QST

September, 1954
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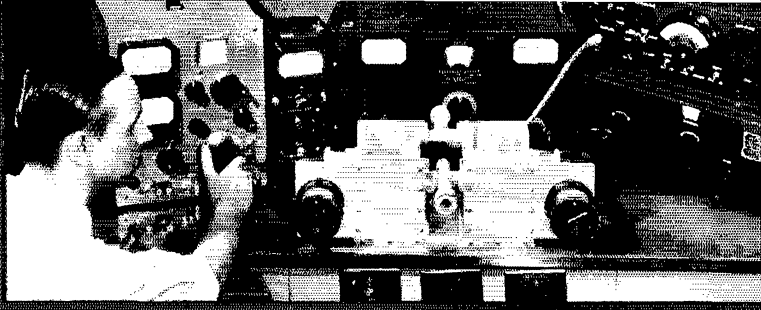
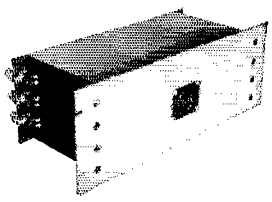
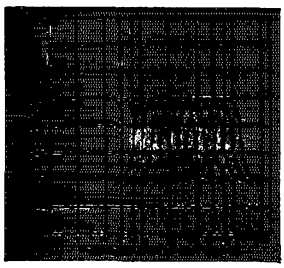
amateur radio

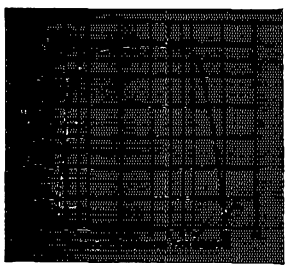


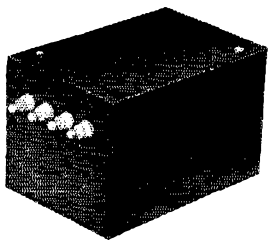
for SPECIALIZED FILTERS



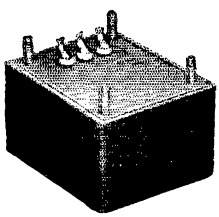


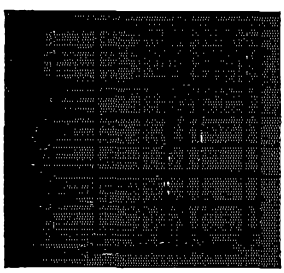
These low frequency band pass filters are held to 1 DB tolerance at the 3 DB crossover . . . 600 ohm . . . 4 filters per 7½" rack panel.



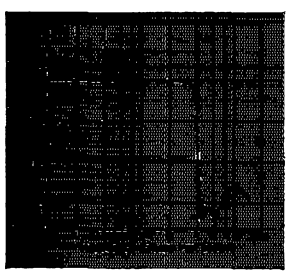


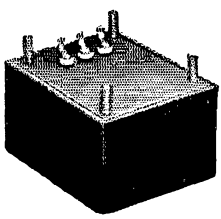
This ultra low frequency filter has a band pass range of one cycle to 10 cycles . . . 50,000 ohms . . . 700 cubic inches.



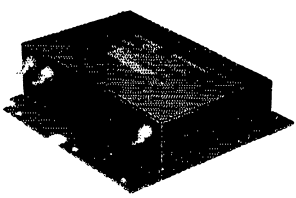


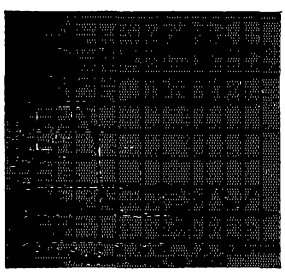
This 600 ohm miniaturized 1 KC band pass filter is housed in a case only 1" x 1¾" x 2½".



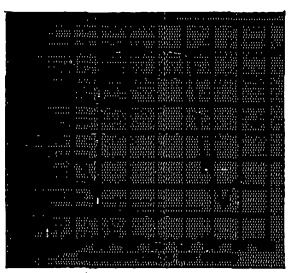


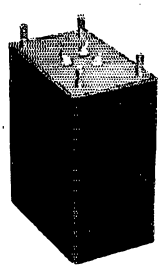
This 600 ohm miniaturized low pass filter is housed in a case only 1" x 1¾" x 2½".





This power line filter provides correct output voltages from sources of 50 to 400 cycles . . . noise attenuation is from 14 KC to 400 MC . . . 29 cubic inches.





This band pass filter is designed for sharp cut-off at both ends of the range . . . 10,000 ohms . . . case dimensions 1⅜" x 2½" x 3¼".

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Only candidates who are nominated by letters from you and others, will be considered by the judges.

Naming the Edison Award winner is a tribute to the efforts of all amateurs in the public interest. By entering a candidate, you help make this tribute possible . . . and can win for yourself an expense-paid trip to the city where the Award will be presented.

Edison Award achievement is exemplified in the work of J. Stan Surber, W9NZZ, last year's winner. Mr. Surber since 1950 has served as a regular message link with hundreds of men on duty at remote Arctic weather stations—has handled, in all, some 20,000 personal communications.

Other new pages of amateur achievement are being written while you read this. Aid in honoring those responsible! Read the rules below . . . select your Edison Award candidate . . . and mail your nominating letter to *Edison Award Committee, Tube Department, General Electric Company, Schenectady 5, N. Y.*

RULES OF THE AWARD

WHO IS ELIGIBLE. Any man or woman holding a radio amateur's license issued by the F.C.C., Washington, D. C., who in 1954 performed a meritorious public service in behalf of an individual or group. The service must have been performed while the candidate was pursuing his hobby as an amateur within the continental limits of the United States.

WINNER OF THE AWARD will receive the Edison trophy in a public ceremony in a centrally located metropolitan city. Expenses of his trip to that city will be paid. As a further token of appreciation, G.E. will present him with a precision timepiece to clock DX. In addition, the person responsible for the nomination of the Award-winning candidate will be invited to attend the presentation ceremony, and his expenses also will be paid.

WHO CAN NOMINATE. Any individual, club, or association familiar with the service performed.

HOW TO NOMINATE. Include in a letter the candidate's name, address, call letters, and a full description of the service performed. Your letter must be postmarked not later than January 3, 1955.

BASIS FOR JUDGING. All entries will be reviewed by a group of distinguished and impartial judges. Their decisions will be based on (1) the greatest benefit to an individual or group, (2) the amount of ingenuity and sacrifice displayed in performing the service. The judges will be:

E. ROLAND HARRIMAN, President, The American Red Cross

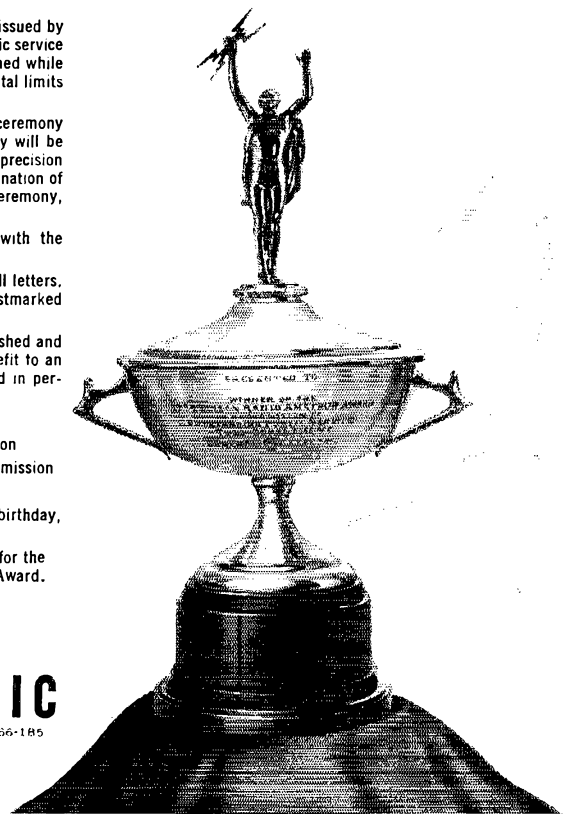
VAL PETERSON, Administrator, Federal Civil Defense Administration

EDWARD M. WEBSTER, Commissioner, Federal Communications Commission

GOODWIN L. DOSLAND, President, American Radio Relay League

WINNER WILL BE ANNOUNCED on or before Thomas A. Edison's birthday, February 11, 1955.

Employees of the General Electric Company may nominate candidates for the Edison Radio Amateur Award, but are not permitted to receive the Award.



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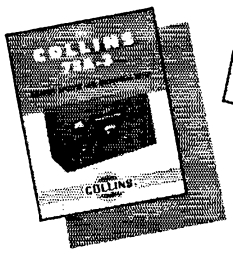
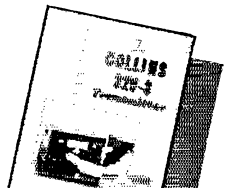
The Collins 75A-3 double-conversion receiver, with its crystal-controlled front end and highly stable low frequency VFO, is like a high frequency crystal-controlled converter working into a very stable low frequency receiver. The high stability and 3.1 kc bandwidth of the 75A-3 make it ideal for AM or single sideband — and 800 cycle and 6 kc bandwidth filters are available as optional accessories. All coils are permeability tuned and have a straight line frequency characteristic, allowing linear dial calibration. Only the band in use is visible on the slide-rule dial. On the vernier dial, each division represents one kc except on the 10 and 11 meter bands, where each dial division represents two kc. This accurate calibration is made possible by the highly stable oscillators in the 75A-3.

The 32V-3 is a VFO controlled band-switching gang-tuned transmitter rated at 160 watts input on CW and 140 watts on Phone. It is thoroughly filtered and shielded to minimize the possibility of TVI.

Fully illustrated booklets describing this popular pair are available at your Collins distributor.





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SEPTEMBER 1954

VOLUME XXXVIII • NUMBER 9

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INDUSTRIAL ARTS INDEX

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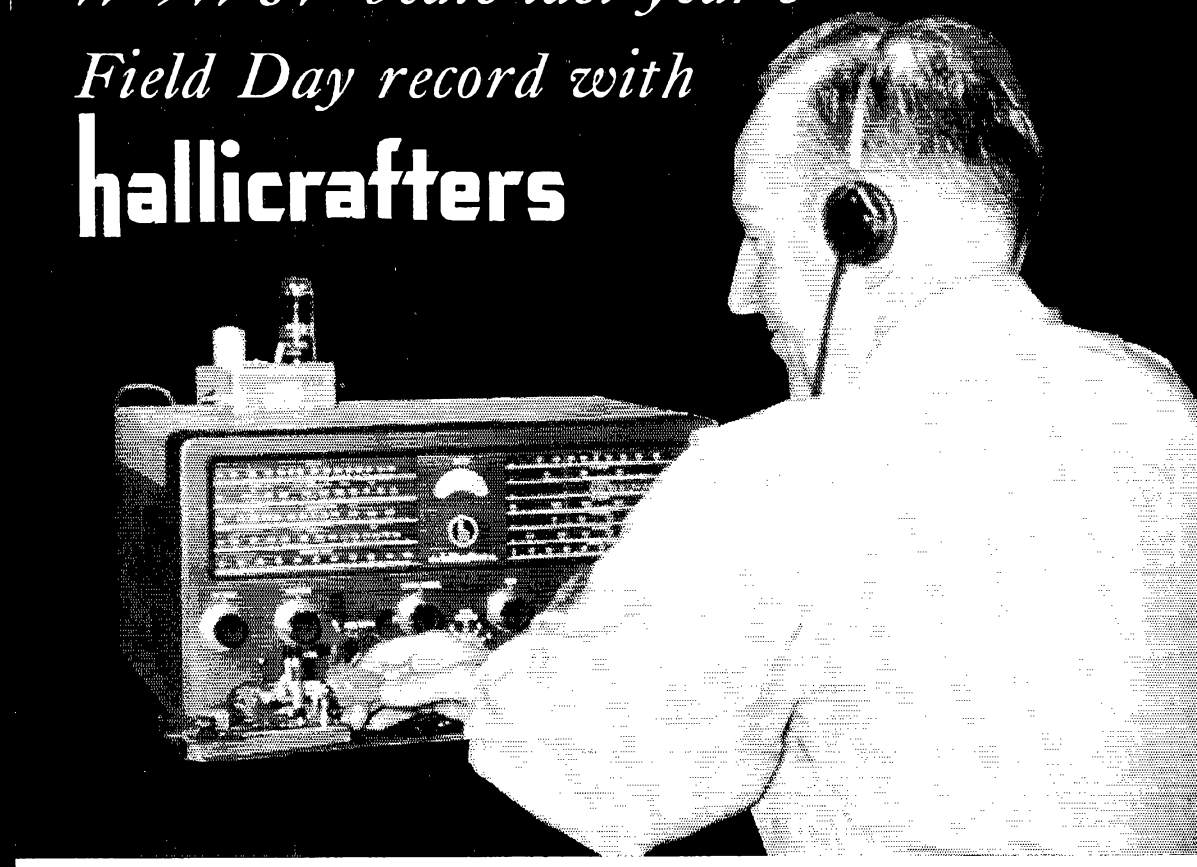
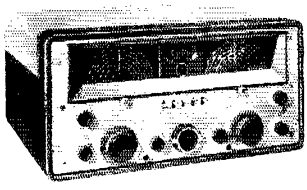
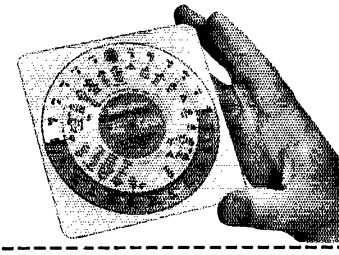
W9WJV beats last year's Field Day record with hallicrafters



Lawrence T. Fadner, team captain in Chicago's 1954 North Suburban Ham Club ARRL 40 meter CW Field Day bettered the club's last record by nearly 30%.



and Hallicrafters SX-88 is hot news too. More hams are telling each other about this new receiver than about any equipment in years.



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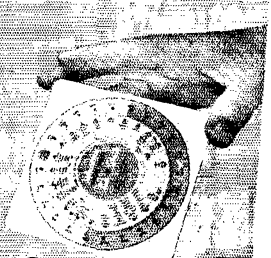
* Official appointed to act temporarily in the absence of a regular official.



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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.

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GEORGE H. STEED W5BUX
1912 Beech St., Pine Bluff, Ark.
Vice-Director: George S. Acton W5BMM
Plain Dealing, La.

Great Lakes Division

JOHN H. BRABB W8SPF
708 Ford Bldg., Detroit 26, Mich.
Vice-Director: Robert L. Davis W8EYE
247 Highland Ave., Salem, Ohio

Hudson Division

GEORGE V. COOKE, JR. W2OBU
88-31 239 St., Bellerose 26, N. Y.
Vice-Director: Thomas J. Ryan, Jr. W2NKD
1082 Anna St., Elizabeth 4, N. J.

Midwest Division

WILLIAM J. SCHMIDT . . . . . WØOZN
306 S. Vassar, Wichita, Kansas
Vice-Director: James E. McKim . . . . . WØMVG
1404 S. Tenth, Salina, Kansas

New England Division

PERCY C. NOBLE W1BVR
37 Broad St., Westfield, Mass.
Vice-Director: Frank L. Baker, Jr. W1ALP
91 Atlantic St., North Quincy 71, Mass.

Northwestern Division

R. REX ROBERTS W7CPY
837 Park Hill Drive, Billings, Mont.
Vice-Director: Karl W. Weingarten W7BG
3219 N. 24th St., Tacoma 7, Wash.

Pacific Division

RAY H. CORNELL W6JZ
909 Curtis St., Albany 6, Calif.
Vice-Director: Harry M. Engwicht W6HC
770 Chapman, San Jose 26, Calif.

Roanoke Division

P. LANIER ANDERSON, JR. W4MWH
428 Maple Lane, Danville, Va.
Vice-Director: Gus M. Browning W4BPD
135 Broughton St., S. E., Orangeburg, S. C.

Rocky Mountain Division

CLAUDE M. MAER, JR. . . . . WØIC
740 Lafayette St., Denver, Colo.
Vice-Director:

Southeastern Division

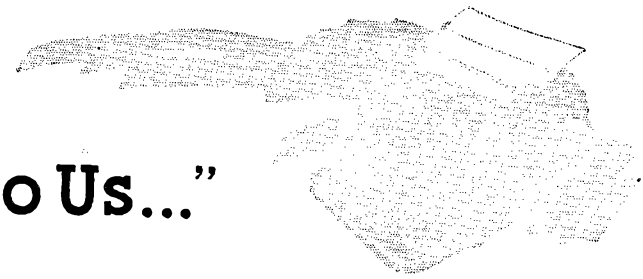
JAMES P. BORN, JR. W4ZD
25 First Ave., N.E., Atlanta, Ga.
Vice-Director: Randall E. Smith W4DQA
902 Plaza Court, Orlando, Fla.

Southwestern Division

JOHN R. GRIGGS W6KW
3661 Buckingham Rd., Los Angeles 8, Calif.
Vice-Director: Walter R. Joos W6EKM
1315 N. Overhill Drive, Inglewood 3, Calif.

West Gulf Division

A. DAVID MIDDELTON W5CA
9 Kay Road, Tijeras, N. M.
Vice-Director: Carl C. Drumeller W5EHC
5824 N.W. 58th St., Oklahoma City 12, Okla.



"It Seems to Us..."

EXAMINATION COMMITTEES

In editorial discussions earlier this year (May and June issues), we expressed the hope that ARRL affiliated clubs would set up procedures making it convenient for newcomers to join the ranks of amateur licensees under the new "mail-examination" rules. With Novice and Technician Class licenses now available only through amateur-supervised examinations, it was our thought that the smoothest transition — and indeed, the best permanent set-up — would come about only if League clubs pitched in to provide examinations on a consistent, organized basis. This is obviously better than a hit-or-miss individual scheme, having the primary advantage of uniformity and capable of being publicized generally among local would-be hams.

We are delighted to learn from an FCC public notice in late June that its Field Engineering & Monitoring Bureau independently had come to the same conclusion. The notice, an invitation to amateur clubs to assist in conducting examinations, reads as follows:

The Commission on June 30, 1954 called attention to the new radio amateur rules which became effective June 10, 1954 and the opportunity presented to Amateur Clubs and Associations to assist new amateurs and the Commission by establishing Examining Committees within their membership to undertake these examinations as an adjunct to their amateur activities.

On and after this date all Novice and Technician class amateur operator examinations must be given, and Conditional examinations will continue to be given, by volunteer examiners. These examiners must be at least 21 years of age to give the amateur theory test and to give the code test must (a) hold Extra, Advanced or General amateur privileges or (b) have, within five years, held a commercial radiotelegraph operator license issued by the FCC or (c) must, within five years of date of application, have been employed in the service of the United States as the operator of a manually operated radiotelegraph station.

The Commission hopes that Amateur Radio Clubs and Associations throughout the country will establish examination committees to assist amateurs of their areas in examinations for Conditional, Novice and Technician class licenses under the provisions of the new Commission Rules Governing Amateur Radio Service and in the spirit of amateur assistance.

It was pointed out that Engineers of the Commission's Field Engineering offices will offer every assistance to Amateur Clubs and Associations desiring to establish examining committees.

Thus the scheme now has an official blessing. It's a good plan, and a workable one. The Commission has indicated its encouragement and willingness to help local clubs in setting up examining committees. At this writing we have already received notice from several ARRL clubs of the establishment of such committees. By the time you read this, we hope they number into the hundreds. If *your* club has not yet started, how's to make it the first order of business at your September meeting opening the new operating season?

LEAGUE ELECTIONS

It's that time of year again when the Executive Committee issues a notice of upcoming elections and a call to members in half our League divisions to nominate candidates for director and vice-director posts. The current notice is in "Happenings" of this issue.

We've said it year after year, we say it again this month in "Haps," and because it is so important we repeat it here: "These elections constitute an important part of the machinery of self-government of ARRL. They provide the constitutional opportunity for members to put the direction of their association in the hands of representatives of their own choosing."

It is obvious that some 45,000 ARRL Full Members cannot all meet in each other's presence and participate individually in a policy and business meeting. In our representative system, therefore, members in each division in effect grant a proxy to the man they elect, a proxy to speak for them in League policy matters. Each of the sixteen ARRL directors represents, on the average, nearly 3000 amateurs. As the League continues to grow, it becomes even more important that members exercise care and wisdom in selecting directors to represent them on the Board. Right this moment, half of you have the opportunity to appraise your representatives and either renominate them for an additional term or, if you feel the division can do better, file nominating petitions for others of your choice. Which course is followed is strictly up to you and the other members in your division.

COMING A.R.R.L. CONVENTIONS

Sept. 17th-19th — Dakota Division, Rapid City, S. Dak.
Oct. 2nd-3rd — West Gulf Division, Kerrville, Texas
Oct. 10th — New England Division, Manchester, New Hampshire
Oct. 16th-17th — Midwest Division, Des Moines, Iowa
Oct. 30th-31st — Roanoke Division, Richmond, Virginia

A.R.R.L. WEST GULF DIVISION CONVENTION

Kerrville, Texas, will be host to the ARRL West Gulf Division Convention on October 2nd-3rd at the Kerr County Auditorium. The Kerrville Radio Club, sponsors of the Convention, are proud of their climate and facilities which can accommodate as many as care to come. Kerrville says everything points to this being the best convention ever held in the division.

Col. Bob Cooper, W5EYV, will be master of ceremonies, and among the many outstanding events will be entertainment, dance, golf tournament, transmitter hunts, and Wouff-Hong initiation.

The ladies program will be headed by Martha Rust, XYL of W5DEH. All licensed YLs and XYLs will be served a free breakfast at the convention.

Admission: 20 years and over $7.50; 19 years and younger $6.00. Both tickets include dance and banquet. The October 1st preconvention party will cost $1.50, which includes barbecue, beer, coffee or soft drinks.

Address all communications to Convention Chairman C. R. Toler, W5FNH, P. O. Box 624, Kerrville, Texas.

DAKOTA CONVENTION SITE CHANGED

As the result of a change in arrangements, the September ARRL Dakota Division Convention meetings (p. 50, August *QST*) will be held at the Alex Johnson Hotel, Rapid City, S. Dak., instead of at the City Auditorium.

HAMFEST CALENDAR

ILLINOIS — The annual Egyptian-St. Louis area "Hamboree" and Picnic will be held as usual, rain or shine, on Sunday, Sept. 19th, at the Egyptian-St. Louis Radio Club Grounds 1 mile east of the Mississippi River on the south side of U. S. Highway 66.

Signs will mark the spot of the area's largest and oldest annual ham get-together. Attractions: official ARRL code-speed contest, hidden-transmitter hunt, Illinois & Missouri Emergency Net meetings, auction, ARRL officials in person. Meet Earl "Lid" Linder, WØDZG, editor of *Podunk News*, Frank "The Pillow Hater" Waelterman, WØLLN, and, now for the first time in person, none other than "Diver" Delps, W9QMG, nationally known "frog man" and deep-sea diver.

Visit the famous "Podunk Hollow Shack" and W9AIU. Food and drinks available on the grounds. Come early and stay late. Free admission to out-of-town hams. For further information write W9AIU or WØWPS, committee chairman.

KANSAS — Annual Hamfest of the SeKan Radio Club will be held at the Independence, Kansas, 4-H Club Building, Riverside Park, on September 12th.

KANSAS — Johnson Co. Radio Amateur Club second annual Banquet-Hamfest, Quivira Lake Country Club, October 2nd. For details contact Chairman Jim Gossett, WØGLN.

KANSAS — The Tri-City Radio Club will conduct its Hamfest on the Sunday preceding Labor Day, September 5th. Festivities will be held at Scott City, Kansas. Admission $1, free coffee and doughnuts for those arriving early. Bring a covered dish for noon chow. This is the annual event staged by Scott City-Garden City-Dodge City ham clubs. Special events for XYLs.

LOUISIANA — Labor Day week end — Saturday night dance September 4th at Lanfants Air-Conditioned Boulevard Room. Baby sitters available. Free soft drinks and ice. Sunday, September 5th — transmitter hunts, picnic with hot dogs, beer, soft drinks. Special entertainment, contests and events for the ladies and children. All for $4. Children 6 to 16, $1. Write to "Week End in New Orleans," P. O. Box 899, New Orleans 4, Louisiana (make checks payable to Greater New Orleans Amateur Radio Club).

MISSOURI — The Southwest Missouri Amateur Radio Club will hold its annual fall Picnic at Fassnight's Park, Springfield, on Sunday, September 5th. All hams, XYLs and YLs are invited. For further information contact Roy Noblette, WØlCW, 2528 North Weller, Springfield, Missouri.

NEW JERSEY — The South Jersey Radio Association annual Hamfest and Picnic is to be held on September 12th at National Park, N. J. Follow the S.J.R.A. signs in from Rt. 139 to Red Bank Ave. and the Delaware River. Help us celebrate our 38th birthday by breaking last year's record attendance of nearly 600. Bring food. Free soda, plenty of tables, and pavilions in case of showers. Fun and games for the whole family. Full-size carousel, 50 swings, slides, and wading pool for the kiddies. Mobile transmitter hunts on 10 and 2 meters. Special recognition for the oldest licensed ham present. K2AA will go on the air at 11 A.M. on 3.895, 29.0 and 145.4 Mc. to "talk in" the mobiles. Registration is $1.00 per family in advance or $1.50 at the gate. Send check or money order payable to the South Jersey Radio Association, Inc., in care of Bob Barbor, 223 Chestnut St., Haddonfield, N. J.

NEW YORK — The S.I.A.R.A. (Staten Island Amateur Radio Association) will hold its 9th annual Picnic at Rinehart's Picnic Grounds, Bloomingdale Rd., Pleasant Plains, S. I., Sunday, Sept. 12th, noon til (?). Registration must be made in advance to Charles Pandelaky, W2HXV, 108 Bay Terrace, S. I. 8, N. Y. Admission $2.50 for adults, 50¢ for children. Lots of good food and liquid refreshment.

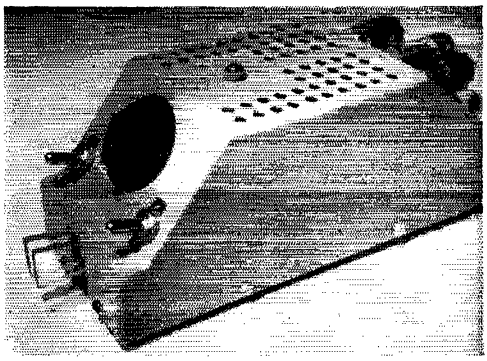
NEW YORK — Saturday, September 18th, at the Masonic Dining Room, 239 Main St., Oneida, N. Y., the Oneida area radio amateurs will sponsor the 10th Annual Hamfest and Ladies' Night. Admittance at $3 is by advance registration only and is limited to 150, the capacity of the dining room. Registration is at 5 P.M. with the banquet at 7 P.M. Make reservations with Walter L. Babcock, W2RXW, 405 Sayles St., Oneida, N. Y., before Sept. 16th.

OHIO — Annual Findlay Hamfest sponsored by the Findlay Radio Club, W8FT, on September 12th at Riverside Park, Findlay. Hours 9 A.M. to 5 P.M. Advance tickets $1, at the gate $1.50. A good time for all.

OHIO — Seventeenth annual "Stag Hamfest" sponsored by the Greater Cincinnati Amateur Radio Association is to be held Sunday, Sept. 12th, at Kopling Grove (formerly Ash Grove), Winton Road at Compton Road, 2 miles south of Greenhills. Registration $2.50 at the gate. Here's what you get: hot dogs served all day, doughnuts and coffee served until noon, beer and pop served all day, full picnic dinner and supper (all you can eat), rain or shine — plenty of shelter. Games, hidden-transmitter hunt, personalities, display booths, etc. For additional information contact Byrum Henry, W8QBJ, 1120 Elberon Ave., Cincinnati Ohio.

OUR COVER

Vern Chambers' latest creation — primarily an up-to-50-watt 6-band mobile rig using ganged multiband tuners — will be just as much at home drawing 90 watts on the operating table of the fixed station. Watch for it in our next issue.



The miniature version of the Tur-Key is housed in a special case of galvanized sheet iron.

The "Tur-Key" in Miniature

A New Version of a Popular Electronic Key in Compact Form

BY RICHARD H. TURRIN,* W2IMU

• The original model of the all-electronic key described by W2IMU in an earlier issue has been duplicated by many. The new and more compact model described in this article should be of special interest to every c.w. man.

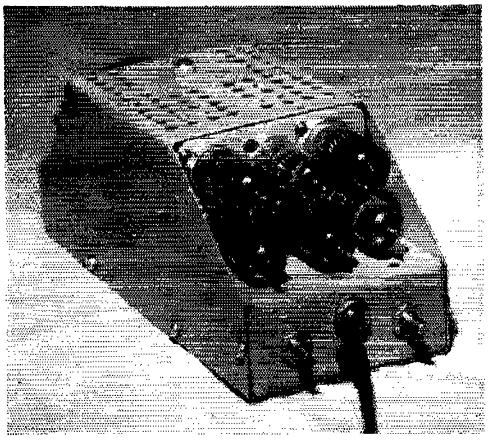
THE original "Tur-Key" described in *QST*, December, 1952, while adaptable to miniature-tube design, contained several inherent complications which made construction difficult. During the course of various experiments to improve the original design, a new and rather simplified circuit evolved which readily lends itself to miniature-tube construction. The basic theory of operation remains the same as in the original design; however, two major changes in circuitry have been made. The bi-stable multivibrator, previously pulse-triggered, is now direct-coupled to the sawtooth generator. Very satisfactory keying characteristics were obtained with a 6BN6 as d.c. amplifier and wave shaper. An 884 was previously used for this purpose. All the virtues of automatic recycling, self-completing action and independent speed and ratio controls are retained.

In addition, an effort was made to work out details for constructing a compact self-contained unit. Key-lever details are included and the photographs should aid in the layout and construction of the complete unit. It is hoped that this article will satisfy those who are interested in constructing an all-electronic keyer devoid of relays.

* Gillette, N. J.

The Circuit

At first glance the schematic diagram, Fig. 1, might appear confusing since all plate returns are made to common chassis ground. Actually, the arrangement is an inverted conventional circuit. Notice all voltages are negative with respect to chassis ground. The purpose of this arrangement is to secure maximum negative voltage at the keyer-tube grid when the key is



Rear view of the compact electronic key, showing the tubes, output jack, and controls on the subassembly sketched in Fig. 3.

open. The heavy line in the schematic would normally be chassis ground in a conventional circuit. Description of the circuit will be divided into three parts: the power supply, the timing circuit and the vacuum-tube keyer.

Power Supply

The power supply produces two voltages which are added in series to obtain the total maximum of 700 volts. The 320-volt output is obtained by full-wave rectification and a single-section *R-C* filter, condenser input. This simple filter is sufficient since the maximum current drawn from this supply is about 20 milliamperes. A second negative voltage is obtained by half-wave rectification and a single-condenser filter. This voltage is about 380 and is added in series with the 320-volt output. The current drawn from this second supply is only a few milliamperes.

Standard overload protection for both rectifiers is provided by two 100-ohm resistors, R_{18} and R_{19}. The 6X4 heaters are purposely connected to the 5-volt winding to avoid overloading the 6.3-volt winding. Although the heater-cathode breakdown voltage may be exceeded, no fatalities have resulted. If substitute components are used it is advisable to correct the supply voltages to within ten volts of the values shown.

Basic control of the key is maintained by V_1, V_2, V_3, V_4, the key lever and associated circuit elements. V_1 is a cathode-follower charging tube introduced by Brann.[1] V_2 is a discharge tube used in the previous design.[2] V_3 and V_4 form a hybrid bi-stable multivibrator which produces positive pulses for V_2 grid. The timing circuit operates as follows: With the key lever in neutral position, the static condition of each stage is: V_1 conducting heavily, V_2 is not conducting because of the open cathode; however, its grid is positive with respect to cathode. V_3 and V_4 are conducting and cut off, respectively. When the key lever is closed, V_2 conducts, discharging C_1, causing the voltage across R_3 to decrease rapidly. Since V_1 cathode and V_3 grid are d.c. connected, V_3 is immediately driven to cut-off. V_4 conducts by virtue of the cross-connected grid-to-plate and return resistors; however, V_4 plate voltage does not decrease immediately. C_2 couples the rising voltage of V_3 plate to V_4 plate and holds this voltage constant for a period governed by the discharge time of C_2.

In addition, a negative pulse is coupled through C_3 to V_4 grid, holding V_4 cut off momentarily after key is pressed. C_2 aids the action of C_2, which results in a sharp positive pulse at V_4 plate. Since V_2 grid is direct-coupled to V_4 plate, V_2 conducts for the same short period. The duration of this pulse is important since successful operation depends on C_1 being discharged to a steady-state condition. This is further illustrated in Fig. 2 by the flat bottom of the sawtooth wave.

At time t_2, Fig. 2, C_1 is discharged and starts charging in a positive direction through R_1, R_2, and the cathode follower. As the cathode voltage of V_1 increases in a positive direction, V_3 grid follows due to the d.c. connection. At time t_5, V_3 grid becomes sufficiently positive to cause V_3

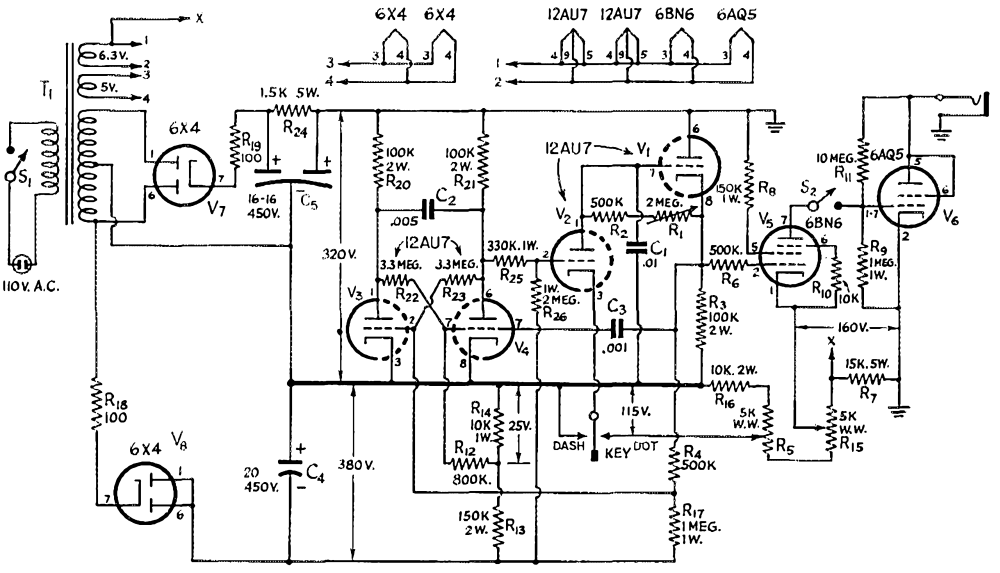


Fig. 1 — Circuit of the miniaturized Tur-Key.

C_1, C_2, C_3 — 500-volt mica.
C_4 — Electrolytic (Mallory TV-75).
C_5 — Dual electrolytic (Aerovox PRS).
R_5, R_{15} — IRC type W potentiometer.
S_1, S_2 — Toggle.
T_1 — Power transformer: 650 v. r.m.s., c.t., 40 ma.; 5 v., 2 amp.; 6.3 v., 2 amp. (Stancor PM-8406).
All unrated resistors ½ watt.
All capacitances in μf.

[1] Brann, "In Search of the Ideal Electronic Key," *QST*, February, 1951.
[2] Turrin, "The Tur-Key," *QST*, December, 1952.

to start conducting. The action which follows is a *very rapid reversal of static conditions* in the multivibrator. This marks the end of one complete cycle. The next cycle starts in much the same way as when the key lever was initially closed. Self-completing action is provided by the fact that the key lever need be closed for only a small fraction of a second at the beginning of each cycle.

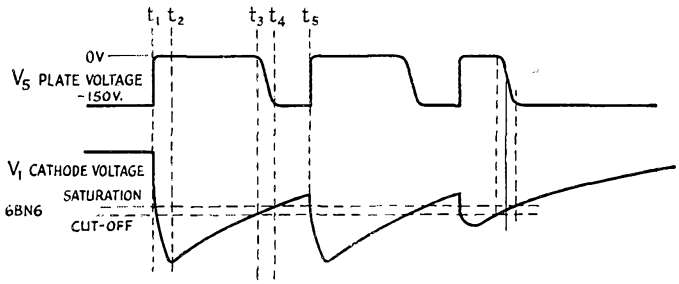


Fig. 2 — Characteristics of V_5 plate voltage (above) and V_1 cathode voltage (below).

Dots are formed by discharging C_1 to a less negative voltage, which shortens the charge period or cycle. R_5 sets the dot-discharge voltage and is therefore the ratio control. R_1 provides speed control and R_2 is a current-limiting resistor to prevent damage to the 2-megohm pot.

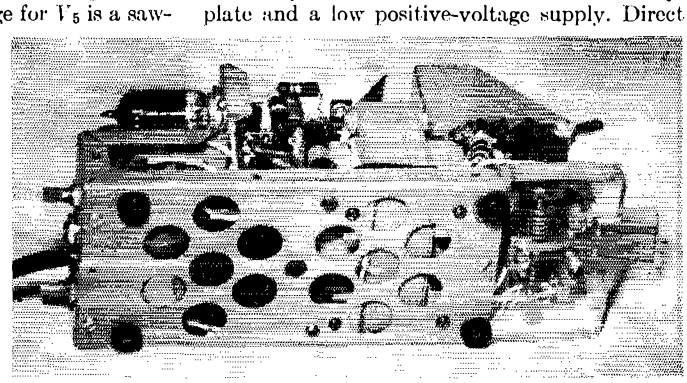
Keyer Tube and D.C. Amplifier

The next part that will be treated separately is the keyer tube and d.c. amplifier, V_6 and V_5, respectively. V_6 is used in a conventional vacuum-tube keyer circuit; however, the available grid-voltage swing will limit the maximum voltage to the keyed stage to about 300 volts. Also, the 12-watt maximum plate dissipation of the 6AQ5 should not be exceeded. The 6BN6 was chosen as d.c. amplifier because of its ability to go from cutoff to saturation with about one volt change at the control grid. The driving voltage for V_5 is a sawtooth wave taken from V_1 cathode. This voltage is illustrated in Fig. 2, and is of sufficient amplitude to drive V_5 well into saturation or cutoff. R_6 limits the 6BN6 grid current.

When the key lever is open, the 6BN6 will be conducting saturation plate current of about 0.5 milliampere. The voltage appearing at the 6BN6 plate provides keyer-tube bias and will depend on the setting of R_{15}. Upon closing the key to either dot or dash side, the voltage at V_1 cathode drops very rapidly to well below V_5 cathode bias. The result is that V_5 plate voltage drops rapidly to zero allowing V_6 to conduct. This action is illustrated in Fig. 2 at time t_1. R_{11} lowers keyer-tube plate resistance by providing a small positive voltage for the keyer-tube grid.

When the sawtooth wave reaches its minimum at t_2, it starts back in a positive direction. At time t_3 the grid of V_5 reaches cutoff and V_5 begins to conduct. At t_4, V_5 draws grid current and saturates. The voltage waveform at V_5 plate is therefore a greatly amplified and inverted slice of the sawtooth. The position of the trailing edge of this wave or character may be shifted by changing the cathode bias on V_5. R_{15} therefore provides the weight control. The slope or "tailing" of the trailing edge may be exaggerated for a softer break action by increasing the value of R_8. Decreasing the value of R_8 will sharpen the break action only slightly if the 6BN6 is in good condition. A weak 6BN6 will give results similar to increasing R_8. S_2 provides a means to close the key for tuning the transmitter.

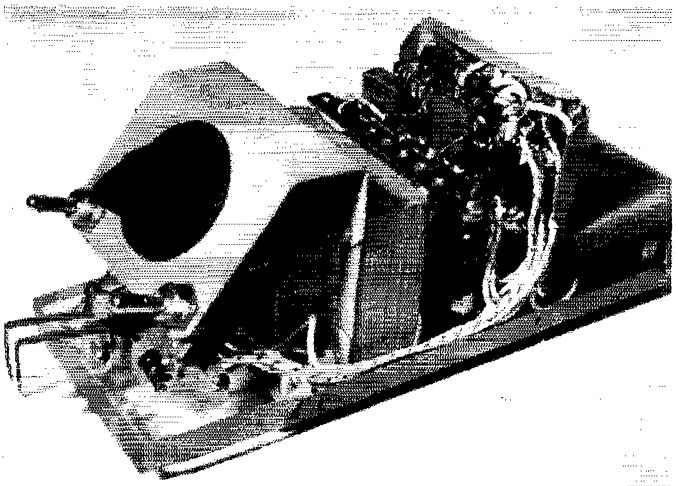
Several alternate keying methods may be employed. Where high voltages or large currents are keyed, it may be necessary to use a keying relay. The relay coil can be connected to the 6AQ5 plate and a low positive-voltage supply. Direct grid-block keying is possible by removing the 6AQ5 and using the 6BN6 plate output. A shielded lead may be necessary in this case.



Bottom view of the Tur-Key, showing the main base with its ventilating holes, and the mounting of the keying lever.

Construction Notes

The prime mechanical design consideration was minimum size. Over-all dimensions of the case are 3½ by 3½ by 9 inches. As a result of this design, some unorthodox subassemblies resulted which will need explanation. Three sub-



Side view showing switches and speed control mounted on a subpanel suspended from the power transformer. This view also shows how the subassembly of Fig. 3, in the rear, is formed.

assemblies are required in addition to the case. Galvanized sheet iron was used for all fabrication. The bottom piece is formed into a channel 3½ inches wide by 7 inches long, with ⅜-inch sides. A number of large ventilation holes is required in this piece. The transformer is bolted directly to this member, as well as a plastic key base (Fig. 5). The plastic base overlaps the metal bottom by ⅜ inch and is secured here with three 6-32 screws. R_{24} and R_7 are bolted vertically to the bottom piece, on either side of the transformer. C_1 is directly in front of the transformer and wired in place with stiff wire.

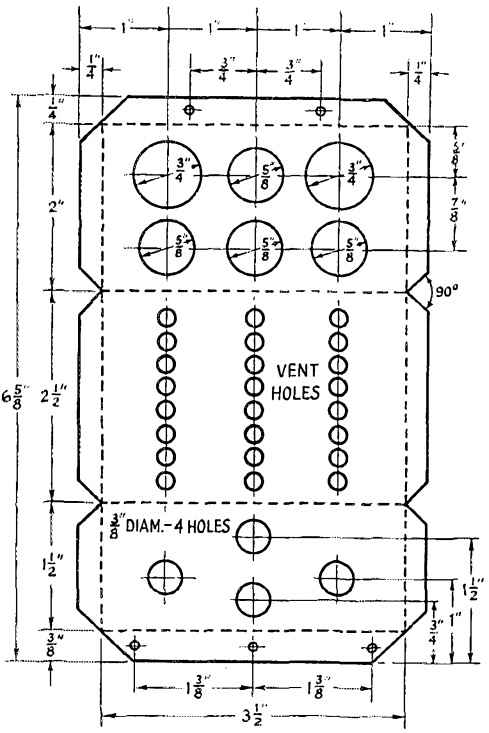


Fig. 3 — Layout of main subassembly. Right-angle bends are made along the dotted lines. (Refer to photographs for direction of bends.) Small holes are for self-tapping mounting screws. Dimensions are in inches.

A second subassembly is shown bolted to the transformer, just above the key lever. This piece supports the speed control and two switches, a.c. and "tune-up." It is advisable to insulate the shaft of R_1 thoroughly from the metal mounting and cover. Leakage or intermittent breakdown at this point could easily cause erratic operation. The shape of this piece will depend on the outer case, and should match closely in order that the two will register properly.

The third subassembly is more complicated since it contains the six tube sockets, output jack, ratio and weight controls, and most of the small components. Fig. 3 and the photographs show the details of this piece. A grommeted hole is provided just below the output jack for the a.c. line cord. The rear-view photograph shows the tube-socket arrangement. The order from left to right is as follows: V_1-V_2, V_5, V_3-V_4, top row; V_8, V_6, V_7, bottom row. C_4 and C_5 are located directly in front of R_5 and R_{15}. This assembly may be completely wired before being bolted to the bottom piece at the rear. Small parts are self-supported from the tube sockets. R_4, R_{14}, R_{13}, R_{17}, R_{25} and R_{26} are secured to a terminal strip which is bolted to the top of the transformer.

The cover or case was handmade to fit the subassemblies combined. The exact shape may be altered to suit the individual; however, the top surface must be thoroughly perforated for good ventilation. A small pilot jewel is included on top, the pilot-light assembly being secured to the transformer top. The cover serves a very useful purpose as well as being ornamental. Rather high voltages are required, and it is well to cover the entire unit, especially the key-lever mechanism, to avoid hazard to the operator.

All subassemblies are cut, bent and given a spray coat of enamel before mounting parts and wiring. No special precautions are necessary in

wiring; however, suitable insulation should be provided at points of high voltage. Note carefully that the 6.3-volt winding is not grounded, but is connected to the junction of R_{15} and R_7. This is done to minimize heater-to-cathode voltage for most tubes. Only good-quality mica capacitors should be used at C_1, C_2 and C_3. The composition resistors of values greater than 200K ohms should be checked for accuracy with an ohmmeter before wiring in the circuit. Tolerance of 10 per cent is allowable, if not cumulative in a group of resistors.

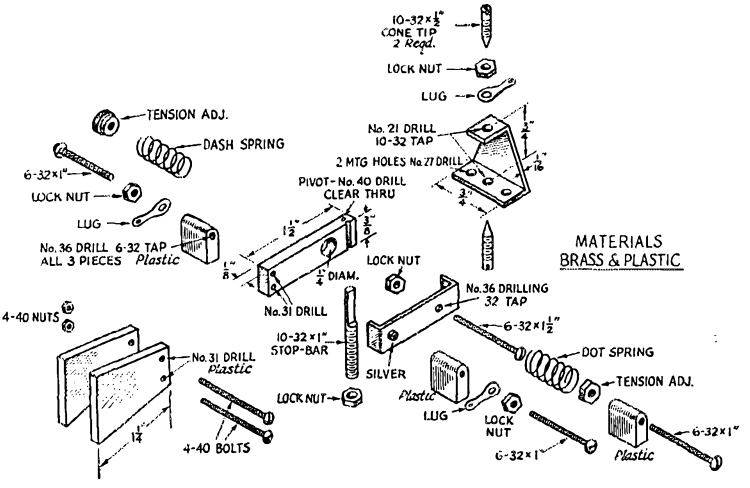


Fig. 4 — Key-lever details.

Key-Lever Detail

One of the obstacles in electronic-key construction is the key-lever mechanism. The modified "bug" arrangement is definitely not recommended for this circuit. A unique lever is therefore presented to complete the electronic keyer. This mechanism produces the identical feel of a "bug," and is relatively simple to construct. Two views are shown which include sufficient information for construction. Notice the paddle arm is supported from a single pivot. The second pivot is the V-shaped slot. Materials are scrap brass and plastic. Silver contacts were removed from old relays, and soldered to the brass screws and bar. Use care when drilling and tapping plastic since it will heat and crack easily.

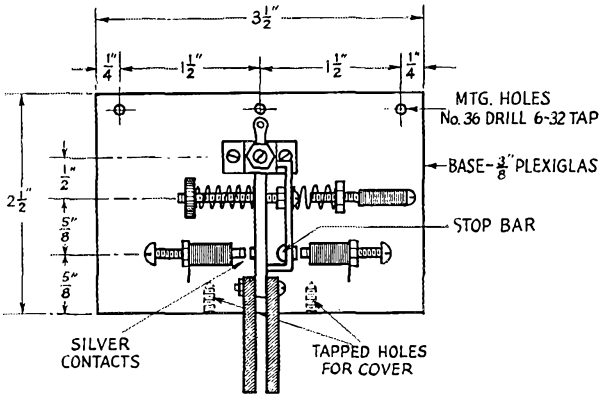


Fig. 5 — Key-lever assembly (top view). Dimensions are in inches.

Final Adjustment

After the wiring has been carefully checked, the unit is turned on and several voltage checks are made. Those voltages shown in Fig. 1 may be measured with a 20,000-ohm/volt meter and should check within five per cent. The keyer is now connected to a suitable monitor, and tested for operation. If difficulty is encountered in producing either dots or dashes, or in making the correct ratio adjustment, it may be necessary to adjust the value of R_4 or R_{25} slightly. However, the circuit should function without difficulty if the information given is followed closely. Once the keyer is functioning it is imperative that correct ratio and weight adjustments be made and maintained. These adjustments are essentially the same for any fully-automatic key, and have been outlined in previous articles.

The keyer will consume about 42 watts, and when operating properly will perform well over a wide range of line voltages. Operation in strong r.f. fields may produce false triggering and should be avoided. The model shown has been used successfully for several months.

Have You Tried V.H.F. Mobile?

Hints for More Effective Use of 6 and 2 in Mobile Work

BY EDWARD P. TILTON,* W1HDQ

Opening of our lower frequencies to mobile work in the summer of 1948 touched off a boom that has as yet shown no signs of tapering off. Coming as it did at a time when we were meeting the TVI problem head on, the privilege of using 20, 40 and 80 in the family car was the means of many hams staying on the air. The break could hardly have come at a more opportune time.

