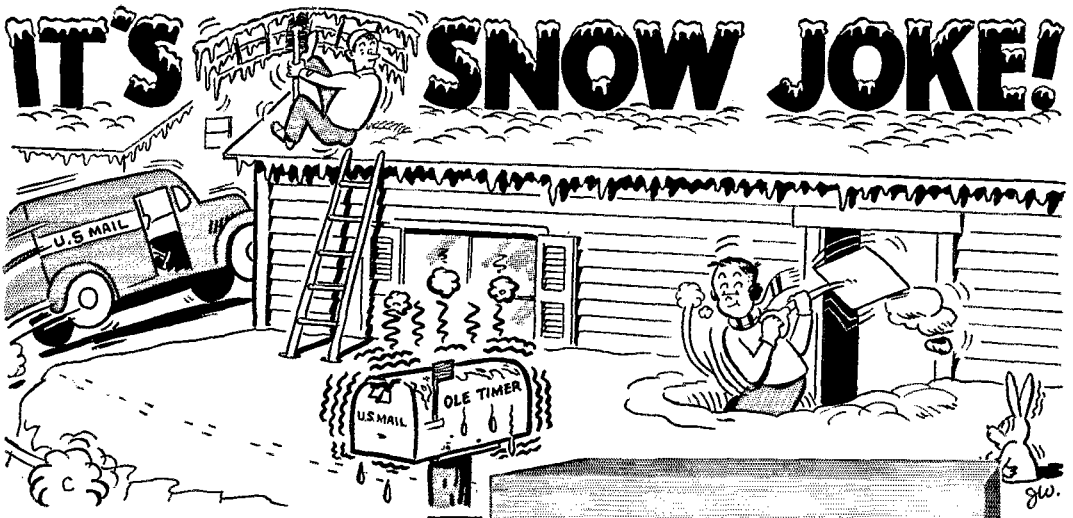
When the Novice band was finally located, it sounded like a can of worms. Although the sensitivity of the receiver was excellent, separation of signals was difficult. Enter the surplus box again, this time in the form of a BC-453 whose use in this function (Q5-er) has been widely described. This unit does not tune to 112 kc. (the i.f. in the MN-26Y), but it was found possible to pick up some second-harmonic signal at 224 kc. While the BC-453 increased the selectivity, the signal-to-noise ratio at high gain was very poor. An attempt to pad the 453 down to 112 kc. by adding capacitance across the tuned circuits was unsuccessful, so the idea was finally abandoned.

The transmitter crystal that had been ordered long before arrived at last. After a couple of evenings measuring voltages and currents while juggling the few available adjustments, it was apparent that an output approaching 10 watts was waiting to be unleashed. There was no further excuse for not learning the code.

This account of one ham's trials and tribulations should do much to disillusion fellow Novices about the wonders of war surplus. While there have been available many pieces of such gear less difficult to adapt to ham use than the MN-26Y, they have been a long way from the $4.95 category. As it turned out, by the time I connected the antenna to the MN-26Y, the original investment had been multiplied several times. If you have any lingering doubts, they should be banished forever by a glance at the balance sheet for the whole operation to follow. Most military equipment is built like a battleship and even comparatively slight modification often becomes a mechanical task of major proportions. In spite of the rosy pictures painted by numerous authors in radio magazines, it is seldom true that a few minutes of work with a soldering iron, lengths of baling wire from an old Model T, and

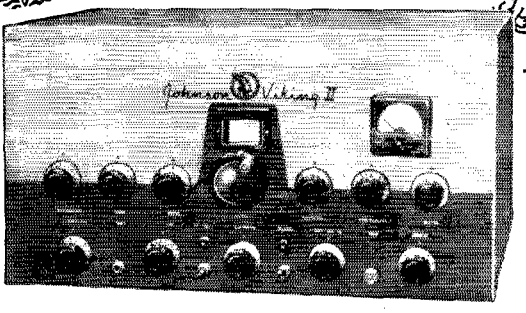
(*Continued on page 122*)

IT'S SNOW JOKE!

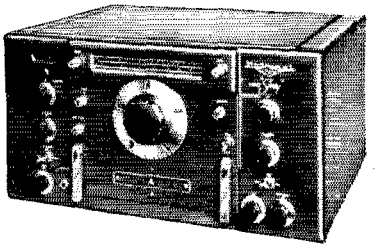


You're Money Ahead In *Any Season* With a "SURPRISE" Trade-In

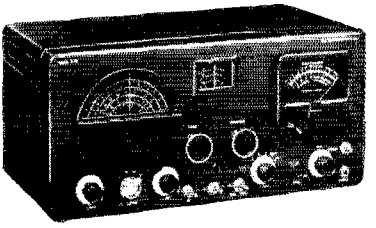
At Walter Ashe it's never too cold for a "hot" trade-in deal on your used (factory-built) communication equipment. For fast action, use the convenient coupon to tell us what you have to trade and to indicate your choice in new equipment. Then, keep an eye out for the postman and make a bee line for the mailbox to obtain our money-saving offer. Get your trade-in deal working today!



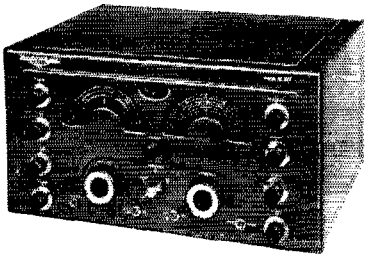
JOHNSON VIKING II TRANSMITTER KIT. Complete with tubes. Shpg. wt. 85 lbs. Only $279.50



NATIONAL HRO-60T less spkr. Shpg. wt. 90 lbs. Only $483.50

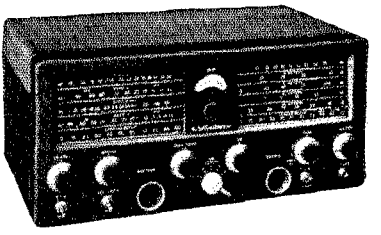


HALLICRAFTERS S-76 Less spkr. Shpg. wt. 46 lbs. Only $169.50



NATIONAL NC-183D less spkr. Shpg. wt. 65 lbs. Only $369.50

HALLICRAFTERS SX-71 Less spkr. Shpg. wt. 51 lbs. Only $199.50



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ten cents worth of new parts will convert a piece of war-surplus electronic gear into a complete receiver-frequency generator-circuit tester-output meter-VFO-rectifier-buffer amplifier-television set with built-in clock, rotating beam, and hot and cold running water.

Cash Outlay

MN-26Y	$ 4.95
Transformer and power supply	6.27
Tubes and receiver components	8.51
Crystal and transmitter parts	3.60
'Phones, key, antenna wire, etc.	5.46
Subtotal	$ 28.79

Hidden Costs

Express charges on MN-26Y	$ 5.10
BC-620 (source of meter, switch, etc.)	9.69
BC-406 (choke, switch, etc.)	21.02
BC-230 (var. cond. for tuning ant.)	3.95
BC-453 (including conversion)	15.65
R 89/ARN 5A (for crystal socket)	6.70
BC-450 (pot. and 'phone jack)	2.10
Tuning knob, postage and extra parts	1.83
Tuning dial (not used)	1.02
Salve (for solder burn)	0.25
Iodine and bandages (pliers slipped)	0.75
Photographs, paper, type. ribbon	3.75
Postage on manuscript	1.50
New dress for XYL (explanation obvious)	49.95
Subtotal	$123.26
Grand Total Cost of Project	$152.05

The "Tur-Key"

(Continued from page 81)

rectifier and an *R-C* filter, since the current requirements are very low.

V_4 and V_5 are a single tube, Type 6SN7, as are also V_6–V_7 and V_1–V_2. It might be well to inject a word of caution here regarding the 6SN7s used. They should be carefully checked for gas content and be reasonably well-matched sections. A careful matching of resistors in the bi-stable multivibrator will be of extreme value when initially setting up the circuit. Actual part values are not critical and all the items are readily available.

The key lever itself being the only mechanical part in the circuit, it must have good contacts and be kept that way for reliable operation in any electronic key. The actual construction will be left to the reader. Many good practical suggestions have appeared from time to time in *QST*.

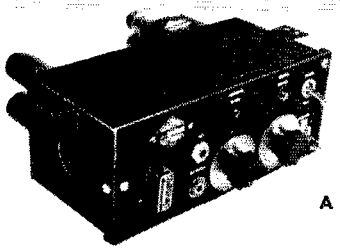
Mechanical layout of the circuit is not critical at all so long as the usual precautions against stray coupling of a.c. to any grid circuits, and avoiding close coupling between any leads carrying pulses, are observed. The speed control, R_1, should be checked for possible leakage between the moving arm and the shaft rod. If possible,

(Continued on page 124)

It's Newark for the Newest...

in COMPACT TRANSMITTING GEAR

Utilizing The Revolutionary New *Rothman System* of Modulation by MARMAX



A

A New Method of Achieving Controlled-Carrier Amplitude Modulation Without Using Expensive, Bulky Equipment . . . Demodulated Carrier Feedback is Used to Control the Magnitude of RF Plate Current Pulses in a Pentode or Tetrode Class C RF Amplifier Tube . . . Permits Resting Period for Power Supply and Other Components Between Words and Syllables.

MODEL MT-52 TRANSMITTER

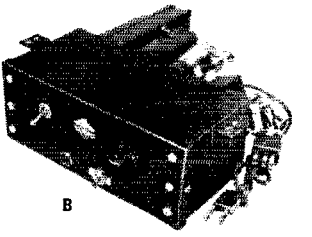
Fig. A. Compact, versatile, all-band high efficiency mobile or fixed phone CW transmitter possessing high fidelity with a minimum of battery drain. Designed for under-dash mounting. Tuning accomplished by easily visible neon bulb and pilot lamp indicators. The Modulation section is the unique Marmax Plug-In-Modulator model MO-52 described at right. The crystal oscillator section is straightforward in all respects and employs the modified Pierce oscillator circuit. The oscillator tube, 6AG7, has been chosen for high stability, rugged construction and rich harmonic output. The oscillator coil is of the slug-tuned fully shielded plug-in type and is optional for oscillator output at 80, 40, 30, or 20 meters. When operating the final amplifier in the 15 and 10 meter bands, the final is used as an efficient doubler. Individually shielded sections provide a high degree of accuracy and stability. Provision is made for simultaneous receiver muting and external power supply relay control. Antenna change-over is accomplished within the unit by a 6 volt DC coaxial relay, which may be controlled either by the push-to-talk button of a carbon microphone (not supplied) or the standby switch. Tube complement: 1-6AG7, 1-6BQ6GT, 1-12AU7, 1-6J6. Power requirements: 2.9 amperes @ 6 volts DC or AC and 100 to 150 ma. @ 400 to 600 volts DC. Peak power rating of final stage: 50 watts. Size: 3 ½" high, 8 ¼" wide, 9" deep. Complete with all tubes and 10 meter coils. Shpg. wt., 2 lbs.
97F190. NET **79.50**

MODEL PS-52 POWER SUPPLY

Fig. B. Unique circuitry enables this supply to change from 6 volt DC to 110 volt AC operation at the flick of a switch. Selenium rectifier operates antenna changeover relay in fixed station operation, thereby making the use of a hot-shot battery unnecessary. Tube complement: 1-80. Uses 1-heavy duty 6 volt vibrator for DC operation. Power requirements: 80 watts @ 100-125 VAC or 13 amperes @ 6 volts DC. Size: 3 ⅛x8 ¼x9 ¼". Wt., 12 lbs.
97F192. NET **49.50**

MODEL VFO-52 VFO

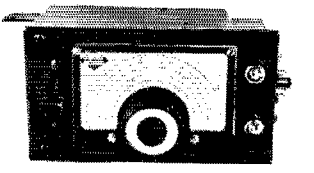
Fig. C. Plugs directly into the octal socket provided in the MT-52. Provides RF output on 80, 75, and 40 meters. Dial calibration is provided for the 80, 75, 40, 20, 15, 11 and 10 meter Amateur bands. Uses 6J6 triode to drive the 6AG7 in the model MT-52 transmitter. Unit is easily changed from VFO to crystal operation by a single switch. 6-volt pilot light indicator. Tube complement: 1-6J6, 0B2. Power requirements: 0.45 amperes @ 6 volts DC or AC and 30 ma @ 300 volts DC. Size: 3 ½x6 ⅛x9". Wt., 2 lbs.
37F191. NET **29.50**



B

MODEL KW-52 1KW MODULATOR

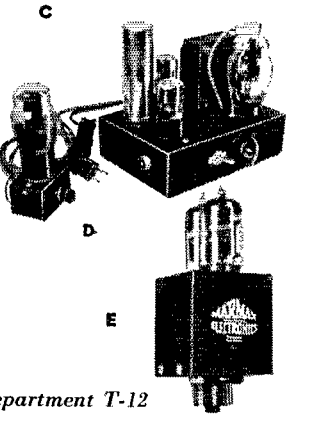
Fig. D. Extremely linear speech amplifier and modulator for Class C power inputs of 100 watts to 1 KW. The unit is designed for high impedance microphone and has automatic gain control. Any pentode or tetrode Class C tube or tubes are adaptable to the KW-52. The speech amplifier power supply is built into the unit. CW—Phone switching is provided on the front of the chassis by means of a rotary switch. Provides an inexpensive and efficient method of converting a CW transmitter to amplitude modulation. Tube complement: 1-6SL7GT, 1-6X5GT, 1-6CD6, 1-80. Power requirements: 25 watts @ 100-125 VAC. Size: 7x7x5". Wt., 4 lbs.
97F193. NET **54.00**



C

MODEL MO-52 100 WATT MODULATOR

Fig. E. Designed to modulate any mobile or fixed station transmitter using a pentode or tetrode for the Class C final amplifier with a power input to the Class C stage of up to 100 watts. Tube complement: 1-12AU7, 1-6J6. Power requirements: 0.75 amperes @ 6 volts DC or AC and 5 to 15 ma. @ 300 volts DC depending on class C tube. Size: 4 ½x1 ¾x1 ¾". For carbon mike. Wt., 3 ½ oz.
97F194. NET **12.50**



D

E

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mount the resistor on an insulated support and use an insulated shaft extension to insure a low-leakage path.