Descriptions of mobile rigs and antenna systems took over many pages of *QST*, and parking lots near hamfests and conventions sprouted amazing assortments of loops, hats, coils and whips. Mobile hamming on the lower frequencies took hold as have few trends in the history of our hobby, and interest in v.h.f. mobile slumped accordingly. The last few years have seen v.h.f. mobile stage a comeback, however, and today there are perhaps more 2-meter mobiles than ever before. For the first time in some seasons there is interest in mobile operation on 6 as well.

Several factors account for this resurgence of interest. Emphasis on v.h.f. in civilian defense planning probably triggered it off. Available lower frequencies were filled quickly in many areas, once c.d. work began in earnest, and it became obvious that 6 and 2 would have to be used to do the job. Then once these bands were given a real try under modern conditions they were found to have features that sell them to the mobile-for-fun ham as well.

The writer is in the latter category, but he lost interest in mobile operation on his favorite bands some years ago. When we last had extensive mobile use of the frequencies above 30 Mc., most of the gear was woefully inadequate for the job. Home stations were usually low-powered rigs, often of the haywire modulated-oscillator variety. Antennas were simple dipoles, mainly, and receivers were far from effective. The result was that coverage with a mobile rig was limited to a very few miles radius from the fixed station being worked. You had to drive to some high-altitude location if you wanted to cover much territory. It was fun to have a rig in the car for such week-end excursions, but casual mobile operation didn't amount to much otherwise.

Under 1954 conditions, however, v.h.f. mobile is quite a different story. Today's home rigs are of good quality, often running considerable power. Most antenna systems are high-gain beams, and the converters and receivers used for fixed-station work approach the ultimate in performance. Result: the v.h.f. mobile station now enjoys a reliable radius of operation that can make users of lower frequencies sit up and take notice. Freedom from QRM is a big factor in this, of course, but the greater refraction and reflection characteristics of v.h.f. waves are important too. For reliable coverage of a "service area" moving higher in frequency is going in the right direction.

75, 10, 6 or 2?

If you live and drive in an area where the nearest ham is 50 miles away, you'll probably be in no hurry to put 6 or 2 in your car. But if you live in one of the many spots where v.h.f. interest is high, you're missing something if you haven't tried the higher bands in the car recently. The 144-Mc. band, particularly, is now occupied to the extent that it is possible to make mobile contacts almost at will in and around most of our larger cities and not a few of the smaller ones.

Considered from the standpoint of their worth in local coverage, 144 Mc. leads, with the bands lower in frequency tapering off in reverse order. The bending and reflection of 2-meter waves give a surprising degree of fill-in, allowing solid communication out to 20 miles or so in average irregular terrain, even with low power. This accounts for the present trend of commercial mobile services to v.h.f. With comparable power, you'll probably find that 2 will give you more solid coverage than 10, with 6 falling somewhere in between. This assumes a quarter-wave whip for each band — and thereby hangs a potent argument for 144 Mc. Compare the well-nigh invisible installation shown in the first photograph with the sort of thing commonly used in 10-meter work!

We can skip 15, 20 and 40 in this discussion, for they are not normally used for local communication. The 75-meter band unquestionably provides more activity and better prospects for round-the-clock operation with a mobile installation than any other amateur band. But this very popularity of the band is also its greatest liability in many cases. It's fine to be able to hear signals any time anywhere when traveling — but how far can you get with a 10-watt 75-meter mobile on a busy week end, or during the evening hours? Not far, unless you have the coöperation of a group of high-powered stations to keep a channel cleared for you.

The reliable range on 144 Mc., on the other hand, is just about constant, day or night, depending only on finding stations to work. Several months' experience with our 2-meter mobile installation indicates that there are few cities in the East where it is not possible to make contacts in the evening hours, or over week ends.

*Editor, *QST*.

We've run out of signals a few times in our *travels*, but we've never been *buried* by them. The log of W1HDQ/mobile shows page after page of QSOs on 144 Mc. Good solid easy-going ragchews they were, too, unmarred by QRM from distant points.

Equipment? A pocket-sized transmitter [1] with a 2E26 in the final, running about 10 watts input, feeds a 19-inch whip mounted on the rear deck. The receiver used most of the time has been a simple 4-tube job originally described in *QST* for Novice use.[2] It is operated from two small-sized "B" batteries, so the whole set-up is very easy on the car battery. The installation is as close to an "invisible mobile" as you're likely to come, a factor that helps to keep peace in a family car installation.

Without the call plate on the antenna mount, it's hard to see evidence of amateur radio on our car from more than a few feet away. Not one visible hole was made during installation. There is nothing to interfere with passenger comfort or convenience; no special generators and extra batteries, no ungainly fish poles. And when we come to trading time again, the whole works can be removed without a trace in a few minutes' time.

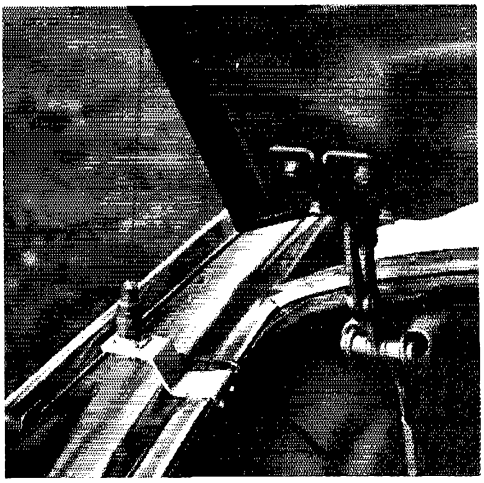
We had a pleasant experience with no-hole antenna mounts when the car shown in the mobile antenna pictures in October, 1953, *QST* [3] was turned in recently. "It's a real beauty," the dealer said, but he looked questioningly at the rooftop antenna. When we peeled the taped-on mount off the top and showed him that no hole had been made, the deal was on, at top trading price. If you quake at the thought of going after the family chariot with a circle cutter, or if the Little Woman is allergic to 12-foot whips, 2 may be for you! Or 6; the average broadcast whip is just the right length for 6-meter mobile use.

[1] "New Equipment," May, 1954, *QST*, page 47.

[2] Tilton, "A V.H.F. Receiver for the Novice or Technician," November, 1951, *QST*, page 33.

[3] "Two-Meter Mobile Enjoys a Boom," October, 1953, *QST*, page 55.

[4] Blodgett, "Two in a Car," December, 1952, *QST*, page 40.



Antenna mount for 2-meter mobile. Only two small holes, for self-tapping screws, are required, and these are drilled in the inside edge of the rear deck opening. The antenna is made of piano wire. Mounting bracket is 3/32-inch sheet aluminum, bent as required for the car in question.

• Commercial use of radio for mobile communication began on low frequencies and has moved gradually higher. Amateur mobile experience began on 56 Mc., and moved over to lower frequencies to a large extent when our DX bands were opened to mobile operation a few years ago. In recent months, v.h.f. mobile interest has been staging a comeback, however. Below are some reasons why, plus receiver and antenna ideas you may find useful if you're planning to go mobile on the v.h.f. bands.

The Receiver Problem

The lack of suitable receiving equipment, ready-made, has been one reason for v.h.f. lagging behind in the boom in mobile operation. That condition is being corrected currently by several manufacturers, and some nice 2-meter gear is now available for those who want to "go commercial." We hear rumors that some comparable 6-meter receivers will also soon be on the market. Meanwhile, it is quite possible to build your own, and come up with something entirely satisfactory.

The usual tunable converter is probably adequate for 50-Mc. mobile use, but tunable oscillators are tough to build for 144 Mc. The stability problem becomes acute if selectivity of the car-radio variety is used. A crystal-controlled converter for 144 Mc. that will work into a tunable converter for lower bands [4] makes a fine 2-meter receiving system if you can take the extra current drain this approach entails. Not to be overlooked for tunable i.f. service are the BC-454 and BC-455, still available on the surplus market at moderate cost.

A mobile receiving system that has had little attention in recent years is the superregenerative detector. Not the squealing broad-tuning abomination of the transceiver days, but a modern version that makes the best use of the extraordinary features this type of detector affords. To see how it would perform under today's 2-meter conditions, we hooked up a coaxial-line superregenerative job we designed for the v.h.f. beginner some years ago.[2]

This was a 3-tube receiver originally. A 6AK5 broadband r.f. stage provides some gain and isolates another 6AK5 that serves as a coaxial-line-tuned detector. A 6AK6 single audio stage was originally used, but a triode audio amplifier was added between the detector and the 6AK6 to build up the audio amplification to a level suitable for use in a car. The total drain from a 90-volt "B" supply is only a little over 10

milliamperes. No strain on the car battery here!

The superregen has several useful features in addition to its economy and simplicity. It has inherent a.v.c. and noise-limiting action, functions that require extra tubes with other systems. It is unequaled for sensitivity per tube. On the debit side, the superregen tends to tune broadly. It has a generally poor signal-to-noise ratio on very weak signals, and it can radiate a screeching form of interference that is most annoying.

These weaknesses are largely overcome in the coaxial-line job.[2] Radiation is reduced to the point where it is inaudible in our home-station receiver when the mobile job is running in the car parked in the driveway. Selectivity is markedly improved by the combination of the r.f. amplifier and the coaxial tank in the detector. Sensitivity, while well below that of a good receiver of the superhet variety, is adequate to bring in anyone you're likely to work with the power generally used in 2-meter mobile transmitters. Rejection of ignition noise is good enough to permit copying all but the weakest signals while the car is in motion — this in a car that has had no noise-suppression work done on it by the writer.

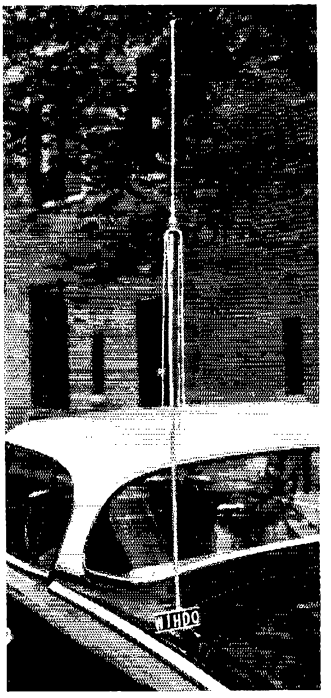
The receiver is mounted in an inverted position under the dash, in a space reserved for the car broadcast receiver — a device we can live without handily. A small oval-shaped speaker is mounted in back of the car radio grill, and the receiver is powered by two small 45-volt "B" batteries in the rear compartment.

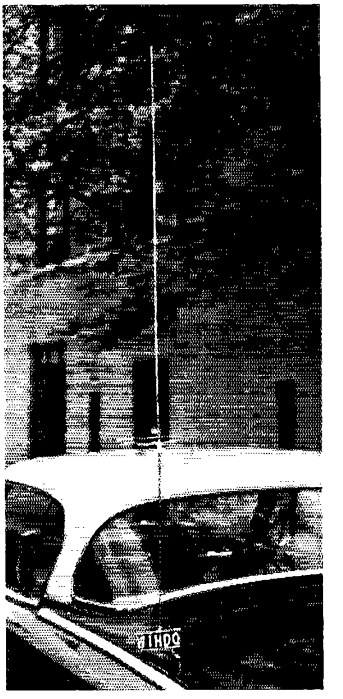
Comparisons have been made between this simple receiver and the well-known Gonset Communicator. Selectivity is about the same for the two units, because of the high i.f. used in the Gonset. Weak signals are much more readable on the latter, of course, when the car engine is dead, and the higher audio level of the Gonset receiver is helpful in overriding the road and wind noise at high speeds. But the simple receiver does do the job — and well enough to provide plenty of fun for the 2-meter mobile enthusiast who wants something simple and inexpensive to build. Being able to receive for hours on end without worrying about battery drain is also a pleasing feature of the superregen.

Antennas — Invisible and Otherwise

Our aim in this mobile installation was to make it as unobtrusive as possible. The transmitter, antenna relay and receiver "B" batteries are in the rear compartment. A 300-volt 175-ma. genemotor and a headlight relay for starting it are mounted under the hood alongside the car battery. The control panel has heater switches for transmitter and receiver and a third switch for actuating the starting and antenna relays. This is mounted in the dash space normally occupied by car radio controls. The main control switch breaks the B-plus lead to the receiver when it is thrown to the "transmit" position. That's all there is to the station.

Details of the antenna mount can be seen in the photographs. It is made of a piece of 3/32-inch aluminum bent so that it makes a tight slip-on fit over the side of the rear deck opening. It is held in place by two self-tapping screws, requiring only two small holes in the interior edge of the compartment, at a point where they





Two demountable antennas that can be used in place of the 19-inch whip when greater range is needed. At the left is a "coaxial" dipole using a 19-inch whip atop an extension assembly that is fitted with vertical rods to form the skirt portion of the dipole. The collinear vertical, right, gives substantial gain over the short whip, and may be used on 10 and 6 meters as well.

are out of sight when the cover is in its normal position. An Amphenol type 83-1R coaxial fitting is fastened to this mounting bracket, and a short length of coax runs from this fitting to the antenna relay. A small half-round notch was filed in the top edge of the inside wall, allowing the coax to pass under the cover without clamping on it too tightly. The soft rubber weather stripping fits firmly around the coax when the cover is down.

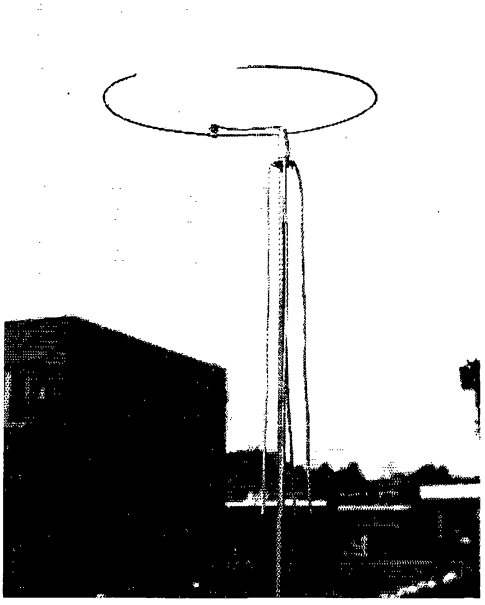
This is a convenient set-up for trying various antennas. Any array that is set up and matched for 50-ohm feed can be connected to the fitting without requiring adjustments at the transmitter. Arrangements we've used include a ¾-wave whip, the rooftop mounting described in October, 1953, *QST*,[3] several portable arrays that can be dismantled for easy carrying in the car, and the assortment of gadgets shown in the accompanying photographs.

For our operation while in motion, we use either a 19-inch whip made of piano wire, or a chromium-plated brass rod of the same length, both mounted in Amphenol type 83-1SP fittings. These tiny antennas don't look impressive by comparison with the mobile monstrosities used on lower bands, but they work out surprisingly well. We've had many satisfactory contacts at distances out to more than 40 miles while traveling at high speed, and stations more than 100 miles distant have been copied on several occasions with the car stationary. The weak-signal range under stationary conditions depends on the elevation and weather at the time, of course, but it has surprised the writer again and again. The pattern with the rear deck mounting appears to be vaguely clover leaf in shape, with the best lobe off the right rear side.

For something a little better in work with vertically-polarized stations, we use either of the arrangements shown on the opposite page. One is a simplified form of coaxial dipole, and the other a collinear array. The "coaxial" dipole is mounted on a piece of tubing (of any convenient length) that has coaxial fittings at each end, connected by coax that runs up inside the tubing. The skirt consists of four pieces of aluminum TV ground wire mounted on the four corners of the upper fitting and bent down alongside the vertical support. These can also be left projecting horizontally, if one prefers a ground-plane type of antenna. One of the 19-inch whips is screwed onto the top fitting to make the upper portion of the dipole.

The mounting bracket we use is none too solid for operation while in motion with this assembly, but these special antennas are used mainly when we want a little boost in signal while working in one spot. The coaxial is good for two or three db. gain over the whip alone, the collinear giving five to six db.

Where both 2 and 6 are to be used in the mobile set-up, a convenient antenna is a whip that will work as a quarter-wave on 6 and three quarter-waves on 2. If the whip is adjustable, it can be set for optimum performance



Horizontal dipole for mobile work. A 38-inch brass rod, fed with a gamma match, is bent into a circle of about one-foot diameter. It is attached to the same assembly as is used for the coaxial dipole. Matching tap and variable capacitor are about 4 inches from the center.

when changing bands, but no great loss in effectiveness results if a fixed length of about 55 inches is used for both. Many standard broadcast whips are just about right for this application. The radiation angle on 144 Mc. is higher than with the 19-inch whip, so the performance is not quite equal to the shorter one, but it is a convenient compromise for two-band work.

Checking mobile operation on three bands gave us an opportunity to use a choice pun we've been holding for months, to introduce a mobile radiator for 10, 6 and 2. The device shown at the right on page 18 is a highly effective radiator for 144 Mc. On this band it is a quarter-wave radiator and a half-wave radiator with a folded half-wave phasing section between them. By removing the phasing section and shorting out the ceramic spacer we have a 50-Mc. quarter-wave. With the phasing section left as shown for 2-meter use, the system is also usable as a center-loaded 10-meter quarter-wave. If the top section is an adjustable whip, the over-all length can be varied to give good performance on all three bands. We call it, inevitably, "the 2, 6 an' 10-na!"

The bottom portion is our 19-inch rod, the top of which is tapped to take a 6/32 screw and fitted with a 1-inch ceramic stand-off. The phasing section is 40 inches of aluminum TV ground wire bent into a 19½-inch U. This, in turn, is coiled up as shown in the photograph. The top section is a standard adjustable broadcast whip. This is set for about 38-inch length when the gadget is used for 2-meter work. The whip and

(*Continued on page 114*)

Build Your Own Panoramic Adapter

A Useful Adjunct for Visual Reception

BY H. F. PRIEBE, JR.,* W2TGP

• As most *QST* readers probably know, the panoramic receiver is a system that reproduces signals in visual form on a cathode-ray tube screen. With it, it is possible to "see," simultaneously, all signals within a range (100 kc. in this case) either side of any center frequency to which the receiver is tuned. This article tells how to build an adapter that can be attached to your communications receiver to provide panoramic reception, without interrupting the normal functioning of the receiver on aural signals. While it is not a project to attract the beginner, the many hams who have contact with TV servicing, or other branches of the electronics field, are sure to find it interesting and useful, and far from "too complicated."

WEBSTER gives two definitions for the word "panorama": (1) a view in all directions, and (2) a scene that moves before one's eyes. The term "panoramic reception" could hardly be more descriptive, since both definitions can be said to apply.

Panoramic reception is the simultaneous visual representation of all received signals within a selected band of frequencies. If you were to plot a graph of frequency *versus* S-meter readings, as you tuned a receiver across a portion of its range, the result would be something like Fig. 1. Each pip represents a different signal in this band, and the height of each pip represents the relative amplitude or strength of that particular signal. The panoramic receiver provides a similar representation on the screen of a cathode-ray tube.

Panoramic reception is extremely useful, and a most interesting addition to the ham shack. Its versatility and importance speak for themselves. Anyone having had the opportunity to use a panoramic receiver is immediately convinced of its functional position in communications. In addition to its ability to scan a band of frequencies continuously, it provides an excellent means for checking transmitter modulation, whether a.m., f.m. or s.s.b. It is useful in checking transmitters for spurious and parasitic signals as well as key clicks. These checks can be made on the home rig and also on received signals.

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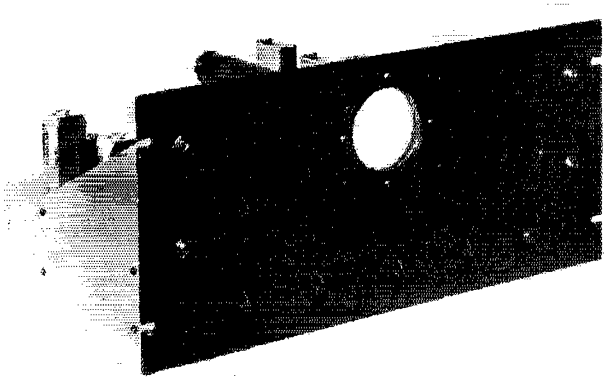
Principle of Operation

To obtain the graph of S-meter readings mentioned earlier, it was, of course, necessary to tune the receiver over the desired band. Since the tuning of h.f. amplifier stages is relatively broad, a limited band of frequencies might be covered with a superhet receiver by tuning only the h.f. oscillator. In the panoramic receiver, this tuning is done electronically through the use of a reactance tube. This tube acts like a variable inductance in parallel with the inductance in the oscillator circuit. When the grid of the reactance tube is driven by another (sweep) oscillator, its apparent inductance will vary continuously at a rate corresponding to the frequency of the sweep oscillator. Thus, the oscillator in the receiver will be swept back and forth over a band of frequencies. When the output of the second detector in the receiver is fed to the vertical plates of a cathode-ray tube (with horizontal sweep), the pattern on the screen will be similar to Fig. 1. The band of frequencies to be observed may be selected merely by tuning the receiver in the usual manner.

Using the communications receiver in this manner does not permit simultaneous aural and visual reception. A separate receiver might be provided for visual reception, but the most con-



A panoramic adapter with a 3-inch cathode-ray tube. Controls along the bottom of the panel, left to right, are for equalizer, scan-band width, horizontal size, and centering. Above to the left is the vertical-size control, balanced by the power switch on the right. Immediately below the c.r.t. are focus and intensity controls; above are two positioning controls.

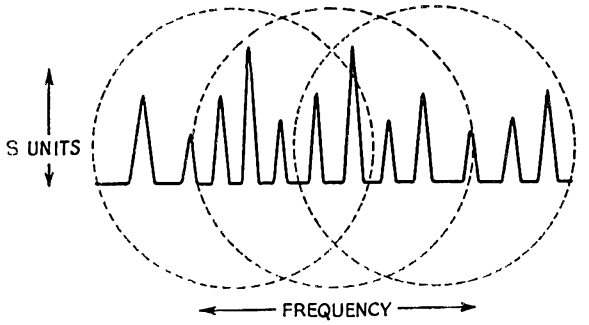


Fig. 1 — Graph that might be obtained by plotting receiver S-meter readings as the receiver is slowly tuned over a band of frequencies. The portions enclosed in the dotted circles represent the signals that might be "seen" on the screen of the panoramic adapter with the receiver tuning at three different settings.

venient (and least expensive) arrangement makes use of an adapter connected to the communications receiver. This has the advantage that the aural and visual signals are tuned simultaneously by the receiver tuning control. When adjusted normally, the signal heard in the aural channel will be centered in the visual scan band.

With this system, the 455-kc. i.f. signal is taken from the mixer output of the communications receiver, and fed to a separate converter in the adapter. The reactance tube works on the oscillator of this converter whose output is fed into an i.f. amplifier and detector which feeds the vertical plates of the cathode-ray tube.

This article describes such an adapter. It is designed to operate with any standard communications receiver of the superhet variety having an i.f. of 455 kc. plus or minus a few kc. The receiver to which the adapter is connected should preferably have one r.f. stage to give some image rejection, but the selectivity of more than one r.f. stage will decrease the portion of the spectrum that can be scanned satisfactorily. With a single r.f. stage, the response will be flat, or nearly so, over a range of plus or minus 100 kc. from the frequency to which the receiver is tuned, giving a total scan band of 200 kc.

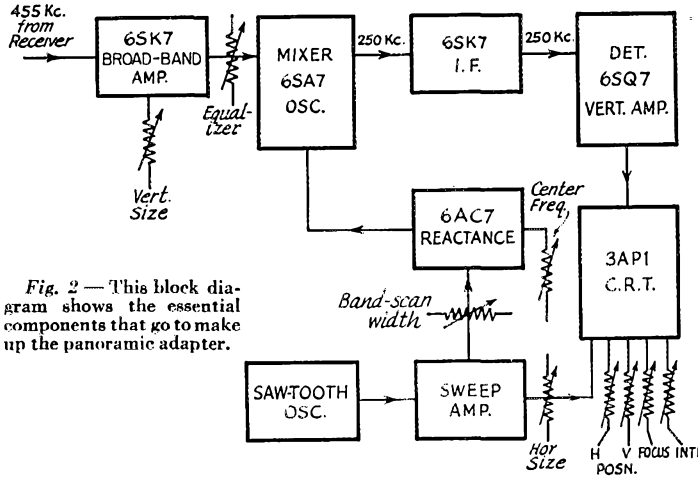


Fig. 2 — This block diagram shows the essential components that go to make up the panoramic adapter.

Basic Sections

The panoramic adapter has three basic sections — a heterodyne-receiver portion converting the 455-kc. signal from the receiver mixer to 250 kc., a reactance-tube and sweep-oscillator section for scanning, and a cathode-ray tube. Fig. 2 shows these sections in a simplified block diagram.

The various controls are shown in their positions relative to the block units. Vertical size (gain) is varied by changing the bias on the broadband stage. Horizontal size is controlled by varying the amplitude of the sawtooth voltage applied to the horizontal deflection plates of the c.r.t. The converter-oscillator frequency is centered on 705 kc. (to convert 455 kc. to 250 kc.) by adjusting the bias on the reactance-control tube. The scan width is set by varying the amplitude of the sawtooth wave applied to the reactance-tube control grid. Vertical position, horizontal position, focus and brightness are adjusted in the high-voltage bleeder circuit, as in many oscilloscopes.

Circuit Details

The circuit diagram of the panoramic adapter is shown in Fig. 3. The input signal is taken from the plate of the mixer in the receiver, using the coupling system shown.

The signals are amplified by V_1, a Type 6SK7 tube. This stage has bandpass circuits with adjustable shape characteristics. Roughly, the response is from 555 to 355 kc., with peaks near each end to help compensate for the attenuation at the ends of the band scanned, caused by the receiver's input selectivity. This attenuation varies from band to band on the usual communications receiver, so a unique connection of the second i.f. transformer, T_2, is used to vary the response characteristic as necessary to maintain an essentially flat over-all response. This adjustment is made by a single panel control on the 25K pot at T_2.

V_2, a 6SA7, is the oscillator-mixer. The signal input to the adapter is always between 355 and 555 kc., with a center frequency of 455 kc. To produce the adapter i.f. frequency of 250 kc., the oscillator section of the 6SA7 must sweep over the range from 355 + 250 = 605 kc. to 555 + 250 = 805 kc., or a center frequency of 705 kc. plus or minus 100 kc.

A 6AC7 is used as the reactance tube. It is connected across the 6SA7 oscillator inductance, L_1. The center frequency (705 kc.) is

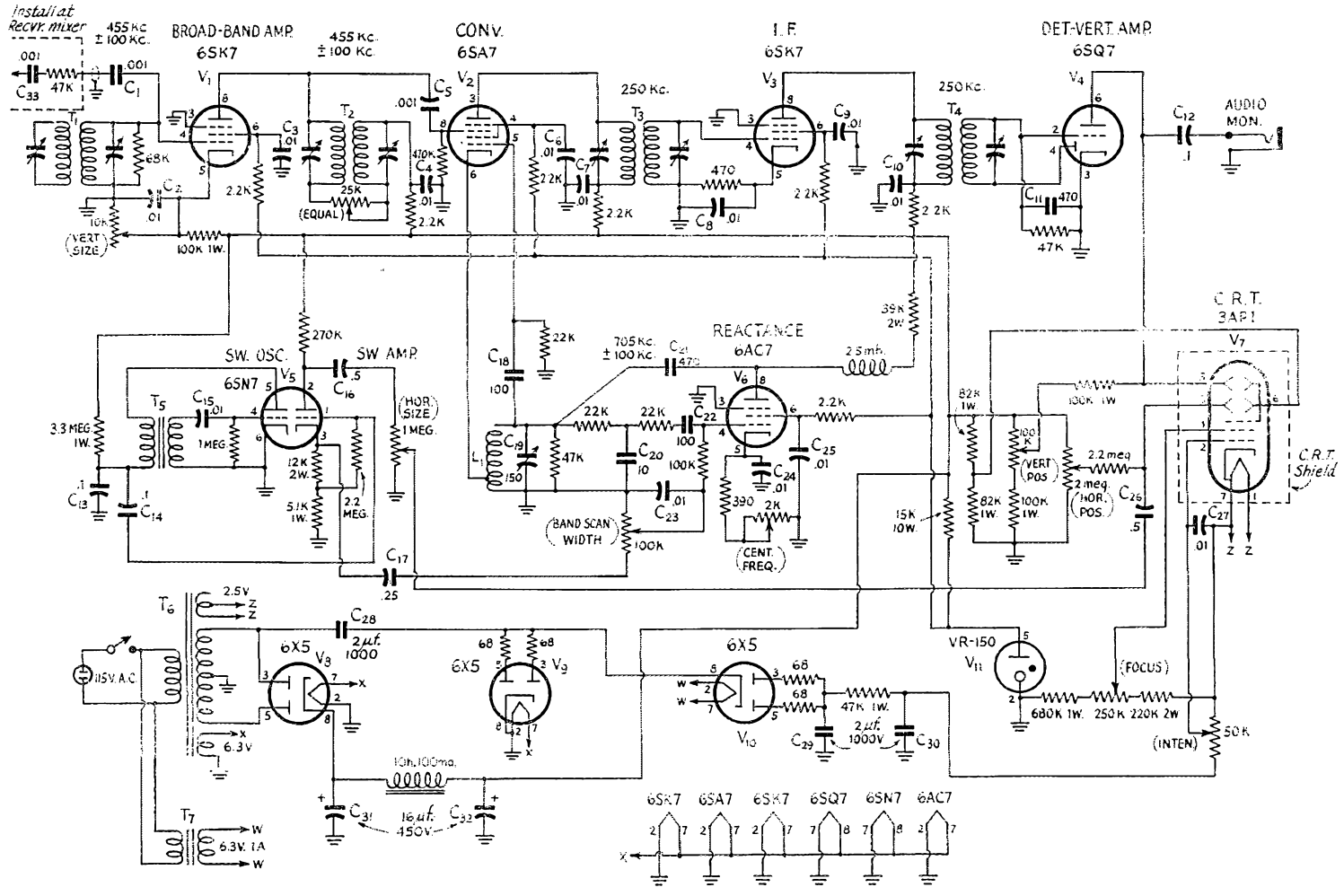

Install at Recvr. mixer
455 Kc. ± 100 Kc.
BROAD-BAND AMP.
6SK7
455 Kc. ± 100 Kc.
CONV.
6SA7
I.F.
6SK7
250 Kc.
DET-VERT. AMP.
6SQ7
250 Kc.
AUDIO MON.
VERT. SIZE
SW. OSC.
6SN7
SW. AMP.
HOR. SIZE
REACTANCE
6AC7
705 Kc. ± 100 Kc.
BAND SCAN WIDTH
CENT. FREQ.
C.R.T. 3AP1
C.R.T. Shield
VERT. POS.
HOR. POS.
FOCUS
INTEN
VR-150
115V A.C.
6X5
6.3V
6.3V. 1A
10h. 100ma.
16 μf. 450V
2 μf. 1000V
6SK7 6SA7 6SK7 6SQ7 6SN7 6AC7

Fig. 3 — Complete circuit of the panoramic adapter.
C_1, C_{11}, C_{18}, C_{20}, C_{21}, C_{22}, C_{33} — Mica.
C_{12}, C_{13}, C_{14}, C_{16}, C_{17}, C_{26} — Paper.
C_{28}, C_{29}, C_{30} — Oil-filled paper.
C_{31}, C_{32} — Electrolytic.
All other condensers may be either paper or disk ceramic.
All resistors ½ watt, unless otherwise specified.
L_1 — B.f.o. coil for 455 kc., or 1.1-mh. choke or coil tapped at 0.2 mh.
T_1, T_2 — Replacement 455-kc. i.f. transformer.
T_3, T_4 — Replacement 262-kc. i.f. transformer.
T_5 — Audio interstage transformer, 3:1.
T_6 — Power transformer: 350–0–350 volts r.m.s., 90 ma.; 5 volts, 3 amp.; 6.3 volts, 3.5 amp. (Stancor P-6012 or equivalent).
T_7 — Filament transformer: 6.3 volts, 1 amp.

adjusted accurately by varying the bias on the 6AC7. A 6SN7 is used as a sawtooth oscillator and amplifier which drives the grid of the reactance tube. The width of the band scanned is adjusted by a potentiometer. The sweep amplifier also serves as the horizontal sweep for the c.r.t. The amplitude (horizontal size) is adjusted by another potentiometer.

A 6SK7 and standard 262-kc. transformers are used in the i.f. amplifier. No difficulty was encountered in adjusting the transformers to 250 kc. A 6SQ7 is used as second detector and vertical-deflection amplifier. Direct coupling facilitates signal-level indication and modulation-percentage measurements.

Power Supply

The adapter's power supply uses three Type 6X5 tubes, V_8, V_9 and V_{10}, and a VR-150, V_{11}. They provide a negative high voltage for the cathode-ray tube, and a positive low voltage for the other tubes. The negative high-voltage supply employs a voltage-doubler circuit using two of the 6X5 tubes. One of the 6X5 (V_{10}) heater voltages is obtained from a separate filament transformer. This additional filament transformer is used so that the heater-to-cathode voltage rating is not exceeded, as it would be if the tube's heater were at ground potential.

The heater voltage for the 3AP1 cathode-ray tube, 2.5 volts, is obtained from one half of the 5-volt winding normally used for the rectifier tube.

A 6X5 is also used in the positive low-voltage supply, and it has its heater connected in common with the other tubes.

Construction

A standard relay-rack panel and chassis are used, because of their popularity and because this type of construction matches a great deal of existing equipment. The chassis is 11 by 17 by 3 inches, and the panel is 8¾ by 19 inches.

No particular attention has to be given to the chassis layout beyond ordinary receiver-construction practice. A cathode-ray tube shield for the 3AP1 is necessary for compact layout. To do without the shield, it would be necessary to locate the transformers and choke at some distance from the cathode-ray tube to minimize the effect of their magnetic fields on the electron beam.

The brightness and focus pots should be insulated. They are mounted on fiber brackets, just behind the panel, with insulated shaft extensions through the panel bushings.

The four controls grouped around the cathode-ray tube are for focus, brightness, horizontal position and vertical position. The equalizing

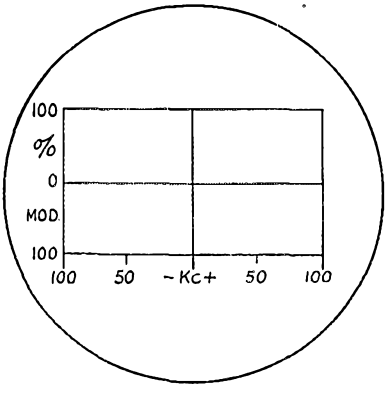


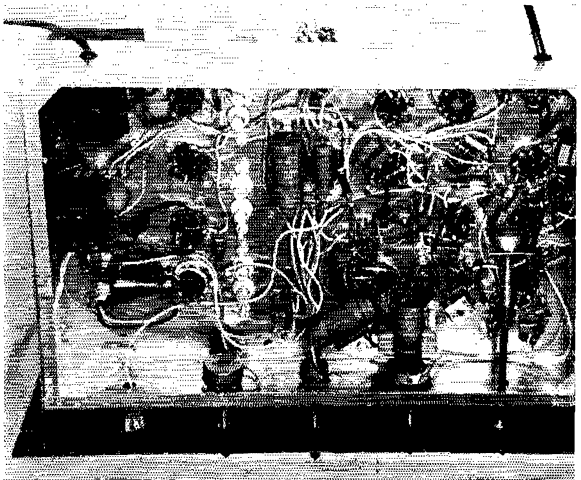
Fig. 4 — Calibrating scale for the c.r.t. of the panoramic adapter.

control is mounted as near its associated i.f. transformer as practical. It can be seen in the bottom-view photograph, at the right.

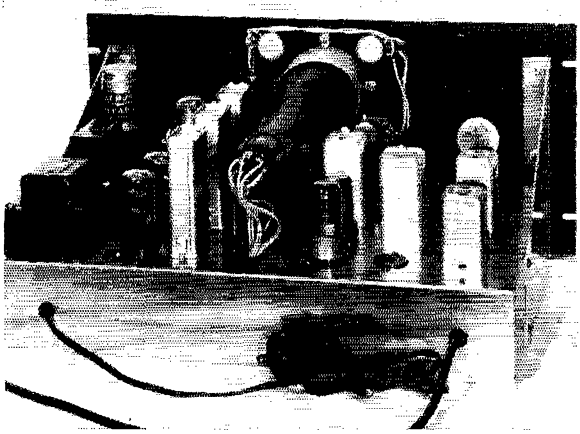
A scale or graph for the front of the c.r.t. can be constructed from thin lucite, similar to the one shown in Fig. 4. Accurate markings for modulation percentage should be made with the aid of a signal generator having the necessary calibration. For approximate modulation percentage measurements the screen can be assumed to be linear at low audio frequencies.

Installation

Most receivers do not have connections for panoramic adapters. If there is any objection to



Bottom view of the panoramic adapter. The equalizer control is to the right, mounted on a bracket close to T_2. To the left of the equalizer control shaft is the oscillator coil, L_1, and its tuning condenser, C_{19}. T_5 is to the left of L_1. To accommodate the c.r.t. length, the chassis is spaced 1½ inches from the panel.



Rear view of the panoramic adapter. The power supply is to the left and the r.f. section to the right. Along the right end of the chassis, from the rear, toward the panel, are T_1, V_1, T_2 and V_6. In the middle row are T_3 and V_2. In line along the c.r.t. are V_4, V_3, T_4 and V_5. The empty socket is not used.

the installation of a panoramic-adapter connector, connection to the mixer-tube plate can be made above the chassis by connecting C_{33} directly to the tube pin itself.

The installation of a connector is as follows: The connector is mounted on the rear skirt of the chassis and as near to the mixer tube as practicable. Any convenient type of coax connector will suffice. C_{33} and its associated resistor in series are connected to the mixer-tube plate right at the tube socket. A lead is run from the resistor to the jack. This lead should be of coax and be kept as short as practicable.

Alignment Procedure

For initial adjustment, allow receiver and adapter to warm up for 15 to 30 minutes.

The first step in alignment is to adjust the adapter's oscillator to 705 kc. A broadcast receiver can be used for this adjustment or, if the receiver to which the panoramic adapter is connected has a b.c. band, it may be used. Set the band-scan width control to zero, and the center-frequency control to midscale. Adjust C_{19} so that the oscillator frequency is 705 kc.

Adjust the vertical, horizontal, intensity (brightness), and focus controls for a trace on the cathode-ray tube. Adjust the horizontal size to extend the trace the width of the screen.

Alignment of the adapter's i.f. is simplified by the presence of its own cathode-ray tube and sweep circuits. Advance the band-scan width control 10 degrees to 20 degrees, and tune in any constant-carrier signal on the receiver to which the adapter is connected. A response curve will be seen on the c.r.t. This response curve is the characteristic curve of the adapter's i.f. amplifier. It is necessary to adjust the i.f. trimmers so that the response curve is in the exact center of the trace and to adjust them for the sharpest (narrowest) curve. The sharpness of this curve is a measure of the resolution of the adapter. The sharper the curve the closer the received signals can be in frequency and still be distinguishable.

Alignment of the adapter's front end is as follows: With the receiver tuned to any portion of its range that includes many signals (most of the amateur bands), set the equalizing control to maximum resistance. Adjust the vertical-size control so that signals are perceptible, and the band-scan width control near maximum. T_1 is then adjusted for maximum signal strength of signals in the center of the trace. Only one section of T_1 is used in the circuit. The other coil and trimmer have no effect and are disregarded.

Set the equalizer to zero resistance, and adjust one trimmer of T_2 for maximum strength of signals at one end of the trace, and the other trimmer of T_2 for maximum deflection of the signals at the other end of the trace. Rotating the equalizer will cause the point of maximum amplification to shift from the center to the ends of the swept band.

The approximate frequencies of the tuned circuits are: 455 kc. for T_1, and 355 kc. and 555 kc. for the two circuits of T_2.

Interpretation of Signals

An unmodulated constant carrier appears as a deflection of fixed height, as shown in A of Fig. 5.

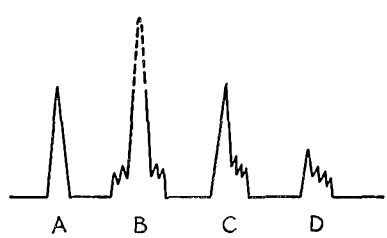


Fig. 5 — Pips on the panoramic screen indicate signal characteristics. A — Constant carrier. B — Double-sideband a.m. C — S.s.b. with carrier. D — S.s.b., suppressed carrier.

An amplitude-modulated carrier appears as a deflection of variable height. Voice or music modulation causes the height of the deflection to vary irregularly. At slightly reduced sweep width a constant tone modulation of low frequency will produce a raggedness along the sides of the pip. As the modulation frequency is increased, sidebands become distinguishable. When the modulation frequency is further increased, it is possible to separate the sideband pips from the carrier

(*Continued on page 116*)

A Broad-Band Bandswitching Converter/Preselector

Improved Performance and Extended Tuning Range for Surplus Receivers

BY ROBERT F. LATTER,* W2YFM

• Here is a good design for a converter that will extend the range of a war-surplus (or other) receiver to include the 21- and 28-Mc. bands, and also act as a preselector on 14 Mc. if your receiver is deficient there.

THIS article describes the construction and line-up procedure of a two-tube broad-band bandswitching converter/preselector of simple design that permits the reception of 21- and 28-Mc. signals on receivers whose highest frequency coverage is limited to about 18 Mc. It also serves as a preselector for the 14-Mc. amateur band. While designed primarily for use with the BC-348, it also has application for many other popular surplus military receivers, as well as commercial models whose performance on the 14-, 21-, and 28-Mc. bands leaves much to be desired from the standpoint of stability, sensitivity, signal-to-noise ratio, and image rejection.[1]

The author uses a BC-348Q (purchased new in 1946) that has been modified to include an a.c. power supply, S-meter, noise limiter and connections for a BC-453 "Q5-er." Basically, it is an excellent receiver both electrically and mechanically, and with the help of these modifications gives performance equal to or better than commercial receivers priced many times its original cost. It does not, however, cover the 21- or 28-Mc. amateur bands and, in spite of a recent alignment, lacks sufficient gain for optimum performance on the 14-Mc. band.

The converter/preselector is intended to eliminate the above limitations and was built with the following objectives in mind:

1) Simple operation and construction. This requirement was met by a bandswitching design incorporating only two tubes and seven tuned circuits.

2) High signal-to-noise ratio and high gain. This unit uses a 6BH6 pentode r.f. stage and a 6U8 mixer-oscillator. Because of the high gain of these tubes, any need for an additional amplifier at i.f. frequencies is eliminated. In this frequency range, the signal-to-noise characteristics compare favorably with other special designs.

3) High stability. This was met by using a fairly high-C Colpitts oscillator with grounded cathode, with the plate voltage supplied from a regulated source. Coupling to the mixer section of the 6U8 is through tube and circuit capacity only, resulting in negligible oscillator "pulling."

4) Ease of alignment with simple tools. The author aligned the unit using only the BC-348 receiver and a Hammarlund 100-kc. crystal frequency standard.

The Circuit

Reference to the circuit diagram, Fig. 1, shows that the oscillator is disabled with S_2 in the 14-Mc. position, to permit the unit to operate as a preselector on that band. The oscillator operates on 18 Mc. for both 21- and 28-Mc. reception. The plate load of the 6U8 mixer is a 10,000-ohm carbon resistor. As this resistor is not frequency selective, a little mathematics will show that the 28-Mc. band can be covered by tuning the receiver from 10 to 11.7 Mc. and the 21-Mc. band by tuning from 3 to 3.45 Mc. Thus the correct frequency at any dial setting is simply 18 Mc. plus the receiver dial reading. The 14-Mc. band is covered by tuning from 14 to 14.350 Mc. since the unit operates as a straight amplifier on this frequency. The choice of 18

* 1 Pine St., Delmar, N. Y.

[1] This assumes that the receiver has better stability and signal-to-noise ratio on its lower frequencies, which is usually the case.

♦

This broadband converter/preselector is intended for war-surplus receivers that only tune as high as 18 Mc. The unit serves as a preselector on 14 Mc. and as a converter on 21 and 28 Mc. The power supply is included on the same chassis.

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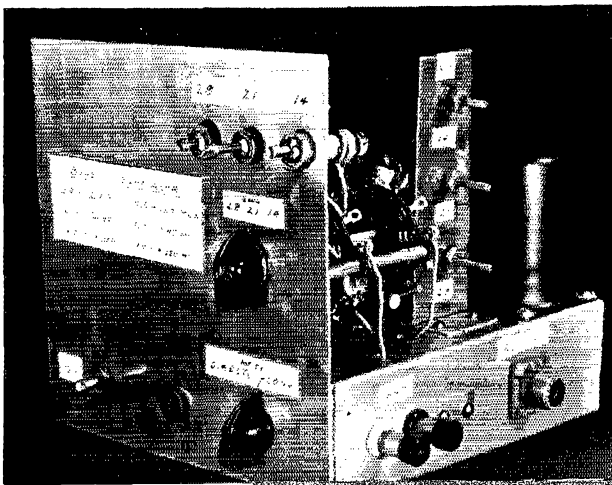

Mc. as the oscillator frequency is arbitrary. It was made because of the band divisions of the BC-348 (i.e., it is inconvenient to have to switch from Band 4 to Band 5 in the middle of the 28-Mc. range, for instance), and because it is reasonably simple to construct a stable self-controlled oscillator at this frequency. In addition, the oscillator can easily be aligned and checked for proper operation with the receiver.

The circuit is quite conventional and is a modification of a single-band mobile design that appeared in *CQ* magazine.[2] The switch S_1 switches the antenna to the converter/preselector and the output to the receiver, or permits the antenna to be switched directly to the receiver for reception on the lower-frequency bands. The other switch, S_2, switches bands and disables the triode section of the 6U8 on 14 Mc. A switch with three positions could be used; however, the unused positions are handy to use as wiring tie-points. In the author's model, a swamping resistor of 10,000 ohms (R_1) was used across L_3 on 14 Mc. to eliminate a tendency toward instability. The value of this resistor, if required, should be determined by experiment as indicated in the line-up instructions. The gain reduction caused by the resistor is small.

It is important that the converter output be fed to the receiver through coaxial cable, to minimize QRM from signals at the i.f. frequencies. It is advisable to reduce this effect further by mounting a coaxial fitting on the receiver in place of the antenna terminals. In the converter, ground leads should be connected together on a stage-by-stage basis, with the stage grounds connected by one heavy lead, to avoid unwanted oscillations and poor rejection of direct i.f. signals, since different parts of the chassis may not be at the same a.c. ground potential. Since we used surplus forms not generally available, coil values for ⅜-inch CTC forms are given in Fig. 1.

Power requirements are small enough so that, in many cases, the receiver supply can be used. However, the author's model used a separate regulated supply, as shown in Fig. 2, as the components happened to be on hand. Alternatively, a much simpler selenium-rectifier *RC*-filter supply might be used.

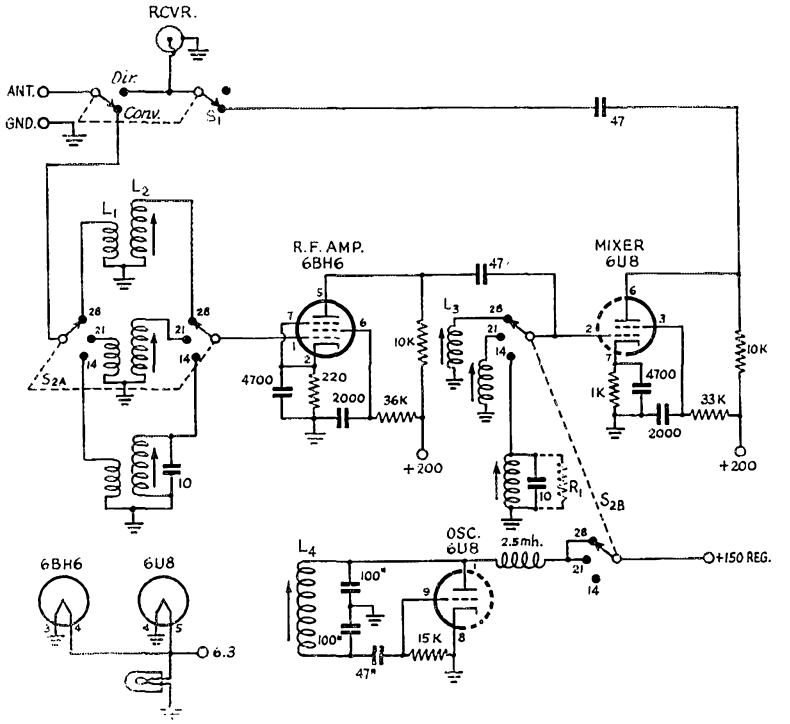

Fig. 1 — Circuit diagram of the broadband converter/preselector. Capacity values in μμf., and all are ceramic except (*), which are silver mica. Resistors, ½ watt.

R_1 — See text.

L_1 — Wound over ground end of L_2. L_1, L_2, L_3 and L_4 wound on CTC LS5 (⅜-inch diameter) slug-tuned forms. L_1 wound with No. 20 push-back hook-up wire — other coils No. 24 enam.

Band	L_1	L_2	L_3	L_4
14 Mc.	3 t.	25 t.	24 t.	—
21 Mc.	2	20	17	14 t.
28 Mc.	2	18	16	14

S_1 — 2-pole 2-position rotary switch (Centralab 1473).

S_2 — 4-pole 4-position 2-gang rotary (Mallory 1345 I, with two center gangs removed).

Construction

Photographs of the unit show the physical layout. Since it was built with many "junk box"

[2] Scherer, "The W2AEF Converterettes," *CQ*, May, 1953.

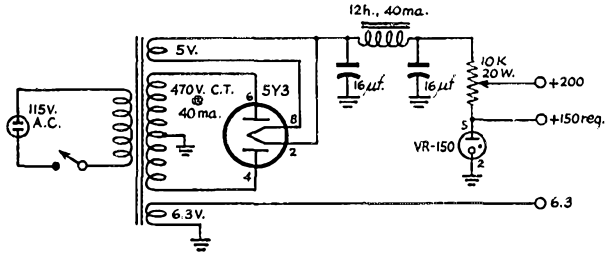

Fig. 2 — Diagram of a suggested power supply for the converter/preselector.

parts previously used for a 28-Mc. converter, this is not intended to represent the best mechanical layout, particularly from an appearance standpoint.

The 6BH6 and 6U8 are mounted on a small 3 × 2½ × 2-inch subchassis that is wired as a separate unit. The switches, coils and power-supply components are mounted on a 7 × 7 × 2-inch chassis, with a 7 × 7-inch panel. The 6U8 mixer coils are mounted horizontally on a 1 × 4-inch vertical strip of heavy-gauge aluminum at the rear of S_2. They are at right angles to L_1 and L_2 which are mounted on the front panel. All coils and switch decks are placed to reduce wiring distances to a minimum. Silver-mica condensers are used in the oscillator circuit to minimize drift.

Adjustment

The line-up procedure is simple and straightforward. The first step is to make certain that the voltages applied to the unit are correct as shown on the circuit diagram and that the VR tube is operating within its proper current range. If a grid-dip oscillator is available, check all tuned circuits (with the unit turned off) to be sure that the coils will tune to the desired frequencies. If one is not available, as in the author's case, the unit can be aligned using only the BC-348 (with S-meter) and a 100-kc. frequency standard.

Check the frequency standard against WWV to see that it is correct, and then tune the receiver to the 14.1-Mc. harmonic of this oscillator. Switch the converter to the 14-Mc. position. Couple the 100-kc. oscillator as loosely as possible to the unit through a small condenser to obtain a reading on the receiver S-meter. Adjust the 14-Mc. L_2 and L_3 for maximum reading. If any tendency toward oscillation is noticed, connect a swamping resistor of about 10,000 ohms across L_3. Use the largest value possible consistent with stable operation. Next check the amplitude of each 100-kc. marker across the 14-Mc. band.[3] The response can be flattened, if necessary, by stagger-tuning L_2 and L_3 or decreasing the value of the swamping resistor. In many cases it will be necessary to detune the receiver r.f. stage with the antenna trimmer condenser or otherwise reduce the converter/preselector output to prevent overloading the receiver.

Next switch the unit to 21 Mc. Tune the receiver to exactly 18 Mc. using the 100-kc. frequency standard as a guide. Then tune the converter oscillator by adjusting L_4 until it can be heard at this frequency. If the oscillator will not tune to this frequency, change the turns on L_4 until it will. If the oscillator is operating correctly, the note should be pure d.c. with no spurious signals at other frequencies. Next, tune the receiver to 3.2 Mc. to pick up the 21.2-Mc. harmonic of the 100-kc. oscillator. As before, couple the unit to the 100-kc. oscillator as loosely as possible with a small condenser to obtain a reading on the receiver S-meter. Tune the receiver a little higher than 3.2 Mc. and adjust the oscillator slug (L_4) a fraction of a turn until a signal is heard. This will be the desired 21.2-Mc. signal, and this procedure is necessary to insure that the receiver is not picking up the 3.2-Mc. harmonic of the 100-kc. oscillator directly. Next, adjust L_2 and L_3 for maximum signal. Check the 100-kc. markers over the entire band to see that the response is reasonably flat.

The alignment of the 28-Mc. band is similar to the above except that the receiver is tuned to 10.6 Mc. for a 28.6-Mc. signal. If difficulty is experienced in obtaining a definite although broad peak when tuning L_2 or L_3, one or both must be rewound. Unless they are far from the correct value, the S-meter can be used to determine if turns should be added or subtracted. If in doubt when constructing the unit, it is better to err on

(Continued on page 118)

[3] The difference in amplitude of these successive high-order harmonics is negligible.

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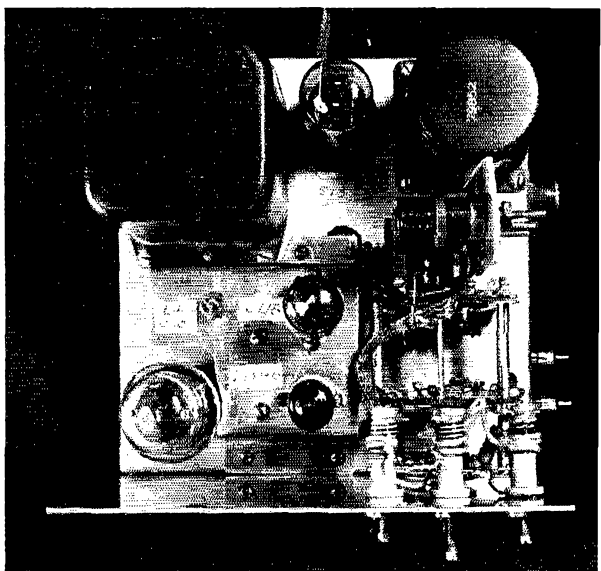


A top view of the preselector/converter. The oscillator tuning adjustment can be seen to the left of the 6U8 mixer-oscillator.

♦

The Tin Can Low-Pass

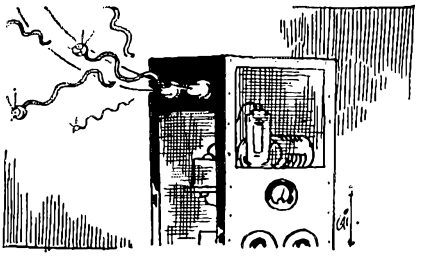
An Inexpensive Filter for the Novice

BY LEWIS G. McCOY,* W1ICP

• The accepted correction for TVI troubles where the transmitter is at fault is to "bottle up" the transmitter in a shield and couple out through a low-pass filter. In this article, W1ICP shows how simple and inexpensive it is to build a low-pass filter that will handle the output of a 75- or 100-watt transmitter from 80 through 15 meters.

IN traveling around the country, giving talks on TVI, the writer was rather surprised to find that many amateurs, particularly newcomers, shied away from building their own low-pass filters because they felt the task was beyond their technical ability. Actually, a low-pass filter is one of the easiest construction jobs that an amateur is likely to encounter. In addition, one can usually save considerably on the green stuff by building his own. The unit described in this article was built at a cost of less than fifty cents.

Before getting into a description of the actual construction of the filter, a few words are in order to explain what a low-pass filter is and what it will do. As we know from studying the questions in the *License Manual* for the Novice and General Class examinations, we don't want to radiate any spurious signals from our transmitters. When these spurious signals are harmonics or parasitic oscillations that fall in the television channels they can cause TVI plus the consequent headaches involved with maintaining good neighbor rela-



tions. Our problem is then one of keeping these harmonics from radiating. This is where a low-pass filter does yeoman duty.

A low-pass filter is a coil-condenser combination that, when properly installed on a transmitter, will pass all signals lower than its designed "cut-off frequency" while attenuating all other signals. In other words, let's assume we have a transmitter operating in the 80-, 40-, and 15-meter Novice bands. We want the signal from the band being used to go from the transmitter to the antenna and be radiated. However, we *don't* want harmonics or spurious signals higher than 21 Mc. to reach the antenna or the feedline. The answer is to install a low-pass filter at the transmitter output that will pass the 80-, 40-, and 15-meter signals while attenuating all higher frequencies. The filter shown in the photograph and at Fig. 1 is just such a device.

* Technical Assistant, *QST*.

Construction

The box shown in the photograph was made from metal taken from two No. 2 tomato cans. This metal is an excellent material for making a small radio chassis or shield can. It is easy to

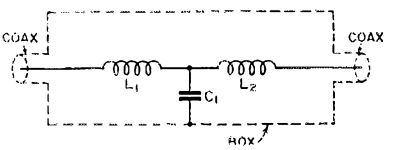


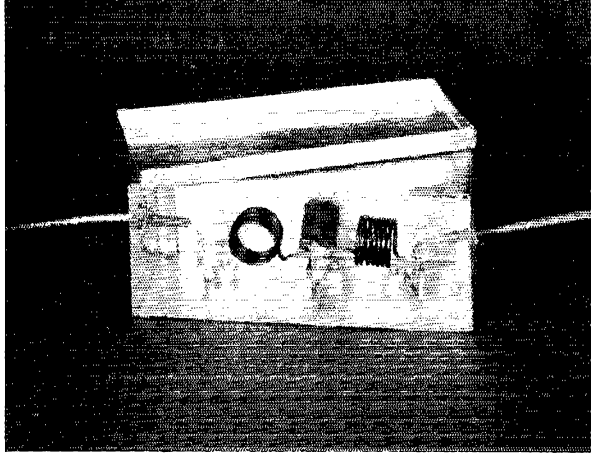
Fig. 1 — Circuit diagram of the low-pass filter. C_1 — 220-$\mu\mu$f. mica, ± 5 per cent tolerance. L_1, L_2 — See text.

bend and form small boxes from the metal found in "tin can" food containers. This metal is thin, and holes (for mounting tie points, etc.) can be punched out with a nail or ice pick. Also, the tin coating on the metal takes solder very easily. For construction, all one needs is a pair of tin snips, a soldering iron, and a supply of tin cans.

The dimensions of the box for the filter are 1¾ × 1¾ × 4 inches. Four pieces of metal are needed; one piece for the bottom and sides, 5¼ × 4 inches; two end pieces, 2¼ × 2¼ inches; and the top, 2½ × 4½ inches. The 5¼-inch length of the large piece is scribed off into three 1¾-inch sections. If a vise is available the piece of metal is clamped between two pieces of wood and then bent to form one side of the box. A metal straightedge or another piece of wood can be used to bend the tin to form a right angle. The piece is then clamped so that the remaining side can be bent. If a vise isn't available, a satisfactory job can be obtained by holding the piece of tin firmly between two boards and then pressing the metal against a flat surface until a right angle is formed.

The ends of the box are made up with a ¼-inch lip so that there will be plenty of soldering surface available when the ends are attached to the box. The top is made with a ¼-inch lip for the same reason. When soldering the ends to the box, be sure the iron is hot enough to insure good connections.

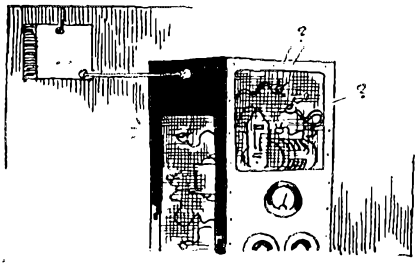
A ¼-inch hole is drilled or punched in the center of each end of the box to accommodate



View of the filter showing how the coils are mounted on the tie points. The condenser, C_1, is visible behind the center tie point.

the coax leads to and from the filter. To avoid bending the box out of shape, a small block of wood should be held against the other side of the piece being drilled. Three tie points are needed to hold the coils and the condenser in place. The tie points used in the installation shown here are the single-terminal bakelite strip type selling for about three cents each. Three holes are needed on one side of the box to accommodate the 6-32 screws for holding the tie points.[1] The placement of the holes will depend on the type of tie point used, but in any case, they should be placed so that the coils, L_1 and L_2, will be spaced about one inch apart and centered in the box. Remember to hold a piece of wood under the side of the box being drilled to avoid bending the metal.

The coils are made of No. 16 enamel-covered wire. Each coil is 7 turns, ½-inch inside diameter and ½ inch long. Any solid ½-inch diameter object, such as a drill bit shank, wooden dowel rod, etc., can be used as a winding form. Be sure



to leave an inch or so lead length at the coil ends for mounting on the tie points.

Wiring

As can be seen in the photograph, the coils are mounted at right angles to each other to avoid undesired coupling. Before mounting the coils on the tie points, be sure to scrape the enamel from the wire where it is to be soldered. (Many beginners find themselves in trouble here because they don't know that paint or enamel covering should be removed from wire before one can solder to it!)

[1] Or the tie points can be fastened to the metal by soldering. — Ed.

One lead of the condenser, C_1, is soldered to the bottom of the box directly below the center tie point. The other condenser lead is connected to the center tie point along with two coil leads. Keep the condenser leads short; about ¼ inch will suffice.

The two end tie points serve as a junction point for the coil ends and the coaxial cable inner conductors. Many amateurs use coaxial cable, commonly referred to as "coax," for connecting the filter to the transmitter and the antenna or antenna coupler. There are four types of coax commonly used by amateurs: RG-8/U, RG-11/U, RG-58/U, and RG-59/U. Any of these types will work with the filter. The coax used in the filter shown is RG-59/U because it is cheaper and easy to handle. However, the filter is *not* designed to work with 300-ohm Twin-Lead, or for that matter, any balanced line. This doesn't mean that you can't use Twin-Lead to feed your antenna and still use a low-pass filter. When we discuss the filter installation we'll show you how to use Twin-Lead if you wish.

To connect the coax to the ends of the coils, the following procedure is followed: About two inches of the vinyl covering is removed from one end of the coax, then the outer conductor braid is trimmed back to a point about ½ inch from the vinyl covering. Enough of the covering around the inner conductor is removed to permit a connection to the tie point. The end of the cable is then fed through the hole in the end of the filter box up to the point where the vinyl covering begins. The ½ inch of outer conductor braid is then spread out around the hole and soldered in place. Do this carefully, as too much heat will melt the covering of the inner conductor, causing a shorted cable.

The same procedure is followed at the other end of the filter. Coax fittings can be installed on either end of the filter, but they, of course, add to the cost of the unit.

Installation

For a filter to work properly, the radio signal should flow *through* the circuit, not around it. In other words, if we want the filter to attenuate harmonics, we must keep the harmonics inside the coax and inside the filter box. This means

the filter must be attached to the transmitter properly. This is shown at Fig. 2. At (A), the wrong way to install the filter, the coax is connected to the link on the final amplifier of the transmitter with no shielding being used on the rig. The harmonics, indicated by arrows, radiate from the transmitter and flow on the outside of the coax line and over and around the filter to the antenna. In this case, the filter doesn't help the situation in the slightest. However, at (B) the harmonics are confined inside the transmitter

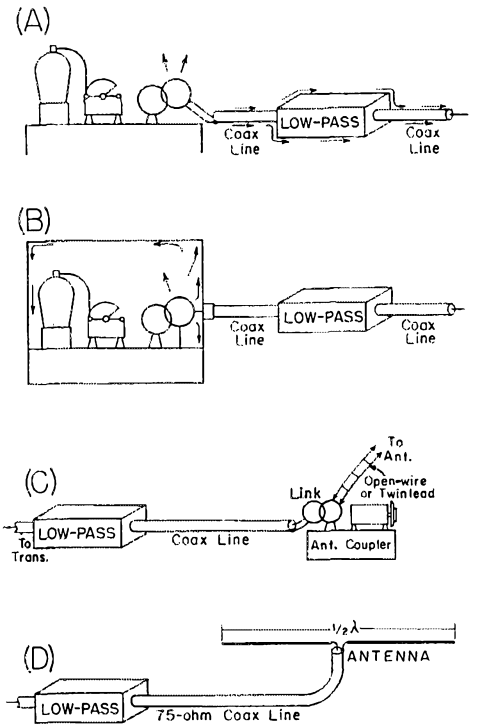


Fig. 2 — At (A) we see the wrong way to connect a filter and coaxial line to a transmitter. The harmonics flow over the outside of the cable, over the filter, to the antenna, and can be radiated. At (B) the harmonic energy is confined inside the transmitter and can only flow through the cable and inside the filter.

At (C) and (D) we see two methods of connecting the low-pass filter to the antenna system.

and they must flow through the coax to the filter. In this way they are attenuated and never get a chance to reach the antenna. You will notice that, in this case, the coax is connected to the back panel of the transmitter, making a good tight connection. This is usually done by installing a male coax connector, 83-1SP, on the coax cable coming from the filter, and a female connector, 83-1R, on the transmitter. When mounting the socket on the transmitter, be sure to clean any paint from around the mounting point. Incidentally, the filter can be inserted in the coax line in either direction; in other words, the input and output characteristics of a filter are the same.

Coupling to the Antenna

In the average station the coax lines between the transmitter and filter and between the filter and antenna coupler (if one is used as described below) probably will be quite short. It is preferable to use the minimum possible length between the transmitter and filter; the other length is not so important because there will be very little harmonic energy in the line on the "output" side of the filter. If the length to the antenna coupler is not more than a few feet the coupler can be tuned in just the same way as before installing the filter, although the settings may differ. Longer lines may require "matching," a subject that is beyond the scope of this article but which is covered in the *Handbook*.

There are two generally used methods for connecting a filter to the antenna system. The first is to connect the output of the low-pass to an antenna coupler as shown at Fig. 2C. In this case, the coax is connected to the link on the antenna coupler, and the coupler is used to couple the antenna to the link. This system has the advantage of offering additional harmonic attenuation because of the additional circuit tuned to the output frequency. Also, the feedline to the antenna can be 300-ohm Twin-Lead, open-wire line, or for that matter, practically any type of transmission line.

At Fig. 2D, we find the low-pass filter connected directly to a half-wave antenna via a 75-ohm coax line. A half-wave antenna offers a pretty good match for 75-ohm line, and this system will work well for those amateurs using such an antenna.

If greater harmonic attenuation is needed, it is suggested the reader study the BCI-TVI chapter of *The Radio Amateur's Handbook*. Several filters are described there that will furnish considerably more attenuation than the "Tin Can." However, for most Novice installations, the filter described here will be more than adequate.

Strays

Research by W1YYM concerning the "17,000 db." Stray on p. 15, August *QST*, reveals the figure to be a power gain of 10^{1700} — the numeral 10 followed by 1700 zeroes, a number which would be approximately seventeen *QST* pages wide.

—···—

W4s SMU TZT MPA and KZF are experimenting with facsimile down Kentucky way. Their first successful on-the-air test took place in June using type RC-58-B gear for local QSOs on the 11-meter band. W4SMU would like to hear from other facsimile enthusiasts with a view toward trying skip schedules when propagation conditions are favorable.

A Low-Cost Gallon

Making the Most Out of Very Little

BY A. W. ANTHONY, JR.,* W1CTE

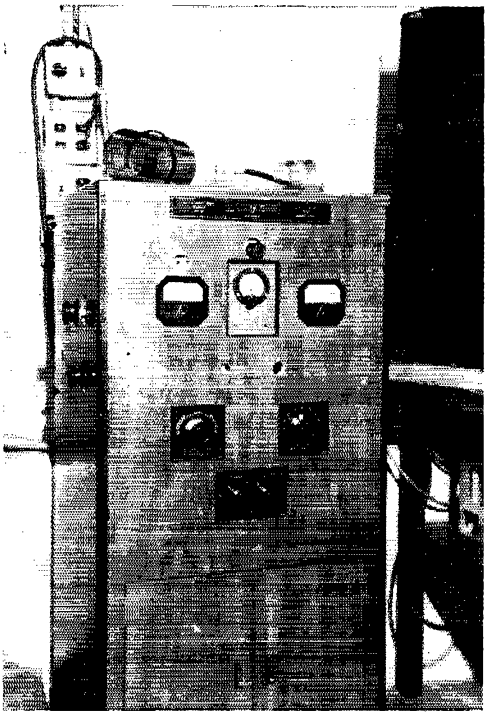
• Although the unit discussed here will probably not be widely duplicated, this story by W1CTE will serve to point up the idea that an alert ham often can find exceptional bargains in unsuspected places.

FORTY BUCKS for a kilowatt final? "Nuts to that!" you say. And well you may. However, here's the story of one, largely built from obsolete and surplus materials. If you're willing to snoop around a bit here and there, it's quite likely that you, too, can come up with an equal bargain.

About two years ago, most diathermy machines in use were made obsolete by FCC rulings. The writer was able to buy a lot of eight of these for $80, including over a bushel of cables, pads, cauteries and the like. These were by seven different manufacturers, and were completely different in all respects, including the tubes. Some used raw a.c. on the plates, while others had rectified, but unfiltered, d.c. (One even had grid-controlled rectifiers.) All were sturdy and well made, and were electrically OK. Nearly all have gone into ham use, chiefly as power supplies.

The largest one of the lot fired the writer's imagination. Its nameplate read, "Ultra Short-Wave Generator — Wavelength 6 Meters — 50,000,000 Cycles!" Impressive in appearance, it was 22 inches wide, 16 inches deep, and stood on casters, with the top of its walnut case 45½ inches from the floor. It weighed about 250 lbs.

* 29 Grey Birch Terrace, Newtonville 60, Mass.



A 1-kw. push-pull amplifier made from an obsolete diathermy machine that was picked up for ten dollars.

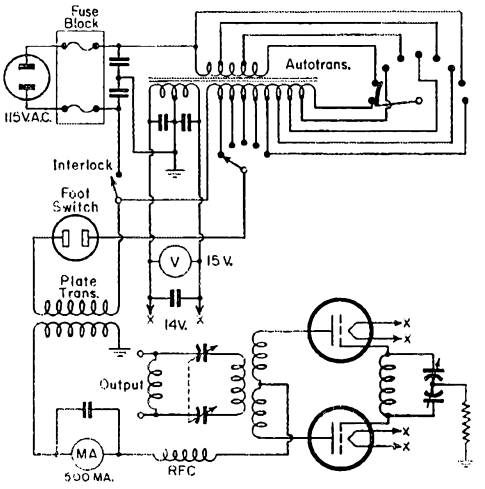


Fig. 1 — Typical high-power diathermy circuit. Some types include rectifiers.

Inside were two big bottles — WL-460s (not listed in the ARRL *Handbook*) — two heavy transformers, and an odd assortment of other components. When the thing was plugged in and turned on, it put out very hot 50-Mc. r.f. (horrible-sounding in the receiver).

First, Westinghouse was queried for dope on the WL-460, and they very kindly sent a leaflet although the tube is no longer made. It showed: Maximum d.c. plate volts, 3000; maximum plate ma., 200; plate dissipation, 150 watts; maximum frequency, higher than needed. The project looked brighter; maybe can do!

Power Supply

A closer examination of the power supply and the schematic (see Fig. 1) found in the instruction book really did it. One of the transformers turned out to be a combination filament transformer for the big tubes, and an autotransformer with two tap switches for adjusting both line voltage and primary voltage to the plate transformer. The latter was of about 1 kva. rating, and its

r.m.s. output voltage could be varied from 900 to 2500 volts by means of the autotransformer.

Since the plate transformer had no center tap, a bridge rectifier using four 866As was required. These and their filament transformers were included in a filter unit placed in space available in the bottom of the cabinet. Well-insulated leads were brought down to this unit from the main deck above.

A small bias supply,[1] powered from the 10-volt winding on the autotransformer, and a tapped series booster transformer to increase the a.c. output of the plate transformer by 200 to 850 volts were also placed in the bottom of the cabinet.

The primary of the plate transformer in this diathermy rig could be turned on and off by a foot-operated switch that plugged in at the rear of the cabinet, as well as a panel switch. This same plug and cord now go to a relay controlled by the send-receive switch. There's also a mechanical interlock preventing application of plate power until the filament switch is on full.

R.F. Circuit

The original r.f. circuitry was the utmost in simplicity — merely one coil of very few turns of copper tubing between the plate caps, and another coil of smaller tubing between the grid caps. There was also a very small variable of special design. Alas, no use has yet been made of these coils! However, the very simplicity suggested the major strategy behind the conversion. A horizontal partition, with clearance holes for the tubes, was made to fit the cabinet, and placed at a level about halfway between the grid and plate caps of the tubes. The grid and plate tank circuits were then mounted on this partition,

Rear view of the amplifier. The shielding partition between grid and plate tank circuits is a sheet of plywood covered with aluminum foil. Neutralizing condensers are pieces of coax cable.

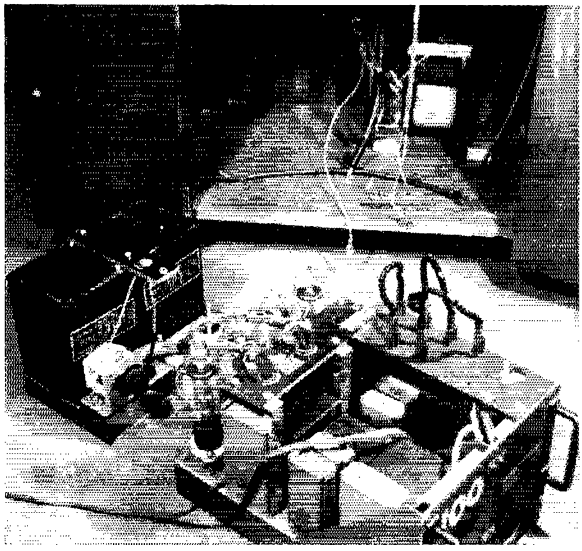
plate circuit above, and grid circuit below. Just to see how this arrangement might work out, a partition was made of plywood wrapped in aluminum foil purloined from the XYL's department — and it's still there!

About this time, W1FTH consulted with us, thought it was nuts, and said so. But, anyway, he was good enough to sketch a feasible circuit diagram.[2] Little by little, components were dug up and fitted in. B & W coils — BVL for the grid and HDL (or HDCL) for the plate — and a couple of nondescript split-stator condensers from the junk box made up the tank circuits. Since there wasn't enough room to run the condensers fore-and-aft, they were placed with their shafts parallel to the panel, with their control knobs at the side of the cabinet. Short pieces of carefully-trimmed coax cable are used as neutralizing condensers, and are plugged into jack-top feedthrough insulators mounted near the tubes.

(*Continued on page 118*)

[1] Bias circuit is essentially a combination of Figs. 7-17B, 7-19B, and 7-20 in 1953 ARRL *Handbook*.

[2] R.f. circuit is essentially the same as Fig. 6-25C in 1953 ARRL *Handbook*.



A bridge rectifier and filter was added to the original power equipment. Space is available in the bottom of the cabinet.

A Civil Defense Control-Station Transmitter

Part II — R.F. Section and Filters

BY PHILIP S. RAND,* W1DBM

In August *QST* the special problems encountered in c.d. communication were discussed, and a solution in the form of a transmitter designed especially for this work was outlined. The power supplies and speech equipment were described in detail. In this portion, the construction and adjustment of the r.f. section are covered, and the interference-prevention measures included in the station are described.

Reviewing briefly, the r.f. portion of the transmitter consists of separate units for each of three bands, 50, 28 and 144 Mc., with provision for selection of any of four net frequencies without retuning adjustments of any kind. The r.f. assemblies are mounted side by side on a large chassis that contains all the cabling, metering and switching circuits. The entire r.f. assembly is housed in a case of perforated aluminum and provided with power cable filtering to prevent TVI and other forms of interference that might result from spurious radiations. The 50-Mc. r.f. section, described herewith, is shown in the rear-view photograph, mounted in place on the main chassis. For details of the external shielding, see the second photograph appearing in the first installment. The complete r.f. schematic diagram is shown in Fig. 3.

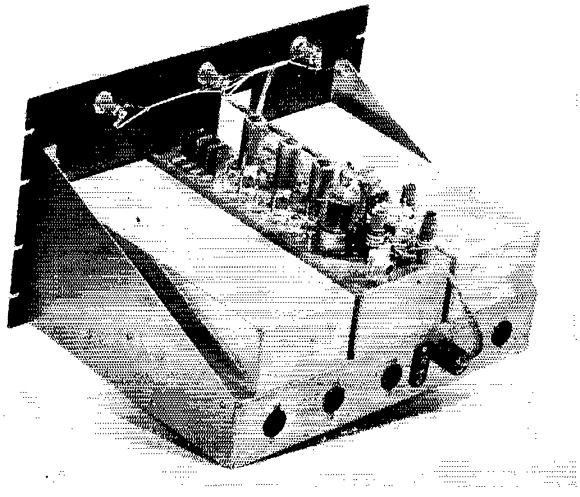
R.F. Circuitry and Design Features

Four pretuned c.d. frequencies in the 50-Mc. band are selected by means of the channel switch. This changes crystals and selects the proper pretuned coil in the plate circuit of each stage. To keep spare tubes needed at a minimum, the same type of tube (5763) was used in each of the low-powered stages. The oscillator uses crystals between 5.5 and 6 Mc., in a modified Pierce circuit. Two tripler stages follow, the second driving a 6146 amplifier on 50 Mc., with grid current to spare. A potentiometer in the screen circuit of the second tripler provides drive control. It is adjusted to about 3 ma. grid current in the 6146 stage.

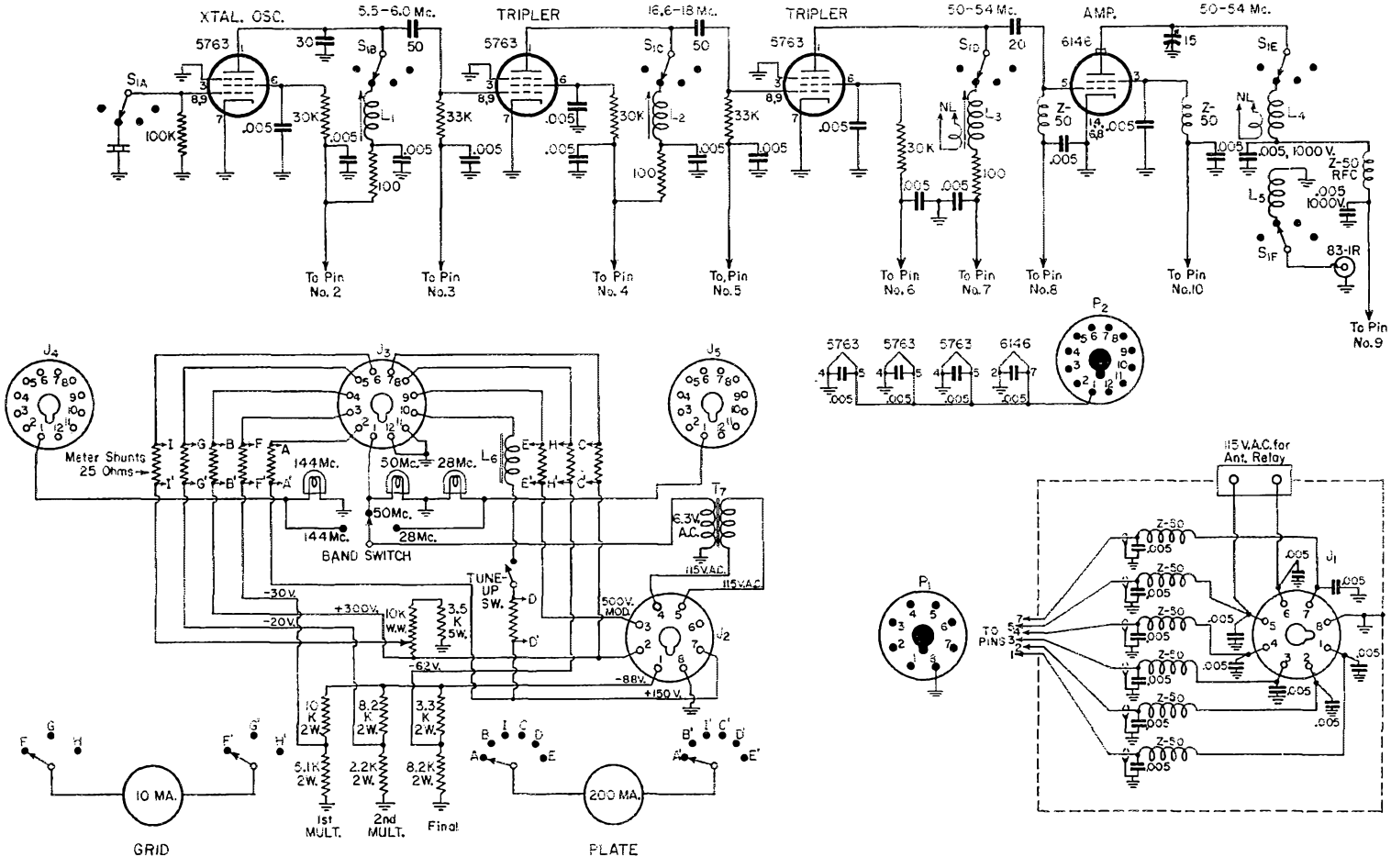
The crystal-oscillator circuit shown was chosen for its ease of adjustment and reliability, and because crystals in this frequency range are inexpensive and readily ground to a specific net frequency. Entirely satisfactory operation of the transmitter could have been achieved with fewer tubes, obviously, but the arrangement shown makes possible duplication of the tube line-up in the 2-meter r.f. section. Stage functions may be altered, but the metering circuits remain the same.

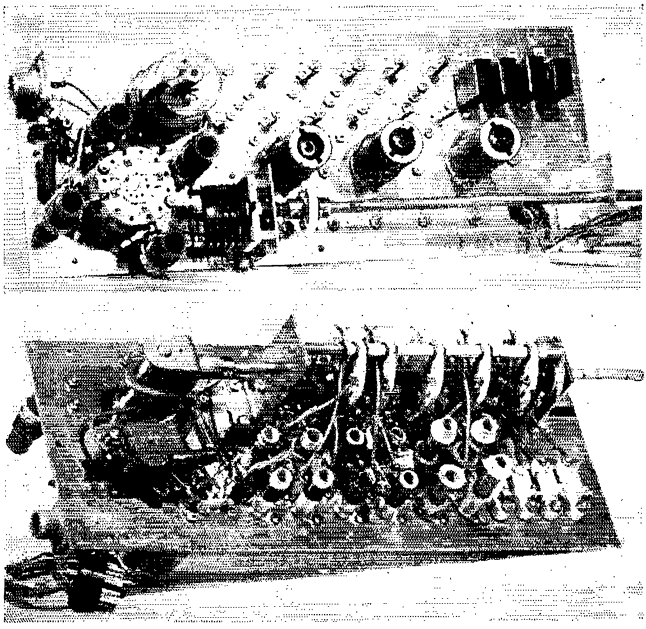
All coils are slug-tuned except those in the final amplifier, where they are adjusted by varying the turn spacing to resonate at the desired frequency with the plate tuning capacitor set at half scale. Each coil in the first tripler plate circuit has a 5-$\mu\mu$f. ceramic capacitor across it, to lower its out-of-circuit resonant frequency. On the first tune-up it was found by accident that the drive to the final stage was affected by adjustments to the slugs in any of the three unused coils in this circuit. A grid-dipper showed that they were self-resonant at about 50 Mc., and were absorbing

* Radio Officer, Connecticut C.D. Area I; % Laboratory of Advanced Research, Remington Rand, Inc., South Norwalk, Conn.



Rear view of the control-station transmitter, showing the 50-Mc. r.f. section in place. In its final form this unit is completely encased in perforated aluminum shielding.


XTAL. OSC.
5763
5.5-6.0 Mc.
TRIPLER
16.6-18 Mc.
TRIPLER
50-54 Mc.
AMP.
6146
50-54 Mc.
To Pin No. 2
To Pin No. 3
To Pin No. 4
To Pin No. 5
To Pin No. 6
To Pin No. 7
To Pin No. 8
To Pin No. 10
To Pin No. 9
Meter Shunts 25 Ohms
144 Mc.
50 Mc.
28 Mc.
BAND SWITCH
TUNE-UP SW.
115 V.A.C.
115 V.A.C. for Ant. Relay
500 V. MOD.
10 MA.
GRID
200 MA.
PLATE
1st MULT.
2nd MULT.
Final
TO PINS



Top and bottom views of the 50-Mc. r.f. section.

power from the second tripler plate coils. Adding the 5-$\mu\mu$f. capacitors detuned them enough so that no further trouble resulted. Winding specifications for all coils are given in the coil table.

The switch for changing channels is made up of a five-wafer (one not used) and a two-wafer four-position ceramic switch coupled together with a right-angle drive. The two-wafer portion is mounted vertically alongside the 6146 and driven by a right-angle drive on the underside of the r.f. assembly. The method of connecting the two is shown in the bottom view. The shaft of the right-angle drive unit is notched to fit the shaft of the main switch.

The chassis is actually a 5 × 13 × 1/16-inch sheet of aluminum, to which all parts are mounted, as seen in the top- and bottom-view photographs. This plate then attaches like a bottom pan to a standard 5 × 13 × 3-inch aluminum chassis which is mounted upside down on the main 13 × 17 × 3-inch chassis. This type of construction gives better shielding and makes for much easier assembling and wiring than building directly on a chassis in the conventional way.

The wiring of the main chassis is also shown in Fig. 3. The three 12-pin sockets to feed the r.f. units are mounted on the rear edge along with the 8-pin socket for the power-supply cable. Only the wiring for the 50-Mc. socket is shown in the diagram, to conserve space and preserve the readability of the diagram. The sockets for the other two units are merely wired in parallel with the one shown, except for the heater circuit switching.

The assembly is fitted with a standard 10½ × 19-inch rack panel, on which are mounted the two meters, the meter switches, the band-change switch, pilot lights and drive control. The modu-

Fig. 3 — Schematic diagram of the complete r.f. section of the c.d. control station. Upper portion shows the 50-Mc. r.f. unit. At the lower left are the switching, metering and cabling portions contained in the main chassis, and at the right is the TVI filter that is mounted on the rear wall of the case. Note that only one of the crystals and coils is shown.

L_6 — 12 hy., 40 ma. (Chicago R-1240).
J_1, J_2 — 8-pin female chassis fitting.
J_3, J_4, J_5 — 12-pin female chassis fitting.
P_1 — 8-pin male cable fitting.
P_2 — 12-pin male cable fitting.
T_7 — 6.3 v., 6 amp. (Chicago FO66).

Resistors are 1 watt unless otherwise noted. All 0.005 capacitors are disk ceramics, except final plate by-pass is mica. Use 0.001 for more highs.
$S_{1A,B,C,D}$ — 4-position 5-wafer (1 not used) switch.
$S_{1E,F}$ — 4-position 2-wafer switch, ganged to above through National right-angle drive.

Coil-Winding Table

Coils, 4 each	*No. Turns*	*Wire Size*	*Dia.*	*Length*	*Coil Form*	*Type Slug*
L_1	55 close-wound	28 en.	3/8"	3/4"	National XR-91 1¼ × 3/8	iron
L_2	21 close-wound	20 en.	3/8"	3/4"	National XR-91 1¼ × 3/8	iron
L_3	7 turns spaced	18 en.	3/8"	7/16"	National XR-90 1¼ × 3/8	brass
L_4	5 spaced	14	9/16"	½ to 5/8"	self-supporting	none
L_5	3 close-wound at cold end	insulated hook-up wire	9/16"	¼"	½" dia. bakelite tube 2" long	none

lation choke for the screen of the final, the meter shunts and the filament transformer are mounted under the chassis.

Methods employed in shielding and filtering are shown in the photographs and block diagram in Part I. The r.f. unit is completely enclosed by the perforated aluminum shielding, with wide lap-overs to prevent r.f. leaks. The cable from the main r.f. chassis is made with shielded wire, and brought to a filter compartment on the inside of the rear wall of the case, where each lead is filtered and decoupled at the socket where the cable from the power-supply unit plugs in. The functions of the high- and low-pass filters in the antenna circuits were outlined in Part I. It may or may not be necessary to filter and shield to this extent in other localities so far as TVI goes; however, if there are several transmitters to be used close together, it will help to prevent interference between the various bands, and so is highly worth while from a c.d. point of view. (Field Day planners take note!)

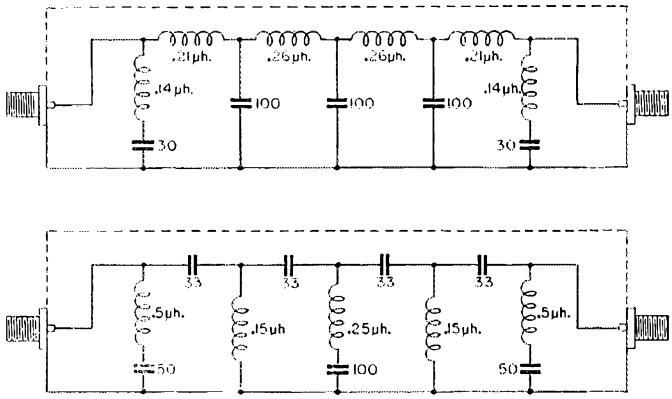


Fig. 4 — Schematic diagram and parts information for low-pass (upper) and high-pass filters for the 50-Mc. station. For application, see Fig. 1, Part I, and texts.

All coils in low-pass filter are No. 14 wire, ⅜-inch diameter.
0.14 μh. — 4 turns, ⅜ inch long. 0.26 μh. — 7 turns, 13/16 inch long.
0.21 μh. — 6 turns, 9/16 inch long.

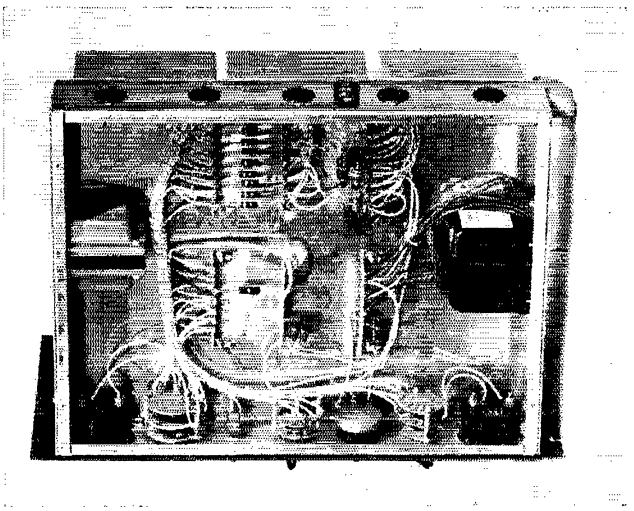
Coils in the high-pass filter are wound with No. 20 enamel wire on 2-watt resistors, 0.1 megohm or higher, and measured on *Q*-meter.

Capacitors in both units are silver mica measured for nearest to required capacitance on *Q*-meter.

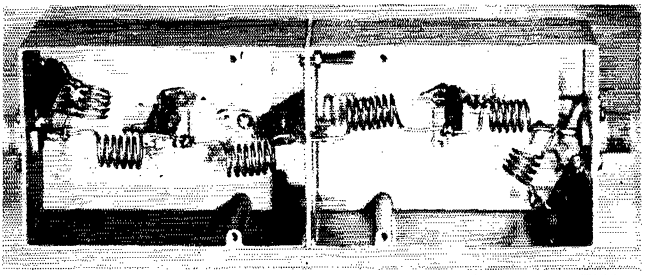
Constructing the 50-Mc. R.F. Unit

Laying out the r.f. subchassis requires some thought so that all parts can be located for short leads and good by-passing. It is suggested that the layout shown in the photographs be followed fairly closely. All the parts mounted on the 5 × 13-inch plate must be kept a half inch in from the edge, to clear the lip on the inverted chassis when the plate is mounted. It may be necessary to file some clearance notches in the lips to get the plate into position easily. A clearance hole for the channel switch must be drilled in the end of the chassis and holes must be located and drilled in the front panel for this switch and for the final plate trimmer condenser shaft. The 5 × 13 × 3-inch chassis is bolted in place permanently on the main r.f. chassis.

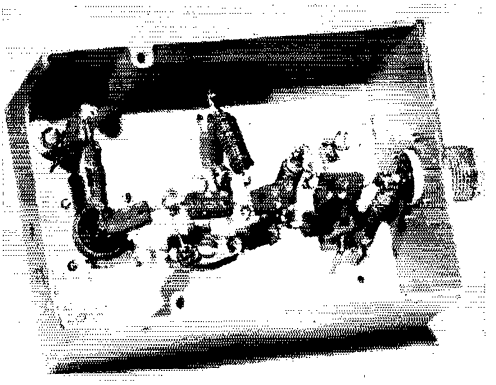
The four coils in each stage are identical, so after one is checked out with a grid-dip meter the other three can be made the same and mounted in position. The tuning range afforded by the slugs in the exciter coils and the spreading or squeezing of the final stage coils is more than adequate to take care of minor differences. The 12-wire cable from the r.f. subchassis is made long enough so that it can be plugged into the



Bottom view of the main r.f. chassis. Meters, switching circuits, meter shunts, filament transformer and modulation choke are mounted below the deck. The three r.f. chassis are fastened to the top surface.



Low-pass and high-pass filters designed especially for the 50-Mc. station.



main chassis with the r.f. unit resting on the bench alongside for testing.

Coils for the final plate circuit are wound of No. 14 wire, and are self-supporting. They are mounted between tie-points and the top wafer of the channel switch. Short lengths of bakelite tubing are then slipped into each coil, and the antenna coupling coils are wound on these.

Tune-up Procedure

The r.f. subchassis is made ready for adjustment by placing it on its side on the bench and plugging its cable into the main chassis. The tune-up switch in the screen lead to the final stage should be in the off position. With the plate meter switched to read the oscillator plate current and the grid meter connected to the first tripler grid circuit, insert four net crystals, set the channel switch to Position 1, and turn on the send-receive switch. Tune the crystal plate coil No. 1 for minimum plate current and maximum grid current. Next, advance the meter switches one position and peak the No. 1 coil in the first tripler plate circuit. Repeat this process until the final is reached.

Now connect a 50-watt lamp to the output jack, close the tune-up switch, applying screen voltage to the final stage, and adjust the final tuning condenser for minimum plate current.

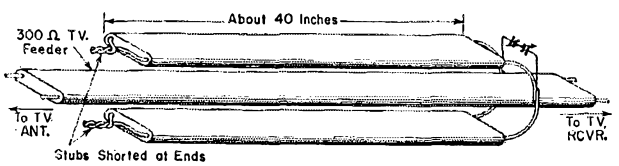


Fig. 5 — Tuned double stub for eliminating 50-Mc. interference in TV or other receivers. Stub is tuned carefully to transmitter frequency by watching for minimum interference. Capacitor can be any small trimmer, but split-stator type (15 $\mu\mu$f. per section) provides cold shaft for elimination of hand capacitance and makes for easier tuning.

Squeeze or spread the turns on the final plate coil until the dip comes at half scale on the plate condenser. Be sure the transmitter is turned completely off before making this adjustment, as death is very permanent! Set the drive control for 3 to 4 ma. final grid current. The loaded plate current of the amplifier should be between 100 and 150 ma.

This procedure is repeated for each of the other three channels. If the final coils have been adjusted correctly it will then be possible to switch to any position without retuning of any sort. The function of the final plate tuning adjustment should be merely to tell if the stage is really tuned to resonance and operating correctly. If the crystal fails or a tube burns out, all following stages are protected by fixed bias, so their plate currents fall to zero.

In normal operation the two meters on the main r.f. unit are left in the final plate and final grid positions These and the modulator plate meter enable the Radio Officer to tell at a glance how the transmitter is operating. The final plate current shows a slight downward flicker with modulation, because of the common power supply for both modulator and final. This is a normal condition.

Neutralization

The final grid current varies somewhat with tuning of the final plate circuit, indicating a need for some slight neutralization. No simple means could be found that would hold for all four channels, with the type of bandswitch used. No adverse effects were found from this condition, however. The final operates stably, and there is no tendency toward parasitics.

Neutralization was tried using a one-turn link around the bottom of the second-tripler plate coil and the final plate coil, as shown in the schematic. When these two links were polarized correctly the coupling could be adjusted for perfect neutralization. This made the final grid current completely stable, but was too complicated to install on all four channels. Since it did not improve the operation of the final stage it was omitted.

Interference Prevention

Operated without its perforated-aluminum shielding, this transmitter takes out every channel on a TV set operated in the same room. Harmonics of the crystal oscillator appear every 5½ to 6 Mc., or one to each TV channel. This could be prevented by using a higher starting frequency, but when the shields are in place interference shows only in Channels 2 and 11.

The special 50-Mc. low-pass filter, Fig. 4 and photograph, removes the fourth harmonic interference from Channel 11 and also a third harmonic from near the 2-meter band. Where the TV signal is strong, a double stub, Fig. 5, applied to the TV lead, will remove the adjacent-channel interference in Channel 2. It should be noted (Fig. 1, Part I) that the low-pass filter is connected between the antenna and the antenna change-over relay, thus being in the circuit for both transmission and reception. The high-pass filter is connected between the relay and the receiver. In this way the 50-Mc. receiver is protected from fundamental overloading by other transmitters in the room, and radiation of energy on frequencies higher than the 50-Mc. band by the 6-meter rig is blocked, giving added protection to the 2-meter receiver and TV Channel 11. This plan is carried out on other transmitters and receivers in the room, and is largely responsible for our being able to operate so many rigs so close together.

TVI from the 50-Mc. energy can be corrected in some instances by connecting an open-ended quarter-wave stub of 300-ohm Twin-Lead cut for the transmitter frequency across the input to the TV set. The double stub of Fig. 5 is more effective in difficult cases like the adjacent-channel problem in Channel 2. It consists of two shorted quarter-wave stubs connected in parallel and tuned with a small variable condenser. The stub is installed sandwich fashion, with the TV feed line as the filling and the two stubs as the bread. The sandwich is taped loosely to the feeder and slid along the line for maximum attenuation, while tuning the trimmer. When the best spot is found the stub is taped securely in place. The trimmer can be any small variable capacitor, but greatest ease of adjustment is achieved if a split-stator variable is used.