The circuit as shown has been designed, built and used successfully, meeting all the expectations and requirements set forth. The original model was built experimentally on a standard-sized rack-mounted assembly and does not in any way resemble the usual electronic key. A second model is under construction at the present time using all miniature-type tubes and will be of a reasonable size for portable operation, entirely self-contained. When the new model is completed and proven as successful as the first, complete construction information will be available for those who may be interested.

Remember, this is still only an automatic key. All the bugs have been ironed out, except one — the one who swings the paddle. It still takes a reasonable amount of skill and timing to produce intelligible results. As a matter of fact, it is the key which is operating the operator and not the operator operating the key. So don't fight it — choose a speed within your own capability and let the key help you to smoother, effortless, easy-to-send-and-copy c.w.

The Hetromon

(*Continued from page 84*)

tap or try adjusting C_1. Then turn S_1 to the 1000-kc. position and adjust C_3 for stable operation.

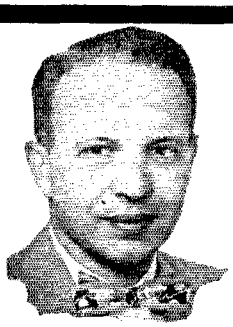
The second step is to turn off S_2 and turn on S_4. A loud beat against WWV should be heard when the main dial is turned so that the tuning condenser is near maximum capacitance. If necessary, adjust C_{10}. Now set the receiver to the b.c. band and check for a beat at 1000 kc. Retune and repeat at 1500 kc. This range was chosen because it gives fundamental beats with both crystal frequencies and the 1.5-Mc. upper limit gives convenient harmonics in the higher-frequency bands. Various beats can be found over the tuning range and logged on the dial. They will, of course, vary somewhat in strength.

After the dial is calibrated, set the cursor line accurately to the 1000-kc. mark while checking against the 1000-kc. crystal oscillator. Be sure that the unit has been thoroughly warmed up before doing this. I have found that the cursor seldom needs readjustment, since, even in hot humid weather, the Hetromon will remain stable all day after a 15- to 30-minute warm-up period.

The third step is to check for modulation of the crystal and heterodyne oscillators, using S_3 and S_7, while listening on the receiver. Adjust R_{13} below the overmodulation level.

When the unit is used as a signal generator for receiver alignment, most operations are quite straightforward, using standard techniques with either fundamental or harmonic output. To align i.f. stages, turn on the 1000-kc. crystal oscillator and tune the heterodyne oscillator to a frequency

(*Continued on page 126*)



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A CHICKEN IN EVERY POT
A GLOBE KING XMTR IN EVERY "SHACK"

Jump on Leo's bandwagon—NOW is the time to trade for a new receiver or transmitter. Our stocks are complete—our prices are LOW. TAILOR-MADE TERMS—LIBERAL TRADE-INS—COMPLETE STOCKS—PERSONALIZED SERVICE. We Finance Our Own Paper—No Red Tape—No delays. Special Attention Given To Foreign Orders. Deal with WRL—"One of the World's Largest Distributors of Amateur Radio Transmitting Equipment."

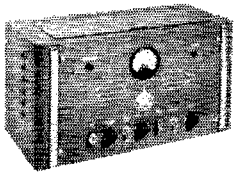
JUST OFF THE PRESS

FREE 1953 WRL CATALOG

ATTENTION HAMS-IT'S BRAND NEW!

THE WRL GLOBE SCOUT

(50 WATTS PHONE — CW)



The WRL GLOBE SCOUT is the latest triumph of the WRL engineering staff. It is a beautiful, compact XMTR, completely self-contained, including power supply — 8H X 14½W X 8¼D. Contains new 6146 tube in final; covers 160M thru 10M. Metering provided for final grid and final plate circuits. Complete kit includes all parts, chassis, panel, power supply, cabinet, tubes, meter and one set of coils. Can be used for mobile work with suitable power supply. (Auxiliary socket provided.) An ideal XMTR for the novice or the experienced ham.

KIT FORM (Incl. all parts and tubes) **$89.95**

WIRED (By our engineers) **$99.95**

GLOBE SCOUT ACCESSORIES

Coil sets available for 160, 80, 40, 20, 15 and 11-10, per each set.....$3.00
Crystals 160, 80, or 40M (40M used on 10-20) each...$2.75
Quality crystal microphone and stand.....$10.17
Signal R-50 Key.....$1.43

REV. E. K. BRYANT PRAISES GLOBE KING XMTR

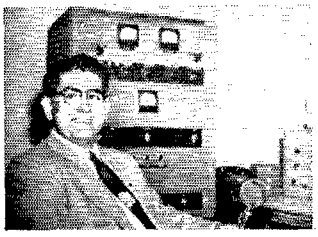


Photo courtesy of Bob Carothers, W7QAT.

Here are some excerpts from a recent letter received from E. K. Bryant, W7CWC, Minister of the Longview Church of the Nazarene, Longview, Washington.

"I have had my GLOBE KING around 3 years and am entirely satisfied with it."

"Even with poor antennas I really get out with it."

"I am completely sold on it — and have always enjoyed honest and fair dealings with WRL."

Reports like the above are reaching us, in every mail, from satisfied GLOBE KING owners in all parts of the world! The GLOBE KING offers top performance with more watts per dollar — send for free illustrated catalog sheet.

NEW WRL 400B GLOBE KING XMTR — KIT FORM **$475.00** WIRED-TESTED **$495.00**

WRL 165 WATT GLOBE CHAMPION XMTR (less accessories) **$329.50** **$349.50**

160 METER CRYSTALS

1822-2000 K. C.
$1.50
EACH WHILE THEY LAST

80 METER
3532-3539 K. C.
3615-3699 K. C.
3754-3986 K. C.

40 METER
7025-7099 K. C.
7150-7425 K. C.

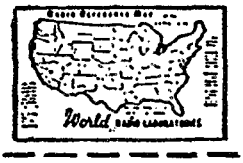
99¢ each while they last

5675-6975 K. C.
7425-8591 K. C.

79¢ each while they last

All crystals mounted in FT-243 holders and checked for activity before shipment. Crystals will only be furnished within the range of frequencies shown above. Will furnish as close to desired frequency as possible. When these are gone, no more available.

RADIO REFERENCE MAP



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- ☐ Used Equipment List

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Address_____
City_____ State_____

higher that will give the required difference frequency. For example, for 455 kc., tune to 1455 kc.

'Phone Monitor

For aural monitoring of 'phone signals, the headphones should be plugged in at J_2. The pick-up coil, L_5, should be coupled to the final-amplifier tank circuit. The coil need not be plugged directly into the tip jacks but may be at the end of a link line. The coupling should be adjusted until the meter reads full scale with S_5 in the "unmodulated" position, with no modulation applied to the transmitter. Then, when S_5 is turned to the "modulated" position, the percentage of modulation will be 140 times the meter reading, i.e., 0.707 for 100-per-cent modulation.

A little practice will soon acquaint one with all the capabilities of the Hetromon.

Viking I Modification

(Continued from page 22)

settings on the other bands, and there was no adverse effect on the 10-meter efficiency.

Doubling in the final stage provides a good quality signal on 6, with sufficient power to work out nicely on that band when a good antenna is used. It is hoped that this information will result in many other Viking owners giving 6 a whirl. We think that they will like the extended-local range and freedom from QRM that this band affords. Many 50-Mc. men can testify as to the quality of the Viking signal on 6, having heard W1IXJ and W1LFI working out with theirs on numerous occasions. Credit for this article should be extended to W1IXJ, for his part in compiling the necessary information.

Strays

Several of the gang have wondered how come the full 17-inch width of the chassis in the photo on page 12 of the October issue is utilized by shield compartments whose total width is slightly under 15 inches, according to the caption. The camera is right and the figures are wrong; the width of the plate compartment is 13⅜ inches, not 11⅜ inches. There also have been some questions about the over-all height of the plate compartment and how you can get the lid on the box without short-circuiting the plate cap. We forgot to mention in the article that about half of the heat-radiating cap had been sawed off so there would be ample clearance.

So far no one has asked about the coax connector on the rear edge of the chassis down at the lower right corner of the picture, but to forestall those who probably will, it has nothing to do with the circuit and so was not shown. It connects to a shielded lead going to a small probe near the output condenser of the pi network, and is used for sampling the harmonic content of the output.

Lafayette

WN2NIJ

Paul Says

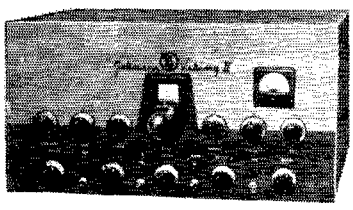
Now that we're all getting ready for another big season of DXing, rag chewing, rebuilding, etc., it's a good time to think of the new equipment we'll need. Many such items are listed here and we have many others in stock. Drop us a line or stop in and talk over your future requirements.

Paul Vasquez WN2NIJ

J.F.D. Zoom-up Mast

Zinc-plated seamless, 16 gauge steel, telescoping antenna masts. Supplied with guy rings, clamps and insulation hardware (less guy wire).

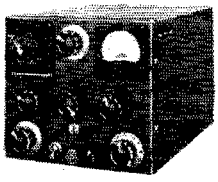
ZU12-20 20 ft. mast	$ 7.35
ZU123-30 30 ft. mast	12.98
ZU1234-40 40 ft. mast	20.41
ZU12345-50 50 ft. mast	33.38



NEW! JOHNSON VIKING II

The Johnson Viking II transmitter kit incorporates all the desirable features of its predecessor plus those required for effective TVI suppression. 100 watts output on phone and 130 watts on CW on all bands 160 thru 10 meters. New final amplifier uses parallel 6146 tubes. All parts supplied, including copper plated steel cabinet, chassis, wiring harness, all hardware and tubes. Complete construction test and operation manual also supplied. Viking II Transmitter Kit.....**279.50**

JOHNSON MOBILE TRANSMITTER KIT



New Johnson mobile transmitter kit, a band-switching 4 band rig, 60 watts input, 100% modulated (30 watts on 300 volt supply) 807 final, microphone input—dynamic, crystal or carbon. Crystal or VFO control. Viking Mobile Transmitter Kit (less tubes) **99.50**

WE CARRY A COMPLETE STOCK OF MASTER MOBILE ANTENNAS

TYPE AB/W75—Meter Whip—**NET 8.75**

MODEL M-20—20 Meter load coil for using 75 meter antenna on 20 meters—**NET 3.23**

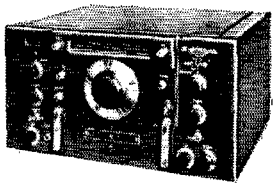
MODEL M-40—40 meter loading coil for using 75 meter antenna on 40 meters.....**NET 3.23**

MODEL 100—96S—96" Stainless Steel—**NET 5.14**

MODEL 92—18" Whip Extension—**NET 3.18**

MODEL 9—96T—96" Economy Whip—**NET 3.67**

LAFAYETTE — HEADQUARTERS FOR COMMUNICATIONS RECEIVERS

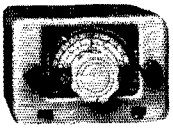


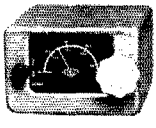
Lafayette has been the Headquarters for fine communications receivers for 32 years. All the latest models are available as soon as released by the manufacturers. Be sure to check Lafayette before you buy your new receiver.

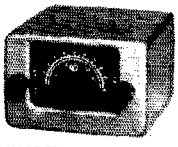
HALLICRAFTERS	
S-38C	49.50
S-40B	99.95
S-53A	79.95
SX-62	289.50
SX-71	199.50
SX-73	975.00
S-76	169.50

NATIONAL	
SW 54	49.95
NC 125	149.50
NC183D	369.50
HRO 60	483.50
HFS	142.00
HAMMERLUND	
HQ-129X	199.50

HEADQUARTERS FOR GONSET AMATEUR EQUIPMENT







GONSET 2-METER AMATEUR AND C.A.P. CONVERTER For fixed or mobile use on 144-182.2 mc. High stability permits use with auto or home broadcast set. Super-imposition tuning and 1 mc (output) IF doubles bandspread, speeds tuning and avoids images from TV, police and other stations outside 2 meter band. 50 ohm coaxial input. Easily adapted for use with open wire line or 300 ohm ribbon. High frequency and extended to cover C.A.P. frequency. Requires 135-250 V. DC, 20 MA; 6 V. DC. Draws power from receiver. Tubes: 6CB6, 12AT7, OB2. Gray case measures 5¼x3½x5¼". Supplied with tubes, cables and instructions. Shpg. wt. 4 lbs.
Gonset No. 3008 2 Meter Converter.....NET 44.50

GONSET 3-30 MC SHORT WAVE CONVERTER Continuous coverage from 3-30 mc on three bands. For use in all-band mobile station installations. 1500 kc output. High sensitivity on short whip. 4 tubes. Uses power supply of receiver to which attached. Size: 5¼x3½x5¼". Shpg. wt. 4 lbs.
Gonset No. 3002 Converter.....NET 44.75

STEERING POST MOUNTING BRACKET — For installing any Gonset Converter on auto steering post.
Gonset Steering Post Mount 3006.....NET 3.90
Gonset 3005 Tri-Band Converter.....NET 47.60

GONSET MODEL 3017 SINGLE BAND CONVERTERS
Available in 10, 15, 20 and 75 meter models (specify band).....NET EACH **39.95**

Lafayette Radio — Radio Wire Television Inc.