In conclusion, let me say that although we could have gotten by with one tube in the power supply, two in the modulator and two in the r.f. unit, and still run 50 to 60 watts input, the present transmitter more than justifies the extra expense and effort. It is a pleasure to operate a rig on 50 Mc. with more than enough grid drive, plenty of good-quality audio, and a full 40-watt output, to say nothing of being able to switch to any one of four channels at will.

Voltage and Current Table

	Osc.	*1st Tplr.*	*2nd Tplr.*	*Final*	*Mod.*
Fil. on, Plate off:					
Grid Volts	0	−30	−20	−62	−29
S/R Switch in Transmit Position:					
Grid Volts *	−8	−101	−144	−73	−29
Grid ma.		2	3.5	4	
Plate Volts *	+140	+275	+275	+500	+500
Plate ma.	12	25	22	100	70–150
Screen Volts *	+75	+180	+160	+140	+270
Screen ma.			6	15	

	1st Sp. Amp.	*2nd Sp. Amp.*	*Phase Inv. 3rd Sp. Amp.*	*P.P. 12AU7*
Voltage * *at:*				
Plate	+45	+75	+240	+270
Screen	+27			
Cathode	+1.25	+3.5	+17	+12

* Measured at socket with vacuum-tube voltmeter.

September 1929

. . . The month's editorials treat on ARRL Division election procedures, and c.w. enthusiasts who purposely apply tone modulations to broaden their signals.

. . . L. G. Windom, W8GZ-W8ZG, discusses the interesting off-center single-wire-fed Hertz antenna in his "Notes on Ethereal Adornments."

. . . "An Effective Low-Cost 'Phone and C.W. Transmitter of Modern Design" is the work of Technical Editor James J. Lamb and Asst. Technical Editor Beverly Dudley.

. . . "Vacuum Tube Amplifier Definitions," a subject long shrouded in misconception, are illuminated by H. F. Dart and C. K. Atwater.

. . . L. W. Hatry details purposeful modifications for the receiver described in March *QST* in his effort toward "Improving the All-Purpose Superheterodyne."

. . . In the "Experimenters' Section" we find discussions on "doublet" antennas, self-rectified t.p.t.g. sets, screen-grid tube biasing and other topical subjects.

. . . Killian V. R. Lansingh, W6QX, outlines the proper procedures and equipments necessary for fully "Utilizing the Standard Frequency Transmissions."

. . . "W9CJC," the fifth of the series depicting up-to-date amateur stations, is an interesting installation owned and operated by E. H. Carter in Denver, Colorado.

. . . "XYL," by Eulalia M. Thomas, W8CNO, records the aspirations, frustrations and accomplishments of one who urges an increase in the number of XYL operators.

. . . "IARU News," in addition to its many reports from overseas societies, observes that W6s have more WACs than any other call area — 49 of the 272 issued to date.

. . . Among Communications Department features are propagation forecasts, W1MK's schedules, and announcement of the staff addition of E. L. Battey, W1UE.

Hints and Kinks For the Experimenter

MORE ABOUT SOLDERING ALUMINUM

As mentioned in W9SED's article (page 42, June, 1954, *QST*), it is perfectly possible to solder aluminum. However, aluminum soldering is generally not advisable, particularly on parts exposed to weather, as corrosion will soon set in and the joint will be destroyed. Proof of this can readily be seen by placing an aluminum soldered joint in ordinary tap water for a few days. Corrosion will become quite apparent and in many cases the joint will fall apart. If aluminum cannot be jointed by other satisfactory methods — such as riveting or welding — and soldering must be resorted to, then the joint should be completely covered with a protective paint or lacquer. — *R. W. Woodward, W1VW*

NOTES ON SELECTIVITY CONTROL FOR THE COLLINS 75A-3

Have just finished reading W3AM's article in January *QST* and note that he refers to the inability of 75A-3 owners to get broader bandwidth from their receivers. This is true, of course, but a simple modification can give the operator of the 75A-3 additional bandwidth at a twist of the wrist.

The first step in the modification consists of the removal of about half of the turns from each winding of a standard 455-kc. i.f. transformer. The transformer is then equipped with a plug so that it may be connected to the extra mechanical filter socket of the receiver. After the transformer has been aligned with the aid of the crystal filter, it is possible to make a bandwidth selection by throwing the mechanical filter switch to the proper position.

I hope that this will make some of the gang realize that for the price of one cheap i.f. transformer and about an hour's labor, they can get the equivalent of two receivers.

— *Robert E. J. West, W1MKW*

—···—

A little over a year ago, one of the Collins mechanical filter conversion kits was successfully installed in the 75A-2 here at W8LLX. After months of operation with razor-sharp selectivity, it was decided to make provision for reducing selectivity at will. Fig. 1 shows a simple and inexpensive circuit that makes this operation possible.

The mechanical filter section of the 75A-3 is provided with an extra position marked "B" which is normally used for the installation of a 1-kc. mechanical filter. This section — "B" — has been used to accommodate the new filter. Of course, the normal mechanical filter switch for the receiver permits selection of coupling circuits.

As can be seen from Fig. 1, the new filter consists of a pair of 5000-ohm resistors, two 2.5-mh. r.f. chokes and an air trimmer of about 5- to 50-$\mu\mu$f. range. The components are mounted on a

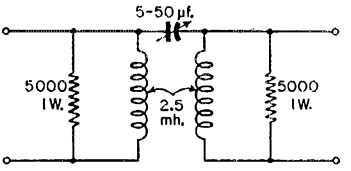


Fig. 1 — Circuit diagram of the i.f. filter suggested by W8LLX. Components are actually mounted on a plug-in base so that the assembly can be plugged into the filter position of a Collins 75A-3 receiver.

strip of bakelite measuring 1¾ by 3¾ inches which is in turn fastened to a 6-prong plug that mates with the filter socket of the receiver. The arrangement of the plug prongs was the most difficult part of the job and once this was completed the wiring time was practically nil. The cost of the filter components was $2.69.

The filter is aligned by adjusting the air trimmer while observing the peak reading on the S-meter. One adjustment is all that is necessary.

— *Melvin C. Aichholz, W8LLX*

REMOVING PILOT LAMPS

An ordinary wedge-type pencil eraser, obtainable from most any 5- and 10-cent store, makes an ideal tool for removing pilot lamps which are located in hard-to-get-at places. Use the wedge end of the eraser as the handle, slip the open end (the end which normally fits over the pencil) over the lamp, and twist. It almost seems as though the eraser was designed for the bulb-removing assignment. — *Dana Terrill, W8MQS*

PROTECTING CHASSIS FINISH DURING CONSTRUCTION

An application of wax to a new chassis, especially plated ones, will prevent finger marks during construction. After the work is finished, pencil or crayon marks used during layout can be removed by applying more wax. Paraffin or candle wax, rubbed into a cloth moistened with benzine, naphtha or lacquer thinner provides a good protective coating and dries almost immediately.

— *Joseph J. Kosina, W2LGK*

[Editor's Note: A coating of clear plastic spray may also be used to protect the finish of a chassis during construction. The protective layer peels off most easily after marking, drilling, etc., have been completed.]

Extending the Range of the ARRL Lightning Calculator

• The ARRL Type A Lightning Calculator has long been a most rapid and convenient means of answering questions involving inductance, capacitance and their combination. The original scales are confined essentially to limits that permit a good degree of accuracy. Although any method of calculation for v.h.f. is bound to involve sizable error, an approximation is often of considerable value in providing a starting point for experimental adjustment. In this article, W2AWH and W1FWH suggest simple methods of extending the usefulness of the Calculator.

Applying Scaling Rules for New Dimensions

BY YARDLEY BEERS,* W2AWH

PROBABLY the easiest way of computing the inductance of coils having an air core and conventional shapes is to employ a Type A Lightning Calculator.[1] However, in the two decades or so since this device first became available, increased use of very small coils has resulted from the development of high frequencies, and from the miniaturization of equipment. Many of the coils employed under these present conditions have parameters too small to lie within the direct range of the Calculator. Nevertheless, with the aid of two well-known "scaling rules" it is possible to use the Calculator with these small coils. These rules provide a procedure for selecting a "scaled-up" coil whose parameters do lie within range of the Calculator. The inductance of the actual coil may be computed from that of the "scaled-up" coil by multiplication or division by a simple scale factor.

The first of these rules is that if the length and diameter of a coil are both uniformly expanded (or contracted) by a factor S, without changing the number of turns, then the inductance will be changed by the same factor S. However, if the length is changed by a factor S without changing the total number of turns, then the number of turns per inch is changed by a factor $1/S$. Hence, if we compare a coil with another having the same number of turns but having a length and diameter three times as large, then the second coil has three times the inductance and one-third the number of turns per inch.

* 4 Ploughman's Bush, Riverdale, 71, N. Y.

[1] For a general discussion of this device, see Mix, "Getting Acquainted with the ARRL Lightning Calculator," *QST*, April, 1953, p. 44.

This rule leads to a procedure which may be used when the length or diameter lie outside the range of the Calculator. (1) A scale factor S is selected such that when *both* the length and diameter are multiplied by S, new values within the range of the Calculator are obtained. (2) The number of turns per inch is divided by S. (3) The Calculator is used to calculate a value of inductance from these scaled values of the parameters. (4) The actual inductance is then found by dividing this computed inductance by S. An illustration of this procedure will be given in Example 1 below.

The second rule states that if the length and diameter are held constant, and if the number of turns is uniformly varied, the inductance is proportional to the square of the number of turns. Since under these conditions the number of turns per inch is proportional to the number of turns, the inductance will also vary as the square of the number of turns per inch. If either the number of turns per inch or the inductance lie beyond the range of the Calculator, this rule gives a procedure which can be used. A number N is selected such that by multiplying the number of turns per inch by N a new value within range of the Calculator is obtained. Then this computed value of inductance is divided by N^2 to give the actual inductance. Sometimes the second rule is applied independently, but usually it is applied in conjunction with the first rule given above. An illustration of the latter situation is given in Example 2 below.

It should be pointed out that computed values, whether made by the Calculator or by other methods, are subject to errors due to factors which have been neglected, such as the following: The magnetic field penetrates to some extent into the wire, causing the effective diameter to be larger than the winding diameter. Added to the inductance of the coil is the inductance of the leads, which for small coils may be an appreciable fraction of the total. Finally, there is the distributed capacity of the coil. With small coils at high frequencies, these errors may be large. Fortunately, these errors generally cause the actual inductance to be larger than the calculated value. Therefore, even when the errors are large, calculations still serve a useful purpose: to determine the parameters of coils which can be trimmed to the desired inductance with a minimum of effort.

Example 1: The inductance of a coil having a winding 1⅝ inches long of No. 32 enameled wire (114 turns per inch) on a ⅜-inch-diameter form cannot be calculated directly, because the diameter is outside the range of the Calculator. By choosing $S = 2$, the calculation may be accomplished. The scaled parameters are: length

3¼ inches, 57 turns per inch and diameter ¾ inch. With these values an inductance of 136 microhenrys is calculated. This value is then divided by $S = 2$ to give 68 microhenrys as the final result. The value measured by a *Q*-meter at 1.8 Mc. is 70.2 microhenrys. Because of the low frequency and relatively small wire diameter the agreement between calculated and measured values is excellent.

Example 2: A 5-turn coil has a length of ⅝ inch (8 turns per inch) and a diameter of ⅜ inch. With $S = 2$, the scaled length of 1¼ inches, and diameter of ¾ inch are within range of the Calculator, but with the scaled value of 4 turns per inch, the inductance lies off-scale. With 12 turns per inch ($N = 3$), a value of 1.94 microhenrys is obtained. This value is divided by $N^2 = 9$ to give 0.215 microhenrys for the scaled-up coil, and in turn this is divided by $S = 2$, to give the final result of 0.108 microhenrys. The measured value at 50 Mc. is 0.168 microhenrys. In such an extreme case of a few turns, and with a high frequency, the large error is not surprising. It is, however, of the expected sign.

Extending Ranges by Self-Calibration

BY WALTER E. BRADLEY,** W1FWH

In answering correspondence that comes to the Technical Information Service desk, it sometimes becomes necessary to approximate the dimensions of coils and resonant frequencies of tuned circuits whose values fall outside the range of the ARRL Type A Calculator.

Some time ago, several of the scales were extended to cover both higher and lower values. Most of the scales can be extended without calculation.

Inductance Scales

To calibrate the inductance scale for values lower than 1 μh., set 900 μμf. opposite 1 μh. Then mark a line opposite 1000 μμf. Set 800 μμf. opposite the 1-μh. line, and again make a mark opposite 1000 μμf. Set 700 μμf., 600 μμf., 500 μμf., etc., opposite the 1-μh. line, each time making a mark opposite the 1000-μμf. line. When you reach 100 μμf. opposite 1 μh., the 1000-μμf. mark will complete a calibrated scale from 1 μh. down to 0.1 μh.

To extend the inductance scale for inductances up to 10,000 μh. (10 mh.), set 100 μμf. opposite 1000 μh. (Be sure you don't use the 1500-μh. line). A mark opposite 10 μμf. will indicate 10 mh. Set 90 μμf., 80 μμf., 70 μμf., etc., opposite 1000 μh., each time making a mark opposite the 10-μμf. line. Each mark represents 1 mh.

Capacitance Scale

There isn't much point in extending the capacitance scale below the original 3-μμf. limit, but if you want to go down to 1 μμf., set 10 μμf. opposite the 1-μh. line, and make a mark opposite the 10-μh. line (this should come close to the 600-kc. line on the frequency scale). This mark is at 1 μμf. Set 20 μμf. opposite the 1-μh. line, and make a mark opposite the 10-μh. line (2 μμf.).

To extend the scale to larger capacitances, set 1000 μμf. opposite 200 μh., and make a mark opposite 100 μh. (2000 μμf.). Set 1000 μμf. opposite 300 μh., and again make a mark opposite 100 μh. (3000 μμf.), etc.

New Diameter Scales

On the basis of the observation of W2AWH that if the diameter and length are cut in half, and the number of turns per inch is doubled, the inductance will be halved, it is possible to plot scales for smaller diameters than ½ inch, or larger than 5 inches, if desired. For instance, if a scale for ¼-inch diameters is wanted, set 10-inch length to ½-inch diameter. Although any pair will do, for convenience find an inductance line that matches a turns-per-inch line, and mark down the value of inductance, and the number of turns per inch (e.g., 13 μh., 15 t.p.i.). Now, make a new setting in which half this value of inductance (6.5 μh.) lines up with twice this number of t.p.i. (30). Place a dot opposite length 5 inches. Repeat the process with length 8 inches on ½-inch diameter to plot length of 4 inches on ¼-inch diameter. Continue down to where length ½ inch at diameter ½ inch is used to plot length ¼ inch at ¼ inch diameter. This will give you points for a scale of lengths from ¼ to 5 inches for ¼-inch diameter.

To make scales of other diameters, merely repeat the same process, starting out with 10-inch length set at twice the diameter you want to plot (¾-inch diameter to plot ⅜-inch diameter, etc.).

To obtain scales for larger diameters, reverse the process. Set 5 inches length to 3 inches diameter. Choose values of inductance and turns per inch that line up. Then set twice this inductance opposite half this number of turns per inch. Make a dot opposite length 10 inches. This gives the point for length 10 inches at diameter 6 inches (twice the original diameter of 3 inches). Proceed to plot other points for the 6-inch diameter, setting 4, 3, 2 inches length opposite 3 inches diameter, each time selecting inductances and turns per inch that line up, resetting for twice the inductance, and half the number of turns, to get points for lengths of 8, 6, 4, etc., inches. When you have completed the 6-inch diameter scale, you can proceed to diameters of 7, 8, 9, etc. inches by making the first settings of 5-inch length opposite 3½, 4, 4½, etc., diameters.

Turns Per Inch

The turns-per-inch scale can be easily extended, if desired. Simply set the diameter and length scales at values that can be easily

(*Continued on page 122*)

**Technical Information Service, *QST*.

• Recent Equipment —

The Viking Ranger

THE "Ranger" is a complete, self-contained, 75-watt (input) c.w. and 65-watt 'phone transmitter covering all bands from 160 through 10 meters. It has a built-in VFO, with provision for using crystal control as an alternative. The r.f. and audio sections may be used separately to drive larger amplifiers; in other words, the 6146 final can be used to excite a high-power r.f. amplifier, while the speech-amplifier and modulator provide all the audio gain and power output needed for driving the grids of a high-power Class B modulator.

A block diagram of the transmitter is shown in Fig. 1. The VFO uses the series-tuned oscillator

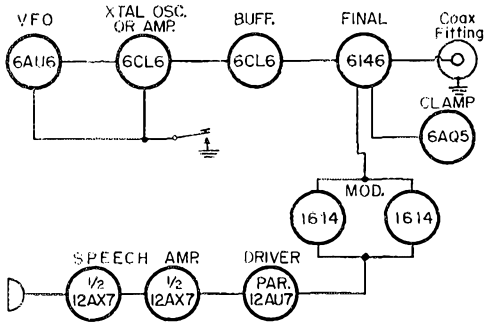


Fig. 1 — Block diagram of the Ranger.

circuit with a 6AU6, separate oscillator tank circuits being used to cover two fundamental ranges, one on 160 meters and the second on 40 meters. The former is used for the 1.75- and 3.5-Mc. bands, and the latter for 7 Mc. and higher frequencies. Appropriate bandspreading is achieved on each range by switching padding capacitors in or out as required. The VFO output is electron-coupled, using a broad-band circuit resembling the one shown in Fig. 2, but with a single set of circuit constants.

The second tube in the r.f. line-up, a 6CL6, can be used either as a frequency multipler following the VFO or as a crystal oscillator, selection being made by means of a switch. It is capacity-coupled to the VFO output circuit in the former case. As a crystal oscillator, the circuit is the familiar grid-plate using the grounded (for r.f.) screen of the 6CL6 as the plate, with feed-back condensers from cathode to ground and from grid to cathode. The output tank of this tube is a broad-band circuit that may be of some interest to home constructors. It is shown in Fig. 2. For frequencies up through 7 Mc. the terminals marked *A*, *B* and *C* are open as shown, and inductance L_1 is chosen to resonate with the circuit capacitances in the neighborhood of 14 Mc. The loading provided by the 33,000- and 4700-ohm resistors broadens the tuning sufficiently so that adequate driving voltage is available for the following stage on 1.75, 3.5 and 7 Mc. On 14 Mc. and above, terminals *B* and *C* are shorted; this removes the 4700-ohm resistor from the circuit and thus decreases the resistive loading, thereby increasing the output available from the stage at 14 Mc. For 21- and 28-Mc. operation, terminals *A* and *B* are shorted together in addition, resonating the circuit in the 10-meter region. This arrangement is considerably less complicated, both in switching and operating, than a separate tank circuit for each band. Like all broad-band circuits, however, the efficiency is low compared with that of a normal tank circuit, so the scheme is best applied when the following stage requires very little driving power. Also, the tube used with such a circuit should have high transconductance, the 6CL6 and 6AG7 being good examples of suitable tubes. Both these requirements are met in the Ranger design.

The third tube, the 6CL6 buffer amplifier, is capacity coupled to the 6CL6 multiplier and has a conventional parallel-tuned plate tank circuit. Proper inductance values are selected by a switch from taps on the plate coil. The tuning condenser is brought out to a panel control for individual adjustment on each band. A potentiometer in the screen circuit of this tube provides control of excitation to the final stage.

The final amplifier has a pi-network output tank with fixed inductance values on each band. The tank coil, shown in one of the photographs, has been constructed with a view to reducing coupling between the active and shorted sections

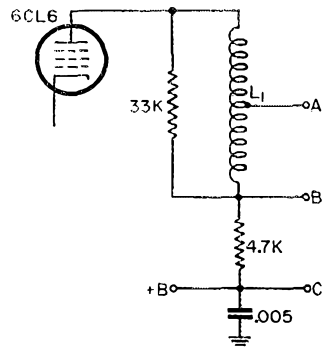
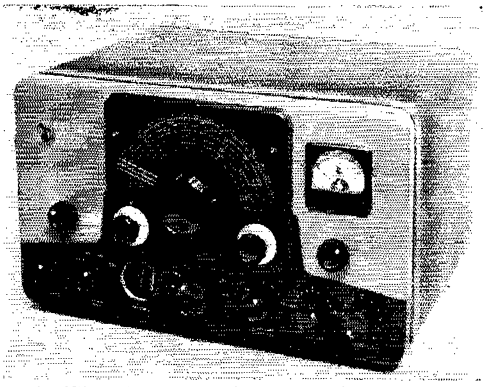


Fig. 2 — Broad-band tank circuit used with the 6CL6 frequency multiplier-crystal oscillator. Its application is explained in the text.

and thus reducing losses from circulating current in the "dead" sections. The sectionalized coil is used for 3.5 through 28 Mc. Additional inductance is switched in for 160-meter operation; this is a separate coil wound on a ceramic form. A double-section plate tank condenser is used, the second section being switched in on the lower frequencies



The Viking Ranger can be used by the Novice, since its c.w. input is 75 watts and it can be crystal controlled, but it is basically a VFO-controlled 'phone and c.w. transmitter for all bands from 160 through 10 meters. It is bandswitching (one operation) and has separate tuning controls for the r.f. driver and final amplifier. The r.f. and audio sections can be used separately as exciters for larger amplifiers. The size is approximately 15 by 12 by 9 inches. The cover plate over the crystals has been removed in this view to show how the crystals are mounted.

where more tank capacitance is needed. Fixed padding condensers also are used on some bands for the same purpose. The network output capacitance consists of a 360-$\mu\mu$f. variable plus various values of fixed capacitance that can be added across it by means of a progressively-shorting switch. A total of over 2000 $\mu\mu$f. is available. The nominal range of load resistances that can be matched on any band is 50-500 ohms, but this range increases to approximately 25-2000 ohms on frequencies above 7 Mc.

The audio section of the Ranger has a cascaded dual-triode speech amplifier using a 12AX7, followed by a 12AU7 (both triodes in parallel) driver for the push-pull 1614 modulators. The output stage operates in Class AB_1, using cathode bias. The output transformer has a third winding used for negative feed-back to the 12AU7 grids, the purpose being not only to reduce distortion but also to lower the effective plate resistance of the output stage and thus improve its regulation when it is used for driving a Class B modulator. The regular secondary is center-tapped to permit using it as the input transformer for a Class B modulator.

The set has two power supplies, one delivering 500 volts for the final amplifier and modulator, the other 300 volts for the low level stages, both audio and r.f. These voltages, as well as a filament supply, are available at the "auxiliary" socket mounted on the rear apron.

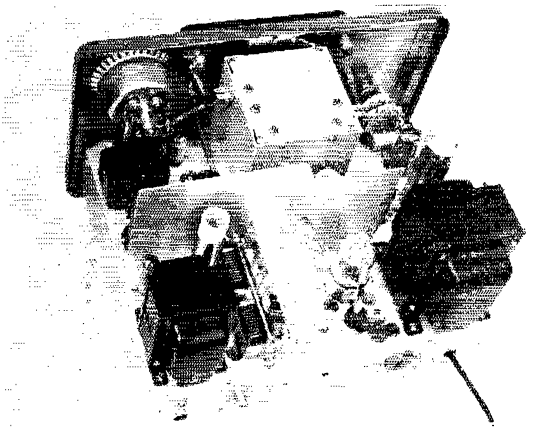
Operating features include a "zero" position on the crystal-VFO switch, for obtaining a VFO signal without energizing the final amplifier. As normally wired, this switch turns on the VFO and first 6CL6 by grounding their cathodes (these two cathodes are keyed for c.w. operation). If the resulting signal is too strong or too weak for good zero-beating with an incoming signal, the cathode wiring can be changed so that either the VFO alone, or the VFO and both 6CL6s, will be operated from the switch. The second 6CL6 is cathode-biased and its plate current with key up is well within safe limits. The plate current of the 6146 is held to a low value during key-up periods by a 6AQ5 tetrode-connected clamp tube. A "tune" position is provided on the operating control switch, for making adjustments to supply the proper grid current to the final amplifier before going on the air. In this switch position, all the r.f. stages except the 6146 have normal voltages applied.

The photographs show the internal construction of the transmitter. The case, a single unit except for the front panel, is welded cane metal, copper plated to provide good electrical contact to the chassis and panel. The panel overlaps the front edge of the case and is equipped with knitted monel ("electronic weatherstripping") to ensure good contact. Each of the two small openings in the rear (for access to the connectors on the rear chassis apron) is tightly bonded to the chassis by screws. The panel meter is provided with a separate shield, and all shafts coming through the panel are grounded to the panel opening. These measures, together with v.h.f. filters in all leads to external connections, are for preventing harmonic leakage in the TV bands.

—*G. G.*

♦

The interior of the set, showing the sectional-wound coil used in the pi-network output tank. The two separate d.c. voltages (nominally 300 and 500 volts) are obtained from a single tapped power transformer, using separate rectifiers and filters for each supply. The VFO is contained in a separate shield.



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Happenings of the Month

ELECTION NOTICE

To All Full Members of the American Radio Relay League Residing in the Central, Hudson, New England, Northwestern, Roanoke, Rocky Mountain, Southwestern and West Gulf Divisions.

An election is about to be held in each of the above-mentioned divisions to choose both a director and a vice-director for the 1955–1956 term. These elections constitute an important part of the machinery of self-government of ARRL. They provide the constitutional opportunity for members to put the direction of their association in the hands of representatives of their own choosing. The election procedures are specified in the By-Laws. A copy of the Articles of Association and By-Laws will be mailed to any member upon request.

Nomination is by petition, which must reach the Headquarters by noon of September 20th. Nominating petitions are hereby solicited. Ten or more Full Members of the League residing in any one of the above-named divisions may join in nominating any eligible Full Member residing in that division as a candidate for director therefrom, or as a candidate for vice-director therefrom. No person may simultaneously be a candidate for both offices; if petitions are received naming the same candidate for both offices, his nomination will be deemed for director only and his nomination for vice-director will be void. Inasmuch as all the powers of the director are transferred to the vice-director in the event of the director's resignation or death or inability to perform his duties, it is of as great importance to name a candidate for vice-director as it is for director. The following form for nomination is suggested:

Executive Committee
The American Radio Relay League
West Hartford 7, Conn.

We, the undersigned Full Members of the ARRL residing in the ..... Division, hereby nominate ..... of ..... as a candidate for director; and we also nominate ..... of ....., as a candidate for vice-director: from this division for the 1955–1956 term.

(Signatures and addresses)

The signers must be Full Members in good standing. The nominee must be a Full Member and the holder of an amateur license, and must have been a member of the League for a continuous term of at least four years at the time of his election. No person is eligible who is commercially engaged in the manufacture, sale or rental of radio apparatus capable of being used in radio communications, or is commercially engaged in the publication of radio literature intended in whole or in part for consumption by radio amateurs.

All such petitions must be filed at the headquarters office of the League in West Hartford, Conn., by noon EDST of the 20th day of September, 1954. There is no limit to the number of petitions that may be filed on behalf of a given candidate but no member shall append his signature to more than one petition for the office of director and one petition for the office of vice-director. To be valid, a petition must have the signature of at least ten Full Members in good standing; that is to say, ten or more Full Members must join in executing a single document; a candidate is not nominated by one petition bearing six valid signatures and another bearing four. Petitioners are urged to have an ample number of signatures, since nominators are occasionally found not to be Full Members in good standing. It is not necessary that a petition name candidates both for director and for vice-director but members are urged to interest themselves equally in the two offices.

League members are classified as Full Members and Associate Members. Only those possessing Full Membership may nominate candidates or stand as candidates; members holding Associate Membership are not eligible to either function.

Voting by ballots mailed to each Full Member will take place between October 1st and November 20th, except that if on September 20th only one eligible candidate has been nominated, he will be declared elected.

Present directors and vice-directors for these divisions are as follows: *Central:* Wesley E. Marriner, W9AND, and Harry M. Matthews, W9UQT. *Hudson:* George V. Cooke, jr., W2OBU, and Thomas J. Ryan, jr., W2NKD. *New England:* Percy C. Noble, W1BVR, and Frank L. Baker, jr., W1ALP. *Northwestern:* R. Rex Roberts, W7CPY, and Karl W. Weingarten, W7BG. *Roanoke:* P. Lanier Anderson, jr., W4MWH, and Gus M. Browning, W4BPD. *Rocky Mountain:* Claude M. Maer, jr., WØIC, and (no vice-director). *Southwestern:* John R. Griggs, W6KW, and Walter R. Joos, W6EKM. *West Gulf:* A. David Middelton, W5CA, and Carl C. Drumeller, W5EHC.

Full Members are urged to take the initiative and to file nomination petitions immediately.

For the Board of Directors:

A. L. Budlong
Secretary

July 1, 1954

LEAGUE AUDITS

A director of the League recently intimated in a letter to his division membership that no proper audit of the League's books had been made for the past six years; understandably, this has been the cause of some concern on the part of League members both in and out of the division concerned.

The facts: The League's books are invariably audited every three months — as they have been for thirty-two years — by an independent Hartford firm of Certified Public Accountants, one of the best in the state: Hadfield, Rothwell, Soule and Coates. Quarterly summaries of these audits are regularly sent by the General Manager to each director, vice-director and assistant. The yearly summary of our business operations, including detailed statement of revenues and expenses, and a balance sheet (similarly from year-end audit by HRS&C) is contained in the annual report of the General Manager, sent to all directors, vice-directors and assistants, and available to any member of the League, postpaid, for 75¢

(see box on page 33, June 1954 *QST*). The originals of the CPAs' reports are on file at League Hq. and are available for inspection by any member of the League at any time.

OHIO AMATEUR RADIO WEEK

Ohio became the fourth state to designate an amateur radio week with the issuance of a proclamation which came about largely through the efforts of Ralph Crammer, W8VHO, member of the Columbus Amateur Radio Association and secretary of the Ohio Council of Amateur Radio Clubs. The text:

WHEREAS, at the present time a Joint Senate-House Resolution is pending in the Judiciary Committee in the United States Senate, which calls upon the President of the United States to declare, each year, the third week in June as Amateur Radio Week, and

WHEREAS, the radio amateurs of Ohio are playing an important part in promulgating and participating in matters of Civil Defense and distress emergency communication work, both through the medium of radio and through their organizational and individual activities, and

WHEREAS, the many contributions being made by the radio amateurs to the nation's progress and defense are, frequently, taken for granted, and

WHEREAS, the radio amateurs of this country are diligent and sincere in their work, having in mind the pleasure and service of their fellowmen, and should have the encouragement and interest of all the citizens in their efforts toward their goal.

NOW, THEREFORE, I, Frank J. Lausche, Governor of the State of Ohio, do hereby proclaim June 13 to 19, 1954, as Amateur Radio Week in Ohio and urge all citizens of this State to exert their interest and influence and good will toward the observance of this occasion.

SECURITY RULES

In connection with FCC's proposal (p. 46, August *QST*) to tighten the security aspects of licensing amateur (and commercial) radio operators, Senator Alexander Wiley of Wisconsin discussed the matter briefly in the Senate on June 18th and subsequently filed a statement in considerable detail. While too long to reprint in its entirety, the following excerpts from the Congressional Record will be of interest to amateurs:

. . . The proposed new FCC rules to ban subversive and/or felonious licenses are welcome steps and very definitely in the right direction. I am gratified that these steps are being taken, partly at my own suggestion and continued recommendation. For approximately one year, I have been discussing with the FCC and with United States security agencies the problem of tightening present security loopholes in the radio field. Even after the two new rules are added, a great deal more will have to be done in this area. The electronics security problem is a very complex one with many, many ramifications. [E.g., unlicensed operation. — Ed.] Even simply the administration of the two proposed new rules alone will require great and careful effort. Subversive forces will not take this effort on our part lying down. They will probably try to throw every sort of legal roadblock against it. Meanwhile, we must make sure that the two proposed rules are sound, equitable, and feasible from every standpoint and that there are no bugs in them. . . .

Like our security agencies, I was concerned about the fact that individuals under the discipline of the Communist Party of the United States (which means under the discipline of the Soviet Union) could obtain and renew licenses to operate amateur or commercial radio stations. They could thereby be in a position in time of peace to communicate with a foreign Government and its agents for purposes detrimental to the interests of the United States. Moreover, such individuals could in time of war serve in innumerable ways to damage the defense of the continental United States and to give direct aid to attacking forces. . . .

I made it clear from the outset that in my insistence on protective action, I did not want in any way to overstate the case or to be misconstrued. I did not want any American inside or outside of Government mistakenly to assume that there is or was anything but the tiniest proportion of amateur or commercial radio operators who might even conceivably be guilty of subversive affiliation and intentions. On the contrary, the record of amateur and commercial licensees in our country is one to inspire the highest admiration on the part of the remainder of the American people. My own State of Wisconsin has long had a particularly fine "ham" radio group. In the Badger State, and in all the other States of the Union, there has never been a crisis, civil or military, a crisis of flood, tornado, hurricane, fire or other disaster — a crisis of war — in which amateur radio operators have not fulfilled the highest expectations of the members of their craft and of the American people as a whole.

Our desire therefore to close loopholes in this field in no way reflects upon the patriotism of the mass of such operators, any more than our desire to protect the security of Government reflects on the mass of faithful, honest, patriotic, hardworking Government employees; or any more than our desire to prevent Communist control of labor unions reflects on our esteem for the overwhelming mass of patriotic American workers who are utterly opposed to communism. I have had a great deal of correspondence with members and officers of the American Radio Relay League, as well as with the various editors of radio publications. After I had sent one particular open letter to Wisconsin radio amateur operators, Mr. Fred H. Zolin [W9ONY], chairman of the Milwaukee Radio Amateur Club, wrote to me, for example, stating that "My open letter was read and discussed at the meeting. Your expressions in it on your attitude toward the radio amateurs were very encouraging."

The magazine *QST*, published by the ARRL, in its March, 1954, issue, stated realistically, "For our part, we repeat what we stated to the press . . . on the subject of security checks for radio operators: We had such checks immediately prior to World War II (including fingerprinting) and we don't believe any amateur would hesitate to comply again, should such procedures again be required." . . .

Strays

Mobile fan W6AYB passes along these hints and cautions to fellow mobileers: Many military training manuals on use of mobile electronics gear make worth-while reading where safety considerations are concerned. . . . Stay QRT when your car is being gassed; one small spark could touch things off. . . . Never work on mobile gear with the car running in a garage; if the doors or windows blow shut you may never know it. . . . Spare cans of fuel should never be kept in compartments (trunks, etc.) where generators, power supplies, etc., function. . . . Before sallying forth in your merry old mobile, scrutinize your insurance documents to make certain that you possess the coverage you think you have.

• On the TVI Front

CURE FOR ITV

If buzz-saw radiation [1] from your TV receiver's 15-kc. horizontal oscillator has been dampening your operating pleasure, the following remedy, used successfully by Floyd X. Passmore, W6KJN, may be of help. An advantage of this method is that it is unnecessary to remove the receiver chassis to add internal shielding and filtering.[2]

1) Connect two 0.1-μf. tubular condensers and two 0.001-μf. disk ceramic condensers in the TV receiver power cord, as shown in the upper portion of Fig. 1. These condensers should be rated at at least 300 volts.

2) Cut a piece of 300-ohm Twin-Lead to a length of about 22 inches (approximately a quarter wave at v.h.f. TV frequencies). Since it is impossible to cut for all frequencies, it will be necessary to compromise and try to hit the center of the frequencies received in your area.

3) Attach one end of the Twin-Lead to the antenna terminals of the TV receiver as shown in the lower portion of Fig. 1. Short-circuit the other end of the stub and connect it solidly to the receiver chassis.

4) Check the channels one by one and see if there is any attenuation of the signals to the TV set. If it is found that some of the channels on one end of the v.h.f. spectrum are weaker than before the stub was added, trim the stub a half inch at a time until a length is found which will not appreciably attenuate the signal on any channel.

If you live in an area where both v.h.f. and u.h.f. stations are received, a switch may be used to connect either a v.h.f. or u.h.f. stub to the antenna terminals.

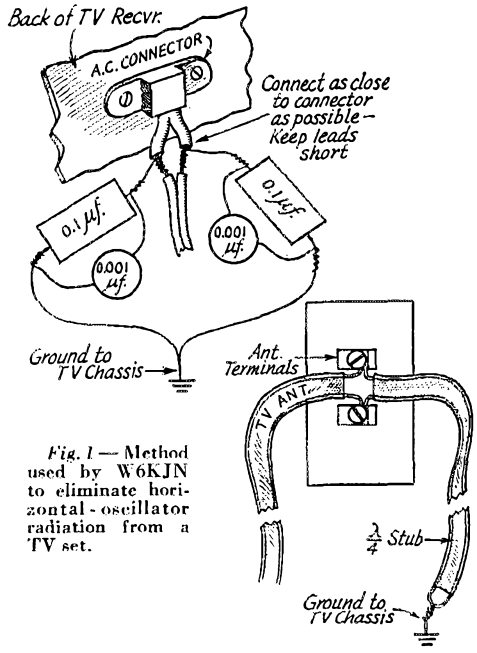
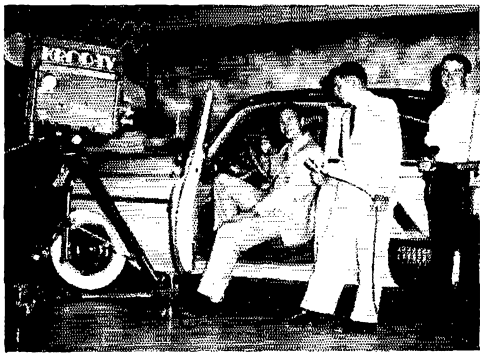


Fig. 1 — Method used by W6KJN to eliminate horizontal-oscillator radiation from a TV set.

TVI COMMITTEE OPERATION DESCRIBED

Northwest Electronic World, trade paper with extensive circulation among technicians, servicemen, dealers and engineers in Washington, Oregon, Idaho and Montana, devoted part of its June issue to a feature story on the successful operation of the three Seattle TVI committees in coöperation with TV service dealers in that locality. Editor Edward J. Wirtz, jr., W7JGM, who prepared the story especially for the information of non-ham readers, hopes something along similar lines might be accomplished in trade papers in other parts of the country.

♦



In El Paso, Texas, KROD-TV recently telecast a half-hour feature program devoted to amateur radio. W5UBN, in car, and W5WVD, right, demonstrated two styles of hamming — mobile and hand-carried portable — with the coöperation of interviewer Bernie Bracher, KROD-TV staff announcer.

♦

[1] "It Seems to Us . . ." August, 1954, *QST*.
[2] "Hints and Kinks," Gallagher, p. 118, September, 1951, *QST*.

ate, which calls upon the President of the

YL NEWS and VIEWS

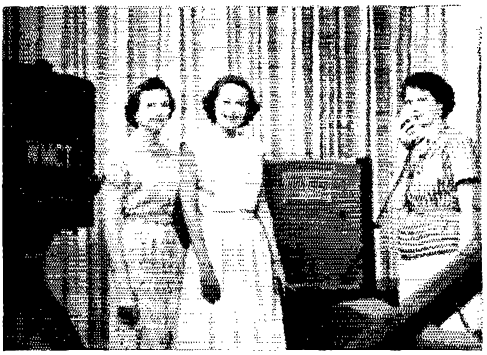
BY ELEANOR WILSON,* W1QON

Again this year, as for the past two, amateurs across the country valuably assisted in the annual All Women's Transcontinental Air Race. A different flight route each year has given more operators a chance to participate and thus to gain some new and interesting experiences. This year the flight, the eighth annual, was from Long Beach, California, to Knoxville, Tennessee. While unable to give full details here and to credit all of the YLs and OMs who served, it is a pleasure to mention as many as possible.

W6NZP, Evelyn Scott of Long Beach, was General Amateur Radio Chairman, and she and

L. to r.: W6s NZP, CEE, LMQ and K6CDB.

W6CEE, Vada Letcher, YLRL President, operated under the Los Angeles Young Ladies Radio Club call W6MWO at the Long Beach airport, the take-off point. K6CDB, Eileen O'Connell, spent many hours prior to the race scheduling operators along the flight route; and W6LMQ, Elleanor Souter, relayed reports from her home station from daylight to dark continuously for four days.



This picture was made in the studio of WMCT, a Memphis television station. ATWAR co-chairman Margaret Pearre, W4TIE, left, and Lenette Mewborn, W4UDI, right, were interviewed by Olivia Browne, center, on a 15-minute program. The two-meter station in the picture was used during the program to make a contact with mobile YL W4UDQ.

W4TIE, Margaret Pearre, and W4UDI, Lenette Mewborn, co-chairmen for Memphis, Tennessee, a stopover point, had the coöperation of YLs W4s UDQ WTJ ZEG, WN4s AFE DMN, and OMs W4s BAQ CV DQH HHK JU TIZ WTI YMB and ZEE. The YLs, operating W4EM on two meters at the Municipal airport, relayed traffic to the OMs at home stations, who in turn relayed on 75 and 20 'phone to other points along the race route.

—•••—

Continuing the introduction of the new officers of the Young Ladies Radio League for the 1954–'55 term, five more are presented herewith, in addition to the twelve acknowledged last month.

W3RXV — Peg Ferber, of Slatington, Penna., is the new Editor of the *YLRL Harmonics*. She is contemplating a number of changes in the format of the club paper and solicits comments from the membership. Peg was the first YL to pass the Novice exam, and she and her OM, W3RXW, were the first married couple to hold Novice licenses. Now General Class, Peg operates on several bands and has YLCC No. 21.

W9YBC — Gloria Matuska, of North Riverside, Ill., the new Publicity Chairman, is also president of the Chicago Ladies Amateur Radio Klub. The XYL of W9ATW, Gloria has made more than 1000 contacts on 20 and 40 since receiving her license in March of '53.

(*Continued on page 124*)

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

Enhancing the splendor of beautiful Estes Park in Colorado were these eleven YLs who attended the Rocky Mountain ARRL Division Convention June 12th and 13th. YL and XYL programs were scheduled for both days. WØSCF sustained her first-place winning streak by taking home the women's top award — a deep fryer. (At the South Western Division Convention last October, she drew a complete amateur station.) The YLs, left to right, are WØMMT, Marie Ellis; WØRTA, Irene Kraft; WØRNO, Ada Northrop; W7HDS, Lizette Wolf; WNØSVY, Marge Wengrzyn; WØBKM, Sallie Kingsbrough; WØERR, Anna Belmonte; WNØTYB, Betty Rogers; WNØSWK, Dorothy Baldwin; W3LSX/Ø, Kay Barclay; WØSCF, Louisa Sando.

Hamshacks

(No Two Were Ever Alike)

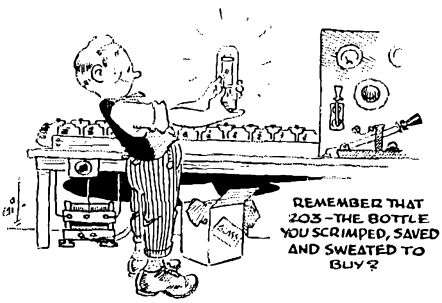
BY A. DAVID MIDDELTON,* W5CA

HAMSHACK . . . even the sound of the word kindles a warm glow! This ham-coined word recalls years of fun and work and countless hours spent in rigging up gear, hunting DX, handling traffic, chewing the fat. Did it ever occur to you that the other fellow was also sitting in a hamshack — maybe like yours? He is in a hamshack but not one like yours, OM. By the beard of The Old Man, no two were *ever* alike.

Hamshack! . . . Roll that word over in your mind! What does it mean to *you*? Perhaps a snug corner down in the basement by the furnace where it is warm in winter, cool in summer, cobwebby and sooty all the time. Or an attic cubbyhole, blistering hot in summer, so darned cold in winter you had to sit on your fingers to warm them so you could twist the Microvernier on the cut-down Cardwell.

Judging from many recent station descriptions maybe your current hamshack *is* a pine-paneled den, complete with built-in air conditioning . . . disappearing bar . . . row of factory-built gear resplendent with lights, dials and gadgets. But 'twas not always thus! And, to the fortunate, the word "hamshack" has far more pleasant memories.

Let's talk about hamshacks. Do you recall the acrid smell of overheated insulation, topped by the sickening sweet odor of hot transformer oil surrounding that 203 mounted upside down in all



its glory? Remember that 203 (with hole in plate) — the bottle you scrimped, saved and sweated to buy? And not for 70 cents at Surplus Joe's, either! Can't you hear the grunt of that pole pig when you slapped the key, hard, as if you were trying to drive your signals over the Rockies for a try at a Transcon. Shut your eyes. See all those jars aglow in the dim dark? That beautiful sight is an even hundred and twenty of Mom's quart Mason canning jars, each with the top neatly cut off, perking away turning out the p.d.c. note once so highly-prized. Take another look. You'll never again see a set of "slop jars" with each plate sparkling and over all a faint hiss!

Hamshack! . . . There's a word to conjure with! Remember the day you put up a map of the U. S. A. and so proudly put in that lonely tack? Your first QSO! Sure, it was only over in the next state! So what? Suddenly the map was studded with tacks.

Then one day, apologetic-like, you put away the U. S. A. map. You were reaching out. World-wide DX! You swiped the latest world map from Dad's *National Geographic*. DX! You were really living!

The QSLs came in dribbles, then in spurts, and all of a sudden they poured in and filled the walls. You put 'em on the ceiling. Then came the DX cards — down with those familiar old locals!

Later, it took a set only 10 by 10 to make you happy. Eventually a DXCC certificate went up on the wall alongside the WAC, WAS, RCC and ROWH not to mention a couple of "off-frequency" notices from NKF.

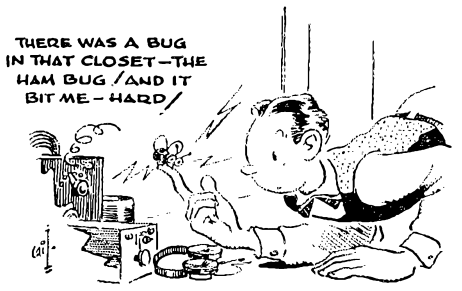
Both you and the hamshack were growing up. You took down all the cards when you decided the shack looked "corny." Take a long look, it will never be the same! Something is gone from that old shack and it'll never return.

Hamshack! . . . Let's go back a bit — 'way back! Actually it was not a hamshack in the true sense, and the equipment wasn't much, I'll admit . . . spark coil, pair of headphones, wooden box with several tap switches and knobs. The shack? — well, there rightly wasn't any. The pre-W.W. I gear was stowed away in a clothes closet. But it was a starter and I never forgot it. Years afterward, I found that its owner had never even held a license, but what did that matter? There was a bug in that closet — the ham bug! And it bit me — hard!

My first look at a real hamshack? A windowless closet off a lad's bedroom. The one outstanding thing about that station was its one-tube receiver. For B batteries there were flashlight cells, wired in series, with taps running from each cell to a "switch" to vary the B voltage. A ceramic rotary? Well, hardly! Nails were driven in the wall behind the operating table and connection was made with a battery clip for the desired voltage. The receiving tube? A double-filament Audion. I had never seen one before!

On another day in '19 I visited the outstanding hamshack in Indianapolis. It took a lot of nerve to climb those stairs over Hamilton's garage underneath the tall poles out on North Alabama Street. That shack was the roost of 9ZJ and I'd heard he was not friendly with youngsters.

* Director, ARRL West Gulf Division; Tijeras, N. M.



But ZJ took time out to show me around and let me listen to my first voice signal coming from the Prest-O-Lite laboratory at the Motor Speedway a few miles away. Why ol' ZJ had a row of tubes t-h-a-t long in his receiver!

Hamshacks! . . . What's their prime function — to house the gear? I suppose that is the main requirement, or else why bother with a hamshack anyway.

Probably there have been as many different types of hamshacks as there have been hams. However, from the early days of ham radio until fairly recent years, the locale of the ether-busters fell, more or less, into one of several classifications.

There were many variations in layout, but in general one thing stood in common: the combined smell of coffee, Camels, hot transformer insulation and battery acid. It's a nostalgic scent — hamshack!

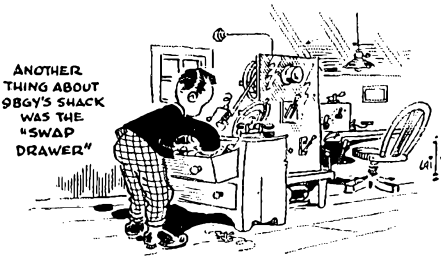
Let's look in at a few and, say, I'll bet a new grid-leak drip pan that one of these descriptions will sound like home to *you*.

How about the *basement hangout?* Let's visit 9AYH (now W6AUQ) in the early Twenties, when Ray Hitchcock lived in Irvington, east of Indianapolis. The passing years have dimmed none of the details of Hitchie's basement shack which was typical of that period. Tucked away down by the furnace, and handy to the chimney draft pipe so that smoke from his then-forbidden cigarettes could be puffed directly into the flue, 9AYH's shack represented a once familiar pattern: rotary gap sitting firmly on a solid 2 by 4 bench, with an oscillation transformer made up of heavy, wide copper strip close by; on the operating table a set of Turney coils (the first in our neighborhood) and a 200 tube lit up like a church. It didn't take much for a rig in those days after you acquired the antenna change-over switch. I wonder if Ray really fooled his OM about those cigarettes? One thing I do know for certain: a ham's folks knew when he was pounding brass in those days, and so did all the neighbors within sound of that crashing, screaming rotary gap.

There was the *attic hamshack.* This one had many versions and ramifications. Usually attic shacks were cold as a landlord's heart in the winter and hotter than a $2.00 pistol in the summer, but one attic that always seemed comfortable to this young squirt was the shack-workshop-bedroom of Bill Sweetland, 9BGY (now W5WKA). Several features about 9BGY's hamshack stick with me now, 35 years later. One was the narrow stairway leading up to the shack. Why a guy couldn't even carry an Esco motor generator set up or down those stairs without bumping his elbows! Ascending the stairs you got an elongated view of one of the 9BGY heaps, a tall slate-paneled spark. I recall this yarn about 9BGY's panel-mounted rotary. One night Bill was fooling around; his key was up but the juice was on. Bill was adjusting the gaps on the rotary when the rubber band that served as a key spring let go. Bill got the full kick of the big Thordarson and he flew across the attic, crashing into the opposite wall. The impact knocked him out. The next thing he knew OM Sweetland was up there trying to bring Bill around and giving him Old Ned for leaving the gap crashing away all that time!

Another thing about 9BGY's shack was the "swap drawer." A terrific idea! Bill had an old beat-up dresser in the shack and one of the drawers was open to visiting hams. Yes, anybody could open that drawer and take out anything he found there — providing he put something into the drawer, something some other guy might need or want. Was that a popular spot! Many of the beginning hams around Indianapolis owe a lot to that swap drawer. Wonder just how many similar dresser drawers are in use today?

A unique feature about this shack was that Bill could start his antennas right in the shack and then run them out the window (in summer he just took out the window pane), and he could get a lot of good licks in that way in tuning and adjusting his skywires which always seemed to work better than those of anybody else. The attic shack of 9BGY was sacred to ham radio . . . no dirt-chasing female or room-straightening gal ever went in there.



Next, let's take a look at the *closet-with-a-window shack.* Here was a happy place. Maybe it was because it was mine but I've seen few hamshacks as cozy as the off-the-bedroom shack at 9BJL in the early Twenties. Who ever laid out our house must have had a ham in mind because the room was just large enough to accommodate (a) a sizable operating table, (b) a row of chemical rectifiers lengthwise, (c) the op's chair plus one for the first visitor to arrive (others stayed outside in the bedroom), and (d) lots of sloping ceiling just right for QSL cards and maps and ARRL certificates. Sure, I know, it wasn't big enough to hold a double 6-foot rack. 9BJL didn't boast any

(Continued on page 128)

V.H.F. QSO Party

September 18th–19th

ARRL is pleased to announce another of its popular V.H.F. QSO Parties, open to all amateurs who can work any band or bands above 50 Mc. The Party will be held during a 33-hour period starting at 2:00 P.M. Local Standard Time, Saturday, September 18th, and ending at 11:00 P.M. Local Standard Time, September 19th. This week end of concentrated activity will furnish v.h.f. enthusiasts with an unusual opportunity to check out new equipment and antennas, renew acquaintances, and perhaps work some new states.

How to Take Part

Call "CQ Contest" or "CQ V.H.F. QSO Party" to get in touch with other contestants. During contact, operators must exchange names of their ARRL sections for full point credit. It's also a good idea to swap signal strength and readability reports, although this is not required.

Scoring

Work as many stations on as many v.h.f. bands as you can. Count *1* point for successfully confirmed exchanges of section information on 2 or 6 meters, *2* points for such QSOs on 220 or 420 Mc., and *3* points on 1215-Mc. or higher bands. Then multiply this sum of station points by your section multiplier, which increases by one when the same section is reworked on another band. A station may also be reworked for credit on additional v.h.f. bands.

Certificate Awards

Certificates will be awarded to the top scorer in each ARRL section. In addition, a certificate will go to the high-scoring Novice, Technician, and multiple-operator station in each section from which three or more valid entries are received in these three special categories. See Rule 7 for details.

Reporting

Submit your results as soon as the competition is over. All that is required is a simple tabulation of stations and sections worked, as shown on page 60 of June, 1953, *QST*. Write ARRL for free convenient reporting forms.

Rules

1) The contest starts at 2:00 P.M. Local Standard Time, Saturday, September 18th, and ends at 11:00 P.M. Local Standard Time, Sunday, September 19th. All claimed contacts must fall within this period and must be on authorized amateur frequencies above 50 Mc., using permitted modes of operation.

2) Name-of-section exchanges must be acknowledged by both operators before either may claim contact point(s). A one-way exchange, confirmed, does not count; there is no fractional breakdown of the 1-, 2- or 3-point units.

3) Fixed-, portable- or mobile-station operation *under one call*, from one location only, is permitted.

4) Scoring: *1 point* for completed two-way section exchanges on 50 or 144 Mc.; *2 points* for such exchanges on 220 or 420 Mc.; *3 points* for such exchanges on the higher v.h.f. bands. The sum of these points will be multiplied by the number of *different* ARRL sections worked per band; i.e., those with which at least one point has been earned. Reworking sections on additional bands for extra section credits is permitted. Cross-band work does not count.

5) A contact *per band* may be counted for each station worked. Example: W2QED (S.N.J.) works W1DBM (Conn.) on 50, 144 and 220 Mc. for complete exchanges. This gives W2QED 4 points (1 + 1 + 2) and also 3 section-multiplier credits. (If W2QED contacts other Connecticut stations on these bands, they do not add to his section multiplier but they do pay off in additional contact points.)

6) Each section multiplier requires completed exchanges with *at least* one station. The same section can provide another multiplier point only when contacted on a new v.h.f. band.

7) Awards: A certificate will be awarded to the high-scoring single-operator station in each ARRL section. In addition, the high-scoring multiple-operator station will receive a certificate in each section from which three or more valid multiple-operator entries are received. Certificates will also be given to the top Novice and Technician in each section where three or more such licensees submit logs. Award Committee decisions will be final.

8) Reports must be postmarked no later than October 6th, 1954, to be eligible for awards. See the box on page 60, June, 1953, *QST*, for correct form, or a message to Headquarters will bring a lithographed blank for your contest report.

W/VE Contest

September 25th–26th

This popular "across the border" contest, sponsored by the Montreal Amateur Radio Club, will be held the week end of September 25th-26th. U.S.A. amateurs will swap short exchanges (see Rule 3) with as many Canadians in as many provinces and territories as possible, and VE/VO amateurs will contact amateurs in the ARRL sections in the U.S.A. One rules change permits VO-land (Newfoundland and Labrador) to compete on a separate basis with other Canadian areas. W/K stations will multiply their scores by 7.11 to equalize scoring opportunities for all participants. VE2BB, contest chairman for MARC, urges those taking part to read the rules carefully and keep neat logs so that checkers can prepare the contest results quickly and accurately.

Rules

1) Any station located in any ARRL section as listed in *QST* (page 6) is eligible to enter.

2) All contacts must be made during the contest period from 6:00 P.M. EST, September 25th, to 11:59 P.M. EST, September 26th, with a total of no more than 20 hours operating time for each entry. Times on and off the air must be clearly shown in the contest log.

3) Exchanges such as the following must be exchanged and be fully recorded in the log entered: (1) number of contact; (2) your call; (3) RST report given; (4) ARRL section. *Example:* NR 1 WØZZZ 579 Kansas.

4) One point may be counted for each exchange sent and acknowledged. One point may be counted for each exchange received. For contest credit a station may be worked once on 'phone and once on c.w. on each band. VE/VO stations will multiply the total points by the number of U.S.A. ARRL sections worked. W/K stations will multiply the total points by the number of VE areas worked and also by 7.11, there being nine Canadian areas (VE1 through 8 plus VO).

(Continued on page 112)

CONDUCTED BY E. P. TILTON,* W1HDQ

ELSEWHERE in this issue are the report on the June V.H.F. Party and the announcement of the September one. We'd like to get the contest summaries in one month earlier, and we used to do it now and then, but with the entries running to nearly 400, it's not likely to be done very often any more. Checking a contest of that size is not something that can be tossed off lightly some spare afternoon!

What is behind this growth in contest activity on the v.h.f. bands? Increased v.h.f. population, particularly on 144 Mc., is part of the story. Certainly there are many more 2-meter stations today than ever before, and the activity is much more widely distributed geographically. But perhaps more important is the discovery by hundreds of v.h.f. operators that these parties are fun for everyone.

Some of us once considered contest operating to be kid stuff, beneath our dignity as mature hams. Not a few boycotted the contests at first, refusing to participate at all. Then cautiously some adopted the "I'll give you a number, but I'm not in the contest" approach. Others, unaware that a contest was scheduled, came on the air on the second evening of a party and were forced into a fast series of contacts by scores of participants who had been digging for new stations all during the previous 28 or 30 hours. "Say — this sort of thing *is* fun, after all; guess I'll give it a real try next time!"

And give it a real try they did, discovering in the process that a week end of contest operating "has everything." One avid contest man of our acquaintance puts it this way: "There's a feeling of 'living with' the gang that you get in no other way. You may not talk with them directly for the entire contest, except for the minimum required for a contest contact, but you know just how they're doing, and they know how you're doing. There's nothing like a contest, worked for all it's worth, to show how your station and operating skill stack up with the others in your class."

The pace of the v.h.f. parties is hot, but not too intense to leave time for a friendly word now and then. And there's a spirit of give-and-take about them. You come across a new section late in the party, and you haunt the guy until you get a shot at him. But once you've worked him you announce his frequency for others in the pack who may not have noticed him. And you spend precious minutes trying to pull through a weak fading signal because you know that working you may mean a new section and a better multiplier for him, even if not for you.

Yes, hundreds of v.h.f. operators have found that a contest means a week end packed with thrills. It's real fun; and when it's over you'll know more about your station and its capabilities than you could learn in months of random operating. See you September 18th and 19th!

For you fellows who like to go out to the hilltops in groups: note the new rule on multiple-operator stations. Section awards will be made wherever *two* or more logs are received from stations manned by more than one operator. We made it three or more in the June Party, but this turned out to be too high; there were many multi-operator stations where excellent work was done, but not enough logs were received for an award. If you like multiple operating, talk other groups into going out in your section this time to give you some competition. There's no better sport; the September v.h.f. Party can be a fall Field Day, if you make it so.

WØZJB	48	W5VY	48	W8OJN	40
WØBJV	48	W5MJD	48	W8LPD	37
WØCJS	48	W5GNQ	46		
W5AJG	48	W5ONS	45	W9ZHB	48
W9ZHL	48	W5JTI	44	W9QUV	48
W9OCA	48	W5ML	44	W9HGE	47
W6OB	48	W5SFW	44	W9PK	47
WØINI	48	W5JLY	43	W9VZP	47
W1HDQ	48	W5JME	43	W9RQM	47
		W5VV	42	W9ALU	47
W1CLS	46	W5FAL	41	W9QKM	46
W1CGY	46	W5FSC	41	W9UIA	45
W1LLL	46	W5HLD	40	W9UNS	45
W1GJO	45	W5HEZ	38	W9MFH	36
W1LSN	44	W5FXN	38		
W1HMS	43	W5LIU	37	WØQIN	47
W1DJ	41			WØDZM	47
		W6WNN	48	WØNFM	47
W2AMJ	46	W6ANN	45	WØTKX	47
W2MEU	46	W6TMI	45	WØKYF	47
W2RLV	45	W6IWS	41	WØJOI	46
W2IDZ	45	W6OVK	40	WØHVW	46
W2FHJ	44	W6GCG	35	WØMVG	46
W2GYV	40	W6BWG	29	WØWKB	45
W2QVH	38			WØTJF	44
W2ZUW	35	W7HEA	47	WØJHS	43
		W7ERA	47	WØPKD	43
W3OJU	46	W7BQX	47	WØIPI	41
W3NKM	41	W7FDJ	46		
W3MQU	39	W7DYD	45	VE3AET	43
W3OTC	38	W7JRG	44	VE3ANY	42
W3RUE	37	W7BOC	42	VE1QZ	34
W3FPH	35	W7JPA	42	VE3AIB	32
		W7ACD	42	VE1QY	31
W4FBH	46	W7FIV	41	VE3DER	27
W4EQM	44	W7CAM	40	XE1GE	25
W4QN	44			CO6WW	21
W4FWH	42	W8NSS	46		
W4CPZ	42	W8NQD	45	Calls in bold face are holders of special 50-Mc. WAS certificates listed in order of award numbers. Others are based on unverified reports.	
W4FLW	42	W8UZ	45		
W4OXC	41	W8RFW	45		
W4MS	40	W8CMS	43		
W4FNR	39	W8SQU	43		
W4IUJ	38	W8BFQ	42		
W4BEN	35	W8YLS	41		

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

Here and There on the V.H.F. Bands

The more time you spend of 6, the more fun it is, says W9MFH, Ravenswood, Ind. Bob made his first out-of-state contact on 50 Mc. in April, 1951, and since that time he has had 1633 DX QSOs and his stations-worked total is now up to 220. Though he arrived on the 6-meter scene well after the big doings of the last sunspot peak were history, W9MFH has 35 states, VE1 2 3 4 5, and Cuba. The 6-meter band is rather like a club, in that one way or another you get to talk to almost everyone who operates there eventually. This makes it a fine field for the use of a card file. Bob keeps his up religiously, and finds it a big help in promoting friendly rag-chews around the country.

Whether it be sunspots or not, W9MFH has found the going much better on 6 this year than any before in his experience. June had only 4 days (5th, 15th, 24th, 30th) when some DX was not heard or worked, and up to July 18th only two dead days (12th, 16th) have come up.

This improvement in conditions is reflected in our 50-Mc. WAS box. Last year it went through the summer almost unchanged, but this season quite a few of the gang have moved up a notch or two. But lack of activity in Utah, Nevada and North Dakota is holding many consistently active 6-meter men at 46 or 47 states. Many other states come hard, but these three have been impossible in the last couple of years.

Nebraska has been a tough one, but W9EET/Ø took care of plenty of the gang this summer by spending his vacation at Lincoln and doing a fine job on 6. He's been on from there before, but this season the band coöperated much better than in the two previous summers.

There has been little sign of resident activity in Vermont of late. W1CGX, who probably provided more Vermont contacts on 6 than any other resident of the Green Mountain State, joined the ranks of Silent Keys some months back, and is sorely missed. The only Vermont contacts we've heard about this summer were the work of W1GJO, who operated portable in Averill, Vt., July 10th through 16th. At a lake cottage a stone's throw from the Canadian and New Hampshire borders, Grid put on his 2E26, mobile converter, NC-88 and a 3-element beam and gave the prized Vermont to W2s ORA, OWF, W3s VAM OTC OJU TDF GGR MXW, W4UMF, W5MJD, W8s OJN CMS QLB YFP, W9s VZP YIL, VE3s DER and AIB. For W5MJD, Amarillo, Texas, this was the big one he'd been waiting for — Number 48. Grid says he'll give it another whirl next summer, if Vermont activity is still low.

W8SQU, Cleveland, Ohio, got his Vermont QSO a different way. On July 9th, he hooked up with W1PZA/2, mobile in New York, about a half-hour drive from the Vermont border. A later sked was made and they got together as W1PZA/1 was in White River Junction, Vt. W9EET/Ø gave him Nebraska the same week.

Here's late news, just in from W1AW, via W1OAK. W1MMN, Orange, Vt., who has done so well by his state on 144 Mc., has completed a 6-meter converter. W9VZP was the first signal heard, and George will be on 6 regularly soon.

CO2CT, Havana, Cuba, writes that the Cuban 50-Mc. men think that W8CMS and W8NQD are the only U. S. stations on 6. They work the Ohio boys again and again, but seldom hear anything else, unless it be that never-listens beacon of W5AJG. They also see XEW, Mexico City, almost daily on Channel 2, and commercial f.m. signals just below the band are heard often through the early summer.

Mike also reports that several of the Cuban boys now have TV set-ups working, but they don't use the 420-Mc. band. They expect special authorization to use Channel 13 for testing after midnight.

Have you looked over the 2-meter standings this month? That 28 alongside W8BFQ is no misprint! When you get up to the halfway mark, new states are likely to come very slowly, but Margaret picked up Numbers 25, 26, 27, and 28 in a matter of days. She had to stay up late at night, and get up early in the morning, but it was worth the effort. Morning schedules with W2QED (0700 EDST) and W1HDQ (0715) had shown the worth of getting started early. W1AZK, Chichester, N. H., has also been on nearly every morning, and it was just a matter of time before W1AZK and W8BFQ would make the grade. This they did, for the first Ohio-New Hampshire 2-meter contact, at 0815 July 1st.

Conditions were better the following morning, with W8BFQ solidly readable on voice at W1HDQ. Was W1KCS in Rhode Island on? We'd never heard him in the mornings.

A few minutes later, Al was just going out the door on his way to work when a telephone call stopped him. A female voice asked, "Are you the ham on 2 meters?" (What's this — a TVI complaint at this hour in the morning — well, she sounds pleasant; guess I'll admit it. . . .) "Yes, but I'm not on the air!" "I know, but I want you to be! This is W8BFQ."

Work was forgotten for the moment, while W1KCS got going on 144 Mc. Result: the first Rhode Island-Ohio 2-meter QSO, and Number 26 for W8BFQ; Number 14 for W1KCS.

South Dakota and Number 27 came on the night of July 18th, when W8BFQ worked WØRSP, Marvin, S. Dak., at 2330 EDST. An "insurance" contact was made with WØORE at Gary a few minutes later. At that time WØORE was S3, but by 0250 on the 19th he had reached S8, and Margaret was able to get him hooked up with W3BGT and W3RUE. Also worked were WØs IFS, Minneapolis, SV, St. Cloud, Minn.; CK, Mitchellville, EMS, Adair, and UOP and IYW, Des Moines, Iowa; TI Millbank, S. D.; and WØLEF, Brainard, Nebr. The last one was Number 28! This session lasted right through to the morning skeds to the east, when WØORE was running S7 off the back of the 32-element array at W8BFQ. But, alas, no W1s were heard that morning. Openings have to end somewhere!

With their W1MHL/1 experience as a warm-up, W1PYM and W1RUD decided to see how it would be to operate on 144 Mc. from the highest spot east of the Rockies, and thus provided North Carolina contacts for many W4s, 8s and 9s. Last year, on the way down to the National Convention, Paul and Bob surveyed the possibilities all through the Blue Ridge and Great Smokies Ranges, and decided that Mt. Mitchell, N. C., was the spot. They got no real break from conditions during their stay on this 6684-foot elevation, but even so they managed to work nine states and a maximum distance of 600 miles. For most of the stations worked it was their first shot at North Carolina. The trip also included marathon hamshack visiting, with stops at W4HHK, W8BFQ and W1HDQ, among other points. One night's work was also put in trying to put Arkansas on the 2-meter map, but four states in four QSOs was all they could manage in the time available.

Speaking of expeditions, the last week end in July should go down in history as a high in this department. As we write, a few days in advance of that week end, we know of several ambitious projects scheduled. WØISL-W6RLB/Ø on Pikes Peak; W6GFQ, W6MXQ, W6DSZ and W6VSV/6 on White Mountain, near Bishop, Calif.; W6LS/6 on Mt. Whitney, Calif. (this should be quite an event, as it's the highest spot in the United States — and no road!); K6EDX and W6QZE/6 in Yosemite Park, Calif.; and probably others, if the weather is good. Should be a good time for another transcontinental 2-meter relay.

The year's best Atlantic Seaboard opening to date came on the night of July 12th, and through the following morning. (Why doesn't somebody arrange things so that DX stops automatically at 11 P.M.?) The best DX we've heard of in this one was W1AZK to W4CVQ, 650 miles. The appearance of W4CVQ, Raleigh, N. C., at the right moment had everyone up the coast after him. Among those who connected: W1RFU, who now moves into the top spot in the W1 2-meter standings.

W1AZK reports that the band was dead at his New Hampshire location until about 11 P.M., but things got better steadily until 0200 on the 13th. Don took time out for a bit of sleep between 0430 and 0700, and then got in a few more contacts before things folded up around 0325. W3TDF and W4UMF both report hearing 11 states in this one.

Your conductor had to be away for two days, but even before we left, on the morning of the 12th, W2QED was putting in the loudest signal we'd ever heard from him. Fine time to be leaving!

Here's a 2-meter beam to end all beams! WØETJ, Elsberry, Mo., has a screen-reflector job that is attracting a lot of attention, both on the air and in the neighborhood. The latter is inevitable, as the reflector is a cylindrical parabola 30 feet high and 7 feet wide. The driven element is 12 feet in front of the center of the screen. Gain on 144 Mc. is better than 17 db. — and the beam is 90 degrees wide! Tests will be underway on 220 and 420 Mc. shortly. On these bands this pigeon catcher should be about the hottest thing yet built in the way of antennas. On 144 it's been doing all right, too, providing solid communication up into the Chicago area and beyond, regardless of conditions.

2-METER STANDINGS

Call	States	Areas	Miles
W1RFU	18	7	1150
W1HDQ	18	6	850
W1IZY	16	6	750
W1AZK	14	5	650
W1MNF	14	5	600
W1BCN	14	5	580
W1KCS	14	5	540
W1DJK	13	5	520
W1MMN	10	5	520
W2UK	23	7	1075
W2NLY	22	7	1050
W2ORI	21	8	1000
W2AZL	20	7	1050
W2QED	20	7	1020
W2OPQ	19	6	—
W2PAU	16	6	740
W2DFV	15	5	—
W2AMJ	14	5	550
W2BLV	14	5	700
W2AOC	14	5	450
W2QNZ	14	5	400
W2UTH	13	7	880
W2SFK	13	6	—
W2DWJ	13	4	425
W2CET	13	5	405
W3RUE	23	8	950
W3NKM	19	7	660
W3KWL	16	7	720
W3LNA	16	7	720
W3FPH	16	7	—
W3GKP	15	6	800
W3IBH	15	5	570
W3TDF	13	5	570
W4HHK	24	7	940
W4AO	22	7	950
W4JFV	18	7	830
W4MKJ	16	7	665
W4UMF	15	6	600
W4OXC	14	7	500
W4JHC	14	5	720
W4TCR	14	5	720
W4UBY	14	5	435
W4IKZ	13	5	720
W4JFU	13	5	720
W4ZBU	10	5	800
W4UDQ	10	5	850
W4WCB	9	4	650
W4TLA	7	4	850
W5RCI	20	7	925
W5JTI	14	5	670
W5QNL	10	5	1400
W5CVW	10	5	1180
W5AJG	10	4	1260
W5MWW	9	4	570
W5ML	9	3	700
W5ABN	9	3	780
W5ERD	8	3	570
W5VX	7	4	—
W5VY	7	3	1200
W5FEK	7	2	580
W5ONS	7	2	950
W6ZL	3	3	1400
W6PJA	3	3	1390
W6WSQ	3	3	1390
W6BAZ	3	2	320
W6NLZ	3	2	247
W6MMU	2	2	240
W6GCG	2	2	210
W6QAC	2	2	200
W6EXH	2	2	193
W7JU	3	2	247
W7LEE	3	2	240
W7YZU	3	2	240
W7JUO	2	2	140
W7RAP	2	1	165
W8BFQ	28	8	775
W8WJC	25	8	775
W8WXV	22	8	1200
W8RMH	20	8	690
W8WRN	20	8	670
W8DX	20	7	675
W8BAX	19	7	655
W8EP	18	7	800
W8UKS	18	7	720
W8RWW	17	7	630
W8WSE	16	7	830
W8SRW	16	7	700
W9EHX	23	7	725
W9EVJ	22	8	850
W9EQC	21	8	820
W9BPV	20	7	1000
W9UCH	20	7	750
W9KLR	19	7	690
W9LF	19	—	—
W9ALU	17	7	800
W9WOK	17	6	600
W9ZHL	17	6	—
W9MBI	16	7	660
W9BOV	15	6	—
W9LEE	14	6	780
W9DDG	14	6	700
W9FAN	13	—	680
W9UIA	12	7	540
W9DSP	12	5	700
W9ZAD	11	5	700
W9GTA	11	5	540
W9JBF	10	5	760
WØEMS	24	8	1175
WØGUD	22	7	1065
WØIHD	19	7	725
WØONQ	17	6	1090
WØINI	14	6	830
WØZJB	12	7	1097
WØOAC	12	5	725
WØWGZ	11	5	760
VE3AIB	20	8	890
VE3DIR	17	7	790
VE3BQN	14	7	790
VE3DER	13	7	800
VE3BPB	12	6	715
VE3AQG	11	7	800
VE1QY	11	4	900
VE2AOK	10	5	550

Good news for v.h.f. men of the West Gulf Division: W5FEK, who handled v.h.f. program arrangements for the National Convention at Houston last year, will do the same job for the West Gulf Convention at Kerrville, Texas, Oct. 2nd and 3rd. There will be a special v.h.f. luncheon Saturday, and three hours of the convention program have been set aside for v.h.f. activities.

Your conductor had hoped to make this party, but a change in plans developed that will make it impossible. We will, however, be attending the Dakota Division Convention, Rapid City, S. Dak., Sept. 17th, 18th and 19th, and the Midwest Division Convention at Des Moines, Iowa, Oct. 16th and 17th, and taking in a long string of radio club meetings and hamfests in many western states in between. If the v.h.f. section of *QST* looks a bit sparse the next couple of months, this trip will be the alibi!

Did your club use 2 meters in its Field Day activities this year? If not, perhaps you're missing a good bet. Well, maybe not if your operating site was in Wyoming, but there are places where v.h.f. pays off. The South Jersey Amateur Radio Association, K2AA/2, made 245 contacts on 144 Mc. this year, as an example of what can be done.

Perhaps this one should be in with the "Strays." W2TNF, New York City, tells it. He'd just bought a new Communicator, and on arriving back at his apartment he plugged it in and turned on the receiver. The first signal heard was W2KH (former ARRL President, George Bailey) who was testing, and then standing by for a check. A contact was made, and it turned out that George, too, was checking a new Communicator. It was the first contact for both!

Here's something rather unusual in the way of v.h.f. receivers. The contest job used by W1UIZ/1 has, in one package, crystal-controlled front ends for 50, 144 and 220 Mc., a two-stage i.f. that is broad-banded for 10 to 15 Mc., a special 10-to-15 Mc. tunable receiver with crystal filter, b.f.o. and low-frequency i.f. and final detector with noise limiter and audio. Built compactly enough to be toted up Mt. Monadnock in a pack, it's the work of W1WID and W1UIZ.

September V.H.F. Party note: W3QQO writes that several members of the Glenn L. Martin Radio Club, having had fine luck on 2 in the Field Day, are planning an expedition to Spruce Knob, W. Va., highest spot in the hard-to-get state. They plan to be on 6 and 2 for sure, and possibly 220 and 420, if equipment can be made ready in time.

A 50-Mc. DX note from an old friend: he's been 6-meter DX as HC2OT, CO2JF and OA4DX. You all know who we mean; he's also worked in this country as W5DNN and W5BR. Now Steve is in Columbia, where he hopes to be on the air on 6, 10, 15 and 20 meters in a few months. The new location is 6500 feet above sea level, with a good shot to the north. When the m.u.f. gets back up there, HK? should be good for some 50-Mc. DX contacts. And even before, possibly; we note that TV stations of Argentina, Brazil and Venezuela have been reported a few times around the States. If those frequencies can get through on sporadic *E*, certainly 50 Mc. can.

How About 1215?

More inquiries keep coming in about 1215 Mc. Seems like everyone is looking for someone else who will jump in at the same time. W3UQB is one who would like to hear from anyone interested in doing serious work on that band. And the Bell Gardens Amateur Radio Association (6418 Sherman Way, Bell, Calif.) would like information on equipment and activity on 1215 Mc. and higher bands. U.h.f. enthusiasts of the Los Angeles area please note.

OES Notes

The OES family is growing. We welcome many new appointees this month, wish them well, and express the hope that their reporting will be more regular than that of some present holders of the appointment. The reporting for the month of June reached a new high, by the way. Thanks, gang, and keep up the good work!

W1CTW, Arlington, Mass. — Worked 6 states on 144 Mc., without W1s, in Atlantic Seaboard opening on 144 Mc. W3WHZ in Delaware, 325 miles, was using only a pair of 6AK5s in the final!

At the suggestion of W1OOP, improved action of noise limiter in the C.D. Portable for 50 Mc. described in *QST* for May, 1952. Referring to page 21, if the value of C_{34} is changed from 500 to 50 $\mu\mu$f., reception of weak signals through ignition noise will be considerably better.

W1UIZ, Salem, Conn. — Nightly skeds with W1YQI, Marblehead, Mass. on 144.45 Mc., 600 watts; W1UIZ 144.55, 12 watts. About 25 per cent of skeds result in 2-way contact, though high-power at YQI gets through consistently. Suggest those looking for Maine contacts watch for W1KID/1, Mt. Agamenticus, on week ends through the summer.

K2AMM, Levittown, L. I. — Completed 220-Mc. amplifier described in May *QST*. Results much better than previous units using 832A. Regular skeds on 220 10 to noon Sundays with K2BKN.

W3UQJ, York, Pa. — New 220-Mc. rig with 832A in final on 220. Keeping nightly sked with Philadelphia area at 2130.

W5FPB, Albuquerque, N. Mex. — Increased activity on 144 Mc. W5s FJE FPB IEO WNL now have 16-element arrays. Recent addition to 2-meter net: W5EYR.

W5NSJ, Albuquerque — 420-Mc. stations active include W5s FPB ZFS FJE EDK WQS NSJ. Operating on Capillo Peak during v.h.f. relay, the third harmonics of several 2-meter stations were heard at distances up to 120 miles. Worked W5FJE. W5EDK now has 9903 rig for 420 working nicely.

WGAJF, Sonoma, Calif. — Daily observations on 144 Mc. show signals good regularly 6 to 9 P.M. Occasional inversions later in evening produce good signals to north and

(Continued on page 184)

June V.H.F. Party Results

Activity and Reporting at New Summertime High

In years past, if conditions were generally poor throughout the East, we could look for a low yield in contest reports when it came time to total up the scores. Not so June, 1954. Thanks to a wider geographic distribution of activity than ever before, the V.H.F. QSO Party of June 5th and 6th broke all previous records. The tabulation shows 370 logs received from 47 ARRL Sections, a record in both categories.

Many of the leaders' scores were below levels set last June or September, but almost without exception activity and interest were phenomenal. Along the Atlantic Seaboard there was no break in the totally-dead nature of propagation throughout the Party, but elsewhere the 50-Mc. band did well with widespread sporadic-*E* skip openings, and tropospheric conditions helped things along on 144 Mc. and higher bands.

As in just about every spring and fall contest in the past, the v.h.f. operators of the Waltham Amateur Radio Association ran up the country's highest score, though they missed their September record by a wide margin. Using 50, 144, 220 and 420 Mc., W1MHL/1, atop Pack Monadnock Mountain, near Peterboro, N. H., made 281 contacts, with a section multiplier of 28, for 8316 points. They won the first multi-operator section award ever to be issued to a v.h.f. contest station, this type of award having been added to the contest rules for the June Party.

The country's high in the single-operator class was made by Liane Waite, W2FBZ, Upper Montclair, N. J., with 185 contacts and a multiplier of 25 for 4925 points. Not far behind her was W1RFU, Wilbraham, Mass., with 150 and 28 for 4396 points. If there were a most-contacts award, it would go to K2CMB, Paterson, N. J., for his 246 contacts on 144 Mc. And the hardest-work award would be for the boys of W1UIZ/1 who toted gear for 50, 144 and 220 Mc. to the top of Mt. Monadnock, near Jaffrey, N. H. You can see from the accompanying picture something of what this barren pile of rock is like — but the spot where they are perched is about 2 miles of rocky trail from the nearest road. They earned their 159 contacts, 3933 points and New Hampshire section award!

♦

Being the operator of the highest 2-meter fixed station in eastern America is not all sunshine and v.h.f. DX. Here W1PDN, Mt. Washington, N. H., tries to get his 16-element array back into some semblance of working order for the second day of the June V.H.F. Party. By nightfall there was nothing left but the boom.

♦

But performance in a v.h.f. contest cannot be judged by number of contacts, section totals or scores, unless you know the possibilities of the area you're considering. There is simply no basis upon which a national scoring system can be worked out, so our awards are made on an ARRL Section basis only. Viewed in this light, W7OKV/7 in Oregon and W7s QKE, MZS and JHX in Washington, all with over 50 contacts on 144 Mc., rate a big hand; and W6YEQ, who won the Santa Clara Valley section award with 123 contacts for 2286 points, and W6AJF, Sacramento Valley winner with 113 contacts and 2380 points, rank with the country's leaders.

There must have been plenty of activity in southern California, for W6AXK/6 worked 106 stations on 144 Mc., but his was one of but two logs received from the entire Southwestern Division. W6AXK reports that he had to explain the contest set-up to many of the fellows he worked, 28 of them Novices. How about more logs from Los Angeles and San Diego in September?

In the following tabulation, scores are listed by ARRL Divisions and Sections. Unless otherwise noted, the top scorer in each section receives a certificate award. Columns indicate the final score, the number of contacts, the section multiplier, and the bands used. A represents 50 Mc.; B, 144 Mc.; C, 220 Mc.; and D, 420 Mc. Multiple-operator stations, with calls of participating operators, are shown at the end of each section tabulation.

ATLANTIC DIVISION

E. Pennsylvania

W3TDF....1020- 85-12-AB
W3VWF....376- 94- 4-B
W3SAO....304- 76- 4-B
W3TEC....292- 73- 4-B
W3WED....183- 61- 3-B
W3SVL....180- 45- 4-B
W3EDO/3...108- 36- 3-B
W3PMG....80- 16- 5-AB
W3GFZ....75- 25- 3-B
W3BNU....74- 37- 2-B
W3IMW....62- 31- 2-B
W3PNL....50- 25- 2-B
W3UMK....48- 16- 3-B
W3KX/3 (W3s EBE LCK LCM LKL LZD MRQ NNH PMG QGE QGX TKK) 3538-103-29-ABCD

Md.-Del.-D. C.

W3PRB....488- 58- 8-ABC
W3YHI....472- 59- 8-B
W3LMC....312- 52- 6-B
W3TOM/3...177- 59- 3-B
W3TFA....168- 39- 4-BC
W3VAM....150- 25- 6-AB
WN3WOD...140- 35- 4-B
W3GKP....123- 41- 3-B
W3LZZ....84- 28- 3-B
W3AHM....46- 23- 2-B
W3WDA....39- 13- 3-B
W3RAH/3 (W3s CIQ RAH) 476 - 68- 7-B

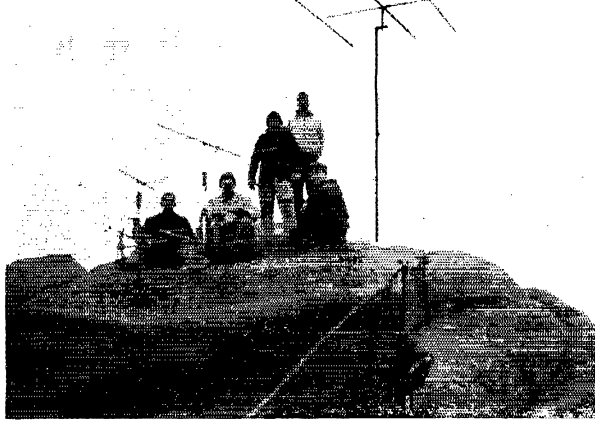
S. New Jersey

W2QED....1800-110-15-ABCD
W2BLV....1310-127-10-BD
W2UK....1230- 82-15-B
W2AF/2....260- 26-10-A
W2ORA....255- 51- 5-AB
W2SJB....27- 9- 3-B
W2BAY....12- 4- 3-A
W2ZQ (W2s JWA UAE ZI) 111- 37- 3-B

Western New York

W2BVU/2..1794- 69-23-ABCD
W2RUI....890- 86-10-ABD
W2ORI....790- 75-10-BD
W2ALR....728- 91- 8-AB
K2CEH....462- 66- 7-AB
W2UFI....385- 77- 5-AB
K2HBL....312- 78- 4-B
W2CCR....310- 62- 5-B
W2VCI....304- 76- 4-B
W2IRU....255- 50- 5-BD

QST for



And there are few home comforts on the bleak summit of Mt. Monadnock, near Jaffrey, N. H., scene of operations for W1UIZ/1 in the June contest. Crew who carried gear up the rocky slopes: left to right, WN4BRL, W1WID, Foster, Hazen, and operator W1UIZ. Beams for 220, 144 and 50 Mc. don't have to be elevated — there's no "ground" for at least 1000 feet straight down.

W2SHT.....250- 50- 5-B
W2VVG.....244- 61- 4-B
W2OWF.....216- 54- 4-AB
K2CITY.....150- 50- 3-B
W2FCG/2....78- 26- 3-B
W2WON/2....32- 16- 2-A
W2JGJ/2 (W2s JGJ UPT) 576- 48-12-AB
W2FRL/2 (W2s ALL FRL) 518- 74- 7-AB

W. Pennsylvania

W3LNA/3...200- 40- 5-B
W3KWL.....140- 28- 5-AB
WN3YNN.....4- 4- 1-B
W3KWH (W3s RXT UHM WHY).....781- 71-11-AB

CENTRAL DIVISION

Illinois

W9QKM.....738- 82- 9-AB
W9WOK.....658- 47-14-AB
W9PPA.....352- 88- 4-B
W9DRN.....315- 61- 5-BC
W9SPM.....296- 74- 4-B
W9PK.....290- 58- 5-B
W9USI.....272- 68- 4-B
WN9AFP[1]...264- 66- 4-B
W9CT.....200- 50- 4-B
W9BOI.....180- 45- 4-B
W9SRK.....180- 45- 4-B
WN9EGB....176- 44- 4-B
W9JYG.....150- 50- 3-B
W9WNK.....132- 44- 3-B
WN9ZQG....129- 43- 3-B
W9ALR.....126- 42- 3-B
W9ULF.....96- 32- 3-B
W9CPF.....93- 31- 3-B
W9ADO.....90- 30- 3-B
W9SEF.....90- 30- 3-B
WN9ZWO....69- 23- 3-B
W9TGN.....63- 21- 3-B
W9KCW.....48- 24- 2-B
W9IQ[2].....36- 18- 2-B
W9PMN.....30- 10- 3-B
W9RPH.....15- 15- 1-B
W9RON.....7- 7- 1-B

Indiana

W9KLR.....880-110- 8-B
W9ZHL.....407- 37-11-AB
W9CAW.....260- 52- 5-B
W9MHP.....128- 16- 8-AB
W9BUM.....124- 31- 4-B
WN9ZZS.....93- 31- 3-B
W9MTV.....80- 20- 4-B
W9VAY.....34- 17- 2-B

Wisconsin

W9ZAD.....360- 60- 6-AB
W9TQ.....329- 47- 7-AB
W9UJM.....168- 42- 4-B
W9NVK.....128- 32- 4-B
W9LEE.....60- 15- 4-B
W9DSP.....21- 7- 3-B
W9ZJA.....14- 7- 2-B

DAKOTA DIVISION

S. Dakota

WNØRSP.....51- 17- 3-B
WØORE.....20- 10- 2-B
WØDB.....6- 3- 2-B

Minnesota

WNØPYC.....5- 5- 1-B

DELTA DIVISION

Mississippi

W5RCI.....112- 15- 7-BC

Tennessee

W4HHK.....210- 30- 7-B
W4UDQ.....100- 25- 4-B
W4HFO.....63- 9- 7-A
W4FLW.....32- 8- 4-A
W4GIS.....18- 9- 2-B

GREAT LAKES DIVISION

Kentucky

W4PCT.....372- 62- 6-B
W4BAZ/AM..60- 20- 3-B

Michigan

W8RMH...1456- 98-14- ABCD
W8DX.....1144- 78-13- ABCD
W8UMI.....488- 56- 8-BC
W8NOH.....366- 61- 6-B
W8GNN.....255- 51- 5-B
W8RWW.....204- 51- 4-B
W8JXI.....212- 53- 4-B
W8DDO.....172- 43- 4-AB
W8NSH.....138- 46- 3-B
WN8PSN[1]...123- 41- 3-B
W8GZN.....120- 40- 3-B
W8GYU.....117- 39- 3-B
W8BGY.....114- 38- 3-B
W8DIV.....105- 35- 3-B
WN8PNX.....84- 28- 3-B
WN8ONS.....66- 22- 3-B
W8GWA.....48- 16- 3-B
W8RFW.....24- 6- 4-A

Ohio

W8BFQ....2961-132-21- ABCD
W8LPD....1573-116-13-ABC
W8SRW.....790- 79-10-B
W8SFG.....780- 78-10-B
W8HOH.....712- 88- 8-ABC
WN8NRM/W8NRM[3] 490- 65- 7-BCD
W8HQK.....480- 60- 8-AB
W8DRN.....371- 53- 7-AB
W8LAH.....348- 58- 6-B
W8BMO.....315- 55- 5-ABC
W8OMK.....290- 58- 5-B
W8UZ.....276- 46- 6-AB
W8GGH.....270- 54- 5-B
W8BAX.....245- 48- 5-BC
WN8PZH....196- 49- 4-B
W8ZSX.....164- 41- 4-B
W8KOM.....156- 52- 3-B
W8QLB.....88- 22- 4-AB
W8LCY.....84- 21- 4-B
W8DPW.....76- 38- 2-B
WN8RQV.....75- 25- 3-B
WN8NHU.....27- 27- 1-B
W8KKE.....26- 13- 2-B
W8HUA.....24- 12- 2-B
W8NAF.....23- 23- 1-B
W8WUP.....18- 18- 1-B
W8INQ.....14- 7- 1-C
W8VLK.....13- 13- 1-B
W8SDJ/8 (W8s MVA SDJ WN8QIU) 184- 46- 4-B
W8FGO (W8FGO W9FRM) 99- 33- 3-B

HUDSON DIVISION

Eastern New York

W2VCB.....450- 45-10-B
KN2HPN/2..200- 40- 5-B
W2PKY.....120- 24- 5-B
KN2DRV.....60- 20- 3-B
W2YIK.....54- 18- 3-B
W2IP.....30- 10- 3-B

N. Y. C.-L. I.

W2KIT.....900-100- 9-B
W2FYQ.....861-123- 7-B
W2DLO.....600- 60-10-AB
W2GLU.....525-105- 5-B
W2KIR.....468- 78- 6-B
W2GMT.....450- 90- 5-B
W2BNX/2...345- 69- 5-B
K2IEJ.....308- 77- 4-B
W2JBQ.....300- 60- 5-B
W2KJC.....284- 71- 4-B
W2AOD.....280- 51- 5-BD
W2LGG.....219- 73- 3-B
W2FBL.....129- 43- 3-B
W2YHP.....87- 29- 3-B
K2CMV.....63- 21- 3-B
W2WOK.....60- 30- 2-B
KN2HJN.....56- 28- 2-B
W2TUK.....52- 26- 2-B
KN2DVT.....30- 15- 2-B
W2WOF.....16- 4- 2-D
W2JU/2 (K2s BHZ CFY EQH KN2s HJN HQG W2s JU MIQ).....195- 65- 3-B

N. New Jersey

W2FBZ.....4925-183-25- ABCD
W2RGV....4272-165-24-ABC
K2CMB....1722-246- 7-B
W2WKL....1170-130- 9-AB
K2BJP.....396- 66- 6-B
W2MM.....384- 48- 8-B
KN2EIZ.....357- 51- 7-B
W2IDZ.....234- 25- 9-ABC
W2EVX.....132- 44- 3-B
W2ESC/M...114- 38- 3-B
W2DZA.....72- 9- 4-C
K2GTQ (KN2s EFO IBJ K2GTQ)...153- 51- 3-B

MIDWEST DIVISION

Kansas

WØMOX.....6- 3- 2-B

Missouri

WØHVW.....77- 11- 7-AB
WØIHD.....75- 15- 5-B
WØQMF.....48- 12- 4-B

NEW ENGLAND DIVISION

Connecticut

W1HDQ[3]...4470-135-30- ABCD
W1KHL....2295-135-17-AB
W1SPX....1520- 90-16- ABD
W1PHR....1470- 93-15- ABD
W1VLK.....520- 61- 8- ABD
W1YDM/1..426- 71- 6-B
W1ZDP[3].....390- 65- 6-B
W1TXI.....315- 63- 5-B
WN1YUX[1]...284- 71- 4-B
WN1ZGP....276- 69- 4-B
W1KHM.....200- 40- 5-AB
W1HDF.....196- 23- 7- ABCD
W1UQU.....168- 56- 3-B
W1ULY.....160- 40- 4-B
W1RMU.....156- 39- 4-B
W1YDS.....138- 46- 3-B
W1YBZ.....135- 45- 3-B
W1AW[3].....132- 33- 4-AB
W1UYP.....124- 31- 4-B
W1STU.....84- 28- 3-B
W1RFJ.....60- 30- 2-B
WN1AMY.....48- 24- 2-B
W1FLT[4].....13- 13- 1-B
W1ORS (W1s ASO FMU GVK RFJ RON TCW URC WAV WN1s APS BHZ ZEF ZGF ZNU ZTY ZZU) 420- 84- 5-B

Maine

W1TAM[5] (W1s TAM VLU) 72- 18- 4-A

E. Massachusetts

W1ELP.....1469-113-13-AB
W1AQE....1200-120-10-AB
W1BJN....1120-125- 8-ABC
W1CTW....1000- 87-10- ABD
W1PLX.....504- 63- 8-B
W1TPZ.....428-107- 4-B
W1JSM.....424-106- 4-B
W1LMU.....384- 64- 6-AB
W1SXD.....366- 61- 6-AB
W1PZA/M...300- 41- 6-ABC
W1TQF.....300- 75- 4-B
W1LYL.....292- 73- 4-B
WN1ZEN[1]...284- 71- 4-B
W1DJ.....276- 46- 6-A
W1SIX/1....212- 53- 4-B
W1DBH.....204- 51- 4-B
WN1YWE....162- 54- 3-B
WN1ZCQ.....82- 41- 2-B
W1YLV.....72- 24- 3-B
WN1AVF.....62- 31- 2-B
W1MEG.....60- 15- 4-B
W1DOF.....54- 27- 2-B
W1MGP/M...51- 17- 3-A
W1TUM/M...40- 10- 2-C
W1FZ/M.....39- 13- 3-B
W1CTR.....36- 18- 2-B
WN1ZYW....15- 5- 3-B
W1LUW/M....4- 2- 2-B
W1QCC/1 (W1s QCC VZQ WN1ZOC) 2363-132-17-ABC

W. Massachusetts

W1RFU....4396-150-28- ABCD
W1VNH....2160-108-20-AB
W1UAZ/1...861-123- 7-B
W1OBQ.....273- 39- 7-B
W1PHU.....30- 10- 3-B
W1WRG/1 (W1s HXD RGM UIY WRG) 715- 65-11-AB

New Hampshire

W1UIZ/1...3933-159-23-ABC
W1AZK.....378- 42- 9-AB
W1PDM.....280- 40- 7-B
W1RMH.....95- 19- 5-AB
W1MHL/[6] (W1s LUW PYM QMN YVB) 8316-281-28-ABCD
W1QMN/1 (W1s QMN RUD) 44- 11- 4-B
W1WUF/1 (W1s RUD WUF) 30- 15- 2-B

Rhode Island

W1AJR.....1520- 95-16-AB
W1KCS....1339-103-13-AB
W1ZJQ.....720- 90- 8-B
W1SGA.....702- 78- 9-B
W1KKR.....355- 71- 5-B
WN1ZPH....253- 63- 4-B
W1VEM.....177- 59- 3-B
W1BTV.....40- 20- 2-B
WN1ZUO....26- 13- 2-B

Vermont

W1REZ/1...546- 61- 9-B
W1MMN....133- 19- 7-B

NORTHWESTERN DIVISION

Montana

W7JRG.....45- 9- 5-A

Oregon

W7OKV/7...168- 56- 3-B
W7HBH.....46- 23- 2-AB
W7NGW.....46- 23- 2-AB
W7INX.....26- 26- 1-AB
W7UAB/M...23- 23- 1-B
W7OAY/7 (W7s JIP OAY) 132- 44- 3-AB
W7OTV/7 (17 operators) 54- 27- 2-B

Washington

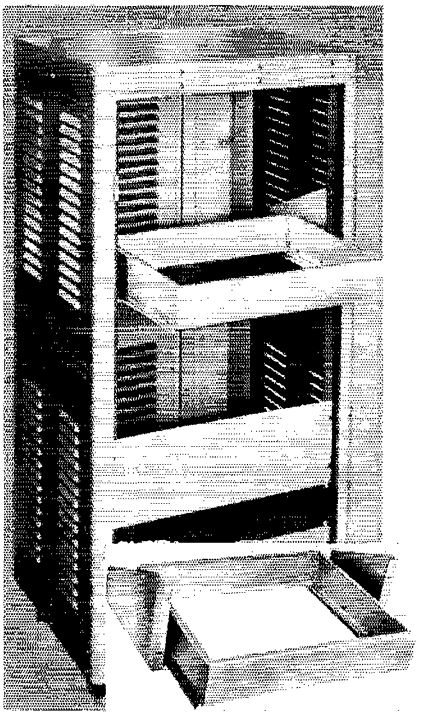
W7QKE.....220- 55- 4-AB
W7MZS.....168- 56- 3-B
W7JHX.....156- 52- 3-B
W7IEE.....125- 25- 5-AB
W7TMU.....116- 29- 4-AB

(*Continued on page 132*)

New Apparatus

Sliding Drawer Assembly

MUCH of the convenience and accessibility of commercial radio installations stems from the widespread use of slide-mounted units that make it easy to service a rack-mounted chassis from the front. In the past these slides and associated parts have usually been custom-made affairs beyond the reach of the average amateur, but that day is past. There is now available a sliding drawer assembly that can be used for supporting up to 50 pounds of gear — sufficient for anything except large power supplies. Two ⅛-inch



aluminum brackets are fastened to a standard rack or cabinet, and they support the slide mechanism and a 16¾ × 14 × 3-inch skeleton chassis. The drawer slides in and out on ball-bearing suspensions, and a stop screw prevents the drawer from falling out of the slides and onto the operator's pet corn. The support brackets and channel are finished in "gold-tone," as is a 14-gauge aluminum plate that is available for either top (chassis) or bottom (drawer). The gold-tone finish may seem like "gilding the lily," but it makes sense because the drawer assembly is also intended to be used as a mounting for a record player, typewriter or piece of test gear, where the chassis would be in clear view at all times. Amateur use, if it follows commercial practice, will generally include a front panel that hides the chassis.