NEW YORK 13, N. Y.	BOSTON 10, MASS.	NEWARK 2, N. J.	BRONX 58, N. Y.
100 SIXTH AVENUE	110 FEDERAL STREET	24 CENTRAL AVENUE	542 E. FORDHAM RD
REctor 2-8600	HUbbard 2-7850	MArket 2-1661	FOrdham 7-8813

Two in a Car

(*Continued from page 40*)

coil, as coaxial cable is used. Should a balanced line be employed, inductive coupling to L_1 would be preferable.

The mixer output coil is wound on a Millen 69041 slug-tuned form and mounted between the tube sockets, as seen in the upper left corner of the bottom view. The i.f. plate coil is wound on a surplus coil form from the oscillator portion of a BC-624 (SCR-522) receiver. Inasmuch as this portion of the converter was an afterthought (though a necessity) and space for it was at a premium, the coil had to be mounted on the shield around the r.f. stage. This is certainly not an ideal location, and it is suggested that anyone intending to build a similar converter modify the layout slightly to make more room for the i.f. stage components. No particular precautions, other than the shielding of the r.f. stage already mentioned, appeared necessary. Reasonable care in arranging for short leads, and attention to mechanical details such as the use of lock washers and good soldering, are recommended.

Adjustment and Operation

The total current drain of the converter, with the values shown, is about 15 ma., with a supply voltage of 150. If the applied voltage is other than 150, the 5600-ohm resistor in series with the B supply should be varied accordingly. The required current is drawn from the main receiver power supply, or a small separate source may be used.

Adjustment of the converter is simplicity itself, but it is best accomplished on the home workbench, with a communications receiver that covers the desired range substituting for the mobile installation. There are no special problems in this design, and anyone who is at all familiar with the way receiver front ends work should have no trouble in getting satisfactory results.

In comparison with the regular home-station converter at W2UTH, this little mobile job left little to be desired When mounted in the car and operated in conjunction with the Gonset converter, the results far exceeded those obtained with various makeshift receiving arrangements tried previously in 2-meter mobile work. With only a 19-inch whip extending from the rear window in a horizontal position, the signal of W2UHI, Tonawanda, N. Y., was copied solidly all the way to East Pembroke, N. Y., a distance of some 30 miles airline, even in the heavy traffic on U. S. Route 20. Under the same conditions, W2TQY, Newark, N. Y., has been read consistently over the rolling terrain into Rochester, about 25 miles. W2UXP, Webster, N. Y., 15 miles away, is readable throughout downtown Rochester, around the large buildings, under bridges and in heavy traffic.

No doubt there are many ways in which the converter could be made somewhat hotter, but the sensitivity as it stands is more than sufficient to copy any signal that the low power of a mobile

(*Continued on page 130*)

Uncle Dave's Bargain Corner

7" Heavy Duty Insulators PYREX	$1.40
Carbon Microphones Single Button, Push to Talk Switch on Handle Similar to T 17B Made in England	3.95
J38 Hand Keys	1.29
Burgess Vibrator Jig Saws	9.95
Sprague 120-Watt Non-Inductive Resis. 2500, 7500, 10k, 25k, or 50k	2.00
72 Twinlead One Kilowatt Similar to Belden 8210. $.09 per ft. Per C	$5.00
10 mfd. 600V-01L Condensers. Each	2.25
15 mfd. 1000V-01L Condensers. Each	5.95
2 mfd. 1000V-01L Condensers. Each	2.95
2 mfd. 2000V-01L Condensers. Each	4.95
25 mfd. 1000V-01L Bathtub Condensers. Each	.50

Transmitters

Collins 32V3 Less Microphone or Crystal	$775.00
Eldico MT2-2 Meter Less Mircophone or Crystal	79.95
Eldico TR-1-TV Allbands Less Microphone or Crystal	499.95
Hallicrafter HT20 Less Microphone or Crystal	449.50
Harvey-Wells TBS50C Bandmaster Sr Less Microphone or Crystal	111.50
Harvey-Wells TBS50D Bandmaster DeLuxe Less Microphone or Crystal	137.50
Elmac A54H High Impedance With VFO Less Microphone or Crystal	149.50
Elmac A54 Low Impedance Carbon With VFO Less Microphone or Crystal	139.50
Lysco 600 Less Microphone or Crystal	149.50
E. F. Johnson Viking II Complete TVI'D Wired Less Mike	339.50
E. F. Johnson Viking II Kit Form With Tubes Less Mike or Crystal	279.50

Receivers

Collins 75A2 With Speaker	$440.00
Hallicrafters S38C	49.50
Hallicrafters S40B	99.95
Hallicrafters S77A	99.95
Hallicrafters S53A	79.95
Hallicrafters S76	169.50
Hallicrafters SX71	199.50
Hallicrafters SX62	289.50
Hallicrafters R46, Speaker For Models SX62, SX71, S76	19.95
Hammarlund HQ129X, With Speaker	254.00
National SW54	49.95
National HRO60T, With Speaker	499.50
National NC183D, With Speaker	385.50
National HFS, With Power Supply	164.43
National NC125, With Speaker	160.50
RME 50, With Speaker	213.50

Used Equipment

Collins 75A2 (Demonstrator) used very little	$390.00
Collins 32V3 (display model) slightly shopworn—never used	710.00
Gonset two-meter Converter (like new)	39.00
Webster Wire Recorder Model 80	50.00
Hallicrafters HT-9 Transmitter with 80 and 10 meter coils	200.00
Hallicrafters HT-9 Transmitter with full set of coils and eleven crystals	300.00
National HRO with speaker and six coils and power supply	215.00
Meissner 150-B Transmitter 160, 80, 40, 20, 10	$250.00
National NC-33	49.50
National NC-240-D with speaker	215.00
National NC-173 with speaker	175.00
Hallicrafters SX-25 with speaker	125.00
Hallicrafters Transmitter	75.00
Harvey-Wells Transmitter TBS-50A	80.00

Miscellaneous Equipment— New

Morrow Converter 2 band 10-75 with built-in noise clipper	$54.95
Morrow Converter 3 band 10-20-75 with built-in noise clipper	64.95
Gonset Converter tri-band (new Model) includes 15 meters	47.60
Gonset Converter 2 meter band	44.50
Gonset Converter 3—or 30 mc	44.75
Gonset noise clipper	9.25
Gonset steering post adaptor	3.90
Johnson VFO kit with tubes	45.50
Johnson VFO kit with tubes wired and tested	55.50
Johnson TVI kit for Viking I transmitter	24.75
Millen grid dip oscillator	61.50
Eldico grid dip oscillator kit	29.50
Eldico grid dip oscilator kit wired and tested	43.00
Eldico Antennascope kit Model AT-1	29.95
Eldico Antennascope kit wired and tested	$34.95
Eldico TR75-TV Transmitter kit	64.95
Eldico TR75-TV Transmitter kit wired and tested	94.95
Eldico A300 Antenna Tuner kit	29.95
Eldico A300 Antenna Tuner kit wired and tested	39.95
Carter Genemotor 624VS input 5.7VDC output 600VDC 225ma	53.39
Carter Genemotor 450AS input 6VDC output 600VDC 225ma	45.68
Harvey-Wells DPS50 6VDC input 6VDC output 225ma	87.50
Harvey-Wells AP550 AC power supply	39.50
Elmac AC power supply PSA500	39.50
Instructograph Jr. Code Teacher	17.50
Instructograph Standard Code Teacher	24.50

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set-up has a chance of working back to. And after many sad experiences chasing signals around with tunable oscillator converters, it is a real pleasure to set this job on a signal and then drive anywhere and listen, with hands off the tuning dial. The stability of the system is limited only by that of the lower-frequency equipment with which it is used.

The additional drain of the converter does not represent a serious load, and its improved performance over that obtainable with tunable converters helps to put 2-meter mobile operation back into the running in the mobile field.

Power-Supply Filters

(Continued from page 48)

permit, the values of P above 5 per cent will usually be more economical.

Filter chokes are usually placed in the ungrounded side of the rectifier output. If the choke is placed in series with the transformer and ground, the capacitance of the secondary winding of the transformer to grounds tends to by-pass the choke.

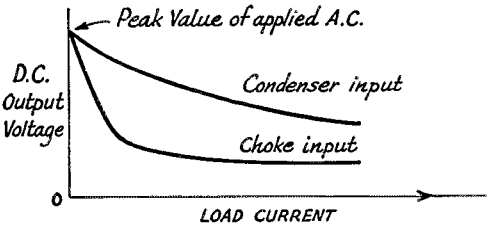


Fig. 3 — Comparison of the voltage regulation with condenser- and choke-input filters.

If the expected current drain on a rectifier is very slight, resistors, which are comparatively inexpensive, may be used in place of the chokes. A 1000-ohm resistor, for example, will do just as much filtering as 1000 ohms of inductive reactance at any given ripple frequency. It should be stressed that this is practical only when the load resistance is much higher than the filtering resistance. Also, the d.c. voltage drop in the filter resistor and its adverse effect on regulation must be taken into account.

Answer to **QUIST QUIZ** *on page 10*

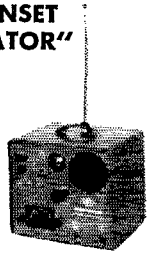
No, he should do a little more electkinr first, and **B** should learn a little more about BCI. If the signals are harmonics from a low-frequency parasitic, the signals should be evenly spaced across the b.c. band, separated by the frequency of the parasitic. If the parasitic is at 50 kc., the signal should appear at 50-kc. intervals across the b.c. band, and also 50 kc. either side of the operating frequency on 75.

However, the signals can also appear in the b.c. set if the b.c. receiver oscillator has strong harmonics, and this is an excellent possibility. If the transmitter is on 3900 kc. and the receiver i.f. is 456 kc., oscillator harmonics may cause the signal to appear at 633, 692, 923 and 1266 kc. on the b.c. receiver.

The "blanketing" suggested by **B** is not tunable on the receiver.

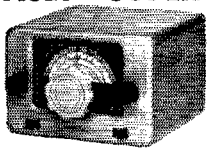
Harvey ...FOR THE MOST COMPLETE STOCKS OF COMMUNICATIONS EQUIPMENT

The New GONSET "COMMUNICATOR"



A complete two-way station for 2 meter band operation. Suitable for mobile or fixed location use. Receiver is a sensitive superheterodyne with built-in noise clipper circuit and 6BQ7 Cascode rf stage. Transmitter uses 2E26 in final 15 watts input. Employs 8 mc. crystals for stability, and has a range of over 100 miles. Operates on either 110 volts AC or 6 volts DC. Weight approx. 16 pounds.
Complete with Tubes (less crystal and microphone) $189.50

GONSET "SUPER 6"



Six Band Amateur Converter

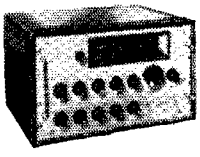
A compact converter covering 10, 11, 15, 20, 40, and 75 meter phone bands. Also covers 6 mc. (49 meter) and 15 mc. (19 meter) short wave broadcast bands. Uses 6CB6 low noise rf stage, with panel controlled antenna trimmer, 6AT6 triode mixer, 6C4 modified Clapp oscillator, and 6BH6 if stage.
Complete with Tubes..... $52.50

GONSET CASCODE PRE-AMPLIFIER
FOR 2-METER RECEIVERS

A wide-band cascode type pre-amplifier designed to increase gain, signal-to-noise ratio, and to improve overall performance. Signal gain of unit is 10 db. over the entire 2-meter band, with a noise level of 5 db. Uses 6BQ7 tube.
Complete with Tube..... $19.95

Complete Line of GONSET EQUIPMENT In Stock for Immediate Delivery

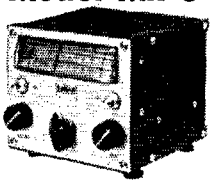
The New HALLICRAFTER HT-20 Transmitter



A completely TVI-suppressed transmitter with complete bandswitching from 10 to 160 meters. Power output 115 watts CW or 100 watts on phone. TVI radiation is at least 90 db. below output. Has provision for external VFO head, plus many other new features.
Complete with Tubes..... $449.50

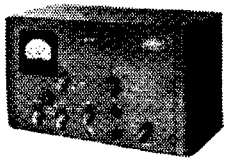
HARVEY Carries a Complete Line of Hallicrafter Communication Equipment Always in Stock for Immediate Delivery.

SONAR MOBILE Rcvr. Model MR-3



Complete coverage for 10-11-20-75 meters. 8 tubes, 4.5 watts audio output. Uses: 12AT7 RF stage and B.F.O., 6U8 oscillator mixer, (2) 6CB6 I.F. stages, 6AL5 2nd detector and noise limiter, 6AT6 1st audio, 6AQ5 audio output, OB2 voltage regulator. 1 Microvolt signal produces 0.5 Watt audio output. A.N.L. and B.F.O. are push-button operated. Requires 250 Volts at 60 to 80 mils. Size: $4\frac{7}{16}$" x $5\frac{1}{16}$" x $5\frac{11}{16}$". Complete with tubes . . . less power supply and speaker..... $89.95

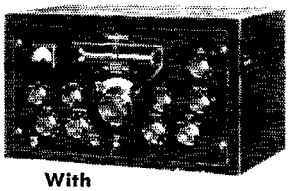
The New SONAR Transmitter



Model SRT-120

For mobile and fixed location operation. Has band-switch for 80, 75, 40, 20, 15, and 10 or 11 meters, plus spare position for any future band. Has provision for two crystals or external VFO head. Final amplifier employs the new Amperex 9903/5894A tube. Power input is 120 watts on CW, and 100 watts on phone. All circuits metered. Power requirements: 600 volts dc at 350 ma, and 6.3 volts at 6.4 A.
Complete with Tubes..... $198.50
External VFO Head..... 16.50

The New COLLINS 75A-3 Receiver



With Mechanical Filter

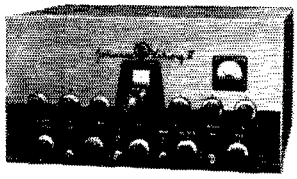
The familiar Model 75A-2, redesigned and modified to provide for the use of mechanical filters. Supplied with one 3 KC filter, and facilities for two additional. A 3-position front panel switch permits selection of filter desired.
with speaker **$550.00**
Additional Mechanical Filters: 1 KC and 6 KC..... each **75.00**
COLLINS 75A-2 still continues in popularity..... with speaker **440.00**

Brand New Specially Priced DYNAMOTORS

Input Voltage	Output Voltage	Output Current in ma.	SPECIAL PRICE
CARTER			
5.5	600	270	$35.00
5.8	375	325	35.00
5.8	600	175	29.50
12.3	375	325	39.50
WESTINGHOUSE			
5.8	375	325	35.00
6.0	600	270	35.00
5.75	410	275	35.00

Complete Line in Stock
CAMBRIDGE THERMIONIC COILS
For Immediate Delivery

New Deluxe Transmitter Kit JOHNSON VIKING II
100 WATTS ON PHONE
130 WATTS ON CW



Every desirable feature has been included in this outstanding transmitter: BAND-SWITCHING to all amateur bands, from 160 through 10 meters . . . TVI suppression . . . 100% AM modulation . . . PARALLEL OUTPUT 6146 tubes . . . PUSH-PULL 807 MODULATORS. Supplied complete with pre-punched chassis, copper-plated steel cabinet, tubes, hardware, assembly instructions, and all necessary parts and components. $279.50

Viking II complete with tubes, wired and air tested.....	324.50
Viking VFO KIT, worthy companion to the Viking II.....	42.75
VFO Kit—wired and tested (with tubes).....	62.75
Viking Mobile Kit, up to 60 Watts input for that rig-on-wheels.....	99.50
Viking Low Pass Filter, 4 section, 75 DB Att., handles a KW.....	16.50
Viking TVI Kit, everything to TVI-suppress the Viking I.....	24.75

VISIT THE AUDIOTORIUM. Come in and visit our new sound department . . . all these items and many more on display at all times.

NOTE: In view of the rapidly changing market conditions, all prices shown are subject to change without notice and are Net, F. O. B., New York City.

hrc **Harvey RADIO CO., INC.**
103 W. 43rd St., New York 36, N. Y. • LUxemberg 2-1500

Field Day Results

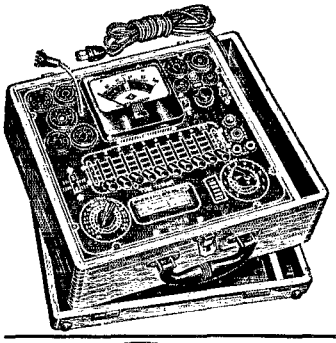
(*Continued from page 61*)

K6DA/6	Crescent Bay Amateur Radio Emergency Corps	386-	AB-18-	3453
W6MLI/6	Coronado Radio Club	511-	B-22-	3066
W7KYC/7	Portland Amateur Radio Club	466-	AB-15-	3012
VE3CY/3	Kitchener & Waterloo Amateur Radio Club	334-	A-20-	3006
W1ECO/1	Submarine Signal Radio Club	308-	A-21-	2997
W8WIT/8	Amateur Radio Experimenters Group	315-	A-10-	2835
W8KGG/8	Huron Valley Amateur Radio Assn.	407-	AB-22-	2757
W2GGN/2	Queens Radio Amateurs	438-	AB-10-	2733
W9JVN/9	Martinsville Amateur Radio Club	409-	ABC- 9-	2460
W4GNF/4	Greensboro Radio Club	349-	AB-35-	2376
W9JP/9	Indianapolis Radio Club	416-	AB-10-	2334
W4NEP/4	Paducah Amateur Radio Club	239-	AB-15-	2106
W9DOR/9	Midway Radio Club	207-	A-11-	2106
W5SOE/5	West Texas Tequila Sipper's Assn.	333-	B-18-	1998
W3LTK/3	Radio Assn. of Erie	233-	AB-30-	1935
W3IUG/3	Steel City Amateur Radio Club	203-	A-15-	1827
W9DUK/9	Delaware Amateur Radio Assn.	388-	ABC-15-	1746
W4NVU/4	Dade Radio Club	143-	A-22-	1521
W5IWJ/5	Pioneer Radio Amateurs	248-	B-14-	1488
W3PQT/3	Naval Air Patuxent Hams	126-	A-12-	1359
W2SBV/2	Elmira Amateur Radio Assn.	109-	AB- 6-	831
KP4ID/KP4	Puerto Rico Amateur Radio Club	102-	B-15-	762
Six Transmitters Operated Simult neously				
W2VDJ/2	Lakeland Amateur Radio Assn.	1139-	A-30-	10,476
W9AP/9	North Suburban Radio Club	1101-	A-30-	10,134
W9PCS/9	York Radio Club	994-	A-22-	9171
W9SW/9	Chicago Suburban Radio Assn.	737-	A-35-	6858
W6MSO/6	The Inglewood Amateur Radio Club	792-	AC-19-	5673
K4AF/4	Headquarters USAF MARS	808-	B-17-	4848
W6JX/6	Sacramento Amateur Radio Club, Inc.	538-	AB-20-	4152
VE3BER/3	Clinton Amateur Radio Club	380-	A- -	3420
W4AKC/4	Gaston Amateur Radio Club	361-	A-10	3249
W1MHL/1	Waltham Amateur Radio Assn.	315-	AB-11-	3180
W8RXY/8	Central Michigan Amateur Radio Club	388-	AB-20-	3081
W6LYM/6	The Corona Gang	297-	A-10-	2898
W6LMN/6	San Mateo County Amateur Radio Club	359-	AB-20-	2646
WØIUB/Ø	Wichita Amateur Radio Club	352-	AB-35-	2289
VE3RW/3	Quinte Amateur Radio Club	223-	A-20-	2007
VE7BQ/7	Totem Amateur Radio Club	441-	ABC-14-	1398
Seven Transmitters Operated Simultaneously				
VE3JJ/3	West Side Radio Club	766-	A-19-	7119
W6GER/6	Soledad Amateur Radio Club	640-	A-16-	6021
W5SC/5	San Antonio Radio Club	757-	AB-14-	5817
W3KX/3	Electric City Amateur Radio Club	616-	A-10-	5763
W2DPQ/2	Huntington Amateur Radio Club	600-	AB-30-	4392
W4SKH/4	Oak Ridge Radio Operators Club	528-	AB-30-	4326
W6ARO/6	West Valley Radio Club	666-	B-20-	4146
W6HTB/6	North Bay Amateur Radio Assn.	444-	AB-20-	3885
VE3BAC/3	Mohawk Amateur Radio Society	406-	A-22-	3654
W2US/2	Suffolk County Radio Club	480-	ABC- -	2880
W7MXH/7	Cascade Radio Club	443-	B-30-	2814
VE7AQL/7	Reddy Watts Radio Club	498-	ABC-11-	2595
W1GLA/1	Framingham Radio Club	254-	A-12-	2286

(*Continued on page 134*)

BUY TEST EQUIPMENT
ON THIS RADICALLY NEW
TIME PAYMENT PLAN
NO INTEREST!! - NO CARRYING CHARGES!!

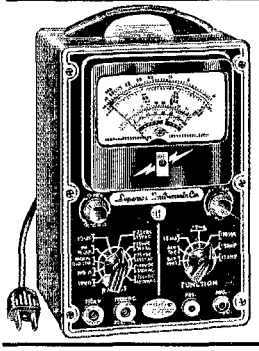
USE CONVENIENT TIME PAYMENT ORDER BLANK BELOW



Superior's New Model TV-11 TUBE TESTER

• Uses the new self-cleaning Lever Action Switches for individual element testing. Because all elements are numbered according to pin number in the RMA base numbering system, the user can instantly identify which element is under test. Tubes having tapped filaments and tubes with filaments terminating in more than one pin are truly tested with the Model TV-11 as any of the pins may be placed in the neutral position when necessary. • Uses no combination type sockets. Instead individual sockets are used for each type of tube. Thus it is impossible to damage a tube by inserting it in the wrong socket. • Free-moving built-in roll chart provides complete data for all tubes. • Phono jack on front panel for plugging in either phones or external amplifier detects microphonic tubes or noise due to faulty elements and loose external connections.

Operates on 105-130 Volt 60 Cycles A.C. Hand-rubbed oak cabinet complete with portable cover..... **$47.50 NET**



Superior's New Model 670-A SUPER-METER

A COMBINATION VOLT-OHM MILLIAMMETER PLUS CAPACITY REACTANCE INDUCTANCE AND DECIBEL MEASUREMENTS

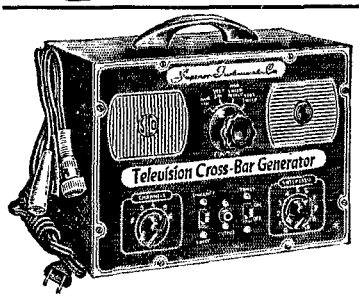
SPECIFICATIONS:

D.C. VOLTS: 0 to 7.5/15/75/150/750/1,500/7,500 Volts • **A.C. VOLTS:** 0 to 15/30/150/300/1,500/3,000 Volts • **OUTPUT VOLTS:** 0 to 15/30/150/300/1,500/3,000 Volts • **D.C. CURRENT:** 0 to 1.5/15/150 Ma. 0 to 1.5/15 Amperes • **RESISTANCE:** 0 to 1,000/100,000 Ohms 0 to 10 Megohms • **CAPACITY:** .001 to 1 Mfd. 1 to 50 Mfd. (Quality test for electrolytics) • **REACTANCE:** 50 to 2,500 Ohms, 2,500 Ohms to 2.5 Megohms • **INDUCTANCE:** .15 to 7 Henries 7 to 7,000 Henries • **DECIBELS:** −6 to +18 +14 +38 +34 to +58

The Model 670-A comes housed in a rugged, crackle-finished steel cabinet complete with test leads and operating instructions. Size 6¼" x 9½" x 4½".

ADDED FEATURE: The Model 670-A includes a special GOOD-BAD scale for checking the quality of electrolytic condensers at a test potential of 150 Volts.

$28.40 NET



Superior's New TV BAR GENERATOR

Throws an Actual Bar Pattern on Any TV Receiver Screen!!

Two Simple Steps:

1. Connect Bar Generator to Antenna Post of any TV Receiver.
2. Plug Line Cord into A.C. Outlet and Throw Switch.

RESULT: A stable never-shifting vertical or horizontal pattern projected on the screen of the TV receiver under test.

Power Supply: 105-125 Volts 60 Cycles. Power Consumption: 20 Watts. Channels: 2-5 on panel. 7-13 by harmonics. Horizontal lines: 4 to 12 (Variable). Vertical lines: 12 (Fixed). Vertical sweep output: 60 cycles. Horizontal sweep output: 15,750 Cycles.

TV Bar Generator comes complete with shielded leads and detailed operating instructions. Only..... **$39.95 NET**

NEW TIME PAYMENT PLAN ORDER BLANK

MOSS ELECTRONIC DISTRIBUTING CO., INC. **Dept. B-39, 38 Murray Street, New York 7, N. Y.**

Please send me the units checked. I am enclosing the down payment with order and agree to pay the monthly balance as shown. It is understood there will be no carrying, interest or any other charges, provided I send my monthly payments when due. It is further understood that should I fail to make payment when due, the full unpaid balance shall become immediately due and payable.

- ☐ **MODEL TV-11**.....Total Price $47.50 $11.50 down. Balance $6.00 monthly for 6 months.
- ☐ **MODEL 670-A**.....Total Price $28.40 $7.40 down. Balance $3.50 monthly for 6 months.
- ☐ **TELEVISION BAR GENERATOR.** Total Price $39.95 $9.95 down. Balance $5.00 monthly for 6 months.
- ☐ I enclose $..... as down payment.
- ☐ Ship C.O.D. for the down payment.

Signature.....

Name.....

Address.....

City.....*Zone*.....*State*.....

WØERH/Ø	Johnson County Radio Amateurs Club	272-	AB-25-	2021
W9WX/9	Wheaton Community Radio Amateurs	105-	AB-10-	915
Eight Transmitters Operated Simultaneously				
W6OTX/6	Palo Alto Amateur Radio Assn.	651-	AB-28-	5754
W6CAM/6	Downey Amateur Radio Club	531-	AB-21-	4236
VE3DJS/3	Niagara Peninsula Amateur Radio Club	525-	AB-25-	3654
W1KQF/1	Old Colony Amateur Radio Assn.	351-	A-20-	3384
W1SYE/1	Newport County Radio Club	496-	ABC-12-	2337
W6CKV/6	Golden Empire Radio Club	64-	AB-10-	702
Nine Transmitters Operated Simultaneously				
W2GSA/2	Garden State Amateur Radio Assn.	1436-	AB-35-	12,663
W9IT/9	North West Amateur Radio Club	1094-	A-40-	10,071
W1OC/1	Concord Brasspounders	1044-	A-21-	9621
W2OM/2	Tri-County Radio Assn.	1325-	B-30-	7950
W2OW/2	Binghamton Amateur Radio Assn.	530-	AB-25-	4374
W2OFQ/2	Fort Stanwix Amateur Radio Assn.	399-	AB-20-	3285
Ten Transmitters Operated Simultaneously				
W3FRY/3	Frankford Radio Club	2249-	A-30-	20,816
VE3DC/3	The Hamilton Amateur Radio Club	832-	A-35-	7785
W6UW/6	Santa Clara County Amateur Radio Assn.	713-	AB-27-	5397
Eleven Transmitters Operated Simultaneously				
W6UF/6	(nonclub group)	1157-	A-27-	10,638

CLASS B

Grouped in this special listing are the scores of stations manned by one or two operators. Figures following the calls indicate number of contacts, power, and final score.