The S.D. 1717 sliding drawer assembly and the T.P. 1718 drawer plate are made by Bud Radio.

Strays

Reports of the high-seas rescue of the five-man crew aboard raft *Lehi*, a "floating marine survival laboratory" en route Hawaii, received wide circulation in the nation's dailies during mid-July. The radiop whose diligence pinned down the source of the *Lehi's* SOS was W1MFT aboard freighter *Metapani*.

—···—

The many friends and on-the-air acquaintances of John F. Wohlford, W4CA (ex-W3CA-3CA), will be saddened to note the appearance of his name and call in this month's Silent Keys. An avid ever-active amateur, "Fred" was a past SCM of the Virginia Section and had been a member of ARRL continuously since 1916.

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 a volunteer manager 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. 59, June 1954 *QST* — also p. 63 of this issue.

W1, K1 — J. R. Baker, jr., W1JOJ, Box 232, Ipswich, Mass.
W2, K2 — H. W. Yahael, 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 — Oren B. Gambill, W5WI, 2514 N. Garrison, Tulsa 6, Okla.
W6, K6 — Horace R. Greer, W6TI, 414 Fairmount St., Oakland, Calif.
W7, K7 — Mary Ann Tatro, W7FWR, 513 N. Central, Olympia, Wash.
W8, K8 — Walter E. Musgrave, W8NGW, 1294 E. 188th St., Cleveland 10, Ohio.
W9, K9 — John F. Schneider, W9CFT, 311 W. Ross Ave., Wausau, Wis.
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, 236 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, 2316 Trent St., Victoria, B. C.
VE8 — W. L. Geary, VE8AW, Box 534, Whitehorse, Y. T.
VO — Ernest Ash, VO1A, P. O. Box 8, St. John's, Newfoundland.
KP4 — E. W. Mayer, KP4KD, Box 1061, San Juan, P. R.
KH6 — Andy H. Fuchikami, KH6BA, 2543 Namauu Dr., Honolulu, T. H.
KL7 — Box 73, Douglas, Alaska.
KZ5 — Gilbert C. Foster, KZ5GF, Box 407, Balboa, C. Z.

Correspondence From Members-

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

WAIT'LL NEXT YEAR!

Box 611
Craig, Colo.

Editor, *QST*:

I was a scourge, an ignoramus and a lid to the amateur fraternity, particularly during the recent Field Day contest. I was dropped like a red-hot poker when I advised the other fellow that I wasn't in the contest (for which I blame no one — they wanted scores).

Having just procured my ticket not too many moons ago, I wasn't familiar with any phases of the contest. (Sure, I take *QST* — had read all about it, and then forgot about it.) I guess the only way to correct this deplorable situation is to get in the middle of the next contest and make as big a noise as anyone else. Were *all* the gang contestants except me?

— *Irby H. Miller, WØRQC*

[EDITOR'S NOTE: Stations "in the field" on Field Day may make contact with any other station for points. It is not necessary to be portable to give credit to a portable station for a contact. Just give him his report and your section.]

HELPING HAND NEEDED

6 Roosevelt Ave.
Springfield, Mass.

Editor, *QST*:

This afternoon I had a most interesting and enjoyable QSO. I was talking with K2BER, a blind ham who lives in Northport, L. I., N. Y.

Art operates mostly in the 80-meter Novice band, taking a personal interest in beginners. He gets a great deal of pleasure out of ham radio. However, Art needs the help of some local ham.

It seems that his handicap presents a problem to him. He told me "I have no one to fill out my QSL cards — not even the Boy Scouts! I worry about it day and night."

Art also has BCI problems. After working him for about an hour and a half he said, "I must QRT soon — I have BCI. Mother wants to have her radio on now."

Here is a fellow-ham who is in need of some aid. I am sure that Art would appreciate receiving some help on his problems. Let's show him the real spirit of amateur radio and give him a helping hand.

— *Robert Hedin, WN1AJX*

ECLIPSE EFFECT

Rhodes University
Grahamstown, C. P.
South Africa

Editor, *QST*:

. . . An annular eclipse of the sun is to take place here on December 25, 1954 (Christmas Day). Our Physics Department will be making a study of the effect this eclipse will have on the ionosphere, while at the same time, through the medium of amateur radio, it is hoped to study the effect of the eclipse on long-distance radio communication.

It is hoped, should the support of the radio amateurs of the world warrant it, to have transmitters running continuously (call sign ZS2RU) during the eclipse period in the 7-, 14- and 21-Mc. bands.

To perform this experiment the help of many amateurs and short-wave listeners will be required, and all who are willing to coöperate are asked to contact me, c/o the above address before October 1st so that full information may be forwarded to them personally. Listeners are especially wanted from the Southern States, Central and South America, West Indies and Far East. The information to be forwarded will consist of report sheets which coöperating persons will be asked to fill in, giving details of the signal strength of our transmissions at various intervals during the eclipse. At the same time details of transmitting times and frequencies will also be sent.

— *A. P. Dale, ZE4JC, ZS2JW*
Ionosphere Research Lab

REGEN B.F.O.

R.F.D. No. 1
Terryville, Conn.

Editor, *QST*:

The use of regenerative receivers as preselectors has been described on the "Correspondence" pages; however, they have another use. The procedure described here will convert an old broadcast short-wave receiver into a fairly-useful code receiver. It adds a b.f.o., *so to speak*, to the receiver without one.

An insulated wire from the regenerative receiver antenna post is wrapped around the b.c.-s.w. receiver antenna and a code station is tuned in on s.w. receiver. The regenerative receiver is then tuned to the same frequency (easy to tell by the increase in the s.w. receiver gain) and the beat note is adjusted to the desired tone. Simple, eh?

— *Joel Anderson, W1YZY*

QRO TRANSMITTER

38 Forest Avenue
Saratoga Springs, N. Y.

Editor, *QST*:

Less than a month ago I completed the simple single-tube transmitter described in *How to Become a Radio Amateur*. So far I have worked about 10 states, with reports that are sometimes as good as those from stations running 60 watts. Transmitting on 80 meters only, I have worked up to 500 miles during the day.

Incidentally, I changed the circuit slightly by taking out the tri-tet coil and condenser — L_1 and C_1 — and am using a 6F6 oscillator. Keep up the good work.

— *Bob Goldstein, KN2HPC*

TECHNICIAN SPEAKS

1324 Atlanta Rd.
Marietta, Georgia

Editor, *QST*:

My complaint is a common one of the Technician grade amateur. I recently joined a local ham club with the hope of meeting someone interested in 220 Mc. and above. The list of sarcastic remarks runs like this:

"Why don't you get your General Class license and be a real ham?"

"Listening to your grid-dipper must be exciting."

"How is the QRM on 1½ meters these days?"

"Technicians are not operators – they are tinkerers."

After a while, this form of kidding gets old. If I was to find a interested party on 220 I certainly would not bring him to the club to get the same cold shoulder. While I point this out in the club, it is common to many General Class hams.

Of course we tinker. You cannot go downtown and buy a transmitter and receiver for 220 Mc. as the real hams do. Given 6 months, I wonder how many of these real hams could put on 100 watts free of TVI and build their own superhet for 220 Mc.

These same people are the traditional criers about s.s.b., the kilowatt boys, the sloppy operators, the mobile operators, Novices, and all the other hams that don't conform to their standards.

We don't want pity; you have more people on the lower bands than you can stand. Just stop discouraging the ambition to become Technicians and we may not have to listen to our grid-dippers. I have become so bitter now that you couldn't give me a General Class license.

— *George Hann, W4EUK*

How's DX?

CONDUCTED BY ROD NEWKIRK,* W1VMW

How:

Doubtless you noted that an abandoned wartime landing craft played an important part in helping the FO8AJ gang make good at Clipperton in April.[1] The beat-up beached *LST* served as an invaluable breakwater and jetty during that DXpedition's debarking and embarking operations. However, although various theories were available, no one seemed to know for sure how the craft got there in the first place. Now W1ADW, ARRL ORS and EC up Massachusetts way, comes through with information on the subject in a letter that reads like the best of C. S. Forester. Joe won't forget that *LST* for quite a while because he was there when she piled up.

LST 563's running aground was only one of the many difficulties to beset the naval expedition that installed an aerology and radio station on Clipperton in December of 1944. While the full story evidently is not a matter of public record, it is no secret that casualties attended among personnel and equipment. Lt. Cmdr. W1TU (now also W4TR) and CRE W1ADW most probably were the first hams to set foot on Old Clip and also the first hams to operate radio gear on the atoll. They succeeded in firing up NPGØ on 4, 8 and 12 Mc. with a navy TCK rig, HQ-120 receiver and a Vee oriented toward San Francisco. ". . . There were plenty of navy RMs around but neither of us had had any operating for four years and we really had a postman's holiday," reminisces W1ADW.

As for the actual grounding of *LST 563*, W1ADW states: "[We were guided] to a spot where there seemed to be a hole in the reef and we came in, dropping our stern anchor so that we could pull ourselves off. The anchor did not hit bottom because of very deep water beyond the reef edge. We slowly and helplessly broached in the heavy surf." And then the fun began in earnest. "I'll never forget that Christmas Day, for I was washed off the pontoons eight times and each time I lost hide."

WØNWX and party, with the grit and determination they exhibited, undoubtedly would have won the island *LST* or no *LST*. But that derelict hulk did come in *mighty* handy, all thanks to this "DXpedition" a decade earlier.

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With regard to the ARRL DXCC Countries List, the term "rare DX" long has been a pet proposition for polemics. Just what countries are rare and what countries make up the common garden varieties? Joker Joe, with over 200 confirmed, has his tongue hanging out for an EAØ contact; Seedy Sam, with only 93 in the bag, has worked three EAØs and would prefer not to be bothered by any more. Obviously, any discussion between Joe and Sam as to whether EAØs are rare is a waste of time — it's purely relative.

On the other hand, the adjective *rarest* readily lends itself to quantitative handling and analysis. How? Let's try it. Countries still unworked postwar by stations listed in the c.w.-'phone DXCC Honor Roll (p. 61) *must* be difficult to come by. Thus, if we ascertain which countries are most needed by this group of DX sharpshooters we will have established beyond much doubt what constitutes "rarest DX."

Here is a tabulation in which are listed various Countries List items followed by figures that indicate how many of the top 22 DXCCers still hadn't confirmed them, to our knowledge, as of July 15th:

Afghanistan, Aldabra Islands, Bhutan, Christmas Island (ZC3), Comoro Islands, Laccadive Islands, Maldive Islands, Mongolia, San Andrés & Providencia Archipelago, Sarawak, South Sandwich Islands, Tannu Tuva, Tokelau (Union) Islands, Vatican City, Wrangel Island — *needed by all 22.*

Seychelles	21	Gambia	2
Albania	18	New Hebrides	2
Goa (Portuguese India)	17	Rio de Oro	2
Andaman & Nicobar Islands	16	Tadzhik	2
Ifni	14	Tibet	2
Kerguelen Islands	14	Amsterdam & St. Paul Islands	1
Nepal	14	Azerbaijan	1
Qatar	13	Baker, Howland & American Phoenix Islands	1
Cocos Island (TI9)	13	Burma	1
French Indo-China	12	Caroline Islands	1
Cocos Islands (ZC2)	12	Cayman Islands	1
Clipperton Island	11	Corsica	1
Sultanate of Oman	11	Easter Island	1
Svalbard (Spitzbergen)	11	French Equatorial Africa	1
Portuguese Timor	9	Gilbert & Ellice Islands & Ocean Island	1
Fanning (Christmas) Island	8	Israel	1
Crete	7	Johnston Island	1
Sikkim	7	Karelo-Finnish Republic	1
Kirghiz	6	Liechtenstein	1
British Phoenix Islands	5	Macquarie Island	1
British North Borneo	5	Marion Island	1
Ascension Island	5	Netherlands Borneo	1
Jan Mayen	4	Netherlands New Guinea	1
Kuwait	4	Nigeria	1
Yemen	4	Niue	1
American Samoa	3	Reunion Island	1
Andorra	3	Sierra Leone	1
Fridtjof Nansen Land	3	Solomon Islands	1
Palau Islands	3	Southwest Africa	1
Pitcairn Island	3	Syria	1
Principe & Sao Thome	3	Turks & Caicos Islands	1
St. Helena	3	Uzbek	1
Brunei	2	Windward Islands	1
French India	2		
French Somaliland	2		

That's the way it goes. And now you know where *you* can go on that super-duper DXpedition you've been dreaming about. Remember, however, that French Indo-China, Republic of Indonesia, Iran, Korea and Thailand still are on the taboo list (p. 56, June *QST*). Good luck, OM — PSE QSL!

* DX Editor, *QST*.

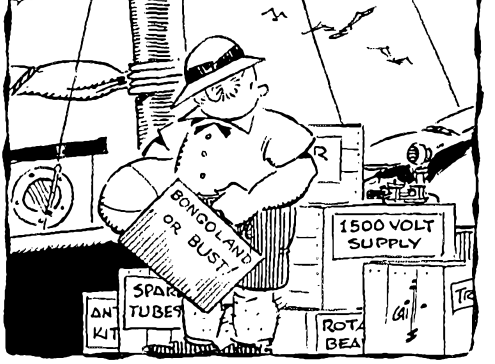
[1] Denniston, "DXpedition to Clipperton," July *QST*.

What:

In the text to follow, frequencies (given in number of kc. above the lower band-limit) appear in parentheses, times without. E.g., (9) = 14,009 kc., if the paragraph deals with 20-meter work. Times are 24-hour time, zone or GMT specified, using the nearest whole-hour figure such as 7 for 0720 or 0650, 0 for 0015 or 2349.

Twenty c.w., first of all. Among fitting commemorations of Marco Polo's 700th birthday this year, G2RO continued his Asian journeying under aliases VS2RO, VS4RO, VS5RO and ZC5RO, doing heavy trade at every stop . . . . . W8YIN took the measure of FO8AC (45) 6 GMT, KJ6AI (50) 6–7, KR6AA (30–50) 13, KX6NA (90) 5, a VK9 VR3A (52–84) 0–3, VS6CT (95) 13 and heard AC4NC (20) 0–1. Mickey also caught up with ZC6UNJ (42) 22–23 . . . . . EA9DF of Rio de Oro (58) 13 GMT, HA7OL (64), JA1FA (81), KA2ZZ (95), KR6OS (30), OD5AV (28), ZC4IP (45) 18, a ZC6, 4X4s FQ (25), FS (16) and 9S4AD (90) brought W8EV to 139. Ben's gottaways include FK8AE (84), VK9RH of Norfolk (40) 22 on the west path, VRs 2BZ (28) 5, 6AY (25), VS4VR (28) 22 and YJ1AA (58) . . . . . Bearing down on the 100-mark, W4YDT raised AG2DX (40) 23, CR6CS (65), CT3AB (15) 0–1, DU1AP (70), FF8AJ (95), FP8AP (70) 14, HK1TH (25–44) 23, IS1CXF (55) 22, IT1TAI (40) 21, JA6AO (70), OD5LJ (30–60 t7) 21 and 4X4FK (65) . . . . . W9IHN ran across LUØDJW (35) "in the Mediterranean" and SU1BB; VE5HR collected a Jan Mayen LB8 and 4X4RE . . . . . FO8AK 20 PDT, HK4DP 15, JZØKF 22, SVs 1SP 21, ØWA 21, VS1YN (38) 8 and 4S7XG (58) 8 made it 119/100 for W6GEB. Bill is one who has no difficulty collecting FO8AC QSLs, by the way . . . . . W4YHD made hay with HZ1AB (8–95) 4–5, KAs 2USA (34), 9MF (72–95) 13, TA2EFA (45–80) 20, YI2AM (46–74) 2, ZP5AY (15–96) 23 and 9S4BN (65), all times GMT . . . . . KL7PI was among the fortunates to catch G2RO in Brunei and Sarawak, and also lopped off ZC5SF (31–65 t7) 14 . . . . . W2WZ came to grips with AP2Q (66) 19 GMT, CR9AH (50–82) 13–14, DU1CV (81) 13, I5LV (85) 20, KAØIJ (108) 12, KJ6AF (55) 3, SV2RI (50) 21 of Rhodes, VS6CL (33) 13 and ZC7DO (37) 0 . . . . . Among the many nifties nabbed by W5UUK we find CEØAD (6) 20 CST, CT2BO (27) 18, DU7SV (72) 7, EA9AP (10) 17, a couple of FA boys, IS1AHK (10) 18, ST2NG (26) 17, TF5SV (25) 18, VQ4EG (25) 9, ZB1AUV (92) 15 and 5A2FA (51) 17. Johnny is in dire need of ZK1BG and W5ZOJ/KJ6 confirmations . . . . . W6UED, at 14, breaks into the DX racket with KAs 2GE 8SC (4), PJ2AR (8), an FO8 and a KX6 . . . . . A quick tour of the circuit reveals the following 14-Mc. c.w. luck here and there, at *W1WAI:* EA6AW (64) 23–0 GMT, EL2X (48) 13, MF2AG, VQ3EO, 3V8AN. *K2GFQ:* LB8ZB, LZ1KPZ, VK1AC (20) 1 GMT of Macquarie, VQ4CF, YS1O (20) 0. *W2HAZ:* YU2DU 12 GMT. *W3LEZ:* OD5LC, JAs 5AB 7BJ, KA8HP (worked); JAs 2CZ 3AF 3AR 6AD 7CP, KAs 1TQ 2DX 8AB 9GF (heard). *W4TM:* an FO8 and JZØ. *W4YDT:* ZC4CA (55), 4X4FS (70); missed ZD9AB (68) 11 GMT. *W4YHD:* CN2AO (71), EL2L (69) 22 GMT, JA3BB (63) 13, MF2AL (65), OQ5BB (15), ZC4CK (39), ZD2DCP (32), 9S4AB (38). *W4YZC:* HC1KD, KA4DR. *W5VIR:* FM7WP (38), I1BNU/Trieste (25) 18 CST, JA2AN 11, KB6AF 19, KM6AX 20, ZD4BQ 17, ZK1AB (60) 22–0, 4X4DK 17. *W5WZQ:* AG2AA (17), CX5CO, HK1BZ, HP1AW, KG4s AN AO, KV4BD, PJ2s AD AI, YV5AE. *K6BTE/1:* a CT2, KG4AE, KV4AA, OX3s HK UD, a TA3, a ZC4. *W6ALQ:* LZ1KDP (60) 22 GMT, TA3MP (25) 21–4, VK1PG of Heard Isle. *W6SN:* one YM1AA (65) on "Tuwa Island." *W9PNE:* KAs 2CR (10) 23 CST, 8RH (55) 10, a KR6 . . . . . In one hour and 25 minutes DL4ZC (ex-W4KE) rattled off QSOs with an LU3, MP4BBE, an ST2, VU2KV (40) 2 GMT, 4S7KH, a W6, VU2NG, a YI2, a JA2, DU1NL and OH5OP. This encompasses a *fast* WAC. Lloyd made a 39-minute WAC as JA2KG in 1949 . . . . . An 833A at 700 watts captured CP3CA, FB8XX of the Kerguelens, FK8AO, HC1FG, HH3RC, JA4AG, KB6AY, KW6BS, KX6BU (83) 6 GMT, LU1ZK, MP4BBK, OQ5CP, OX3NB, PJ2AE, SP3AK, TA3AA (32) 4, TF3SG, TG9AC, VK9WZ of T.N.G., VPs 2MD 8AQ, VQs 2AB 5DZ, VR2AS (37) 6, VSs 1FH 2DW 6CR, VU2CS, YO3RF (20) 4, YV5BJ, ZBs 1BU (20) 2–3, 2A, ZC4RX and 4S7LB 14 for sedulous W6QPM . . . . . These 20-meter c.w. items are established as active, or imminently active, by the radar-eared West Gulf DX Club gang: CN2s AB (20) 14–22 GMT, AX (52) 7, CP5EK (20) 14, CRs 8AB (20) 22, 9AI (98) 14–15, DU6s CV IV (56) 12, EL2P (48) 13, FF8s BC BE BG CG, FK8s AB (110) 5, AL (60) 6, FKS8BC (25) 6, FN7A (9) 21, FO8AD (120) 19, FYs 7YB 7YC 8AB (80) 12–13, GD3IBQ (35) 21, HV1AA, HZ1WS (58) 1, I5SG (55) 19, KCs 4AB (100 and other bands), 6AA (30) 12–13, KR6s MS (80) 13, OH (84) 13, OL (50) 13, LH2P (145 and other bands) 6–8 on Svalbard, LUs 1ZT of Antarctica, 3ZB the same, MP4s BBL (60) 22, KAC QAH (26–65) 12–13, OD5LX (34) 4, OQ5s GA (50) 21, GU (44) 21, OX3s AY (30) 21, PW (75) 14, PZ1AL (22) 13, SPs 5BA (40) 16, 9KAD (45) 23–0, SVØs WG/Crete, RI (42) 22 of Rhodes, WY (48) 22, TFs 3AB (78) 4, 5TP (70) 23, UAs 9CV (18) 13, ØKFA (65) 13, ØKKB (61) 12, VK9RM (47) 5, VP8AU (10) 3, VQs 1AC (95), 2AN (36) 4RF (70) 20, VSs 6CT (50) 13–14, 6CW (61) 13–14, 9MA (40) 1, XZ2OM (24) 16, YO3GY (15) 21, ZAs 1KAA 2KAB 3KAC, ZB1KA (40) 22, ZC5s PM VC (55) 12, VS (85) 13, ZD3BFC, ZK1AM (100) 5, ZP5s BC (35) 2–3, GM (5) 0, 4S7s NG (25) 16, NX (25) 5, 9S4s AD (52) 23–0, AX (32) 23 and AZ (62) 22, all times GMT . . . . . Many of the aforementioned plus AB1US (180) 8, CN2AO (53), CR1ØAC (45), LB61E (22) of Jan Mayen, LU8ZS of So. Shetlands, OQØDZ (57), VK1HM/ZC2 (85), VPs 2AD 3YG, VQ5DC (73), VS2s DE 9, EG 10, VU2s FX 8, JK (33) 14–15 and LL, are gleaned from the No. Calif. DX Club *DXer* and So. Calif. DX Club's *Bulletin*, times GMT.

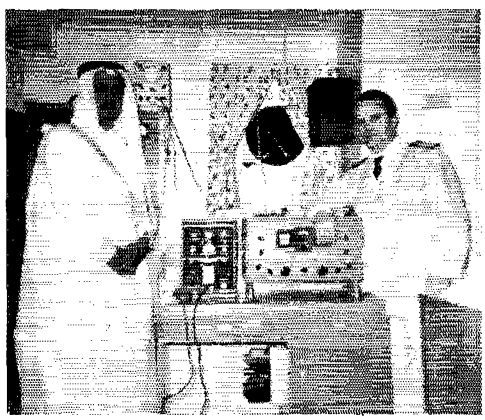
Twenty 'phone keeps rolling along. CP5s AB (132) 19, EK (172) 19, DU1RS (185) 13, EA9AR (185) 0, ET2XX (152) 0, FO8AD (64–120) 3–4, HI6EC (187) 12, KAØIJ (235) 13, KC6UZ (222) 7, KX6AF (225) 12, LH2P (145) 6–8 of Spitzbergen, M1B, MF2AA (123) 0, MP4QAH (130) 12–13 who was talking of closing station, OD5AB (120) 17, OK1MB (105) 0, PZ1AL (148) 13–14, SU1BB (160) 0, TAs 2EFA (110–195) 14–20, 3AA (195) 14, 3FAS/AM (105) 19, VKs 1HM ZC2 (172) 7, 9RM (100–140) 7, VQ5CY (124) 20, VR2BG (153) 3, YU1GM (106) 22, ZM6AP (141) 4, 3V8AS (191) 2, 4X4DK (193) 21 and 5A4TR (97) 0 are fingered by the WGDXC contingent, all times GMT . . . . . SCDXC's crew specifies the A3 activity of VK9s FN (294), GV (162), RG (140), SP YT YY (183) and 4S7YL (220) — yep, a YL . . . . . AB1US (180), CR9AH, HH2AM (156), VP1GG, VQ4RF, VR3A, VSs 1ES (202), 2DB 2DV 6CT, YO3RF, YU1CY and ZC5VR catch the fancy of NCDXC enthusiasts . . . . . VE5HR reached 71 on 'phone by way of DU1CB, KR6KS (238) 13, OD5BA (120) 3, VS2EB (155) 12–13 and YS1MS . . . . . CT3AN, KA3AC, a KR6, KT1LU, PJ2CA and YU1AD answered W9WHM's Globe King and 3-el. whirler. John was an SWL for 17 years before he took the leap . . . . . *Newark News* Radio Club observers point up the 14-Mc. radiotelephone doings of AC4NC (120) 4, AG2AA 16, CN2AD 17, CN8s CS EH GU HG HM HV MM, CP5EQ/-CP6 20, CRs 4AP 5SP 16–17, CS3AC (160), CT2AG (170), DU1AS (191), EAs 6AR 8BG, EL9A 15, ET2s LV 17, ZZ 15, FA9WD, FM7s WD WN, FO8AB (160), HH3s L DL, HI8WF, HZ1AB (310) 17, IT1s BXX 18, TAI, JA1AC,



KA2s AC AK AM BC BS DW EF FC IM JF JL LK MC OL WL, KA3s GH MB MD RD RR WQ, KA4s MA RK, KAs 5HM 6AF 7LX 9FF, KB6AO (202), KG6s ABN ACS (227), AFJ (202), AO FAA (220), IG of Chichi, 8B on Saipan, KJ6BE (295), KR6s AB AF (297), AZ OY, KV4s AA BB, KX6s AF (125), BU, LX1DU (160) 17, LZ1AA 18, MP4QAO of Qatar, OD5AF, OQ5s CX EC (100) 15, PJ2s AA AF AG AK, VKs 1PG (152) 3 of Heard, 9YN, VP2s BD DN (145), GX (96), KB LN, VP3HAG, VP8AW, VQ4s AC EV RM (155) 16, VR3C (144), ZB2A, ZC7DO 16 of Jordan, ZK1BI (145) 0, 4X4BO, 5As 1TC (110), 1TZ (130), 2TZ 3TF 4TL, 9S4s BN and BS 17, times EST.

Fifteen 'phone sees this same outfit putting the tag on 21-Mc. A3ers CP5EK, CR4AI, CT3AN, EAs 6AT 8AI, FF8JC, KA9AW 7, KJ6AZ 22, KM6BG 7, SVØWC, TA3AA 7-8, VQ4EU, VKs, ZLs, ZSs and 4X4BL, times EST . . . . . W6ZZ raised FO8AD, HC2PG, several KH6s, KV4BD, KZ5s galore, LU3AX and TI2BX. Fifteen-meter A3 shipboard installations Miles has worked include MMs W1GD, W6s GRF GW KUY, W8GYY, W4JGZ, and "Captain Stay-Put," W2ZXM . . . . . Not much non-contest doings on 15-meter c.w. but FY7YC was W1CTW's 50th 21-Mc. c.w. country.

Forty c.w. produced pay dirt for its faithful. W4YHD made off with KG6FAA (40), LU4ZB (25) of Grahamland, SP9KAD (18), VKs 1DY (2) of Heard, 9YY (18), VPs 2SH (21), 8AA (17), 8AO (16) of Grahamland, and 5A3TC (13). Jim's ground-planes (erection aid from Ws 1YFM 3QZC and 9GQL) are doing okay but he's rigging up a fearsome



Prince Abdullah Feizal, HZ1AF, another member of hamdom's royalty, pays a visit to Captain Kurt Carlsen's W2ZXM/MM hamshack aboard *Flying Enterprise II* during one of Kurt's recent Middle Eastern voyages.

rhombic at his Leesburg, Va., QTH . . . . . VK9RH of Norfolk was 7-Mc. country No. 112 for W2QHH . . . . . A flock of VKs, FA8DA (30) who is fast with QSLs, and VP7NM worked W4YDT's Viking II . . . . . W5WZQ awaits QSLs from 7-meggers HB1RQ, HC1LE, KG4AN, KM6AX, LU2ZI and VP3YG. In fact Dave already has the KM6 confirmed . . . . . In W7JLU's 40-meter log we note JA8AI (30) and ZM6AS (25) who hopes to be a Tokelaus ZM7 come next March . . . . . An input of 3.75 watts raised KH6ANL for K2AKW/6 . . . . . W3WPG did a job on DU1VC, an FP8, HK1TH, an HC1, SP9KJ, a VP2, VP8AZ, YI2AM at 22 EDT, YU2s AD AKL and ZD4BQ . . . . . An HT-18 at 4 watts input and a 20-foot-high hunk of wire hauls in stuff like HB1MQ, KV4AE, PJ2AI, an SP9 and YV5FH for K2DGT. Bob evidently is in on a few 7-Mc. trade secrets of his friend W2RDK! The latter is readying a pair of 813s for 40-meter autumnal battles . . . . . One of ARRL Hq.'s most avid DXers, W1VG, recently confirmed his 100th 7-Mc. country . . . . . Now a glimpse of luck on 40 at this shack and that shack. At *W1APA:* DL4IQ, VK7JP (both A3). *W1WAI:* KG4AN, FP8AP. *W2OLU:* a VP8, LUØEAB/MM off Chile. *W3DLI:* a Heard VK1, Norfolk VK9. *W4ARH:* scads of VKs, ZLs. *W4YZC:* Europeans and Oceanians in abundance. *W6YAA/KG6:* KG4AT, KG6SB. *W6GEB:* a KM6, FO8AC. *WØPWN:* HH3DL, HP1RX, TI2BX (ex-CP1BX), YV5FL and Oceania DX a-plenty.

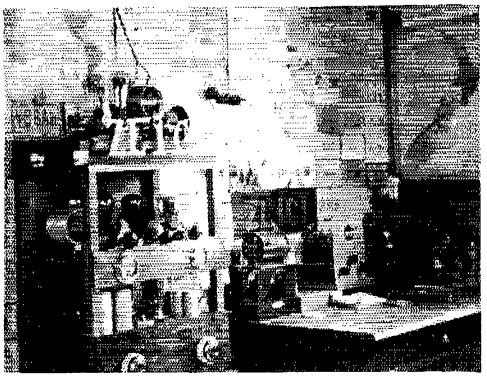
Eighty pleasantly surprised those who hung on through summer incursions of atmospherics. EI9J (1), VPs 4LZ (10) and 8AZ chatted with W4YZC. FA8BG (5) was a gottaway, as were SM5AQW and VP8AQ . . . . . W9PNE managed PY6FI (18) 0 CST and YV5DE 23-0. Brice later got on 160 and worked the YV5 cross-band . . . . . A mere seven watts caught a G, an EI and a VP8 for W1WNH . . . . . Midsummer static hardly daunts K2BZT. Hayden worked DJ1s AK OG, an EI9, G3s in quantity, PAØs GIN XYZ, SM7CYD, a VP4 and VP8 right through the stuff. Heard by K2BZT: OK1GZ, PYs 5EK 6AK and others . . . . . VR3A enraptured West Coast 3.5-Mc. adherents through the summer but Easterners had great difficulty flagging Ray down.

Ten is scanned last this month, but less "least" than ever. European-U.S.A. paths continued to open spasmodically during the hot months just past and Europeans were heard or worked by stations in several U.S. call areas. W4NQM, 28-Mc. enthusiast par excellence, lets us scamper barefoot through this assemblage of recent 10-meter workings here and there. At *W1GOU:* VP9L. *W3FCV:* VP9s BK L. *W3MO:* a VP9, W3WYD/VO4. *W3QMG:* GM8MN. *W3THI:* KV4BD. *W4NQM:* VOs, LUs, XE1OS. *W4USQ:* CX1GG, VP6FR. *W4WVM:* VO4, VO6, a VP9. *W5JCW:* VO4. *W5VVS:* KH6AFS. *W7JJQ:* CE2HJ, KV4BU. *WØBJP:* Cubans, a KH6, KV4, and G2DM. *LU4AAT:* CT1CW, EAs 4CX 4EP 7CJ 8BI. *LU4DZI:* PAØJMH. *VE7ALC:* XE1BH . . . . . GW, JA, ZL and ZS candidates are reported available on 10, as well as KG6HF. The upcoming LABRE affair, 'phone section, undoubtedly will hop up the band — dust off your 28-Mc. helices and have at it!

Where:

Your attention is called to a listing of several overseas society QSL bureau revisions appearing in "IARU News" this issue . . . . . With DX conditions ready for the rebound your ARRL QSL Bureau will be handling a steadily increasing volume of pasteboards. We had better mention the business of U. S. and Canadian amateurs sending DX-destined cards to ARRL Hq. for relay overseas, which is *not* a function the Bureau is designed to perform. Except in rare and unusual circumstances wherein certain DX stations have requested and have been granted such facilities, these incorrectly routed QSLs must be returned to senders. The excepted instances invariably are called to your attention in this "Where" section. When in serious doubt about where to send cards, you're welcome to drop a line to Jeeves for a suggestion or two, but please don't send him the QSLs . . . . . The VR6 who specified "QSL via W1JEL" is not known to W1JEL — save your postage . . . . . W2KMZ has the VK9YY log for the period from Dec. 19, 1952, to May 2, 1954. If you still need Alan's pasteboard send a stamped self-addressed envelope accompanied by QSO particulars to W2KMZ. Frank adds: "I have . . . sent out about fifty JZØKF QSLs and the rest lare supposed to have been] mailed from T.N.G." It now appears that some of the latter group went astray and W2KMZ is checking on the matter . . . . . The *Call Book* is not necessarily in error when we run addresses that differ somewhat from those listed for the same stations in W9TRD's directory. Overseas DXers often take box numbers, etc., to expedite collection of QSLs while their residential or station addresses continue valid. Anyway, the following items attest to the penmanship and good will of W1s RDV UED WPO YYM ZDP, W2s BVS HAZ HSZ SHC WZ, W3s LEZ VKD, W4YDT, W6s ALQ DZZ UED ZZ, W8YIN, W9CFT, LeRoy Waite (NNRC) and the WGDXC *DX Bulletin:*

AP2C, Commandant, PEME Regimental Center, Quetta, Pakistan . . . . . **AP2Q,** Aslam, 121 Garwood Rd., Quetta, Pakistan . . . . . **CN8HQ** (QSL via W2ZOS) . . . . . **DU1CV,** C. Vilela, P. O. Box 815, Calamba, Laguna, P. I. . . . . **FA8AY,** J. P. Dentan, Oued-Amizour (Constantine), Algeria . . . . . **GB3NCB** (QSL via RSGB) . . . . . **HB1MX/HE** (QSL to HB9MX) . . . . . **HC1ES,** Charles C. Fuller, Box 2328, Quito, Ecuador . . . . . **HC1EV,** c/o U. S. Embassy, Quito, Ecuador . . . . . **HR1FM,** P. O. Box 413, Tegucigalpa, Honduras . . . . . **HR1LW,** L. O. Williams, Apt. 93, Tegucigalpa, Honduras . . . . . **HR1OS** (QSL to HR4OS) . . . . . **I5ACD,** Alfonso Corbo, P. O. Box 290, Mogadiscio, Italian Somaliland . . . . . **KA4MA,** MWSG-17, FMAW, c/o FPO, San Francisco, Calif. . . . . **KC4AB** (QSL to W4QCW) . . . . . ex-**KS4AV,** John W. Collie, 6419 Aztec Rd., El Paso, Texas . . . . . **KW6BC,** Eugene M.



This venerable layout in Paeroa, N. Z., is the trusty means by which ZL1CI raps out the 3.5-Mc. signal so regularly worked and heard throughout the world. Those are 801As in the final. (*Photo via W4YZC*)

Owens, c/o CAA, Wake Island . . . . **KW6BE,** Charles R. Whitfield, c/o CAA, Wake Island . . . . **KW6BI,** James M. Russ, c/o PAA, Wake Island . . . . **KX6AS,** Dale Schermerhorn, Marshall Islands . . . . ex-**KZ5IL**-KW6AR, Ivan C. Lundblom, 3501 NW 12th St., Miami 35, Fla. . . . . **LJ2F,** c/o Bern School of Navigation, Bergen, Norway . . . . **MD5RA,** Fayid, Suez Canal Zone . . . . **MD5RM,** Ismailia, Suez Canal Zone . . . . **MF2AL** (QSL via RSGB) . . . . **MP4BAR,** C. M. Webber, IAL, Muhrraq, Bahrein, Persian Gulf . . . . **MP4BAV,** R. Fuqua, c/o Kuwait Oil Co., Ltd., Kuwait, Persian Gulf . . . . **MP4BBG,** B. A. Loveridge, IAL, Muhrraq, Bahrein, Persian Gulf . . . . **MP4BBH,** R. R. Green, IAL, Muhrraq, Bahrein, Persian Gulf . . . . **MP4QAB,** J. Setian, Qatar Petroleum Co. Ltd., Qatar, Persian Gulf . . . . **OD5LC** (QSL via OD5LX) . . . . **OD5LJ** (QSL via OD5LX) . . . . **PJ2AQ** (QSL via PJ2AA) . . . . **PJ2AR,** H. Waits, P. O. Box 720, Lago Colony, Aruba, N. W. I. . . . . **SP1SJ,** Z. Kachlicki, Poznan, Kanalowa 4, Poland . . . . **ST2NG** (QSL via RSGB) . . . . **SVØWP**/Crete (QSL via G3HLS) . . . . **VK1BA,** B. A. Fiebia (QSL via WIA) . . . . **VK1RL,** R. Fraser (QSL via WIA) . . . . **VK9AU,** Roy Taylor, Wewak, T.N.G. . . . . **XEØAND** (QSL to W9AND) . . . . **YI2FD,** F/O Dabson, Flying Wing, Officers Mess, RAF, Habbaniya, MEAF 19, Iraq . . . . **YI3WH** (QSL to G3WH) . . . . **ZB1AUV,** 35/2 Inguanez St., Rabat, Malta . . . . **ZC5G** (ex-ZD2G), P. O. Box 401, Jesselton, British North Borneo . . . . **ZC6UNJ** (QSL via RSGB) . . . . **ZC7DO** (QSL via RSGB) . . . . **ZD3BFC,** Civil Airport, Bathurst, Gambia . . . . **ZD4BM,** B. A. Wilbraham, P. O. Box 260, Takoradi, Gold Coast . . . . **4S7NS,** S. Nettleton, GPO Box 985, Colombo, Ceylon . . . . **5A2FA** (QSL via REF) . . . . **5A4TR,** A/2c Gene Hurt, Box 152, 580th AR Sqdn., APO 231, c/o Postmaster, New York, N. Y.

Whence:

Asia — "I'll keep TA3AA on for six more months, at least," avows W2TJK. Les is hard at work filling departed W1VQG's shoes as TA3AA's chief op. Other bona fide Turkish stations include TA3s AA AF MP US and TA2EFA. W1VQG thinks you'll have much difficulty confirming QSOs with other TAs even if they *are* in Turkey . . . . AP2C has been radiating since March with a 90-watter to the tune of 40 countries on 20 meters. A ground-plane and BC-342 are in use . . . . W6CRV of the USAF hopes to be signing his own HZ1 call sign shortly . . . . As noted by KL7PI, AC4NC schedules VU2ARCI several days per week, 'phone on 14,120 kc. . . . . W6YY finds that KAs now may operate 14,100–14,300-kc. 'phone.

Africa — Italian Somaliland three-letter calls are getting around. I5ACD fills a dipole with 100 watts of r.f. from a VFO-807-807s arrangement, receiving with an AR-88D . . . . W3WDI now signs CN8EB with enthusiastic celerity . . . . Ex-ZS1MP lately is heard with a healthy 21-Mc. 'phone signal under the Arizona call VE3DVD/W7 . . . . W3AYS has word that the ZD8 ham population may be augmented in the near future . . . . Listener BRS-12657 corrects our labeling of VQ2W's "transmitter" in the June column, pointing out that the unit alluded to in the photo caption actually is a British army-surplus 10-tube superhet receiver . . . . ZS8MK is off to VQ3 diggings; ZD3BFC is ex-MD2BFC-VQ6BFC . . . . The WGDXC organ comments on the scheduled venture to Ifni this month by *aficianados* EA9s DD DE and DF . . . . W6YY has ZD3BFC's Gambia timetable as 1600–1800 daily, GMT, using A1 and A3 on 14,095 kc. . . . . FB8BC is another Madagascan reported active . . . . The ZD8 and ZD7 entries lately reported active do not appear to check out.

Oceania — The NZART (New Zealand) Worked All Pacific and Worked All New Zealand awards — WAP and WAZL — now are available on a world-wide basis. WAP is based on the confirmation of 30 or more DXCC-List countries in the Oceania continental area, while WAZL requires the confirmation of QSOs with at least 35 of the 51 NZART New Zealand Branch areas. Write concerning both awards to New Zealand Assn. of Radio Transmitters Awards Manager, Box 489, Wellington, N. Z. October's VK/ZL Test, a DX operating event of long standing, will be an excellent opportunity to build up muscle for WAZL prospects . . . . Electronics-minded 17-year-old Andre V. Ludjono, Mardekaya 132, Macassar, Indonesia, desires to correspond with young U. S. hams or soon-to-be hams . . . . Ex-VK2ABE now signs VK9AU in Wewak, T. N. G. . . . . KL7PI's QSL to KP6YA bounced like a rubber sphere. Joe deplores the chain-gang system employed by several groups in salting away the rare ones, a "you hold him while I hit him" technique . . . . From the pen of ZM6AS (ex-ZL1AJJ): "I will be here for about two more years and will be active later on all bands, c.w. and 'phone." Les has two ARC5s and an English Marconi-1155 inhaler . . . . JZØKF Netherlands New Guinea operation, we see in the SCDXC *Bulletin*, is now but a most pleasant memory.

(*Continued on next page*)

DXCC CENTURY CLUB AWARDS

HONOR ROLL

W1FH . . . 252	W3GHD . . . 244	G6ZO . . . 241
W8HGW . . . 251	W6AM . . . 244	W6MEK . . . 240
W3BES . . . 248	W3JTC . . . 242	LU6DJX . . . 240
WØYXO . . . 248	W2BXA . . . 241	W2AGW . . . 239
G2PL . . . 247	W3KT . . . 241	W3GAU . . . 239
W6ENV . . . 246	W4BPD . . . 241	W6SYG . . . 239
W6VFR . . . 246	W6SN . . . 241	W8NBK . . . 239
	G6RH . . . 241	

RADIOTELEPHONE

PY2CK . . . 232	XE1AC . . . 215	W1NWO . . . 212
W1FH . . . 224	W8HGW . . . 214	W1MCW . . . 211
VQ4ERR . . . 222	W1JCX . . . 212	W9RBI . . . 210
ZS6BW . . . 216		SM5KP . . . 207

From June 15 to July 15, 1954, DXCC certificates and endorsements based on postwar contacts with 100-or-more countries have been issued by the ARRL Communications Department to the amateurs listed below.

NEW MEMBERS

SM7ANB . . . 120	W5UX . . . 104	W8TMA . . . 101
SM7AVA . . . 117	DL4IH . . . 104	W1RB . . . 101
OH1PW . . . 114	OH1OW . . . 104	W4KE . . . 100
WØDXE . . . 112	OH2MQ . . . 103	W6GHM . . . 100
OH2VF . . . 111	G3COL . . . 102	G3FKM . . . 100
	ZL4DV . . . 102	

RADIOTELEPHONE

ZS6FN . . . 150	W4AYF . . . 103	W8EWB . . . 100
LU3PF . . . 119	W9EWC . . . 103	EA9AR . . . 100

ENDORSEMENTS

WØDAE . . . 219	HB9MQ . . . 153	W1JMT . . . 134
W1AXA . . . 200	W1ZW . . . 152	W7KVU . . . 134
VE2WW . . . 181	W6PBI . . . 150	W4ML . . . 132
ZS6FN . . . 181	W6TXL . . . 146	II1FQ . . . 130
W6EAY . . . 180	W3APU . . . 140	K3IB . . . 126
W2OST . . . 162	W4IZR . . . 140	W3AS . . . 122
W5NW . . . 160	W6BIL . . . 140	W6FUF . . . 121
	HB9MU . . . 140	

RADIOTELEPHONE

ZS6Q . . . 190	PY4CB . . . 151	W3HUV . . . 110
W4AZD . . . 170	WØHX . . . 130	W6CHY . . . 110
	W4GIO . . . 122	

CALL AREA LEADERS

W5MI8 . . . 238	W7AMX . . . 237	VE4RO . . . 221
	W9RBI . . . 234	

RADIOTELEPHONE

W2APU . . . 202	W5BGP . . . 201	W7HIA . . . 175
W3JNN . . . 201	W6DI . . . 195	WØAIW . . . 156
W4EWY . . . 172		VE3KF . . . 163

Europe — Don't let those "GB" calls untrack you. GB3SFS is the call of a 3.5-, 7- and 14-Mc. exhibition station that was operated in late August by the South Shields & District Amateur Radio Club in conjunction with the annual South Shields, England, Flower Show. And here's another GB coming up: GB3NCB will be in operation at the RSGB National Convention, Bristol, Sept. 17th through 19th. "Transmissions will be confined to the 1.8-, 3.5- and 14-Mc. bands and operation will be mainly on telephony. . . . The maximum power permitted by our regulations will be used, 10 watts on 1.8 Mc. and 150 watts on the other bands," writes G3RQ, convention committee secretary. GB3SFS and GB3NCB guarantee interesting QSLs for all stations contacted. _.._.._ We understand LZ1s KAB KDP KNB KPZ KSA KSI, LZ2s KAC KHM and KSK to be additional legitimate Bulgarian call signs now active _.._.._ From 7 Mc. upward, frequencies available to Trieste AG2s closely parallel our own. But they have no 160-meter band and have a typical European split 80-meter allocation: 3500–3625 and 3685–3800 kc. Maximum permitted power input is 500 watts. AG2AA writes that antennas must be put up with considerable care at his location because of 120-m.p.h. winds prevalent in February _.._.._ HB9MX tells W2SHC he'll be operating HB1MX/HE in Liechtenstein during the first two weeks of this month with a 15-watter on 10, 20 and 40, A1 and A3. _.._.._ W2DPP sailed for the Mediterranean aboard *S.S. Exochorda* and found W2YWO holding forth in the radio shack. W2DPP subsequently enjoyed a pleasant visit with DXer EA7CP of Seville. _.._.._ Two IRCs should be enclosed when writing for information on the OZ-CCA DX award (pp. 57–58, June *QST*). _.._.._ As of June 26th, W2s QHH WZ BXA and DKF are the only U. S. A. holders of USKA (Switzerland) H-22 awards. HB9CZ fills us in on results of the March Helvetia-22 DX contest: U. S. scores from the top down are W2WZ 1740, W2DKF 1020, W4EPA 284, W2SAW 72, W2WC 30 and W3AYS 12. High non-Swiss European scorer was DL3EV with 5994, and the highest non-European tally was turned in by FA8DA (5757). The winning Swiss entrants were acknowledged under HB1KB/Uri's photo last month. _.._.._ News via W8EV will strike responsive chords among the hardened sinews of OT DXers. Ex-OE3AH, Archduke Anton of Hapsburg, was worked as OE5AH by Ben in late June. The story of OE3AH, the 1938 ARRL DX Test, and the German-Austrian "Anschluss," stands among the highlights of DX history (see p. 25, June 1938 *QST*). _.._.._ DL4FH (W5QXH) radio engineer for USIA in Munich, returned Stateside for a well-deserved leave. _.._.._ From friend LA6QB, NRRL (Norway) secretary: "LB8YB, formerly on Jan Mayen, from now on is at Myggbuktu, Greenland. . . . He has taken with him 16 pounds of [LB8YB] QSLs and hopes to manage to write them there." Concerning LA7UE and Bjørnøya Island, LA6QB adds, "He didn't get the crystals he needed and therefore was not able to go on the air." However, watch for LA7UE activity from the island of Hopen (goes as Svalbard) in short order. _.._.._ F8FW/FC (HB9LA, QSL via USKA) passed out Corsica QSOs on several bands in early August.