W6RW/6, W6LDR	413-	A-5792	W2DEN/2, W2LPV	59-	A- 797
W3EIS/3, W3VES	363-	A-5238	W9KDX/9, WN9OLL	32-	A- 783
W2JBQ/2, W2FBA	308-	A-4361	W8LME/8	57-	A- 770
			W1OAK/1	79-	A- 729
W2WZQ/2	198-	A-2890	K5NRJ/5	113-	B- 678
W6QZQ/6, W6ICN	303-	A-2952	W8UPD/8[1]	71-	A- 639
			W9NXU/9	46-	A- 639
W9ERU/99, W9HOA	202-	A-2061	W4CPK/4, W4ACA	63-	A- 567
W6HQN/6, W6YUA	202-	A-2043	KL7ANM/KL7 KL7AQB	50-	A- 450
W2CCR/2	149-	A-2012	WN7RXC/7	8-	A- 446
W2FTY			W1BB/1	119-	B- 432
W6IYG/6, W6RSU	118-	A-1931	W9BJA/9	29-	A- 392
			W4TFX/4	61-	B- 366
WØCVP/Ø	143-	A-1931	W8FGB/8	2-	A- 365
WØJMB			W3MDO/3, W3KMM	120-	A- 360
W1NXX/1	92-	A-1607			
W8GIQ/8	150-	A-1575	W4FOG/4	15-	A- 360
W8VWY			WN8IKN/8	25-	A- 338
W9DSP/9	160-	A-1440	K5NRL/5[2]	85-	C- 255
W9REQ			W9QJE/9	57-	A- 246
W2HDO/2, W2RJJ	150-	A-1350	W9KMO		
			W1MEP/1	26-	A- 234
W5HCH/5	84-	A-1248	WØAJE/Ø	71-	A- 213
W1HA/1	137-	A-1233	W1EPW/1	15-	A- 203
W1RAN			W9NUC/9	22-	A- 198
W5IER/5	130-	A-1170	W9QDP		
W5TNV			W8FTD/8	13-	A- 176
W7QAP/7	127-	A-1143	W8GHO		
W6LKC/6	180-	B-1080	WØFDP/Ø	13-	A- 176
W6JPM			W1BDV/1	20-	A- 135
VE1AAM/1, VE1AAU	45-	A- 945	WN1VGE/1 W1OPJ/1	17- 41-	A- 126 A- 123
W5OLD/5, WN5UEN	101-	B- 909	W3QQS/2	56-	B- 112
			W3NUG/3	18-	A- 81
WØHDP/8	37-	A- 837	W8NOH/8	14-	B- 78

(Continued on page 136)

W6PFE/6	2-	A-	27	W7RT/7	212-	A-2133
WN8IEX/8	2-	A-	18	W7GUV		
W9FVM/9	8-	B-	16	W9KRV/4	213-	AB-1587
Two Transmitters				W4VCZ		
W9EWC/9	432-	AB-3345		W7CJB/7	37-	A- 837
W9QYH				W7FOM		
W4MGT/4	366-	B-2346				
W4MWR				K6NBZ/6[3]	94-	AC- 597

CLASS C

Grouped in this tabulation are the scores of entrants in the mobile class. Figures following the call listings indicate number of contacts, power, number of participants at each mobile station and final score.

W6MBA/6	241-	A-1-3483		W1BDI/1	26-	B-1- 459
W6NSX/6	100-	A-1-2066		W8VK/8	8-	A-1- 146
W6GVN/6	95-	A-1-1971		W8CZW/8	5-	A-1- 105
W2IQQ/2	116-	A-1-1904		W7LBF/7	11-	A-1- 369
W5DAH/5[4]	65-	A-2-1215		W6WRT/6	27-	A-1- 365
W3NNX/3	61-	A-1-1162		W7KZP/7	26-	A-1- 351
W3AXK/3	68-	A-1-1121		W7PGY/7	26-	A-1- 351
W3FDJ/3	54-	A-1-1067		W7OYO/7	24-	A-1- 324
W2YTH/2	47-	A-1- 986		W2GPH/2	23-	A-1- 311
W3FMG/3	46-	A-1- 986		W7CBE/7	22-	A-1- 297
W8AJH/8	45-	A-1- 918		W7BA/7	21-	A-1- 284
W9FMH/9	58-	B-1- 783		W9FKC/9	31-	B-1- 279
VE3IR/3	33-	A-1- 783		W2HF/2	19-	A-1- 257
W3NKY/3	30-	A-1- 743		W3BBU/3	18-	A-1- 243
W1QLD/1	19-	A-1- 694		W2HRN/2	15-	A-1- 203
W8BDZ/8	25-	A-1- 675		W9DOW/9	15-	A-1- 203
W8AGA/8	24-	A-1- 662		K1NAI/1[6]	43-	C-1- 194
WN7QAC/7[5]	22-	A-5- 635		W3KKH/3	14-	A-1- 189
W3CHU/3	45-	A-3- 608		W2LID/2	13-	A-1- 176
W3FWZ/3	45-	A-1- 608		W7CV/7	10-	A-1- 135
W8AJW/8	18-	A-1- 581		W3EGI/3	7-	A-3- 95
VE3WY/3	18-	A-1- 581		W7JNI/7	7-	A-1- 95
W3QLG/3	15-	A-1- 540		W7HRC/7	6-	A-1- 81
W1MGP/1	14-	A-1- 527		W7MSI/7	5-	A-1- 68
WN1TTG/1	39-	A-1- 527		W8CBM/8	5-	A-1- 68
W8HKG/8	13-	A-1- 513		W9LQV/9	5-	A-1- 68
W8AXQ/8	12-	A-1- 500		W2NYB/2	4-	A-1- 54
W9FWN/9	11-	A-1- 486		W3IHF/3	4-	A-1- 54
W8NFD/8	11-	A-1- 486		W8ZSD/8	4-	A-1- 54
W8UXV/8	11-	A-1- 486		W9DEL/9	4-	A-1- 54
W3AAX/3	28-	A-2- 477		W6NCP/6	3-	A-1- 41
W8MWE/8	10-	A-1- 473		W9BIO/9	2-	A-1- 27

CLASS D

Grouped in this tabulation are the soures of home stations operated from emergency power.

W1TIA	240	W2FCT	34
K7NRM	138	W2KEL	28
W6OKK	82	W6NCP	17

CLASS E

Grouped in this tabulation are the scores of home stations operated from commercial power sources.

W4SAT[7]	260	W3TFN	44
W1TIA[12]	240	W1AW[10]	42
W3QOR	176	W1HDQ	38
W1BNV	127	W9APN	36
W3QLZ	123	W9RQT	33
W3ISE	121	W3HXA	25
W1BJP	120	W2KHQ	24
W4TRA	120	W1HIL	19
W6DKB[8]	119	W6BIL	19
W2GCA	118	W1SWX	18
W2GRH	104	W8PQB	15
W2APH	97	W8BTW	13
W5CA	97	W9SFR	13
W6VAQ	97	W4SCU	12
W2ICE	90	W6OST	12
W2GGS[9]	59	W3NCJ	11
W1IIC	57	W7AIG	9
W2CVW	57	WN2IVU	8
W8DAE	56	WN4TYC	8
W8KFU	52	W7EGN	6
W2TYC	45		

(Continued on page 138)

W2GCU	5	W2IIC	3
W8WVL	5	W2EBY	3
W6NCP	4	WØDHF	2
W9LMC	4	W6FRM[11]	1

[1] W8s JJO and UMB oprs. [2] W5s NSU and NTT oprs. [3] W6s IQS and UVN oprs. [4] W5CTG second opr. [5] WN7s PWZ, QAC, OCX, QPK, RDE oprs. [6] W1BWR opr. [7] W4TRP second opr. [8] W6DKB second opr. [9] W2IGD second opr. [10] W2VMX opr. [11] W6MXG opr. [12] 8 operators.

YL News and Views

(Continued from page 53)

W2IQP, Lil, received her Advanced Class license, she became the fourth member of her family to hold that type of ticket. The OM is W2EAO; W2s YCU and YGM are Lil's sons. . . . Another all-ham family of four, the Greenbergs of N. Y. C. (W2EEO, Madeline; W2GPK, Sylvia; W2CYK, Arthur; and K2ACM, Martin), appeared as such on a TV show. In addition to giving amateur radio some favorable publicity, the family profited personally with the winning of various prizes. . . . Ten girls took license exams at the Vermont State Convention in Burlington and ten girls were present who were already licensed: W1s FTJ OAK RNF RYJ UET UFM, WN1s UNF VEP VVS and VE2HI. . . . W3VYU has just had her second book published, *Electric Analog Computers.* Theresa has been doing graduate work in electrical engineering at the University of California. . . . W3AKB, Fran, is recording secretary and W3MSU, Ethel, is corresponding secretary of the Washington TVI committee, which has cleared over 100 cases of TVI. Fran's call pin on her coat procured for her a room reservation in N. Y. C., all usual reservation tactics having failed — the room clerk was an active op!

Miscellany

If you have made DXCC, please drop us a card. We'd like to know how many YLs have merited this award.

—•••—

Alice Kinnear, W1TUD, of Millis, Massachusetts, is an active amateur and the mother of seven young junior ops. Sounds like a record — any challengers?

—•••—

Mabel Banks, W4LAS, of Norfolk, Virginia, YLRL Chairman of the Fourth District, originally felt that in order to follow enthusiastically all of her OM's (W4FAX) hobbies (she had already learned to hunt and fish), she would have to obtain her amateur license too. So, after completing a course in radio, she received her license and found that her determination has really paid dividends in many ways. She has WAC, WAS on twenty 'phone, holds an ARRL Public Service Certificate and is a member of the Virginia 'Phone Net. Even more important, Mabel has found that as a hobby to be pursued together with the OM, ham radio is tops.

Y.L.R.L. NET CONTROLS

75-Meter 'Phone — New England, W1SCS; Mid-Atlantic, W4CWV; Midwest, W8ATB; Northwest, W7HHH; and California, undetermined.

80-Meter C.W. — All sections, W3JSH.

40-Meter C.W. — Not yet enough interest in a net but all sections may use 7040 kc. as a YL calling frequency.

20-Meter 'Phone — All sections, W3UUG (temporary).

(See Net Schedule announced last month.)

DX Century Club

(Continued from page 61)

133
W4OM
W5KC
AR8AB
CE1AH
ZS1DO

132
W1KJU
W2EOH
W9IOD

131
W1FFA
W2ZW
W6CHV
W9HP
W9UUN
G2BXP
G6LX
I1BIC

130
W1GOU
W1HX
W1MMV
W2NHZ
W2ZX
W4HRR
W6VFR
W6WNH
W8DMD
W9BZB
WØNCG
WØPUE
WØVSK
CN8BA
CX4CS
G8KP
I1ASM
I1AXD
VE7ZM

129
W1CLX

128
W2ZVS
W4DCR
W6NIG
CE3AE
G2AJF

126
G8QX

125
W1CJK
W1GKK
PY1FR

124
W8NXF
WØEYR
KH6OR
PY1AQT

123
W4FBH
W8AUP
W9TJ
GM2DBX

122
F9RM
G2ALN
OQ5LL
VE7VO

121
W4BOC
W4JCK
W5KUC
W9NLP

WØAIW
GC2RS

120
W2JY
W2QKJ
W2SGX
W2VWN
W3DKT
W4AAW
W4AQR
W4DCQ
W4IYM
W4MB
W6IKQ
\ 6MJB
W8BIQ
W9JJF
WØANF
F8SK
G3BID
HB9DY
ON4YI
PY2JU
VE1CR
VE3BNQ
ZS6FU

119
W9FDX
HK4DF
LU3DH
ON4AR
VK3BZ
VP5FR

118
W2VOM
W6T7D
WØTJ
F9HF
SM5LL

117
ZS1KW

116
W2PRN
W5HFQ
F3WV
PY4RJ

115
W2MFS
W3RIS
W7EMP
W8HRV
WØGUV
F8XP
G3COJ
LA7Y

114
W1BLF
W5CEW
W6YI
W8ZMC
G3BNC
GM2UU
PY1AGP
TI2EV
ZS3G

113
W1HRI
W2PBI
W3MMH
W8BKP
F9PH
G5PP
SM5WJ

112
W3GHS

W4MRA
W5JJA
W6GVM
W7EKA
W8AJH
G4JZ
GM3DHD
I1BPW
VE4RO

111
W2PKF
W8TJM
W9CZC
VE7MS
YK1AC

110
W2GX
W2IUV
W2YYL
W3BUX
W3BYL
W3FGB
W4GIO
W4NYN
W8BFQ
W8DMJ
W8LJ
W8OAD
EI4Q
F8MY
G3YM
G5LN
I1FLD
I1RC
I1VS
PY4VX
ZS1GG

109
W1KWD
W4NDE
DL4TL
HB9ID
OH2SE
VE3BDB
ZS6Z

108
W1BAV
W2AOX
W2VYH
W3KTF
W3MWP
W4LIM
W5EB
DL1LH
ZS5CU
ZS5GU

107
W2RUI
W2WZ
W4LZM
W7HLB
W7PEY
WØJYW
EA4CM
G4MS
G5OO
HB9JZ
ZS6DW

106
W1FZ
W3AER
W8MKY
DL1FK
G8VB
TI2OA
VK3JE

105
W2JJI

W2ONV
W6AED
W6UYX
SU1HF

104
W1BPH
W2PPS
W4AHF
W8ACP
W8SDR
W9FHZ
W9LXQ
CE3AG
F3OX
G6TA
G8QW
G8UG
HB9CX
I1CAR
I1GZ
LX1SI
VK2DI
ZD4AH
ZS6LW

103
W1JYO
W1PDF
W2DPS
W2IZS
W2NQR
W2OWS
W3NA
W5ALA
WØUOD
CT1DX
CX3BH
G2AKR
I1KP
IS1AYN
VP9G
VQ4SC
YS2AG
3V8BR

102
W2DYR
W2PBG
W2QCP
W4BA
W4CWV
W4KYB
W5JWM
W6PWR
W6SHW
W7BTB
W8IWT
W9WXT
WØSOO
WØSUG
WØWSH
CO7GM
DL3DO
G2DP
G3CCO
GI6TK
HB9HM
I1AUH
KP4ES
PAØMDW
TA3GVU
VE3AUJ
VS9AH
XZ2SY
ZL3LR
ZS5G

101
W2LSX
W2RTX
W2TXB
W2UAT
W2UTH

W2WME
W3HDV
W3SFK
W4DEO
W5ZS
W6KPC
W6PKI
W8CYL
W8NML
W8ZOK
W9BVX
W9LQ
W9VND
WØJRY
WØMKF
WØNWW
CX3AA
G6WX
I1NK
I1RB
I1ZV
KP4EZ
OH2OV
VE3AIU
VE3BQP
VS1AY
4X4AD

100
W1CUX
W1FOX
W2KSN
W2MA
W2OR
W3AM
W3MAC
W4DSC
W4DYM
W4ECE
W4EYG
W4GLR
W4LGG
W4LPT
W4NON
W5ALB
W5ERY
W5GZ
W6CHY
W6ITH
W6OZE
W6STW
W6UZX
W6YX
W7ADH
W8ALC
W8BRA
W8DXO
W8FIX
W9CKP
W9GZK
W9HMG
W9NDA
W9UJ
WØFUH
WØGSW
WØHX
CT1NT
EI4L
G2HIF
G2LS
G2VJ
GM3DZB
GW8BW
KP4HZ
LX1DC
OE5YL
PAØOJ
VE3AOL
VE3TW
VP5AR
VQ5PBD
ZS2IW

Strays

The American Printing House for the Blind, 1839 Frankfort Avenue, Louisville 6, Ky., now has available in Braille copies of the 1952 edition of the ARRL *License Manual.* Printed in interpoint Braille grade 2, the sets are priced at $6.30 each. Every year the League receives many requests for help from would-be amateurs who are blind, and we hope readers of *QST* will spread this word around concerning the availability of the *License Manual* in Braille.