Hereabouts — FP8AA (*K2CPR*) worked approximately one hundred St. Pierre seekers during July, using 40 meters only. Jack, who has visited FP8-land each summer for several years now, finally hooked his first W7 and ZL from the place. St. Pierre authorities still welcome visiting U. S. hams. _.._.._ VP7NM describes VP7SL as an interloper and cards received for him at the Bahamas QSL bureau cannot be delivered. _.._.._ "Since I was the last ham at Swan Island, and our government station has been deactivated and personnel removed, I am anxious to send cards to all who [deserve] them," writes ex-KS4AV-W4MXE. Swan should be a toughie from now on — check John's new address in "Where." _.._.._ The annual W9-DXCC Club meeting will be held Saturday, Sept. 18th, at the Sheraton Hotel, Chicago. States meeting chairman W9FKC: "Registration will start at 2:00 P.M. and a turkey dinner will be served at 6:30. Reservations can be mailed to W9s FKC FID GRV or ABA, and a payment of five dollars will cover everything." Act *now* so that arrangements can be facilitated — non-W9s also are welcome. _.._.._ We regret to note in Silent Keys the passing of diligent DXer W2QKS, DXCC member with 236 confirmed.

Top DX competitor up Alaska way with 183 DXCC Countries List items confirmed, KL7PI puts Juneau on the ham map in multifarious ARRL operating activities. Joe's p.p. 100TIIs final, not in view, is tickled by the homebrew VFO exciter resting atop the 75A-1.

VK/ZL DX CONTEST

NZART (New Zealand) and WIA (Australia) invite world-wide participation in this year's VK/ZL Test to be held (c.w.) 1000 GMT, Oct. 9th, to 1000 GMT, Oct. 10th, and ('phone) 1000 GMT, Oct. 2nd to 1000 GMT, Oct. 3rd. If competing in both periods, submit a separate log for each; operate any amateur bands. Details:

Serial Exchange: Six figures (five for 'phone) consisting of RST plus QSO number — 001, 002, etc.

Scoring: One point per contact, each station worked once per band, this total to be multiplied by the number of VK/ZL numerical call areas worked of a possible 11 (VK8 and VK9 excluded).

Logs: Record date, GMT, call, serials sent-received and band for each contact. Use a separate sheet for each band worked and underline each new VK/ZL call area worked. Attach a summary sheet bearing total score and a signed declaration that contest rules have been observed. Logs must reach NZART, Box 489, Wellington, N. Z., on or before Jan. 21st, 1955, to be eligible for certificates which will be awarded to the highest scorer in each country and U. S. call area.

— ... —

LABRE DX CONTEST

LABRE (Brazil) invites world-wide participation in the society's 1954 DX contest to be held (c.w.) 0001 GMT Sept. 4th to 2400 GMT Sept. 5th, and ('phone) 0001 GMT Sept. 11th to 2400 GMT Sept. 12th. Serial exchanges are the same as those designated for the VK/ZL contest above.

Scoring: Each contact between stations (a) of different countries outside the American area * shall count 1 point; (b) of different countries in the American area shall count 2 points; (c) in the American area and stations in all other countries of the world shall count 3 points; (d) in the same country (to obtain multiplier) shall count 0 points. Multiply points total by the number of American area band-countries worked and then by the number of Brazilian band-call areas worked. (E.g., working Mexico on 40 and 20 meters gives two band-countries.) No cross-band or A1-to-A3 contacts are allowed.

Logs: Record information as in the VK/ZL contest above. Logs must reach LABRE Contest Commission, Caixa Postal 2353, Rio de Janeiro, Brazil, no later than Nov. 30, 1954. First- and second-place award certificates will be issued to stations in each country and in each Brazilian call area for (1) the highest single-band 'phone-only or c.w.-only score, and (b) the highest multiband score, 3-band minimum, 'phone-only or c.w.-only.

* "American-area countries" are constituted by the WAA Countries List which includes DXCC countries within the North American and South American continental WAC boundaries.

I.A.R.U. News

JUNE CALENDAR

In the June *Calendar* of the International Amateur Radio Union is a brief summary of the first IARU Region I Conference, held at Lausanne, Switzerland, in May, 1953.

One of the recommendations of the conference led to a current proposal, by the *Radio Society of Great Britain*, that a three-digit RSM report be used in place of the present two-digit RS code for 'phone work. The third letter would stand for modulation quality and would comprise the following steps:

M-1 — unintelligible modulation.

M-2 — defective modulation due to spurious or parasitic oscillations or to causes unknown.

M-3 — defective modulation due to frequency modulation of the carrier.

M-4 — defective modulation due to overmodulation.

M-5 — good modulation, not exceeding 100%.

New regulations governing amateurs in Ecuador, Denmark, Britain, Argentina, Paraguay, and Austria are briefly described. For the most part, the changes were favorable and were the result of considerable effort on the part of national societies.

Mention is made of the excellent documentary "Kanaal 3700" which was published by the *Vereniging voor Experimenteel Radio Onderzoek in Nederland*, reporting on emergency communications activities in the Netherlands during the 1953 European floods.

Another current proposal is that of the Headquarters concerning reinstatement of the *Japanese Amateur Radio League* as a member-society of the Union.

PHILIPPINES

Philippine amateurs are now permitted to communicate with amateurs in the USA, Formosa, Cuba, Dominican Republic, Ecuador, France, Greece, India, Indonesia, Italy, Pakistan, Spain, Thailand, and Turkey. Further relaxation by the Magsaysay government of the restrictions is expected in the near future, the *Philippine Amateur Radio Association* reports.

WAC BOUNDARY CHANGE

Socotra, an island about 150 miles off the eastern point of Africa, has been listed under the continent of Africa for the WAC award, while it has been counted as an Asian country for the WBE award. Since it is governed by the British Protectorate of Aden, on the southern coast of Arabia, at the request of the *Radio Society of Great Britain* a slight change in the continental boundary is being made to include Socotra as part of Asia. The boundary can then be described as ". . . Cape Guardafui just South of Socotra and straight on to 60° east, 12° north . . ."

QSL BUREAU CHANGES

The following changes and additions to the list of QSL Bureaus which appeared on page 59 of June *QST* have been reported.

Austria: OVSV, Kierlingerstrasse 10, Klosterneuberg

India: Box 1, Munnar P. O., Travancore, S. India.

Japan: (KA) FEARL, APO 111, c/o Postmaster, San Francisco, California

Okinawa: OARC, APO 331, c/o Postmaster, San Francisco, California

Trieste: P. O. Box 301, Trieste, F.T.T.

AUSTRIA

After long and diligent liaison work with government authorities, the *Osterreichischer Versuchssenderverband* has succeeded in getting the

(Continued on page 112)

At a recent gathering in Australia, five prominent members of the South Australia Division of the Wireless Institute of Australia got together for this photo. From left to right are Ross Kelly, VK5AW, former council member; "Doc" Barbier, VK5MD, past president; Warwick Parsons, VK5PS, past president; Hal Austin, VK5AW, past president; and Gordon Bowen, VK5XU, president.

Operating News

F. E. HANDY, W1BDI, Communications Mgr.
R. L. WHITE, W1WPO, Asst. Comm. Mgr., C.W.
PHIL SIMMONS, W1ZDP, Communications Asst.

GEORGE HART, W1NJM, Natl. Emerg. Coördinator
ELLEN WHITE, W1YYM, Asst. Comm. Mgr., 'Phone
LILLIAN M. SALTER, W1ZJE, Administrative Aide

The Fall Season Opens. Good fall operating weather should be just around the corner as you receive this *QST*. Any remaining vacancies in the Transcontinental Corps (NTS) now should be rapidly filled. Preference will be given to first applicants in working out matching assignments, so don't delay writing if you have the experience and traffic interest. We would like to welcome additional appointment applications for Station and Leadership posts. Send these to appropriate SCMs, addresses on page 6, please. Stations newly sending code-practice schedules or with revised plans for operation in October and November should give us full data on these *right now* for future publication. It will be a big season with stepped-up DX activity, November Sweepstakes, all the usual plans. Emergency leaders to advance AREC and RACES will be needed on an expanded scale. See your SCM and SEC for details. Whatever your interest, get in the swim and enjoy amateur radio operating. Give the FMT (September 16th) a try if you can measure frequencies accurately. Ask for a copy of our booklet *Operating an Amateur Radio Station* for details on any appointive post.

Those Also Serve. M-D-DC SEC John Gore, W3PRL, currently is reporting to the National Emergency Coördinator on amateur work in connection with the Chestertown fireworks plant explosion. This devastated a large area and overloaded regular communications systems. In W3PRL's words, "The experience acquired through repetitive net drills in handling messages . . . proved the effectiveness of our nets when they automatically go into action and produce communications results such as demonstrated on this occasion. Practically every member stood by ready to handle any and all traffic, proving the effectiveness of training received in regular operations."

We are given to understand that certain amateurs attempted to ridicule operations in progress. However, net control appropriately established stations 5 kc. above and below the net operating frequency (3820 kc.) to monitor operations and assist participating low-power mobiles operating in the devastated area. Thanks are due all who refrained from any operations on or near the frequencies involved who were not in positions to give direct assistance.

Summary of the operational aspects will be reserved for next *QST*. The incident is touched on here especially (1) to emphasize that *they also serve who stand by*, observe circuit discipline to assist organizational lines, and permit those organized and prepared to get their communications through; and (2) to point out that every amateur should in advance be registered or aligned with the Amateur Radio Emergency Corps, RACES and other emergency operating groups. We liken those who poke fun or deprecate constructive efforts by their kibitzing and offside remarks, to casual citizens who, out of mere curiosity, rush unwanted into devastated areas, making it necessary to set up restrictions and policing to insure that organized relief efforts are effective.

It is true that not every emergency is a statewide or nation-wide calamity. But surely it does not speak well for any of us to pass hasty or ill-informed judgments on those attempting to do their duty in a spirit of public service.

Certified Code Speed. Do you *know* how fast you can copy? ARRL offers all amateurs official certification of their code receiving speeds. Do you have something on paper to prove your proficiency to those with raised eyebrows? ARRL's Code Proficiency Program provides a means to determine your receiving speed and get a certificate to prove it. The practice transmissions start at 9:30 P.M. EDST daily (through September 26th) and our full operating schedule as to bulletins, general operating periods and code practice is available. The W1AW schedule is sent free on request by radiogram or card.

Emergency Lessons in Operation Alert. Many communications groups participating in the June 14th–15th civil defense test informally agree that the values of periodic tests are high, permitting revision of plans, increased emphasis on procedure training, changes in deployment and practical arrangements. *Midwest Clixs* (July) refers to two specific and positive conclusions, as follows:

"(1) Amateurs participating in . . . RACES nets should be encouraged to participate in the regular amateur nets . . . message handling (know-how) and a disciplined directed net operation is fundamentally the same whether a net is amateur, RACES or MARS. There is *practice value* in correctly handling messages . . .

(2) It was observed that the 10-kc. RACES provisions at the high and low ends of the 4-Mc. band are hardly adequate for civil defense communication throughout the country, especially when QRN is bad in the 160-meter and disaster bands. Use of v.h.f. links where possible . . . could solve part of the trouble and guard against . . . long skip. An illustration in two adjacent states: Many stations in State A, operating 'phone on 3.99 Mc. for c.d. gave up in the evening. They had planned on sending enough traffic to keep busy all night . . . the combination of QRN and QRM was too much on 75. In State B, communications continued *as long as required:* they had been moved down to the low end of the band on c.w. . . ."

Making best use of *all* the available facilities always pays off. Greater familiarity with traffic methods either by its regular appearance in radio tests, or through daily net operation as per the suggestion in the first numbered paragraph preceding, doubtless could have increased the showing of what was handled in State B. ARRL suggests that AREC and RACES groups also arrange to have blackboard talks and practice set-ups, inviting operators skilled especially in message handling work to assist the training program. — *F. E. H.*

PREVIEW—1954 FIELD DAY

Listed below are high claimed scores for the 1954 ARRL Field Day of June 19th–20th. These are subject to checking and grouping according to the number of transmitters in simultaneous operation at each station.

CLASS A

(Listings show call used in FD, claimed score, and number of simultaneously-operated transmitters.)

W2LL/2	17,847–10	WØCET/Ø	5364– 4
W2GSA/2	16,899–10	W3NA/3	5331– 5
W4FU/8	14,355– 7	W6MLL/6	5319– 6
W3PKV/3	12,202– 4	W1BDI/1	5274– 1
W6UW/6	11,874–10	W1WKN/1	5256– 7
W9IT/9	11,241– 9	W2GMM/1	5184– 6
K6BAG/6	11,055– 6	K6AGF/6	5083– 8
W2VDJ/2	10,717– 6	W6SY/6	5025– 9
W9PCS/9	10,584– 6	W2DTU/2	5013– 3
K6DTA/6	10,437– 8	W9PZT/9	4986– –
W5SC/5	10,113–11	K6FAV/6	4782– 3
W6UF/6	10,044–10	W1VB/1	4761– 2
K6EM/6	9369– 6	W1KXM/1	4725– 1
W3RCN/3	9342– 8	W2JC/2	4653– 2
W6MBA/6	9144– 4	W2NOO/2	4644– 3
K2AA/2	9099– 4	W3PSG/3	4567– 4
W3BES/3	9072– 2	W2QW/2	4566– 3
W1OC/1	9009– 8	W5MUZ/5	4554– 3
W2IM/2	8955– 3	W8MRM/8	4539– 3
W6TOI/6	8550– 8	W7HZ/7	4464– 3
W6UTX/6	8292– 8	W1KKT/1	4461– 3
VE3BRR/3	7848– 9	W9BAV/9	4428– 5
W2FU8/2	7812– 6	W6PMK/6	4401– 8
W1OMI/1	7668– 4	W6MHM/6	4383– 4
W4MK/4	7623– 2	W4CN/4	4374– 3
VE3DC/3	7617– 9	W2ZQ/2	4356– 4
W8BWA/8	7524– 3	W6YK/6	4344– 3
W2GTD/2	7092– 4	W3CKJ/3	4335– 2
W3SOB/3	6939– 5	W4TRC/4	4324– 4
WØVMU/Ø	6905– 2	W2GM/2	4287– 5
W6LS/6	6888– 8	W1GLA/1	4275– 6
W2DAY/2	6876– 4	W8ACW/8	4266– 5
VE3ZM/3	6876– 6	W6BIP/6	4263– 8
K6EBN/6	6828– 8	W6NCL/6	4257– 5
W2BVL/2	6786– 5	W9AB/9	4242– 3
W2KOJ/2	6759– 5	W6KA/6	4221– 5
VE3JJ/3	6738– 6	VE3BER/3	4212– 5
W1AA/2	6669– 5	W4DU/4	4171– 4
W3KT/3	6552– 2	W9ERU/9	4167– 2
W6MGJ/6	6433– 5	W2DPQ/2	4164– 5
W1NEM/1	6057– 8	W2ODP/2	4158– 2
W6OT/6	6038– 8	W8EO/8	4140– 6
W3OK/3	6003– 4	W9UDU/9	4095– 2
W8ICS/8	5751– 3	W6PMI/6	4056– 5
W7DK/7	5679– 5	VE7AQL/7	4042– 8
K8AIR/8	5424– 6	W3SIR/3	4038– 4
W6ZUU/6	5382– 4	W7BB/7	4017– 4

CLASS B

(Listings show call and score.)

W2JBQ/2	5373	W9ESQ/9	1440
W5VRP/5	2916	VE3WY/3	1431
W6VIF/6	2903	K2IHM/2	1422
VE3BCL/3	2547	W9DSP/9	1320
W6LDR/6	2538	VE3CWB/3	1269
W3RZG/3	1944	W7JKB/7	1230
W5OLD/5	1764	W7SBT/7	1080
W2NCI/2	1661	W7CMQ/7	1067
W4QCA/4	1614	W5WQN/5	1066
K2ESM/2	1485		

CLASS C

K6ASK/6	3551	W8INO/8	2201
W8HFE/8	3470	W8JNF/8	2187
W8AEU/8	2876	W8YPE/8	2187
W8AJH/8	2727	W6ROJ/6	2174
W8AJW/8	2727	W8ZJQ/8	2174
W6NQQ/6	2673	W6HDT/6	2173
W6GQF/6	2538	W6TSA/6	2160
W8MWE/8	2457	W8GHT/8	2160
W8ERA/8	2417	W6ZVD/6	2147
W8INW/8	2363	W8CZM/8	2147
W6OLC/6	2349	W8FKB/8	2147
W8QAV/8	2336	W8NNO/8	2066
W8BDZ/8	2268	W8MYM/8	2052
W8PM/8	2268	W8NNC/8	2052
W9RQM/9	2268	W8ZXL/8	2039
W8VK/8	2228	W8GMK/8	2038

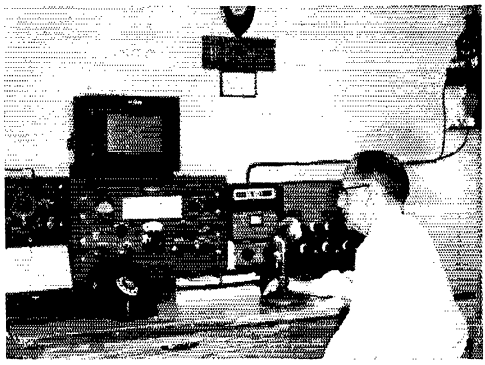
CLASS E

W4KFC/4	833	W3TNO	151
W4ZJB/4	309	W1AW	140
W5YJS/5	281	VE3DFM	130
VE1ZZ	243	W8TZO	129
W6BJU	201	W1UBC	113
W1WEF	192	K2DEM	113
W2APH	182	W2ZCZ	109
KN2DNH	168	K6CWX	104

MEET THE SCMs

Carroll A. Currier, just completing a term as SCM of New Hampshire, received his license with his present call, W1GMH, in April, 1933, after a three-year interest in amateur radio.

W1GMH is located in a nicely-fitted shack in the basement. Equipment consists of a Viking II with a Viking VFO, a Collins 75A-1 receiver, and a BC-221 frequency checker. A large rig with a pair of 813s in the final, running 400 watts with 805 Class B modulators, is idle at present but will be ready for operation again as soon as the final is rebuilt. A three-element rotary beam and center-fed antennas are used. Bands utilized are 10, 20, 75, and 80 meters.



SCM Currier holds OPS, OBS, RCC, OTC, WNH, NHEN, TCPN, WANE, WVT, DSDN, and Sea Gull Net certificates and several Public Service certificates for flood, fire, and hurricane emergency work. He enjoys traffic handling and has maintained membership in the League continuously since 1932. Cal was one of the charter members of the Manchester Radio Club, organized in 1939.

He has always been interested in fishing, football, and baseball games, along with Kodachrome photography. Previously employed by the local utility company in Manchester in the engineering department, he is now retired because of a heart condition.

NATIONAL CALLING AND EMERGENCY FREQUENCIES

C. W.	*'PHONE*
3550 kc. 14,050 kc.	3875 kc. 14,225 kc.
7100 kc. 21,050 kc.	7250 kc. 21,400 kc.
28,100 kc.	29,640 kc.

During periods of communications emergency these channels will be monitored for emergency 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* — 3765, 14,160, 28,250 kc.

NATIONAL RTTY CALLING AND WORKING FREQUENCIES

3620 kc. 7140 kc.

These frequencies are generally employed by amateurs using radioteletype throughout the United States.

It is pretty tough to suggest a solution to a hopeless situation. During a recent trip, we saw much evidence of stellar performance by amateurs in RACES, but once in a while we were confronted with RACES situations which had deteriorated to the extent that rescue appeared to be impossible.

There is little use in going into the history of performance resulting in such a mess, although in passing it might be said that in all cases it could have been avoided by proper implementation of the AREC long beforehand. If your civil defense officials are so completely alienated to amateur radio that they will have none of it, there is really little that can be done until or unless (1) they can be shown that they have an unwarranted impression, or (2) they are replaced by officials who do not feel that way. The principal value in trying to ascertain *why* they feel that way is to see that errors of the past, on the part of local amateurs, to make them feel that way are not repeated.

The headquarters has no panacea for all ills besetting amateurs in their AREC or RACES organizational efforts. For the past 19 years, we have been trying to organize amateur potential for emergency communication into a single strong facility through creation of a nation-wide organizational structure which has its life-giving roots necessarily at the local level. Our efforts have met all varying degrees of success (and lack of it), depending on the resourcefulness, leadership availabilities and inclinations of amateurs within their communities. These results are now coming home to roost. Where they have been most successful, AREC has embraced and encompassed RACES. Where they have been partially successful, RACES has given the amateurs a "shot in the arm" so that where a loose AREC organization previously existed, a loose or strong RACES organization now exists. And where AREC was nonexistent there is now no RACES organization, or one so shot-through with politics, commercialism or anti-amateur sentiment as to be useless for all practical purposes.

We don't wish to put ourselves in the illogical position of taking credit for the successes and disclaiming responsibility for the failures. We only wish to point out that, generally speaking, the success of the RACES venture so far is, and doubtless shall continue to be, in direct proportion to the success of AREC organization which preceded it — and that any degree of failure is not just the failure of headquarters, or of this group or that person, but the collective failure of all of us.

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At 1730 MST, June 5th, W7s TAB NJU and W7TYG were engaged in a contact on 3935 kc. when a weak triple-break was heard. It was W7KUX/7, operating portable on Low Air Strip, about 85 miles west of Salt Lake City, Utah, with emergency traffic for Salt Lake City, weather conditions and skip being such that Salt Lake City stations were not readable at his location. TYG called "CQ Salt Lake City," but no luck. NJU then called a CQ for Salt Lake City and raised W7NVY/M who immediately put his home rig on the air. NJU thereafter acted as NCS and relay station, with NVY handling all further traffic into Salt Lake City. The three Idaho stations relayed. W7ACD and W7IEY policed the frequency. It was explained that the situation, originally a field-day exercise, had suddenly become a real emergency, with one CAP aircraft, carrying a pilot and passenger, missing. W7QAF in Provo came on and relayed word to W7AHD to man the CAP station on 4507 kc. W7UMT in Bountiful offered c.w. liaison. W7NVY remained in almost constant contact with the CAA in Salt Lake City and in radio contact with W7KUX/7 thru NJU, since direct contact was sporadic because of skip and QRN. The frequency was kept clear until 1915 when W7KUX established contact with the Provo CAP station on 4507 kc. and W7NVY declared the net free. A similar announcement from NJU, the NCS, ended the emergency. Stations involved in relay or assistance included W7s NVY KUX NJU TYG TAB QAF RDN UTM and TST. Traffic routed thus: W7KUX/7 to W7NJU to W7NVY and return.

— *W7TYG*

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During a violent rainstorm in Milwaukee on June 9th, W9GER/M advised W9PD/M that he had found a cover off a manhole in the middle of the street. W9PD/M advised him to stay there while proper authorities were notified. W9GER then parked his car crosswise on the street to block the road until the cover was replaced, thus obviating the possibility of serious accidents occurring. — *W9PD.*

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On June 10th starting about 1730, heavy rains of cloudburst proportions fell in Sidney, N. Y., causing severe damage to Unadilla and Sidney Center. Bridges and roads were washed out or made impassable by landslides. Sidney Center lost its water supply and many homes were damaged in both Unadilla and Sidney Center. W2RZP was in contact with W2QHL/M, W2GFD/M and K2CVX/M at various times between 1900 and 2100 hours on 29.6 Mc. W2QHL/M had experienced considerable difficulty with high water on the roads in proceeding from Otego to Sidney and returned to Oneonta by another route. He was out of range on 29.6 when W2RZP received a call at 2100 hours from the Town of Sidney C.D. Director to help furnish communications. W2JGJ/M was sent to Sidney Center. K2CVX/M was sent to Unadilla and W2GFD/M remained in Sidney as liaison with the c.d. director. The purpose was to keep contact between the town director, the town supervisor, the highway superintendent and crews of highway machinery and the c.d. rescue truck which furnished emergency lighting.

W2RZP acted as control and relay station as needed. W2UPT operated W2GFD/M after 2200. Operations continued until midnight when we were released by the town director who complimented us on our help. — *W2RZP, EC Delaware Co., N. Y.*

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Members of the Des Moines Radio Amateur Association hardly had time to close their logbook on Field Day when a real emergency was washed right into their laps. After record June rains, the Des Moines River flooded through central Iowa, causing mounting damage. On June 22nd, amateurs in the Des Moines area were summoned to a "get ready" meeting at the city police station. Both mobile- and fixed-station operators showed up to volunteer their services. The meeting was called for 8 P.M., and because of the increasing danger to the city from the river, some of the mobiles were being dispatched to trouble spots by 8:30 P.M. Originally, city officials hadn't expected to need the hams before the night of June 23rd.

Under WØSVD, Emergency Coördinator for Des Moines, and WØNTA of the Des Moines police department, a net control station was set up on the third floor of the municipal

♦

This is the mobile radio unit of the Fort Hale Mobile Radio Club of New Haven, Conn. It is completely equipped for emergency and civil defense use. Several transmitters and receivers are included for operation on most amateur bands. The amateurs in the picture are W1YTY, WN1YUX, WN1ZIU, W1OEB (3rd from right) and WN1ZYT (at extreme right). Others are civil-defense officials and aides.

♦

QST for

A.R.R.L. ACTIVITIES CALENDAR

Sept. 5th: CP Qualifying Run — W6OWP
Sept. 13th: CP Qualifying Run — W1AW
Sept. 16th: Frequency Measuring Test
Sept. 18th–19th: V.H.F. QSO Party
Oct. 8th: CP Qualifying Run — W6OWP
Oct. 9th–10th: Simulated Emergency Test
Oct. 12th: CP Qualifying Run — W1AW
Oct. 16th–17th: CD QSO Party (c.w.)
Oct. 23rd–24th: CD QSO Party ('phone)
Nov. 6th: CP Qualifying Run — W6OWP
Nov. 13th–14th, 20th–21st: Sweepstakes
Nov. 17th: CP Qualifying Run — W1AW
Dec. 5th: CP Qualifying Run — W6OWP
Dec. 16th: CP Qualifying Run — W1AW

police station building. The station, KØFDB, operated on 29.6 Mc., as did all the mobiles.

For 51 hours KØFDB was on the air continously, handling emergency flood traffic. During that time, 22 mobiles were on the air for long periods and more than 20 other amateurs worked at FDB, traveled as second ops with mobiles or performed other services. The first night each of the mobiles had a Civil Defense auxiliary policeman along. The mobiles were directed to danger spots along the river — bridges, low-lying main streets, dikes — with orders to stay at the mikes while the c.d. men patrolled. Information from the c.d. men was relayed to KØFDB by the mobiles; then KØFDB would call the city's central flood control headquarters by landline as needed.

On June 23rd, which turned out to be most crucial, many of the mobiles were more or less on their own at trouble spots, acting as ears and voices for flood workers. When a crew yelled for sandbags, the mobile relayed the word to net control which called flood control — and the sandbags got there in a hurry! Other mobiles, on June 23rd and 24th, were links in a bigger radio chain. Naval Reserve personnel with hand-carried portables patrolled a four-block section of dike that threatened to give way and flood a big, low-lying area. The navy NCS was stationed at the side of a ham mobile rig, so word of any dike trouble (and there was plenty) could be passed along instantly.

The crest came early Friday morning, not long after flood control officials gave the word that the major danger was past and that the amateur net could shut down. The amateurs went home at 0030 on June 25th for some much-needed sleep, but remained on a stand-by basis.

Praise for the amateurs came in letters of thanks from the city manager and chief of police, who pointed out that the amateur net had provided speedy communications while at the same time taking a major burden off police telephone facilities. One local newspaper called tne amateur control station "a nerve center in the gigantic flood-control machine."

Mobile station operators, some of whom worked both days and nights, grabbing only a couple of hours' sleep when they could, included: Wøs EHH DDW LJF FSG ETU HIB LRY PRF GBB BSK OLY IQS QNO BBE MYQ AUL IUM HOU NWX NUC WML BSG NOS. Some of these, notably WØAUL and WØNWX, went to some trouble to install mobiles especially for this work. WØHKN and WØDFH assisted in the WØAUL mobile installation and WØDFH later helped operate it.

Operation of the net control station was done by Wøs SVD NTA HOC FQW EKA WSJ PKH HUY LMM WCH UOI DSL and WNØPKW.

WØPZO worked on 75 meters rounding up further possible out-of-town help, and WØCQU served as a car-borne refreshment man for mobile operators on the job.

— *WØMYQ.*

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Speaking of RACES, one of the FCC staff in Washington recently exuded quite a bit of enthusiasm for the vigor and enthusiasm with which the amateurs in one state were pursuing the RACES program. Which state? *Connecticut!* Under the able guidance, not to mention the prodding and ramrodding, of State Radio Officer W1LKF, Connecticut had at that time received, in addition to an approved state RACES plan and thirteen station authorizations, twenty-five approved local communications plans and 37 station authorizations at local level. By the time you read this, the above figures will be woefully inaccurate, since additional applications are being processed all the time. W1LKF's gimmick? A fill-in application form, sent to the civil defense director of every town, to make the red tape of application less difficult, and easier to understand.

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For May, 1954, we received 10 SEC reports (same as last year), representing 2209 AREC members (fewer than last year). One new section is represented, the Maryland-Del.-D. C. section, making our total for the year twenty-two (one more than last year, three fewer than 1952). Sixty-six SEC reports have been received through May of this year, a nominal increase of two over this time last year. So we're still just holding our own.

FREQUENCY MEASURING TEST, SEPTEMBER 16TH

All amateurs are invited to try their hand at frequency measuring. W1AW will transmit signals for the purpose of frequency measurement starting at 9:30 P.M. EDST (6:30 P.M. PDST), Thursday, September 16th. The signals will consist of dashes interspersed with station identification. These will follow a general message sent to help listeners to locate the signals before the measurement transmission starts. The approximate frequencies used will be 3538, 7035 and 14,130 kc. About 4½ minutes will be allowed for measuring each frequency, with long dashes for measurement starting about 9:36 P.M. It is suggested that frequencies be measured *in the order listed*. Transmissions will be found within 5 or 10 kc. of the suggested frequencies.

At 12:30 A.M. EDST, September 17th (9:30 P.M. PDST, September 16th), W1AW will transmit a second series of signals for the Frequency Measuring Test. Approximate frequencies used will be 3760, 7095 and 14,096 kc.

Individual reports on results will be sent to all amateurs who take part and submit entries. When the average accuracy reported shows error of less than 71.43 parts per million, or falls between 71.43 and 357.15 parts per million, participants will become eligible for appointment by SCMs as Class I or Class II OOs respectively.

This ARRL Frequency Measuring Test will be used to aid qualification of ARRL members as Class I and Class II observers. Present observers *not* demonstrating the requisite average accuracy will be reclassified appropriately until they demonstrate the above-stated minimum required accuracy. Class I and Class II OOs must participate in at least two FMTs each year to hold appointments. SCMs (see listing, page 6) invite applications for Class III and IV observer posts, good receiving equipment being the main requirement. *All* observers must make use of the coöperative notices (mail forms provided by ARRL) reporting activity monthly through SCMs, to warrant continued holding of appointment.

Any amateur may submit measurements on one or all frequencies listed above. No entry consisting of a single measurement will be eligible for *QST* listing of top results; at least two readings should be submitted to warrant *QST* mention. Listing will be based on over-all *average* accuracy, as compared with readings made by a professional frequency-measuring lab.

TRAINING-AID NOTE

Affiliated-club instructors find ARRL training aids of great benefit in both code and theory education. Thirty technical films, thirteen filmstrips, ten quizzes and code-training equipment all prove to be of real help in radio amateur license preparation. The demand is always brisk, so affiliated-club officers are requested to anticipate such needs and make the necessary arrangements early. Further information is available from the Communications Dept.

QUIZ QUOTES

RARL training-aid quizzes cover a multitude of topics: Operating Procedures, DX, Traffic, ARRL Organization, FCC Regulations, Public Relations, Technical, TVI, The Novice, etc. The Levittown Amateur Radio Club (via W2RDK) finds them of high educational entertainment value. "The quizzes are very popular, indeed. We often have a little prize for the guy with the best score, and send out word in advance that the quiz is going to be held, although we don't tell what the subject is. We almost always have the place packed on such nights!"

INDIANA 'PHONE NET

Efficient enjoyable net operation is the goal for Indiana Fone-Netters, a goal easier to attain due to the new edition of the Indiana Fone Net Directory. W9NTA, IFN Manager and PAM of Indiana, recently forwarded a copy of this booklet which helps expedite traffic throughout the Hoosier State. The directory includes suggestions for efficient net operation which are well worth repeating:

. . . Some stations make excessive use of call letters. When handling traffic identify yourself at the start; then use "break for check" or "roger, go ahead."

. . . [NCS] insist on correct form for messages. They should be short. Informals should also be kept as short as possible.

. . . Much repeating of messages is often unnecessary. Suit your transmission to the present condition of the band. Take frequent breaks to see if you are being received.

. . . Courtesy is always in order.

TRAFFIC TOPICS

Every summer about this time, we get those net registration blues. This column, each September, carries the annual call for net re-registration. Your net, if it has not been registered since August 1, 1954, now is listed behind a tab in the net directory card file marked "Inactive Nets." The only way to rescue it from that kind of oblivion is to re-register.

IT'S NET REGISTRATION TIME, OM!

There are two kinds of registration: *minimum* registration and *complete* registration. The minimum consists of those elements without all of which we will not register the net at all — *Name* of Net, its *Frequency* and its *Time* and *Days* of operation. We would like, however, to have *complete* registration of all nets, and that would include the following items: (1) name of net; (2) net designation, if any (e.g., MTN for Mission Trail Net, TEN for Tenth Regional Net, etc.); (3) frequency or frequencies; (4) day or days of operation; (5) call letters of the net manager; (6) time the net starts and time it ends — *be sure to indicate which time zone;* (7) direct coverage of the net — that is, by stations who actually report into the net, not by out-of-net relays or liaisons; (8) purpose of the net — one word will suffice (e.g., traffic, emergency, rag-chew, etc.); (9) date the net will commence or did commence operation, if not continuous; (10) list of net control stations; (11) whether or not the net is affiliated with NTS by reporting into the appropriate NTS regional net; (12) other nets with which the net has regular liaison, if not in NTS; (13) call letters of the person submitting the information.

All this is contained on a small tan card which we will make available to anyone upon request. One of the cards will be sent out with each LO Bulletin in September, and one with each CD Bulletin in October. In mid-November, we send out form reminder cards to listed managers of all nets registered last season who have not re-registered. By December 1st we should be "closing the books" on the net directory, which should be in circulation by December 15th (but sometimes production delays make it later than this). Registrations received after the net directory goes into print are included in supplementary *QST* lists.

An initial list of registered nets will appear in November *QST*, to be followed by supplementary and corrective lists in January, March and May *QST*s. The March and May supplements can also be used to correct the cross-indexed net directory.

Nets are registered only upon request, upon receipt of information specifically for that purpose. The little net registration cards are convenient for that purpose, but not required. Sorry, we cannot go through miscellaneous reports, correspondence or copy for net registration data.

In closing this little epistle, let us plead once again for a little dignity in choosing a net name, even if the net has something else it uses as a nickname. These net lists are of great interest to several government agencies, and are often used by them, but it's a little hard for them to take us seriously when we bend over so far to be facetious that we succeed only in making ourselves ridiculous. Look down the list and you'll see what we mean.

NETS NOT RE-REGISTERED SINCE AUGUST ARE MARKED "INACTIVE."

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Someone has strongly suggested that we clarify the situation as to counting MARS traffic. Okay, let's do it.

As the MARS representative at the Oregon State Convention said, when you're operating in MARS you're not operating as an amateur. Therefore, the traffic you handle is not creditable toward your amateur or BPL traffic total. If you bear that basic fact in mind, the counting method becomes simple — you count each message only every time it is handled on amateur frequencies. If you receive it on MARS and relay it by amateur radio, it counts only one "relayed." If you receive it by amateur radio and relay it by MARS, it counts only one "received." If you receive it on MARS and deliver it, you get no amateur count. Simple, eh? Of course if you handle it entirely on MARS your amateur count is zero.

How about overseas MARS refiles? The MARS policy has been (see page 130, June 1953 *QST*) that "third-party messages originating at overseas MARS stations will be reoriginated as amateur messages by the U. S. MARS station introducing them into the amateur bands." Such a message, received from the overseas point on a MARS frequency in MARS form, is converted to something approaching amateur form by being given a new number by the refiling station (his number), his call as the originating station, a proper amateur "check," but retains the original filing time and date. The place of origin uses the name of the country followed by the words "via MARS." The question is, when such a message is thus refiled and transmitted on an amateur circuit, does it then count as one "originated" or as one "relayed"?

We think it should be one "originated." We say "think" because the whole procedure is irregular so far as amateur form is concerned; but having reached the amateur station by means other than amateur radio, and bearing the number and call of the transmitting station as the originating station, it is more of an "originated" message than a "relayed" message, even though it contains the original date and filing time, and does not indicate the place of amateur origin. So let's count 'em as "originated."

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Miscellaneous net reports: Second Regional 'Phone Net — March, 471; April, 526; May, 565. Interstate 'Phone Net — March, 470; April, 380; May, 529. Early Bird Net for June, 519.

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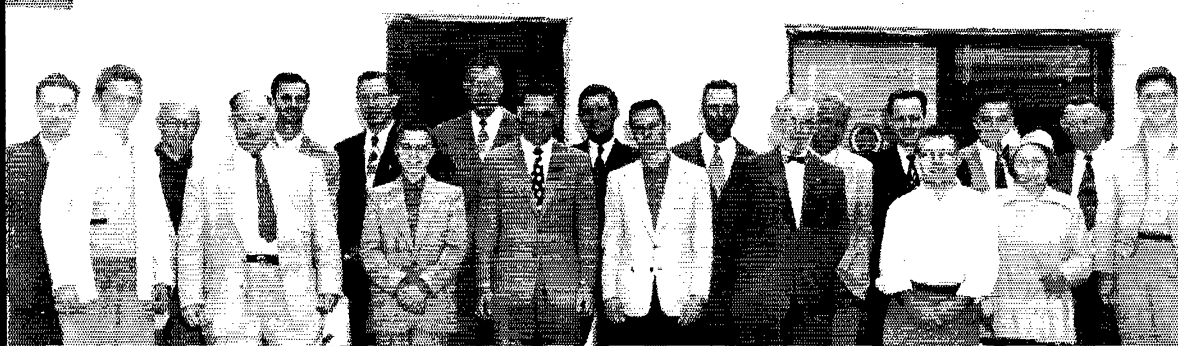
National Traffic System. While true that the NTS structure calls for local nets at section level, it is also true that combining the traffic men of two or more sections into a single net operating at section level is not only perfectly permissible, but often very feasible in areas where traffic activity within a single section will not support a section net. Such combinations have already been effected with good success in New York, New Jersey and California (Bay Area). Where there is a shortage of traffic men, other sections might do well to put similar "mergers" into effect. *Of course* we would like to see each section have its own, full-fledged, heavily-patronized section traffic net, but the combination idea is much better than not having that section covered by NTS at all.

At a get-together in Manhattan, Kansas, on May 9, 1954, WØFEO snapped this photo of the QKS/QKS SS gang. Shown in the picture, *l. to r.:* WØs NIY MLG BLI CWG YEF ICV SVE PAH GCH MVG NFX FDJ WGM BAH MUY KFW KFS LQX LQX's OM and EOT. WØs FEO and QVO, also present, are not in picture.



June reports:

Net	Sessions	Traffic	Rate	Average	Representation
1RN	22	306	0.38	13.9	85.7%
2RN	22	119	0.43	5.4	97.0%
3RN	22	135	0.56	6.1	90.9%
4RN	32	122	0.13	4.0	58.1%
RN5	20	121	———	6.0	36.9%
RN7	51	307	———	6.0	———
8RN	15	77	———	5.1	77.8%
9RN	25	543	———	21.7	———
TEN	70	1821	———	26.0	52.2%
TRN	23	47	0.47	2.0	46.4%
EAN	22	495	———	22.5	97.7%
PAN	19	439	0.41	23.0	81.6%
CN (Conn.)	26	256	0.42	9.4	.....
Tenn. (Hi-Speed)	19	90	0.67	4.7	.....
WVN (W. Va)	17	105	0.23	6.1	.....
WSN (Wash.)	43	204	———	4.9	.....
QKS (Kans.)	21	174	———	8.3	.....
AENP (Ala.)	28	229	0.18	8.0	.....
AENB (Ala.)	25	56	0.22	2.2	.....
LSN (Los A.)	26	123	———	4.7	.....
Summary	548	5779	Tenn.	10.5	EAN
Record	548	8183	....	15.9	.....
Late reports:					
4RN (May)	42	273	———	6.5	48.6%
RN5 (May)	33	331	———	10.0	51.5%
Cn (Conn.) (May)	25	292	0.71	11.4	.....
Minn. 'Phone (May)	55	397	———	7.2	.....

Seems to us it ought to be possible to get net reports in by copy time — but we realize how it is in the summertime. We'll try to continue the "late reports" column as above, but if it gets too long we'll have to stop listing it. Copy time is the fifteenth of the month, net managers. Section nets send your net reports to your SCM, but in order to meet the deadline for "Traffic Topics," send a copy direct to headquarters. The deadline for SCM reports is slightly later.

QRN has been especially rough this summer, and it has taken its toll of net attendance and efficiency. The above data do not represent NTS at its best, but considering the time of year we are doing quite well. Contrary to usual custom, 1RN is finding it possible to continue on a five-nights-a-week one-session basis this summer. W2LPJ is keeping 2RN active during the warm weather, despite temporary losses of some of his best men. Moving away from 3615 to escape RTTY QRM, 4RN's new frequency is 3547 kc. W5KRX is finding the summer QRN rough to contend with in RN5; the net is operating on Monday, Wednesday and Friday only for the time being. RN7 certificates have been issued to W7APS, W7PRA, VE7ASR and VE7TF; QNI is needed from Wyo., Alta., Sask. and Alaska. W8DSX has been doing some corresponding in an effort to revive 8RN, and results are good so far. The new 9RN is going strong; a certificate has been issued to W9VBZ. Ontario is the only regular section now reporting into TRN; Quebec is irregular and the Maritimes nil.

W8DQG is a newcomer to the Transcontinental Corps, taking on the Wednesday A and C chores recently vacated by W8FYO. W4ZFV is back with us for the summer. W1UNG is also in the process of accepting an assignment in Eastern Area TCC. We acknowledge June TCC reports from W1AW, W1EMG, W3COK, W4KRR, W6IPW and WØRTA. If we had more reports, we could figure out what percentage of TCC functions are actually performing (i.e., not just on paper). The complete roster as of this writing (July 21st): W1s AW EMG NJM, K2FB, W3COK, W4s KRR AGC ZFV, W5KRX, W6s EFD IPW JZ KPQ LDR QPY UTV WOC, K6BDF, W7TGU, W8s DQG DSX (SG) RLR YCP, W9s JUJ RXD UNJ, WØs IC KQD (RTA) SCA ZJO, VE3s EAM GI TM. We haven't heard from many of these for some time and need word as to the status of their assignments. Anyone else interested in the Transcontinental Corps of NTS? We need good c.w. men who can pack a good wallop, preferably experienced in traffic work — but if you know your c.w., it shouldn't take long to pick up traffic proficiency. How about doing your bit toward a nation-wide traffic service *one night a week*? Write to W1NJM at headquarters for details.

COLLEGE NET EXPANDING

The College Net is supported by college students with the purpose of advancing interscholastic good will via amateur radio. The net started as a meeting of several college stations on a preset frequency for roundtables, occasionally handing a few messages. After about five years of operation net enrollment increased from four to forty colleges. By the end of the '53-'54 academic year participation more than doubled to over 85 colleges and universities and 15 other scholastic institutions.

As listed in the current ARRL Net Directory, the College Net operates two sessions, both on 3895 kc.; on Thursdays at 1600 purely for traffic; and on Fridays at 1515 for both traffic and roundtable.

Anyone interested can obtain more information by dropping a line or sending a radiogram to Roger Salaman, W1UDF, via W2SZ, Hunt 11, Room 23, Rensselaer Polytechnic Institute, Troy, New York.

BRASS POUNDERS LEAGUE

Winners of BPL Certificates for June traffic:

Call	Orig.	Recd.	Rel.	Del.	Total
W3CUL	272	3211	2532	621	6636
KA2FC	1579	1457	1124	344	4504
KØAIR	34	1529	1484	44	3091
K4WAR	228	1281	1177	104	2790
W9JUJ	13	1149	1028	78	2268
K6FDG	78	996	909	51	2034
W3WIQ	73	896	969	84	2022
W7BA	18	837	804	27	1686
WØBDR	9	818	799	10	1636
KØFAU	228	696	660	36	1620
KL7AIR	23	754	706	48	1531
KA3AC	752	50	683	17	1502
K6FAE	5	725	715	15	1460
W3PZW	11	685	619	66	1381
WØSCA	4	664	600	56	1324
KA7SL	265	501	351	150	1267
KØWBN	83	681	401	50	1215
KA8AB	1036	77	44	33	1190
W6SWP	47	550	465	78	1140
K7FDB	15	0	1101	6	1122
W8RJC	3	519	472	46	1040
W6ELQ	8	489	488	25	1010
KA2HQ	199	409	295	91	994
W9DO	6	473	101	378	958
W2KFV	5	447	431	16	899
W9NZZ	282	306	3	303	894
KH6USA	50	319	420	48	837
K6FCY	151	235	381	15	782
W6PHT	23	374	310	71	778
KA4DR	131	311	270	41	753
K6FCT	45	405	256	34	740
K5FGI	10	362	335	27	734
W2JOA	27	350	289	60	726
WØCPI	6	358	309	49	722
WØGAR	5	354	356	3	718
KA2GE	202	252	223	37	714
W7SFK	4	349	348	1	702
WØBLI	18	344	317	19	698
W6REF	10	338	330	9	687
W6GJP	3	343	242	96	684
KØFAM	42	315	277	38	672
KØWBB	9	323	317	6	655
W2KEB	38	286	175	109	608
WØRTA	41	287	258	22	608
W6IZG	23	276	251	25	575
K2CQP	25	260	225	25	535
W6QMO	43	242	176	59	520
W9TT	16	244	247	13	520
WØQXO	10	252	205	47	514
KA2AK	318	98	77	19	510
W8FYO	5	252	188	61	506
W3WBP	142	112	179	72	505
Late Reports:					
KA2FC (May)	1735	1677	1477	187	5076
KA8AB (May)	1057	1006	973	33	3069
KA8AB (Apr.)	437	416	398	18	1269
KA7RC (Apr.)	115	489	466	13	1083
KL7AF (May)	24	471	455	10	960
KA7RC (May)	140	396	386	10	932
W8ZGT (May)	113	378	382	7	880
K5FGI (May)	26	259	228	31	544
W7KT (May)	2	278	253	7	540

BPL for 100 or more *originations-plus deliveries:*

K6KVB	149	WØNIY	108	WØSWB	104
W6USY	142	W3WV	107	W2RUF	103
VO6N	128	W2JZX	106		
K4WBG	125	VE3NG	105	Late Reports:	
W4VKE	121	VE7ALL	105	K9FBD (May)	128
W8RO	110	W4TUO	104	KH6FAA (May)	128

The BPL is open to all amateurs who report to their SCM a message total of 500 or more, or 100 or more originations-plus-deliveries for any calendar month. All messages must be handled on amateur frequencies, within 48 hours of receipt, in standard ARRL form.

W1AW OPERATING SCHEDULE

(Effective September 26, 1954)

(All times given are Eastern Standard Time)

W1AW will return to its Fall-Winter operating schedule with the return to Standard Time. General operation covers all amateur bands on which W1AW has equipment. Novice periods include both early and late operation on 3.5 and 7 Mc. (see Footnote 2 in box). Master schedules showing complete W1AW operation in EST, CST or PST will be sent to anyone on request.

Operating-Visiting Hours:

Monday through Friday: 1500–0300 (following day).

Saturday: 1900–0230 (Sunday).

Sunday: 1500–2230.

General Operation: Use the chart below for determining times during which W1AW engages in general operation on various frequencies, 'phone and c.w. Note that since the schedule is organized in EST, certain morning operating periods may fall on the evening of the previous days in western time zones. W1AW will participate in all official ARRL operating activities, using scheduled general operating periods for this purpose if necessary.

Official ARRL Bulletin Schedule: Bulletins containing latest information on matters of general amateur interest are transmitted on regular schedules:

Frequencies (kc.):

C.w.: 1885, 3555, 7125, 14,100, 21,020, 52,000, 145,600.

'Phone: 1885, 3950, 7255, 14,280, 21,350, 52,000, 145,600.

Frequencies may vary slightly from round figures given; they are to assist in finding the W1AW signal, not for exact calibration purposes.

Times:

Sunday through Friday: 2000 by c.w., 2100 by 'phone.

Monday through Saturday: 2330 by 'phone, 2400 by c.w.

Code Proficiency Program: Practice transmissions are made on the above listed c.w. frequencies, starting at 2130 daily. Speeds are 15, 20, 25, 30 and 35 w.p.m. on Monday, Wednesday and Friday, and 5, 7½, 10 and 13 w.p.m. on Sunday, Tuesday, Thursday and Saturday. Approximately ten minutes of practice is given at each speed. *Exception:* On October 12th W1AW will transmit an ARRL Code Proficiency Qualifying Run instead of the regular code practice.