World Above 50 Mc.

(Continued from page 58)

W2GG.....9- 9- 1-B
W2TUK.....6- 6- 1-B

Northern New Jersey

W2FBR[1]....2329-137-17-ABC
W2RGV....1928-102-19-AB
W2DZA.....742- 42-14-ABC
W2AZP.....637- 91- 7-B
W2RQL.....558- 62- 9-AB
W2AGL.....350- 50- 7-B
W2ISK.....306- 51- 6-B
W2PEV.....280- 40- 7-AB
W2JCI[2].....96- 16- 6-B
KN2BFQ/M..20- 10- 2-B

MIDWEST DIVISION

Iowa

WØEMS.....6- 3- 2-B

NEW ENGLAND

Connecticut

W1HDQ[3]....4080-112-30-ABCD
W1PEA.....1212-101-12-B
W1HDF.....616- 32-11-ABCD
W1PHR.....504- 56- 9-B
W1QVF/1[1]...320- 32-10-AB
W1QBH. ...280- 32- 7-ABD
W1RVZ.. ...111- 37- 3-B
W1AW[3].. ....72- 18- 4-AB
WN1VLK 60- 12- 5-BD
W1KHM. 48- 16- 3-AB
W1VXJ.. ....20- 10- 2-B
W1TPL 18- 9- 2-B
W1DJV[3].....12- 6- 2-A
W1BDI[1].....8- 4- 2-B

Eastern Massachusetts

W1CTW....1573-105-13-ABC
W1BJN.....1000-100-10-AB
WN1UIQ....320- 80- 4-B
W1RUU.....306- 34- 9-AB
W1MCR.....300- 60- 5-B
W1UVF.....228- 57- 4-B
W1QCC.....224- 56- 4-B
W1OMI.....172- 43- 4-B
W1CPB.....156- 39- 4-B
W1JDS.....152- 39- 4-B
W1CTR.....33- 11- 3-B
WN1VZQ.....30- 10- 3-B
W1MGP/M...28- 14- 2-A
W1ALP.....26- 13- 2-B

Western Massachusetts

W1RFU....4023-127-27-ABCD
WN1VNH...560- 56-10-B
W1RRX.....68- 13- 4-BC
W1PHU.....52- 13- 4-AB
W1JYH/1.....12- 6- 2-A
W1OOP/M....11- 11- 1-B

New Hampshire

W1MHL/1[1].5018-173-26-ABCD
W1FZ/1....3850-131-22-ABCD
W1TQG/1[1]..1092- 84-13-B

Rhode Island

W1KCS.....1170- 65-18-AB

Vermont

W2GPH/1....70- 14- 5-B
WN1UEQ/1...40- 8- 5-B
W1MMN.....10- 5- 2-B

NORTHWESTERN

Washington

W7MWP.....64- 32- 2-B
W7KO.....57- 19- 3-AB
W7RAP.....56- 28- 2-B
W7BYK.....36- 12- 3-AB
W7QKE.....34- 17- 2-B
WN7QJI.....19- 19- 1-B

PACIFIC DIVISION

Santa Clara Valley

W6ZBS.....630- 70- 9-AB
W6BHR.....387- 43- 9-AB
W6PBV.....252- 42- 6-AB
W6EDC/M..250- 50- 5-B
W6ZTJ.....18- 6- 3-B

East Bay

W6AJF.....1524-127-12-ABCD
W6VDR/6[1]...396- 49- 8-BD
WN6QZE....305- 61- 5-B

San Francisco

W6MHF.....520-104- 5-B

Sacramento Valley

W6PIV.....140- 28- 5-B
W6BLP/6....105- 21- 5-B

San Joaquin Valley

W6GQZ.....266- 38- 7-AB
W6BCL.....225- 45- 5-B
WN6OVR....140- 28- 5-B

ROANOKE DIVISION

North Carolina

W4CVQ.....36- 12- 3-B
W4TLA.....4- 2- 2-B

Virginia

W4AO.....995- 75-13-B
W4UMF.....210- 30- 7-B
W4JCJ.....168- 28- 6-B

SOUTHWESTERN

Los Angeles

W6NLZ.....928- 84- 8-ABCD
W6HZ.....204- 51- 4-AB
WN6JQR.....38- 19- 2-B

WEST GULF DIVISION

Southern Texas

W5PMM.....56- 28- 2-B
W5SVB.....34- 17- 2-AB
W5FEK.....16- 16- 1-B
W5NHB.....16- 16- 1-B

ONTARIO DIVISION

Ontario

VE3AIB.....846- 73- 9-ABD
VE3AXT....448- 60- 7-ABD
VE3DIR.....370- 74- 5-B
VE3TW.....140- 35- 4-B
VE3HW.....135- 45- 3-B
VE3BMB....108- 27- 4-B
VE3PF.....108- 27- 4-A
VE3BCC.....105- 35- 3-A
VE3DHP.....90- 30- 3-A
VE3DN.....38- 19- 2-B
VE3OJ.....18- 9- 2-A

VANALTA DIVISION

British Columbia

VE7JG.....28- 14- 2-B

[1] More than one opr., not eligible for award.
[2] WN2KQL operator.
[3] Hq. Staff, not eligible.

HAM-ADS

(1) Advertising shall pertain to radio and shall be of nature of interest to radio amateurs or experimenters in their pursuit of the art.

(2) No display of any character will be accepted, nor can any special typographical arrangement, such as all or part capital letters be used which would tend to make one advertisement stand out from the others.

(3) The Ham-Ad rate is 30¢ per word, except as noted in paragraph (6) below.

(4) Remittance in full must accompany copy. No cash or contract discount or agency commission will be allowed.

(5) Closing date for Ham-Ads is the 25th of the second month preceding publication date.

(6) A special rate of 7¢ per word will apply to advertising which, in our judgment, is obviously non-commercial in nature and is placed and signed by a member of the American Radio Relay League. Thus, advertising of bona fide surplus equipment owned, used and for sale by an individual or apparatus offered for exchange or advertising inquiring for special equipment, if by a member of the American Radio Relay League take the 7¢ rate. An attempt to deal in apparatus in quantity for profit, even if by an individual, is commercial and all advertising by him takes the 30¢ rate. Provisions of paragraphs (1), (2) and (5), apply to all advertising in this column regardless of which rate may apply.

(7) Because error is more easily avoided, it is requested signature and address be printed plainly.

(8) No advertiser may use more than 100 words in any one issue nor more than one ad in one issue.

Having made no investigation of the advertisers in the classified columns, the publishers of QST are unable to vouch for their integrity or for the grade or character of the products or services advertised.

QUARTZ — Direct importers from Brazil of best quality pure quartz suitable for making piezo-electric crystals. Diamond Drill Carbon Co., 719 World Bldg., New York City.

QSLS: 100, $1.95 up. Samples, 10¢. Griffeth, W3FSW, 1042 Pine Heights Avenue, Baltimore 29, Md.

MOTOROLA used communication equipment bought and sold, W5BCO, Ralph Hicks, 204 E. Fairview, Tulsa, Okla.

SUBSCRIPTIONS, Radio publications a specialty. Latest Call Books, $3.00. Earl Mead, Huntley, Montana. W7LCM.

QSL's-SWL's Meade WØKXL, 1507 Central Avenue, Kansas City, Kans.

QSLS, SWLS. America's Finest! Samples, 10¢. C. Fritz, 1213 Briargate, Joliet, Ill.

QSLS. Brownie, W3CJI, 3110 Lehigh Ave., Allentown, Penna.

QSL'S, SWL'S. Super-gloss. 10 colors. Four card stocks. Seven styles. Samples, 10¢. Almar Printing Service, Farragut, Iowa.

QSLS: Fluorescent QSLs radiant and glowing with quality-control. QSLS Kromekote three colors and up. Rainbow maps. DX QSLS. Samples rushed. 10¢. Uncle Fred, Box 86, Lynn, Pa.

QSL Samples 10 cents, Minner, W1SQF. Press, Candia, N. H.

PHONE patch schematics, practical discussion, $1.00. Nichols, W1MRK.

WANTED: Cash or trade, fixed frequency receivers 28–42 Mc. W9VIV, Troy, Ill.

QSLS, SWLS. High quality. Reasonable prices. Samples. Write to Bob Teachout, W1FSV, 40 Elm Street, Rutland, Vermont.

WANTED: Marconi multiple tuner, coherer. spark coil, magnetic detector, etc.; DeForest responder, coherer and other early equipment; Marconigraphs, Modern Electrics; Electrical Experimenter and early Call Books and text books of wireless. Franklin Wingard, Rock Island, Illinois.

MICROWAVE test equipment wanted. Weston Laboratories of Weston 93, Massachusetts, will make you a high cash offer on any microwave test equipment, particularly such numbers as: TS-13, TS-120, TS-45, TS-35, TS-147, etc. To those more interested in trading, we offer any new standard ham item or a combination of cash. Write giving full description for prompt reply.

NEED: QST for December 1915 and May 1916. Will pay any price. Have hundreds of old call books, radio catalogs, text books, ARRL Handbooks and 200 issues of QST and CQ to sell or trade for what? Holst, W9MD, 2553 Winnemac Ave., Chicago 25, Ill.

WANTED: All types of aircraft radios, receivers and transmitters. Absolutely top prices. W2KUW, 308 Hickory St., Arlington, N. J.

WANTED: Someone with money and vision to buy radio collection comprising complete history of radio, including rare and exclusive old items. Write W6LM, Box 132, Wrightwood, Calif.

MODEL 12 teletype receivers. Single table, $30; double, $45. Mr. Dukes, Cortlandt 7-2253, New York, N. Y.

BIRTH announcements, ham-styled, 25 for $1.00. Narvestad, Granite Falls, Minnesota.

1 KW final and parts for ½ KW power supply. Highest offer. W4NHX, Box 1667, University, Virginia.

OPERATION Frostbite! A wintertime hamfest on December 7th at Petrifying Springs club house, Kenosha, Wisconsin. Entertainment and hot barbecues. Further details last month's Hamfest Calendar.

WANTED: Top prices paid: Navy selsyns 1 DG, 1F, 1CT, 5CT, 5D, 5DG, 5G, 6G, 7G, etc. and BC-348, BC1221, AN/ART-13, AN/ARC-1, AN/ARC-3, RTA-1B, AN/APR-4. Lectronic Research, 719 Arch St., Philadelphia 6, Penna.

QSLS? QSLS? America's finest and largest variety, super-gloss QSLS! Samples, 25¢. Subscriptions, renewals accepted to all radio magazines. Sakkers, W8DED, 53 East 7th, Holland, Michigan.

SELL: Signal shifter deluxe 20 through 160 FB condx. $35.00 Bargain list tone and cw parts free. Moving. W4EMJ, 6298 15th Road, North, Arlington 13, Va.

SWAP: 2BR Morrow converter, used 5 hours, and 10 meter Link xmitter with Built-in dynamotor, for good receiver. Stan Coka's 1 Acorn St., Lynn, Mass.

WANTED: BC610 or BC610 parts or components. State price and condition by letter. C. Porter, 8545 11th Ave., Silver Spring, Maryland.

FOR Sale: "Signal Corps Wireless #19 Mark II" M. Cook, Williams Bay, Wisconsin

FOR Sale: One 10-meter transmitter, pair 814s final. One 75 meter transmitter; T55 final. Late model Meissner signal shifter, 60 watt Lafayette speech amplifier, HRO5TA1 with four sets of coils and speaker, antenna relays, modulation transformers, etc. This equipment for sale to settle estate of W1LGN and priced for quick sale. Mrs. Harry MacClymon, Sandy Hook, Conn.

BARGAINS: New and reconditioned Collins, Hallicrafters, National, Hammarlund, Johnson, Elmac, Harvey-Wells, Gonset, Morrow, RME, Millen, Meissner, others. Reconditioned S38 $29.00, S40A $69.00, S40B $79.00, SX43 $119.00, S76 $129.00, SX71 $149.00, SX42 $199.00, SX62 $199.00, NC57 $69.00, NC173 $139.00, HRO5TA1 $159.00, HRO7 $179.00, HRO5OT $249.00, HQ129X $139.00, SP400X $259.00, Lysco 600 $99.00, Meissner EX $59.00, HF-10-20, VHF152A, RME84, RME45, Collins 32V1, 32V2, 75A1, 75A2, Viking I transmitters, many others. Shipped on trial. Terms. List free. Henry Radio, Butler, Mo.

WANTED: Excellent Collins 75A1. Lou Leonard, WN7RQL, 9807 S. W. Vista Place, Portland 1, Oregon.

WANTED: 150 watt transmitter 80 thru 10 meters. With tubes and power supplies. Give complete description. Roger K. Mayhew, N. Conway, N. H.

WANTED: IRC Type F-2 resistors in the range 1.5K to 250K. Also Type F-½ resistors, 20K and 64K. Advise quantity and price. W3EKK, 6755 Akron St., Phila. 24, Pa.

WE have four ARC5 units which have been converted and used in commercial service on 159.63 mc/s. One is converted to 110 volts A.C., two for 6 volt D.C. and one for 28 volt D.C. All are complete with power supplies, modulators and accessories. All replies will be answered. Texas & Northern Railway Company, 915 Commerce Street, Dallas, Texas.

IT'S HERE! Rubber stamp for making your own QSL's. $4.95. Postal-card size, standard wording. Send name, address and call. LEIBER, 115 Third, Hot Springs, Ark.

MERRY XMAS and a happy new year from WØCVU. 40 years on the air from same QTH. Cedar Rapids, Iowa since 1913.

SELL: HT19-200 W. Hallicrafter, TBS5OA deluxe Harvey-Wells Transmitter with power supply. Eldico 2-meter Transmitter, MB-3 RME monitor, SX71 Hallicrafter receiver with R46-10" PM speaker, 92105 Millen single side band selector, RME VHF2-11 receiver. Write: Richard M. Krauss, 1220 Wheatsheaf Lane, Abington, Pa.

SUPER-PRO: SP-400-X Excellent condition, matching power supply, $225.00 f.o.b. J. Stedenfeld W2TBS, Washington, New Jersey.

COLLINS 32-V-3, used 30 days, best offer over $650.00. John Bowman, W8VLV, 100 Neave Bldg., Cincinnati 2, Ohio.

FOR Sale: Beach Model 1700 VFO, 115 volt, 60 cycle, built-in power supply. Range 3350 to 4000 kc. Power output one watt. $15.00. W1SU, A. R. Bentley, Nantucket, Mass.

SELL: SX-28 with speaker. $125. RME HF 10-20 $60. BC-453B OS"R with Power Pack $10.00, Millen Single Sideband Adaptor $50., TG-10 Code Machine with set 15 tapes $75. Tubes, etc., cheap. W5QML 1420 S. Randolph, Arlington, Virginia.

SELLING OUT: Hallicraters SX71 $150. Xmtr 500 watts — Pair 4-125A Final — Buffer and exciter in 5'6" cabinet $700. Collins 310B-1 exciter. Many other items. Send for list. No reasonable offer refused. Fred Graening, W9KHS, 414 St. Julian St., Pekin, Ill.

ATTENTION Bargain Hunters: Are you looking for 32V1, 32V2, Viking I, DB22A, VHF152A, SX71, HQ129X, HRO7, HRO50: SX42, etc.? Our trade-in department is loaded with these and countless others. Many items of National, Collins, Johnson, Hallicrafters, Harvey-Wells, Hammarlund, RME, Elmac, Gonset and others both used and new. Write today for our latest bargain sheet. We offer you top trade-in allowances and tailor-made payment plan just for you. For the best in equipment, best deals and real consideration write: Burghardt Radio Supply, Watertown, South Dakota.

CLOSING estate late Ed Pugh WØYQQ, selling ham equipment. List on request, W. J. Loftus, 617 E. Myrtle, Independence, Kansas.

SELL: one 2-element 20 meter beam Hy-lite $37.95. Good condition. Moving. Will trade for new enclosed relay cabinet. C. Hines, 409 N. Reid, Wilson, N. C.

WANTED: Hallicrafter HT-18 transmitter. State price and condition. Mel. Malley (WØSRU) 2251 Depew St. Edgewater, Colo.

ELDICO TR-1, cabinet, extras $295. Floyd Drenon, 2722 University, Fresno, Calif.

SWAP OR SELL: Power supply for 350-500 watt xmitter. 3 individual supplies, 19" rack panel, relayed S-R switch. High voltage 1000v @ 350 Ma.2000v @ 250 Ma. Doubler 400 @ 200 Ma. VFO 350v @ 100 Ma, 150v Reg. Desire good 10-20 converter. W2JBX H. Feiner, 2939 Grand Concourse, Bronx, N. Y. SE-3-8749.

SELL: HRO 60, Meissner 150B complete (unused) Weston VOM 665 $20. New 829B-3E29 $14. Weston Tube checker $30. Tubes 5Z3-6sk7 etc. 50ma 2"rd meter $4. R. Long, 184 L St., S. Boston, Mass.

SONAR used equipment available MB-26 transmitter two meters $45.00; SRT-75 all-band 75 watt transmitter $89.50; AMP-50 75 watt amplifier with ten meter coils $29.50; VFX-680 NBFM/CW exciter $39.50; MB-611 NBFM 10 meter transmitter $19.95; XE-10 NBFM exciter $29.50; other brands and items available; write for latest list to WIBFT, Evans Radio, Concord, N. H.

FOR Sale: National radio with loud speaker (Model 44). Best offer accepted. Address mail to: Clarence Morton, Box 6, Tyngsboro, Mass.

WANTED: Electro Importing, DeForest, Marconi, Wireless Specialty Apparatus, QST, Wireless Age, Electrical Experimenter, Modern Electrics, Marconigraphs, Collins Wireless Bulletins, early commercial, early amateur catalogs. Describe all items fully and price wanted. Louis Rizoli, W1AAT, 100 Bay View, Salem, Mass.

FOR Sale: 33' Vesto tower $75. Buyer must take down. 2-meter U.H.F. resonator beam $50.00. Melahan Valiant Key — automatic dash and dot — $10.00, never used. Select A-Beam Rotator $5.00. Peck — W2OIF, 205 Perrine Ave., Auburn, N. Y.

600 Watt deluxe phone complete, sacrifice $400. Write for full description. Wm. Sloat, 1316 Patrick Henry, Apt. 102, Falls Church, Virginia.

PERFECT Collins 3251, $449.95. Welco all-band 50 watt phone xmitter $69.95. BC-459 with 700 volt power supply $14.95. Three element 10 meter aluminum beam $10.00. Hallicrafter SX25 with speaker $89.95. WØKKU, 5615 Ammons, Arvada, Colo.

HOUSE cleaning fifteen years accumulation: transformers, condensers, tubes, etc. Mostly used but clean. Priced low for beginner who needs parts to get started. No high power stuff. Some surplus, APS-13, APN-4, SCR-518, SCR-522, BC-645, BC-1068, 19-MK-II. Send 3¢ stamp for complete list. Kinzer, Box 738, New Providence, New Jersey.

SELL BC-221 late model excel condx in metal cabinet with vol reg power supply original calib. book and crystal. First $100.00. W4POT, 116 No. Bay Drive, Ft. Walton, Fla.

FOR Sale: 150 watt 10 and 75 mobile rig complete with 1950 "98" Oldsmobile convertible. 813 final, 811 modulators. 12V battery, generator separate from car system. Home-made converter. Rig and car very good condition, $2100.00. Earl E. Kaiser, Box 1434, Haselton Branch, Rome, N. Y. W6KOG.

FOR SALE: Collins 32V2 with extra 4D32, Collins Television filter, Collins 75A1, 90 day Parts guarantee, bonded by local bank. All perfect, $700, F.O.B. Jacksonville. Dr. Nelson A. Murray, W4MBM, P. O. Box 6286, Jacksonville 5, Florida.

FOR Sale: Single dial control ten meter AM modulated transmitter, 814 final. Four element ten meter beam with rotator. Four band home made super, 2 stages R.F., 2 stages I.F., Xtal. $200.00 Cash and carry. W2SXQ, Newfoundland, N. J.

BARGAINS: Extra Special! Motorola P-69-13 Mobile Receivers $29.50; Globe King $315.00; HT-9 $199.00; HRO-50 $275.00; Lysco 600 $109.00; HRO-7 $199.00; Collins 75A1 $275.00; HRO-5T $175.00; SX-71 $159.00; SX-42 $199.50; SX-43 $129.00; HRO-Senior $119.50; RME 2-11 $99.50; RME-45 $99.00; Meissner EX Shifter $59.00; S-40A or SX-16 $69.50; VHF-152 $59.00; HF 10-20 $59.00; Globe Trotter $79.50; Meissner Signal Calibrators $24.95; MB611 Mobile Transmitters $19.95; 90800 exciter $29.50; RCA Chanalyst $69.50; XE-10 $14.95; Conset 10-11 converter $19.95; and many others. Large stock trade-ins: Free Trial. Terms financed by Leo, WØGFQ. Write for catalog and best deal to World Radio Laboratories, Council Bluffs, Iowa.

QSLs! Excitingly beautiful! None better at our prices! Samples 10¢. Tooker, Lakehurst, New Jersey.

QSLs by Petty, W2HAZ, 17 Southard, Trenton, N. J. Samples 10¢.

FOR Sale: Complete Deluxe Mobile outfit. Elmac Xmiter, Morrow 3BR Converter, 8 tube converted A1 car radio, Electro Voice 210 mike, PE-103 Dynamotor, 6 volt Coax relay, complete antenna system with 20 & 75 meter Mallard coils, all necessary cables complete ready to go — used 6 hours — new — only $315.00. Also A.C. supply for xmitter $30.00. Also like new 55' Vesto tower only $225.00. Write WØIOS, F. W. Cooper, 901 S. 86th St., Omaha 6, Nebraska.

SELLING out. Stancor ST-203A, Hallicrafters SX-28, National Receiver Navy RAO-5, 540 Kc — 30 Mc, Super Pro BC-7779B with power supply. All fine shape and clean. Also new PE-103A, Boonton signal generator, combination tester. Need Gonset Triband. What have you? Joe Whitley, W2LPG, 133 Airsdale, Long Branch, N. J.

WANTED: Radiotechnicians. Steady employment with old established firm. Knowledge of radiotelephone, direction finder, radar, depth recorder and other shipborne electronic gear. Nice living conditions in small seashore town, near N. Y. and Philadelphia. Paid vacations, sick leave. A junior partnership will be offered right man with leadership. Will train applicants less qualified. Write Charles W. Rogers, W2AIW, Manasquan, N. J.

W3TEC (tech.) would like to get acquainted with a local ham who is operating amateur television above 420 Mc. or others. What say, fellas? 2227 Gtn. Ave., Philadelphia 33, Penna.

FOR Sale: Sonar SRT75 complete in cabinet, ready to use. Excellent condition. Latest model VFX unit. Coils for all bands. Best offer over $160.00. Write A. Clark, W2PDH, 44 Lewis Lane, Syosset, L. I., N. Y.

FOR Sale: Radio News June '40–July '41; May '45–April '49, $10. Radio Craft, Aug. '47–Sept. '48, $2.00. Radio Electronics Oct. '48–Aug. '49, $2.00; Radio, '40: July, Oct., Nov., Dec.; '41: Jan., Feb., Mar., April, $1.20. Albert Price, Plainfield, Ill.

WANTED: Summer Camp Counselor to teach radio in Jackson Hole, Wyoming ranch camp, (Boys and girls), maintain radio equipment, keep contact with pack trips. Also able to do other things such as trail cooking, or music, or campfire programs, etc. Single man or married (no children) if wife is nurse or can assist with ranch program. Contact W. S. Wilson, 2619 Oak Knoll Avenue, San Marino, California.

WANTED: Amateur to exchange US made radio gear with DX station for products of DX country. For details write W2VMX at ARRL Headquarters.

RADIO amateur and commercial license preparation. International Morse code transcribed on magnetic tapes, recording wire and long playing microgroove discs. Disc-A-Method Recording Company, 317 East 48th St., New York, N. Y.

RA-34 power supply with connecting cables and maintenance manuals. New in original field shipping case. Never used. AN-APA-10 Panaramic Receiver and oscilloscope. With three I.F. inputs, 455 kc., 5.2 mc., 30 Cmc, 115v, 60 cy. Maintenance manual. Very good condition. Best offer. F.O.B. W3IEI. C. E. Miller, 2805 Berwick Avenue, Baltimore 14, Maryland.

SELL: Harvey-Wells T.B.S. 50A with A.P.S. 50 power supply. Like new $125.00 for both. Has preamplifier for crystal mike. Russell Weissman, W2BRN, 82–50 210 St., Hollis L. I., New York.

FOR Sale: Choke 7 henry 1.6 amp, 17 ohms 2800 VDC test $18.00 or swap. Clayton Roberts, W1MVV, 70–53 260th St., Glen Oaks, Floral Park, N. Y.

VFO exciter metal cabinet 2E26 output $25.00. Western Electric 18A 10 meter mobile transmitter $12.00, 400–500 volt power supply with bias $23.00, BC 453 O5r $12.00, Hammerlund Frequency Standard $6.50, Table model AM-FM receiver $37.50, have modulation transformer, condensers, meters, filter, etc. Want National N dial. Aicher, 737 Pine St., Steelton, Penna.

NEW York vicinity for sale: Lysco 600 with Model 12 Ant. tuner used 12 hours excellent condition $100.00; HQ129X $120.00. Telephone DA3 7771.

FOR Sale: #19 Mark 2 Transceiver unit, new, with spare parts, make offer. Howard #460 speaker, frequency monitor and crystal $50. Hallicrafter S20R, $30. Miller #90700 shifter $25. All guaranteed excellent condition. W1SBC, 330 Fairfax Drive, Edgewood Station, Warwick, R. I.

CONVERTERS, crystal controlled, specifications now available. Transmitters, two meter phone, pre-assembled kits, $34.50. LW Electronic Laboratory, Route 2, Jackson, Michigan.

WANTED: Parts or already built KW RF final and modulator and power supplies. W5DA, 4425 Bordeaux, Dallas, Texas.

SELL: Speech amplifier, Thordarson T19M14 mod. xfmr. speakers, Eico factory built VTVM and signal generator, ½" electric drill, GR 200-C variac, Presto K7 disc recorder. George Kravitz, 7919 20th Avenue, Brooklyn, N. Y.

KEYED — Xtal, Xmtr, tubes, 80M coils, no PS, $19.85; ditto metered, fil. Xfmrs, 80-40-20M coils, 930-B final, $34.70; Mon-Key $17.95; castored relay rack $14.95. All FOB. QRAR, W2RUT.

"IN34 Diodes" Prepaid USA 7 for $4.65. Crystals Ham Band 3525, 3735, 3980, 4190 $1.25. Sell Your Surplus Tubes and Equipment. Free TABOGRAM "TAB", 111 Liberty Street, N. Y. C.

FOR Sale: Mod. Ex Meissner Signal Shifter, practically new, band shifting from 160 thru 11 to 10 mtrs. new 807 tube: $60.00. New Masco dual track and speed tape recorder $125.00. Mod. 52LR. W9LQI Ashton, Ill.

FOR Sale: Low power transmitter, receiver, many parts, tubes, back issue radio magazines, etc. List available. Ernest Austin, 743 Erie Avenue, Chillicothe, Ohio.

FOR Sale: A painstakingly built 300 watt Xmtr, in all steel enclosed black crackled 66" rack. P-P812 R.F. P-P-811 modulators, for 10–160 meter operation. Initial investment over $600.00 net in parts less labor. F.O.B. Waterbury, Conn. $350.00. Also RME 45 with Calomatic Dial $100.00. R9ER with coils $20.00. All used very little, photo on request. John Tomasiewicz, W1QAJ 95 Proctor St. Waterbury, Conn.

NEW CRYSTALS for all commercial services at economical prices; also regrinding or replacement crystals for broadcast, Link, Motorola, G. E. and other commercial types; no amateur. Over 17 years of satisfaction and fast service. Eidson Electronic Company, phone 3–3901, Temple, Texas.

SELL: New: APN-9, APN-4 Manuals. R-9B-APN-4E, PE-103A, BC-456E, RM-53, BC-458A, BC-645. Used: TS-34/AP scope, book, Probes & Case, TS89/AP, ATC Collins autotune Xmtr with low freq. unit, Dynamotor, remote unit, spares. BC-348L 110 vac. APQ-9, APS-13, MG-149H, ID-6B/APN4, BC-455B, TBY, TS-100/AP, Dumont 185 electronic switch, Hewlett packard 200C audio oscillator. Will describe used gear. Accept best offer. P. Jensen, 5844 Argonne St., New Orleans, La.

FOR Sale: Practically new National NC-183 receiver, in original carton, $200 expressed. Ross Thorp, 23836 Cherry Hill, Dearborn Mich.

QSTs good condition 1932 to 1937. A few missing. Make offer. Hal Durham, Washington, Iowa.

TRADE panadaptor PCA 2 T200 for BC221 frequency meter. Oscar M. Tupany, W8QBR, 2036 — 25th, Detroit Mich.

SELL NC200 Receiver factory reconditioned $140.00; DB 20 and VHF 152 $50.00 each. W3IHF 31 North Grant, Waynesboro, Pennsylvania.

FOR Sale: Hallicrafter S.X.-71 Brand new with R.46 speaker in original cartons. Price $155.00. C. W. Ehlers, 319 Union St., Jersey City 4, N. J.

SELL: S-40A, RME-45 good condition also Lysco 80 meter trans mitter. Want: BC-459-A with power supply. W2KHJ 139-36 230 Place, Laurelton 13, L. I., N. Y. LA8-7656.

FREQUENCY Standard HT7 $20.00 HRO Senior — Band Spread Coils $125.00. Send for list of tubes, etc. W3QD-667 Montgomery Avenue, Fox Chase Manor, Philadelphia 11, Pa.

ROTATOR motor for small antennas, induction type, weatherproof, no interference, 50 in-lbs torque, approx. ¾ RPM. Use 110V AC with resistor cord or series lamp. Circuit included. $3.00 each, $5.00 pair, postpaid in U. S. Paul Swan, 2801 Ohio, Topeka, Kansas.

SALE OR SWAP: BC-348R perfect condition with built-in 110 Volt A. C. Supply, added audio stage, noise limiter and Simpson one inch S-meter. Want Viking I; ART 13 transmitter; Panadapter or cash offer. W2KTH, G. R. Bartle, 3603 191st St., Flushing 58, N. Y.

WANTED: HQ-129-X, NC-173, NC-183, reasonably priced. Richard Osborne, W3UKV, Glyndon, Md.

HALLICRAFTER S40, $60. National NC100 fair condition, $25 Gonset Tri-band, $35. W2TDV, 135-21 Francis Lewis Blvd., Rosedale 13, N. Y.

SELL HQ-129-X receiver and speaker, 18 months old not a scratch $125. J. R. Driver, 6419 Fitzhugh Ave., Richmond, Va.

NOVICE transmitters. 75–150 watts (pair 807s) kit, $49.95, wired, $64.95, 40 watts (807) kit, $34.95; wired, $44.95; 35 watts (6L6) kit, $24.95; wired, $29.95. Bank references. Write for catalog. Dixon Electronics Co., 13444 W. McNichols Rd., Detroit 35, Mich.

SELL: Model 21A teletype tape printers; Multiplex 1A tape transmitters; 12,000 ohm relays for W-2-BHD control panels, #12 page printers, tables, distributor motors. Will trade. Want: war surplus communications test equipment. Tom Howard, W1AFN, 46 Mt. Vernon St., Boston 8, Mass.

HELP me get my ticket. Any ham in Royal Oak, Ferndale or Berkley please contact me. A. Connor, 14061 Winchester, Oak Park 37, Mich.

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1902-1952

ELECTRICAL AND ELECTRONIC WIRES AND CABLES

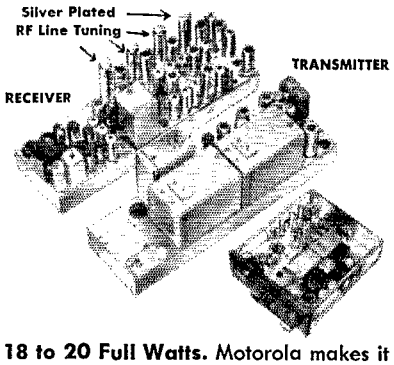
—For the Automotive, Appliance, Motor, Radio, and Television Industries

Belden Manufacturing Company
Chicago 80, Illinois

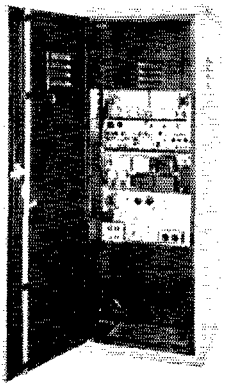
FIRST OFFICIAL F.C.C. APPROVAL

(Class-A operation in the "Citizen's Band" requires equipment-type approval by F.C.C.)

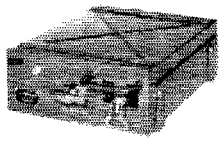
460-470 MC. Mobile & Station Equipment



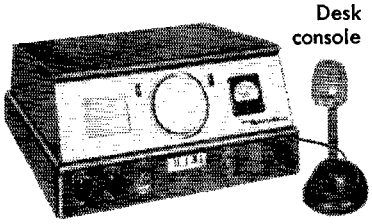
18 to 20 Full Watts. Motorola makes it an outstanding success.



Pole mounting cabinet



*Mobile type CR-406



Desk console

Motorola has received notice* from F.C.C. that its "Research" Line 460 M. C. equipment has passed the exacting tests for licensing in the Class-A "Citizen's Band".

Automatic Frequency Control

This new Motorola A.F.C. technique is fortified with extraordinary system stability. Fixed barriers prevent channel jumping. The A. F. C. crystal controlled oscillator provides a full 10 to 1 correction ratio and keeps the receiver tuned on the nose to the distant transmitted carrier.

The new U.H.F. tuned circuits and research design cavities for grounded grid amplifier operation provide phenomenal circuit stability, spurious rejection and extraordinary efficiency.

Transmitter

The Motorola 460 MC. system with 9 tuned circuits provides 18 to 20 Watts with efficiencies of more than 65%!

Silver Plated Sealed Tuned Cavities

By use of silver plated line sections, high standards of selectivity protect the receiver from high power U.H.F., TV intermodulation.

By the leaders in quality-engineered FM 2-way Radio Communications

Motorola®

Communications & Electronics Division
4545 Augusta Blvd., Chicago 51, Illinois
Rogers Majestic Electronic Ltd., Toronto, Canada

★ QST ★

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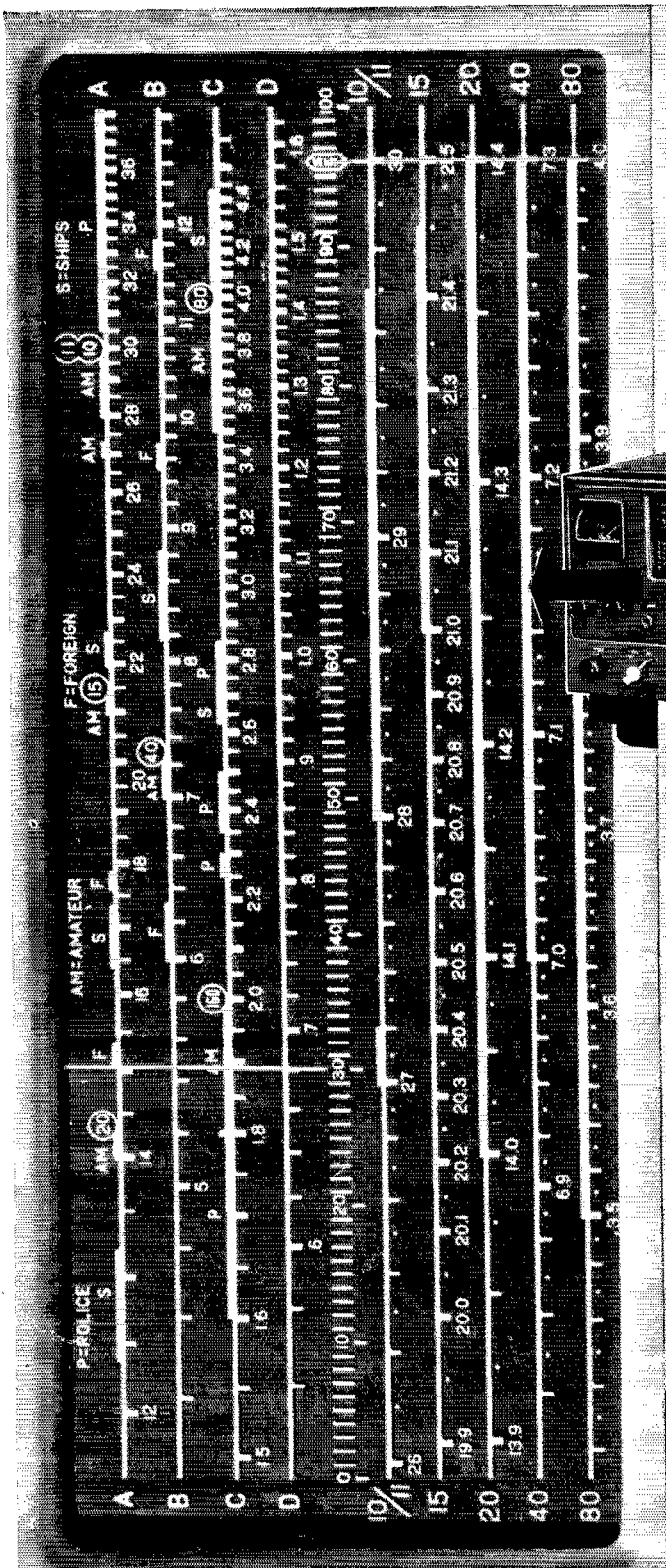
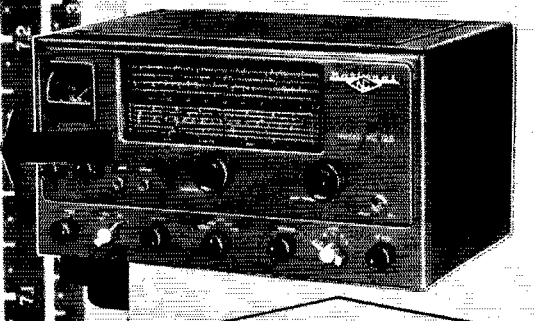


WHAT A DIAL!

4 General coverage scales
5 Bandspread scales
Plus a logging scale



WHAT A RECEIVER!

Covers 550 kcs. — 36 mcs. Voice, CW, NFM (with adaptor). National Select-O-Ject built in (rejects any selected audio frequency 45 db, or boosts 38 db). Three microvolt sensitivity (for 10 db signal/noise ratio on 10-meter band) S-meter. AVC, ANL, ANT. TRIM. Variable CW pitch control. Separate RF and audio gain controls. Volt. reg. osc. Jack for phono or NFM adaptor. Audio essentially flat to 10,000 c.p.s.

WHAT A VALUE!

$149.50*

NC-125 TS (matching spkr.) $11.00
*Slightly higher west of the Rockies.

National

NATIONAL COMPANY, Inc.
MALDEN, MASSACHUSETTS

Merry Christmas

and good hunting in

1953

from the Hams of the RCA Tube Department

TMK. ®