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 September 13th at 2130 *Eastern Daylight Saving Time*. Identical texts will be sent simultaneously by automatic transmitters on 1885, 3555, 7125, 14,100, 21,020, 52,000 and 145,600 kc. The next qualifying run *from W6OWP only* will be transmitted on September 5th at 2100 PDST on 3590 and 7138 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 six 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 will be made from W1AW each evening at 2130 EDST. Speeds are 15, 20, 25, 30 and 35 w.p.m. on Monday, Wednesday and Friday, and 5, 7½, 10 and 13 w.p.m. on Sunday, Tuesday, Thursday and Saturday. Approximately 10 minutes' practice is given at each speed. References to texts used on several of the transmissions are given below. These make it possible to check your copy. For practice purposes the order of words in each line of *QST* text sometimes is reversed.

Date	Subject of Practice Text from July *QST*
Sept. 2nd:	*DXpedition to Clipperton*, p. 10
Sept. 7th:	*Make Your Own Potted Circuits*, p. 16
Sept. 10th:	*813s in a High-Power Linear*, p. 20
Sept. 15th:	*Single-Ended Multiband Tuners*, p. 23
Sept. 21st:	*Multiband Tuning Circuits*, p. 25
Sept. 24th:	*Invading Never-Never Land*, p. 30
Sept. 27th:	*Some Principles of Radiotelephony*, p. 34
Sept. 30th:	*Communications in Civil Defense*, p. 55

W1AW OPERATING NOTE

The ARRL Headquarters station will remain on Summer Schedule (see page 77, July *QST* and chart on page 79, May *QST*) through September 25, 1954, at which time the new Fall-Winter schedule detailed elsewhere on this page goes into effect. Note that W1AW will be closed from 2230 EDST Sept. 5th until 1300 EDST Sept. 7th (Labor Day holiday), and also that instead of the regular code practice W1AW will transmit a code-proficiency qualifying run on September 13th and a frequency measuring test on September 16th.

BRIEF

The following item, believed to be a tip on operating procedure, comes from the Egyptian Radio Club's *Podunk News:*

"Advice to the amateurs: In promulgating your esoteric cogitations or articulating your superficial sentimentalities and amicable philosophical observations over the air, beware of platitudinous ponderosity. Let your conversational communications possess a clarified conciseness, coalescent consistency, and a concatenated cogency. Eschew all conglomerations of latulent garrulity, jejune babblement, asinine affectations. Let your extemporaneous descantings and unpremeditated expatiations have intelligibility and voracious vivacity without rodomontade or phrasical bombast. Sedulously avoid all polysyllabic profundity, psittaceous vacuity, ventriloquent vapidity. Shun *double-entendres*, prurient jocosity and pestiferous profanity."

We understand that English translations are available for a moderate fee from *Podunk News* Editor WØDZG.

W1AW GENERAL-CONTACT SCHEDULE
(Effective September 26, 1954)

W1AW welcomes calls from *any* amateur station. Starting September 26th, W1AW will listen for calls in accordance with the following time-frequency chart.

EST	*Sunday*	*Monday*	*Tuesday*	*Wednesday*	*Thursday*	*Friday*	*Saturday*
0020–0100[1]	.....	.....	3555[2]	.....	3555	7125[2]	.....
0100–0200	.....	.....	3950	7255	3555	7125	3950
0200–0300	.....	.....	7255	3950	7125	3950	7255
1500–1600	.....	.....	14,280	21/28 Mc.[3]	14,100	.....	.....
1600–1700	.....	14,280	21/28 Mc.[3]	14,100	21/28 Mc.[3]	21,350	.....
1700–1800	.....	14,100	14,280	21,020	14,280	14,100	.....
1930–2000	.....	7255	.....	7125	.....	7255	.....
2020–2100[1]	.....	7125	3555	7125[2]	3555[2]	7125	.....
2110–2130[1]	.....	3950	52 Mc.	145.6 Mc.	3950	3950	.....
2230–2330	.....	3555	3950	7125	1885	3555	.....
2340–2400[1]	.....	3950	1885	3955	1885	3950	.....

[1] General-contact period on stated frequency begins immediately following transmission of Official Bulletin which begins at 0000 and 2000 on c.w. and at 2100 and 2330 on 'phone. Starting time is approximate.

[2] W1AW will listen for Novices (on Novice band indicated) before looking over the band for other contacts.

[3] Operation will be conducted on one of the following frequencies: 21,020; 21,350; 28,060; 28,768 kc.

Station Activities

• 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, W. H. Wiand, W3BIP — SEC: IGW. RM: AXA. PAM: PYF. E. Pa. Nets: 3610, 3850 kc. The Delaware Valley Council of Radio Clubs, now 17 clubs strong, continues to extend an invitation to all clubs in the section to have a representative attend council meetings once a month. Come out and know what problems are being discussed. Your club also may have a say in events. Send your representative to the monthly meetings held in the Cassidy School, Atwood Road & Lansdowne Ave., West Philadelphia, the last Mon. of each month at 8 P.M. With summer about over and the fall traffic season just beginning, all ORS should be looking forward to a bigger and better E. Pa. Net. Let's shoot for the largest gathering of old-timers and newcomers in the history of the net. Conditions will be considerably better this season, according to predictions, and will add to your operating pleasure. Contact AXA for complete net information. For the 'phone man, we have PFN on 3850 kc. Report in and join in the fun of handling traffic by voice. There are many OPS appointments open. Contact PYF if interested. The Swarthmore High School ARC, under the leadership of SLV, a faculty member and trustee of YBN, the club call, is interested in making skeds with other high school clubs. Present membership includes TPQ, pres.; TEE, YEK, and YEV, as well as WNs YEU, YRD, and YSZ. The Delco RC elected the following officers: WNC, pres.; WN3YAJ, vice-pres.; AJS, secy.; WQP, treas. A newly-organized club known as the North Penn ARC started out with a bang, signing up 40 charter members. Officers are OKX, pres.; EGT, vice-pres.; PNL, secy.; NDJ, treas. Twelve clubs reported Field Day activity averaging 15 members per club participating. Limited space in this column prohibits the listing of all clubs and calls of participating members. However, our sincere thanks to all for reporting. DWA, president of the DX Club, moved to W4-Land in Rockledge, S. C. His office was filled by GHS. XYL VLX, operating all bands both c.w. and 'phone, using a Viking II and an NC 183-1 with a three-element beam on 15 meters, keeps in touch with the OM, UKY, who is in the maritime service, and also handles traffic for other MM stations. Traffic: W3CUL 6636, BFF 297, NOK 88, MLY 34, DUI 32, OZV 32, TEJ 28, VLX 27, PVY 17, EAN 12, ELI 8.

MARYLAND-DELAWARE-DISTRICT OF COLUMBIA — SCM, Arthur W. Plummer, W3EQK — AVL is now EC for St. Mary's County, Md. Your SCM would appreciate it greatly if you appointees would keep a check on the expiration dates and send your certificates in for endorsement. MFJ reports he, MCG, and KDP were fortunate in working FO8AJ. The Delaware Amateur Radio Club of Wilmington has installed the following new officers: KET, pres.; HGA, vice-pres.; WBZ, secy.; and TXY, treas. NPQ had a swell vacation down on the farm in North Carolina at the base of Mt. Mitchell. PRL and RRQ are sporting new Mercuries with new Elmac installations. CQS has a new job in the Radio Activity Section of National Bureau of Standards. JE reports the wind took his 75-meter antenna away. WBP, control center for the State C.D. operated by JE, handled 104 messages during the nationwide c.d. drill. Operators on duty were JCL, BII, NKY, IFW, THM, NPL, RUN, and JE. They covered the entire State of Maryland and JE says members of the MEPN deserve an orchid for their excellent support and assistance. WBP with JE, IFW, BII, and NKY also handled 51 messages for service personnel throughout the world which were transmitted to WBP by 10-meter mobile units located at the large shopping centers in and near Baltimore on June 17th. EQK and NNX were at Northwood Shopping Center, JAS at Towson, FMG at Dundalk, QLG at Essex, JCL and his XYL Shirley, QBG, at Edmondson Village, LMC and SSF at Charing Cross Shopping Center, VLL with RQP at Alameda Shopping Center, and ESM and TRW at Woodmoor Shopping Center. On June 14th, THM, FUV, JCL, PRL, SSK, and EQK set up a transmitter and receiver on the 18th floor of the Mathieson Building in Governor McKeldin's office, and at 5:00 P.M. on 3820 kc. Governor McKeldin took the mike of 3PSG/3 in the presence of the above, Mr. Cohen, Field Engineer in Charge of the Baltimore Office, FCC, and TV cameramen from WMAR-TV, and transmitted a message to the governors of the other 47 states urging them to support their own amateurs during Amateur Radio Week as well as throughout the year. DC received the message which was relayed to JE, who was operating WBP at the time, and immediately placed on MARS and ARRL nets for delivery to the governors. The DARC held its Field Day activities on the County Work Farm. The Aero Amateur Radio Club, of 1215 Wilson Point Road, Baltimore 21, Md., with the call PGA, recently completed a code class under the guidance of KLA. Six of the ten members are now listed as WN3YQD, WN3YSA, WN3YVR, WN3YVS, WN3YZJ, and WN3ZAQ. YQD, YVR, and ZAQ are to be found currently on 15-meter c.w. YSA and YZJ are on 80-meter c.w. and YVS is plugging along with YQD on some 2-meter gear. PGA has blossomed out with twelve elements on 2 meters with a converted 522 pumping the juice. The club is looking for calls any Wed. between 8:00 and 10:00 P.M. EDST. Club meetings for the PGA gang are held each Wed. at 8:00 P.M. When you fellows read this, PZW will be in Alaska. ONB is finally back on 40 meters. WKB now checks in to the Frederick County 2-meter net. OYX checks in to MEPN, PRVNOGCN, and AN. Sam also reports CIQ and RAH made 68 contacts in 7 sections June 5th during the V.H.F. Party. The ARA was very active during the c.d. alert with YRK/3 on 10 meters with emergency power working crossband to 75 meters from C.D. Hq. CKJ was control on 75 working crossband to 10 meters. There were four mobiles on 10, one on 75, and 3 fixed stations on 75 meters. Plane-to-ground communication was established at Hq. on C.A.P. frequency with portable equipment. Taking part were OYX, RAH, OXL, CIQ, YRK/3, CSX/m, TJV/m, OAY/m, VAM/m, EHA/m, CKJ, WWM, SCC, 8GPD, WN3WTO. LUL's jr. operator now holds his own as WN3YZO. AKB vacationed for a week in Florida and BWT completed fourteen wiring circuits, six of which are heavy duty, on his new installation. The BARC elected the following new officers: FUV, pres.; JNM, vice-pres.; PSP, secy.; KDD, treas. 4X4CZ, formerly ZC6AB, has decided to make the good old U.S.A. his home and will live in Baltimore. W4RWR, now VP9BH, with the USAF, operates 14,210 when airborne and 14,195 as well as 14,230 kc. when he has his feet on the ground. My thanks to the OOs for their good work as well as for their regular reports. Also thanks to OTC, the only OES to send regular reports on u.h.f. and v.h.f. doings. WV checks into the following nets regularly: MDD, 3RN, UTL, VN, TCRN, NLI, FN, VSN, 4RN, EPA, TAN, NJN, AN, EAN, and also has a regular traffic sked with PKC. Traffic: (June) W3PZW 1381, WBP 505, WV 380, ONB 56, PKC 56, EKQ 50, JE 36, COK 22, CQS 18, UE 9, OYX 5, QCB 2, WKB 2. (May) W3WV 437, PZW 255, COK 146, PKC 69.

SOUTHERN NEW JERSEY — SCM, Herbert C. Brooks, K2BG — PAM: ZI. The new QTH of HBE is Westmont. Bob is heard regularly on 20 meters. SDB is getting close to DXCC. Congratulations, Bill. LYL and CAG are working DX on 40 meters. Bill Johnson, UKS, Ocean City, is working as radio operator aboard the SS *North America* on the Lakes during the summer months. ZI was NC at the State Control Center during "Operation Alert." Other stations taking part in the Trenton Area were VQR, JWA, FPT, NDO, CCO, RLY, and WUY. Camden also was the scene of a very successful demonstration of emergency operating during the "Alert." Those participating were OQN, PAU, TBD, YT, and K2DGQ. The net was under the direction of EWN. Reports indicate that the SJRA had a higher Field Day score than ever before. LPJ is now manager of 2RN, succeeding K2BG. The N. J. Civil Defense C.W. Net meets every Sun. at 7 P.M. EDT on 3505.5 kc. NJN offers a good outlet for traffic from this area. This net meets Mon. through Fri. at 7 P.M. on 3695 kc. ORS reports plenty of activity on 6 meters; also Joe has been conducting code classes at noontime at RCA in Camden and hopes to have his students ready for the General Class license soon. Traffic: W2RG 121, K2FB 52, W2ZI 41, K2BG 27, W2HAZ 3.

WESTERN NEW YORK — SCM, Edward G. Graf, W2SJV — Asst. SCM: Jeanne Walker, 2BTB. SEC: UTH/FRL. RM: RUF. PAMs: GSS, NAI. NYS meets on 3615 kc. at 6:30 P.M., 3925 kc. at 7 P.M.; NYSS on 3595 kc. at 7 P.M. Mon., Tues., Wed., and Fri., at 4:30 P.M. on Sat.; NYS C.D. on 3509.5 and 3993 kc. at 9 A.M. Sun. AHR, FCC District Engineer in Charge, addressed RAWNY on "TVI and what to do about it." The Wayne County 2-meter net meets on 146.9 Mc. each Thur. at 9 P.M. K2DPT was

presented the 100th NYS 'Phone Net certificate at the Rochester 'Fest. UXP was on 2 meters for the band opening on June 24th and now is working on 220-Mc. converter. EMW received WVT certificate. K2BUI, at Callicoon for the summer vacation, finished a Viking II. K2GCR changed QTH to Hilton. 1ZNH is operating from St. Bonaventure U. for the summer. RXW is using a 32V-1 with HQ-129X on 75 meters. KN2DYA visited K2DYN and EJE. RUI has gone to 750 watts on 2 meters and ALR to 400. K2s CUZ, CUY, and EPV dropped the "N" from their calls. KN2EPW is working hard for Gen. Class. ZOC and his XYL, K2EPV, motored to Oshawa to attend the North Shore RC Hamfest. RPO gave a demonstration and spoke on Speech Clipping at a meeting of the Lockport ARC. COU visited ZRC and spent the week end operating on Field Day. K2DYB is manager and K2DXV publicity manager of the North East Traffic Net (NETN) which meets Mon. through Sat. at 4 P.M. on 3746 kc. K2DXV has a Viking I and SX-25 and works 2 meters. NAI is home from the hospital and back on the air. NOC and KEB took over the management duties of SRPN and 1PN during Marge's illness. SJV was a week-end guest of ZOL and BTB and visited GSS while there. In a flash fire, FFU lost four children for which the whole section is sorry. Harvey and his XYL managed to save four other children. The Lockport Club was host to the "Oakville Do" at which 1HDQ spoke on "Contributions Amateurs Make to Scientific Knowledge." VE3AIB was presented with the W.N.Y.-Southern Ontario trophy as winner of the 6-meter V.H.F. Contest and VE3DIR copped the 2-meter trophy. VE3DIR also became member No. 3 of the Bathtub Plug Award. WON is on Grand Island (New York). KN2IC made Tech. Class. KKJ got 1st-class commercial ticket. K2s CUY and DAR are the mother and father of KKJ. SAW knocked off AC4NC, KR6OS, and H1BNU after the Rochester 'Fest. DOD got hooked up with 3A2AW. When UPH isn't visiting DX he works it, as shown by an SP and a YU. RARA DX officers are AZR, chairman; BJH, asst. chairman; BZN, secy.-treas. DPV dropped the "N." 1HDQ spoke at a meeting of the RARA group held at the QTH of UXP. Traffic: (June) W2RUF 432, EMW 194, OZR 129, HKA 78, ZRC 64, DSS 55, K2DSR 32, W2SJV 28, RUT 22, DXV 19, K2CUQ 16, W2COU 14, RQF 14, DVE 6. (May) K2DXV 6. (Apr.) K2DXV 12. (Mar.) K2DXV 6.

WESTERN PENNSYLVANIA — SCM, R. M. Heck, W3NCD — SEC: GEG. RMs: UHN, GEG, NUG. PAMs: AER, LXE. I wish to extend my congratulations to UHN for the very fine job he has done and is continuing to do in keeping Western Pennsylvania traffic flowing through the summer months. Thanks to all you fellows and girls who have been giving him your consistent aid. WPA meets Mon. through Fri. 7 P.M. on 3585 kc. Tony reports 22 sessions during June, 174 stations QNI, an average of 8 per session and 98 messages handled. The Washington County Amateur Radio Club reports summer and vacations slowing things there, VEN is trimming up a mobile job, VFI is on 80 and 20 meters, NRE is on 80 meters with a new job, SUK is working hard to make two-way on 220 Mc., WJF is on 10-meter mobile, those in attendance at the W3PIE hamfest were VFI, SUK, WJF, UHN, CRA, and VFN. WN3YLJ reports working 40 states on 80-meter c.w. in one and one-half months. UVD reports CA, TNY, MHE, and UVD active in Westmoreland County c.d. test. He is hoping to start regular nets on 'phone and c.w. next fall with CA and TNY handling 'phone, UVD and MIZ the c.w. section. Beginning Sept. 1st regular Westmoreland County c.d. tests will be held on 3650 kc. at 7:30 P.M. The Mon Valley Amateur Radio Club has a club house located on the U. S. Steel experimental farm. The club call is ZHV. The Club participated in Field Day under the call NBH. Officers are AOX, pres.; RCQ, vice-pres.; NBJ, treas.; and George Lundy, secy. KYR, operating on Field Day with operators NDE, KXP, LGK, REE, and OQQ, scored 783 points. New officers of the Radio Association of Erie are KNQ, pres.; KKT, vice-pres.; WDK, secy.; and STK, treas. The RAE Hamfest held at Lake LeBoeuf on June 26th was well attended. Atlantic Division Director Gil Crossley and son were in attendance, as were Western Pennsylvania Section Communications Manager NCD and the new SEC, GEG. The WPARCC held an abbreviated meeting during the day and invited the Erie club to join. WDK has a brand-new jr. operator. Traffic: W3WIQ 2022, QPQ 107, UHN 77, TSY 69, SIJ 42, VKD 26, LXQ 24, LMM 20, KNQ 14, NCJ 10, MTK 6, UTR 4.

CENTRAL DIVISION

ILLINOIS — SCM, George T. Schreiber, W9YIX — Section Nets: ILN, 3515-kc. c.w. RM: BUK; Asst.: MRQ. 'Phone IEN, 3940 kc. PAM: UQT. EC: HOA. Asst.: VTL. Cook County EC: HPG. XE1AND, portable of AND, operated on 21, 14, and 7 Mc. to and from Acapulco with 100 contacts and then brought back XE1BT to visit. UQT spends a lot of time digging up Emergency Coördinators for downstate counties for HOA. FXK, the son of JRX, is now General Class in Bloomington and Novices GJU and GBM also are heard from there. MRQ is recovered nicely from surgery and is able to attend to his duties as Asst. RM of ILN. Also back on the active from the sick list are IDA, TLC, DKW, and LQC. RQY took time out from his OO work and got married. UZP is operating from SAL at Valpo Tech. and would like to hear from friends. A visitor at OMA, Polo, was 2YW. MBI is back after a Florida vacation. JSP sports a new 32V-3 and has a big signal. Is there any ham in Rochelle who would like to handle traffic from ØGAR to his son there? IMN, chief operator at CGC/9, is on the air at home with 807s and makes it a business to collar non-club hams to enlist their support for the license bill. The St. Clair Amateur Radio Club defrayed most of the Field Day expenses with a bake sale and, thanks to the ladies, did fairly well. The Club has an excellent program of on-the-air activity, reports BA. Transmitter hunts, now famous, are run by 5YUO/9. CHS got a long-awaited discharge from the Air Force and now is waiting out that of his wife in North Dakota. They contact through his dad, ØGQA. ZEN enjoys 75 meters with 20 watts. The DX feud between NN and EU has flared up again, but they still speak. GDI and FID run them both the high weeds at times. ZFJ is a grandfather again. IUW says his success on 10 meters is due to the tilt of his beam. The editor of *Twin City Radio Club News* took a summer vacation and we miss his sprightly chatter. Judging from the number of messages received by your SCM Field Day was a great success in this section. Wonder how many messages are as yet undelivered? LI promises to come up with another dandy article for *QST* on vertical antennas soon. ATH smoothed out modulation problems and is perking fine. PEB has forsaken hamming for the summer to work on the house. GTI, the avid mobileer, is back on the wheel bands, but gave up 144 Mc. in disgust. VJ is a projectionist in a TV station and is considered by 36 other hams at the station as an authority on TVI. HME moved to Evanston and took himself a wife who never heard of ham radio. DPY chopped up 50 feet of co-ax feedline in his rotary grass mower and his antenna immediately lost its standing waves. ZOU increased power to 300 watts. FKC, chairman of the W9 DXCC, promises a fine meeting of the gang in September to which all DXers or would-be DX-ers are invited. KHJ plans to open a swap shop at his home QTH. YLU is dabbling with 160 meters and YMI is busy with newly-acquired boat. Where does FRP get those beautiful sport shirts he wears? He has become an expert with his camera and is most generous with his prints. DRN would like to see more activity on 220 and 420 Mc. There is no summer slump in traffic here. Traffic: (June) W9DO 958, CSW 330, CGC/9 270, SME 139, IDA 104, OKI 86, YIX 86, QQC 74, SXL 73, USA 67, W6CIW/9 47, W9CEE 33, BUK 31, LFO 31, LXJ 31, OKQ 29, USI 28, RLX 20, STZ 19, MRQ 15, PHE 8, UZP 8, VHD 7, MXF 4, BA 3. (May) K9FBD 154, W9FRP 11.

INDIANA — SCM, George H. Graue, W9BKJ — With the National civil defense drill just passed your SCM had a wonderful opportunity to monitor the entire affair in the State. The c.w. and 'phone nets performed wonderfully through the 24-hour drill. The NCs handled affairs as only veterans could. Several new stations reported into the net drill for the first time. To all, thanks for a job well done. Field Day messages were received from NTA, JP, YRF, MYI, GFA, CKR, YWF, AB, UC, DRJ, and CEA. Brass-pounders for the month are NZZ, JUJ, and TT. The Mobile Club of So. Bend enjoyed a picnic supper at Corey Lake. CYQ, ex-Director of the Central Division, again will be host to the IRC aboard his yacht *Angus*. The IRC building fund now stands at $1296.54. ZTD has a new RME-55 converter. URT has a 1 kw. in the making. STA has a Globe Scout and an Eldico. SYN has a new Viking. LCARC station ZKW won the first-place ribbon at the hobby show. The TARS used its house trailer for the first time on Field Day. MZE is home from Germany for a short stay. FFH graduated from Annapolis. OLX reports QIN traffic for May as 303. June traffic as 615. At the hamfest sponsored by the MARC 105 hams registered. UOW has a converter for 10, 6, and 2 meters. FTN has a new B&W transmitter. ZVX now is using a Lettine rig. The total traffic count for IFN, as reported by NTA, is 255. Your PAM reports that 92 stations checked in on the c.d. exercise June 14th; total c.d. traffic was 95. June traffic for RFN totals 259, as reported by JBQ. TT reports total traffic on RFN for the c.d. exercise as 199. NZZ still is busy with his Polar Postal Service. DHJ participates in 4 nets. OFW has a new 20-meter beam and tower. JIP TVIed his p.p. 813. FVR is on with new Harvey Wells. CMT vacationed at Chattanooga, working mobile on 27 and 20 meters. CC and ex-3HX met in Philadelphia and swapped yarns of wireless days in 1910. DKR has a B&W rig on 20 meters. BDP finds time to operate even though corn-ploughing takes most of his time. ZSC is organizing a 2-meter county net. Traffic: W9JUJ 2268, NZZ 894, TT 520, UQP 192, QYQ 118, STC 85, KDV 66, DHJ 60, VNV 36, WRO 35, OFW 33, YIP 29, AYW 28, JIP 28, DOK 26, WUH 25, EQO 23, QR 21, CMT 15, CC 14, DKR 12, BKJ 11, ERB 7, BDP 5.

WISCONSIN — SCM, Reno W. Goetsch, W9RQM — SEC: OVO. PAMs: ESJ, GMY. RMs: MQV, UNJ. Nets: WIN 3625 kc., 6 P.M. daily; BEN, 3950 kc., 6 P.M. daily; WSPN 3950 kc., 12:15 P.M. Mon.–Sat., 9:30 A.M. Sun. State mobile c.d. frequency: 29,620 kc. CXY erected new 135-ft. doublet and worked AIR, WAR, and NSS during Armed Forces Day. Net Certificates (BEN) have been issued to

(Continued on page 74)

(*Continued from page 72*)

UNL, UXW, RQK, SZR, and ZAD. Qualifying for BPL this month are VBZ, CXY, UNJ, and SAA. VBZ helped QSP flood traffic from the southern states, and assisted the Red Cross in a search for two lost servicemen. ROM is setting up a rig at WHAD, RTP is trying for 20 now that he has the rig perking on 40 meters. IHW has new 32V-3 with Johnson Matchbox on all bands. OOF is new Asst. EC (mobiles) for Milwaukee AREC. Capt. Geo. Parkinson, of Milwaukee c.d., stated that the amateurs did an FB job in "Operation Alert" and handled 80 per cent of the traffic. According to EC AKY, 29,620 kc. is now monitored at La Crosse Police 8 A.M. to 3 P.M. daily. YNO has voice-controlled break-in. Green Bay AREC participated in "Operation Alert" with control station and mobiles on 29 Mc. ZAD worked 60 stations with a multiplier of 6 in the June V.H.F. Contest. The Racine Megacycle Club worked 400 stations in Field Day with two transmitters. FPE continues to cover the State with his "super" mobile rig and antenna. RKP has two-element beam on 20, 15, and 10 meters. Both DSP and LEE report a "big" 144-Mc. opening on June 25-27. DSP picked up Kentucky to bring his total up to 12 states, 700 miles. GDW has twelve-element colinear antenna on 144 Mc., and REQ picked up Illinois and South Dakota. LEE plans an automatic keyer for calling CQ. AEM received 25-w.p.m. Code Proficiency award. A big crowd had an FB time at the BEN picnic at Waterloo July 11th. The La Crosse gang held its picnic Aug. 8th. New EC appointees include QFX, MQC, IHW, RQQ, and UFW. Traffic: W9VBZ 1626, CXY 508, ESJ 339, SAA 227, UNJ 165, RTP 76, WWJ 40, GMY 32, IHW 24, OVO 22, YLE 14, ZAD 14, NVJ 12, HDV 10, KWJ 8, UIM 8, AFT 5, CFP 4, GUE 2, MUM 2, RKP 2, VKR 1.

DAKOTA DIVISION

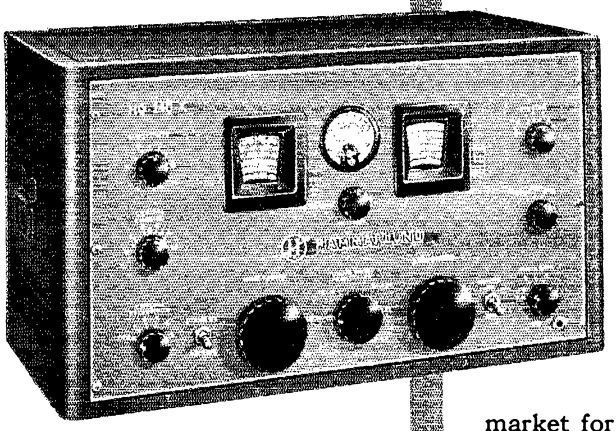
NORTH DAKOTA — SCM, Earl C. Kirkeby, WØHNV — PAM: GZD. RM: LHB. The Black Hills Amateur Radio Club is sponsoring the Dakota Division Ø/7 Convention in Rapid City, So. Dakota, Sept. 17-18-19. Hope to see a lot of you there. The Sioux Amateur Radio Assn. of Grand Forks has its mobile bus about ready to go, with a 5-kw. a.c. generator, antennas, and operating tables installed. The Red River Radio Amateurs Club of Fargo was out on Field Day, as was the Jamestown Radio Club. QKP has a new Globe King. NQI now has his Elmac on 160 meters and is getting out FB. VAR is new on the air from Drayton with an Elmac A54 mobile and A54H in his home. As this is being written everyone on the air is talking about going to the big Hamboree in Grand Forks July 18th. KLP has his station set up at the Boy Scout Camp handling traffic for the boys. Traffic: WØKLP 132, KTZ 54, CAQ 2, EBA 2.

SOUTH DAKOTA — SCM, J. W. Sikorski, WØRRN — Asst. SCMs: Earl Shirley, ØYQR; Martha Shirley, ØZWL. SEC: GCP. RM: SMV. PAMs: PRL, NEO. SIR, stationed in Georgia with the AF, visited his parents and the SFARC, Sioux Falls. EBO, McLaughlin, visited the SFARC, and is reported moving to Canton. LBS has 2nd-class commercial 'phone ticket. SMV purchased ILL's 813 rig and sold his own to LXQ. While rebuilding, SMV is using PHR's Lysco. RWE has returned to the air after a year's layoff while rebuilding. MPQ has succumbed to 'phone. Two thunderstorms and a tornado chased the SFARC from Field Day operations. SMV and the gang are keeping the c.w. net in operation all summer. The 75-'phone net has discontinued its Saturday night session until further notice. The c.w. net reports for June, 54 QNI in 13 sessions, 29 messages handled. Traffic: WØGDE 118, SCT 40, ZWL 29, PHR 24, FFP 20, LBS 16, SMV 15, MPQ 10, RWE 9, QKV 7, RRN 2.

MINNESOTA — SCM, Charles M. Bove, WØMXC — Asst. SCM: Vince Smythe, ØGGQ. SEC: GTX. RMs: DQL, OMC. PAMs: JIE, UCV. Our state traffic nets are doing very well in spite of the hot weather and the QRN. IRJ has a remote control for her rig that can be operated from her bed. BGY is the guy that fixed it up for her. Two more lady hams have joined our ranks. They are WNØTQQ, Jerry Grantges, and IXR, Eunice Nordenfoss. Eunice is Red Malmgren's sister and she applied for Red's call letters and received them. TYX is a new ham in Minneapolis. QBW received his General Class license. NJZ received ORS appointment. QDP is looking for Maine and Delaware for WAS. BOL has moved to Seattle to join the W7s. SII was home in the Cities on furlough. Warren is stationed in Florida. OMC is in the QSL business. DQL attended the Rocky Mountain Division Convention at Estes Park, Colo. Herb had a nice visit with 10 Regional Net members there. The St. Paul Radio Club elected officers at its last meeting. They are RA, pres.; PYC, secy.; NGF, treas. KJS attended the YL Convention at Milwaukee. Some more new hams are UUE, UYS, and UYZ. RHL still is forsaking ham radio for flying. IJO is back on the air after a long layoff. Another new ham is UAN. Want to be EC in your county? If so, drop a card to George Lord, GTX, Box 8, Alexandria, Minn. Following this report there is an announcement of Minnesota's 10,000 Lakes QSO Party. Let's put this contest over with a bang. Those who are putting on this contest will give a nice new piece of wallpaper signed by our Minnesota Governor to the highest scorer. The date is Sept. 10th and

(*Continued on page 76*)

THE HQ-140-X . . .

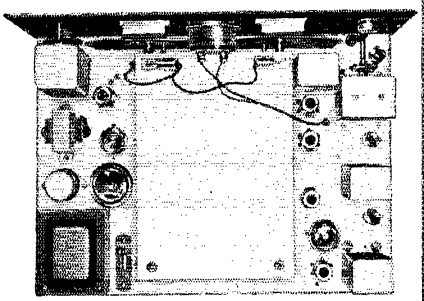


HAS "MORE THAN MEETS THE EYE"!

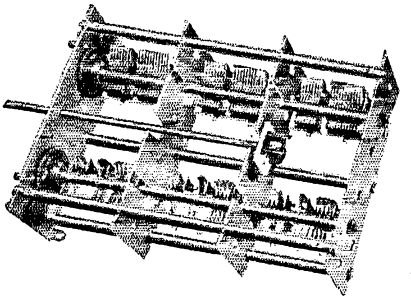
Just looking at the outside of an HQ-140-X communications receiver isn't enough, when you're in the market for a new rig. Sure, it's in an attractive case that's built for rugged service; and the controls are comfortably placed for lengthy DX operations. But, it's what's inside the cabinet that's important.

For example, the HQ-140-X offers a professional-type tube lineup. The use of a separate mixer (6BE6) and oscillator (6C4) contribute to the high degree of oscillator stability. Modern 6BA6's are used for the RF amplifier and for all three stages of IF amplication for maximum efficiency.

The nine individual sections of the band-spread capacitor, and the six sections that make up the main tuning capacitor, at all times maintain the proper L/C ratio regardless of what part of the receiver's range (540 Kc to 31 Mc) you use. Plates are heavy brass, soldered to their shafts, built into a large sturdy frame for rugged use.



HQ-140-X
Top View



Sectionalized Tuning Capacitor Assembly

Features like those described above rate high with 'hams' the world over. For detailed information on the HQ-140-X, write to The Hammarlund Manufacturing Co., Inc., 460 West 34th Street, New York 1, New York. Ask for Bulletin R-90.

HAMMARLUND

SINCE 1910

MINNESOTA (10,000 LAKES) QSO PARTY

Sept. 10 (1800 CST) to Sept. 12 (2400 CST)

Sponsored by the Minneapolis & St. Paul Radio Clubs to enable Minnesota hams to get better acquainted with each other. (Minnesota net frequencies are: c.w. 3595 kc., 'phone 3820 kc.) This party is open to all amateur radio operators to encourage everyone to make new friendships in Minnesota. Rules: (1.) Exchange signal report, city, and state. (2.) Any and all amateur bands and any type emission may be used. (3.) Scoring: (a) Minnesota stations, 3 points for each contact with another Minnesota station, 1 point for each contact outside Minnesota. MULTIPLY by the number of states, provinces, and foreign countries. (b) Stations outside Minnesota, 100 points for each contact with a Minnesota station. MULTIPLY by number of Minnesota cities or towns worked. (c) A station may be worked only once for scoring credit. (d) No time limits or power mutipliers. (4.) Awards: (a) Certificates to 3 highest Minnesota scores and for highest score from each state, province, and foreign country. (b) Separate awards for Novices. (c) Separate awards for ALL V.H.F. scores. (5.) Submit logs to: Contest P.O. Box 512, St. Paul, Minn. (before October 1, 1954).

12th. See you in the contest. Traffic: WØKLG 438, UCV 192, SWB 181, KFN 67, HIN 62, NJZ 62, MVJ 61, IRJ 52, LST 50, GBW 30, KNR 29, LUX 26, CXN 22, PCU 22, GTX 21, IKJ 21, TKX 18, CID 16, BZG 14, GZK 14, TJA 14, BUO 13, OPA 13, LIG 7, MBD 7, RA 5, NTV 4.

DELTA DIVISION

ARKANSAS—SCM, Fred Ward, W5LUX—This may be about the last time that we write the news for Arkansas as our term expires, and the new man may take over. I have enjoyed being your SCM, but my work did not permit me to attend to the job as I should have. Let's all get behind the new SCM and help him. Remember that he needs reports each month. The civil defense test was a disappointment in some ways, but showed where the weak points were and the next one should be much better. The club groups did an excellent job. Field Day also was a good demonstration this year, with more stations taking part than last year. WUB has a new beam for 15 meters. CAF has Greene County well organized for emergencies. EMT is a new call at Forrest City. Traffic: W5LUX 12.

LOUISIANA—SCM, Thomas J. Morgavi, W5FMO—The Central La. Amateur Radio Club has reorganized with 45 members and is affiliated with ARRL. ZHT is vacationing in North Carolina. KRX skeds RN5, CAN, and PAN nets. NG meets the Hit and Bounce and Crawfish Nets every morning. The following took part in "Operation Alert" on June 14th: TUR, SQB, TKV, BAC, WHK, LFF, HEK, CNG, MAV, NRS, FBI, NPJ, HHT, LVG, UXG, DHE, NG, OVV, URR, RTG Net Control, DGB, and USN. TRO monitors 29,600 kc. in Alexandria. 6FHB/5, now in Alexandria, runs 300 watts on 20, 40, and 80 meters. Field Day messages were received by the SCM from DHT/5, at Lake Borgne with DHT, GXO, and HHT as operators; from MUZ/5, the Monroe Amateur Radio Club, 3 transmitters, 12 operators, 10 AREC members; from SUM/5, the Shreveport Radio Club, two 30-watt transmitters with SUM, NXM, and ULI as operators; from KC/5, the Baton Rouge Radio Club, approximately 15 miles northeast of Baton Rouge, with 17 operators and 11 AREC members; from the Westside Amateur Radio Club, operating from Fontainebleau State Park with 13 operators and 4 AREC members using the call ABD/5; from LBZ/5, Central La. Amateur Radio Club at Big Creek, 25 miles northeast of Alexandria; from TEB/5, the Webster Parish Amateur Radio Club at Lake Foursome, La., with 15 operators and one AREC member. The Greater New Orleans Amateur Radio Club is sponsoring "Weekend in Old New Orleans," over Labor Day week end. Adults $3.00, children 6–16 years picnic only $1.00. Write Box 899, New Orleans 4, La., for further details. KHX has new 20-meter rotary beam. PJL is back in New Orleans and on the air again after several weeks in St. Louis. HUT is building new p.p. 813 final. EM heard and worked a ZL recently, so now he has the DX fever.

MISSISSIPPI—SCM, Dr. A. R. Cortese, W5OTD—'Tis gratifying this month to see 12 stations making reports to the old SCM. Nice going, gang, keep it up. CKN made BPL again this month. WN5FNM is new in Brookhaven and DRG has dropped the "N." YBF, YBG, YBH, and YXZ participated in the FCDA drill. AMZ reports that the c.w. net is about washed up. It may be the hot weather. Let's help the OM out and get HOT on c.w. 4UNX/5 now is in Gulfport. The QTH of 4CTK, ex-5YYE, is Ft. Payne, Ala. TGD/5 is now in Jackson. OTD has a new 50-watt

(*Continued on page 78*)

New Heathkit VFO KIT

MODEL VF-1

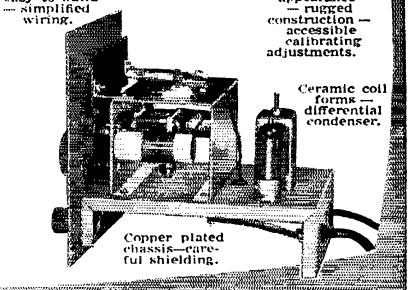
$19.50

Ship. Wt. 7 lbs.

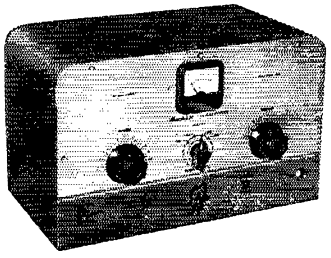
- Smooth acting illuminated and precalibrated dial.
- 6AU6 electron coupled Clapp oscillator and OA2 voltage regulator.
- 7 Band coverage, 160 through 10 meters—10 Volt RF output.
- Copper plated chassis—aluminum cabinet—easy to build—direct keying.

Here is the new Heathkit VFO you have been waiting for. The perfect companion to the Heathkit Model AT-1 Transmitter. It has sufficient output to drive any multi-stage transmitter of modern design. A terrific combination of outstanding features at a low kit price. Good mechanical and electrical design insures operating stability. Coils are wound on heavy duty ceramic forms, using Litz or double cellulose wire coated with polystyrene cement. Variable capacitor is of differential type construction, especially designed for maximum bandspread and features ceramic insulation and double bearings.

This kit is furnished with a carefully precalibrated dial which provides well over two feet of calibrated dial scale. Smooth acting vernier reduction drive insures easy tuning and zero beating. Power requirements 6.3 volts AC at .45 amperes and 250 volts DC at 15 mills. Just plug it into the power receptacle provided on the rear of the AT-1 Transmitter Kit. The VFO coaxial output cable terminates in plastic plug to fit standard ½" crystal holder. Construction is simple and wiring is easy.



Heathkit AMATEUR TRANSMITTER KIT



MODEL AT-1

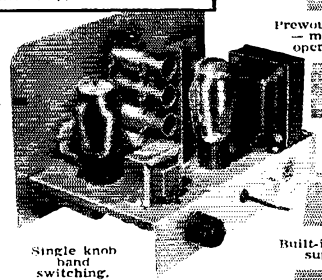
$29.50

Ship. Wt. 16 lbs.

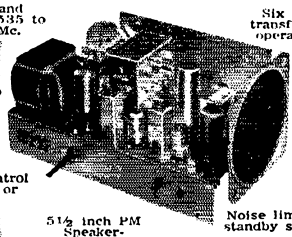
SPECIFICATIONS:

Range 80, 40, 20, 15, 11, 10 meters.
6AG7 .....Oscillator-multiplier.
6L6 .....Amplifier-doubler
5U4G ..... Rectifier.
105-125 Volt A.C. 50-60 cycles 100 watts. Size: 8⅛ inch high x 13⅛ inch wide x 7 inch deep.

Here is a major Heathkit addition to the Ham radio field, the AT-1 Transmitter Kit, incorporaring many desirable design features at the lowest possible dollar-per-watts price. Panel mounted crystal socket, stand-by switch, key click filter, A. C. line filtering, good shielding, etc. VFO or crystal excitation—up to 35 watts input. Built-in power supply provides 425 volts at 100 MA. Amazingly low kit price includes all circuit components, tubes, cabinet, punched chassis, and detailed construction manual.

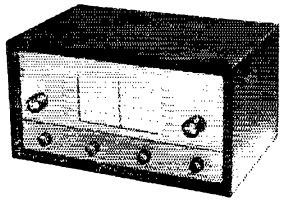


NEW Heathkit COMMUNICATIONS RECEIVER KIT



SPECIFICATIONS:

Range.....535 Kc to 35 Mc
12BE6 .....Mixer-oscillator
12BA6 .....I. F. Amplifier
12AV6 Detector—AVC—audio
12BA6 ....B. F. O. oscillator
12A6.....Beam power output
5Y3GT .....Rectifier
105-125 volts A. C. 50-60 cycles, 45 watts.



A new Heathkit AR-2 communications receiver. The ideal companion piece for the AT-1 Transmitter. Electrical bandspread scale for tuning and logging convenience. High gain miniature tubes and IF transformers for high sensitivity and good signal to noise ratio. Construct your own Communications Receiver at a very substantial saving. Supplied with all tubes, punched and formed sheet metal parts, speaker, circuit components, and detailed step-by-step construction manual.

MODEL AR-2

$25.50

Ship. Wt. 12 lbs.

CABINET:

Proxylin impregnated fabric covered plywood cabinet. Shipg. weight 5 lbs. Number 91-10. $4.50.

HEATH COMPANY

BENTON HARBOR 9, MICHIGAN

c.w. rig on 80, 40, and 20 meters. CTY has 10-meter rig in his car. Traffic: W5CKN 118, JHS 58, YBH 58, RIM 45, TIR 40, EWE 38, VME 37, YXZ 37, AMZ 30, OTD 24, YFB 17, CTY 8.

TENNESSEE — SCM, Harry C. Simpson, W4SCF — SEC: RRV. RM: WQW. PAM: PFP. Reports from stations continue to amaze us, although traffic is down. PFP and WQW invite all hams to join us on the various TENN Nets for real satisfaction in traffic handling. TENN C.W. opens on Labor Day, 3635 kc., 1900 CST. The Memphis Club used 20 operators during Field Day, as did Knoxville. The Oak Ridge Club operated on 20, 40, and 75 meters. The Kingsport and Bays Mountain Clubs also were active. The Clarksville Amateur Radio Club joins our fine lineup, with WOX, pres.; VKE, vice-pres.; WQT, secy. and moneyman. Congrats to all hands for making the Crossville Picnic a great success! LRO teaches an official high school class in radio each summer and averages 15 new hams in the six-week sessions. PL still is ailing, but is recovering. SCF, reelected Cotton Carnival Director, assures Memphis hams of some small (!) activity during festivities. BQG, a shut-in, suspended a Viking chassis over his head and wired it with no complications. IIB was awarded 5 consecutive MARS Outstanding Contribution certificates, and meets 3 MARS nets daily. Traffic: W4OGG 432, PFP 363, VKE 225, IIB 134, SCF 131, PQP 127, TUO 110, BQG 86, AFB 75, TZD 59, OEZ 42, WQW 37, ODR 30, AKB 28, BAQ 25, RRV 24, UOA 22, UWA 17, SUH 16, RMJ 13, ZJY 13, HIH 12, RET 12, DCH 10, QEB 9, YMB 8, VJ 5, WQT 5.

GREAT LAKES DIVISION

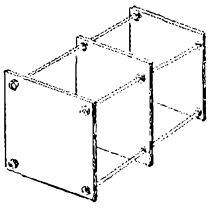
KENTUCKY — Acting SCM, Robert E. Fields, W4SBI — WXL had a hit by lightning, burning up his antenna and a 10-watt rig and causing about $20.00 damage to his receiver. WNH has up a new 20-meter folded dipole and is getting some new countries. EPA has been getting the DX lately. WIV has a pair of 813s on the air with about 600 watts. The Georgetown Amateur Radio Club is a growing concern. President WMF reports the following members: ZKS, WIV, RIW, BZW, and BZU. WHC is building a rig for break-in. SBI has a 600-watt gasoline generator and is all set for Field Day next year or any emergency. The Middlesboro Amateur Radio Club went out for Field Day with 3 transmitters, 2 portable generators, and 8 antennas. The Ohio Valley Amateur Radio Club, with 7 transmitters on the field, worked all bands including 50 and 144 Mc. Kentucky was "hot as a depot stove" on Field Day with Field Day crews being heard from just about all over the State. Fellows, let us hear from you with any news or traffic reports. We know some of you fellows must be working your fingers to the bone to build rigs, erect antennas, work DX and many more things of interest. Unannounced emergency tests will be run from time to time by the SEC, NBY. Get your equipment ready and watch for them. Traffic: K4WBG 373, W4VBA 323, YZE 246, TQC 209, WNH 126, SBI 85, ZLK 84, SYD 67, WXL 61, WHC 34, NIZ 22, CDA 12, AZQ 11, OMW 10.

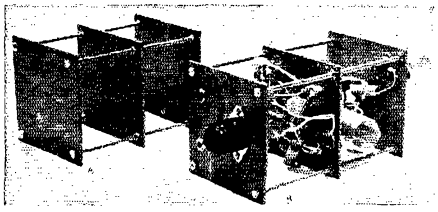
MICHIGAN — SCM, Fabian T. McAllister, W8HKT — Asst. SCMs: Bob Cooper, 8AQA; Joseph Beljan, 8SCW. SEC: GJH. Our sincere appreciation to Governor Williams for proclaiming the week of June 19th through 25th as "Ham Radio Operator Week" in Michigan. The opening gun of the week was our annual Field Day; and the complete story of Field Day in this area will probably never be told! We suspect that many of the emergency gas-engines were turned into power for manning the pumps! Everyone got wet, everyone worked hard, and everyone had the time of his life. Severe electrical storms dictated temporary shutdowns of many stations — certainly a wise precaution. The bands held up well in spite of severe QRN; and the way that 10 meters opened up was a real surprise. Well, we can't have perfect weather every year; it just wasn't our turn this year! FLM reports that 5th Army Hq. has made a quantity of surplus equipment and parts available to MARS members. Contact Ken direct, if interested. DLZ is back from a swell vacation in W7-Land. ZGT is back after a spell in the hospital. Congratulations to the YKCs on the arrival of a new baby girl. URM received his well-earned RM appointment; incidentally, John is candidate for State Representative from his District. NUL has been QRL with radio and TV work, but has a new 100-watt final in the making. TBP also is rebuilding; he has completed a neat little 20-watt crystal exciter with universal power supply, all on a 10 x 5 x 3 chassis. LEN has deserted these parts, and now is W9GEX at Woodstock, Ill. The Mount Pleasant Club is going strong with a group of new hams in training. Traffic: (June) W8RJC 1040, ELW 386, ILP 219, NUL 167, QAH 100, FX 96, QIX 96, ZLK 74, SWG 45, MLR 41 IV 37, NOH 33, NEJ 28, NTC 28, TBP 27, AUD 25, JKX 25, OQH 24, URM 21, WXO 20, HKT 19, QQO 15, WVL 10, DSE 8, HSG 6, EGI 5, (May) W8ZGT 880, FLM 112, JYJ 66, SPF 24, TIJ 18, TQP 17.

OHIO — SCM, John E. Siringer, W8AJW — Asst. SCMs: C. D. Hall, 8PUN ('phone); J. C. Erickson, 8DAE (c.w.); and W. B. Davis, 8JNF (adm.). SEC: UPB. PAM: PUN. RMs: DAE, FYO. BPL certificates were issued to FYO and RO for June traffic handling. The HHFs have a

(Continued on page 80)

an amazing NEW way to build ELECTRONIC PROJECTS with MODULAR FORMS





A. Blank modular form.
B. Same form containing 75 watt transmitter.

MODULAR CONSTRUCTION SETS greatly simplify any electronic building project. The advantages of this new system over the standard chassis-type construction are:

(1) MODULAR SETS are flexible as to cubic content. The smallest set, the M-2 (2 MODULAR plates and hardware) can easily and quickly be adjusted to a cubic content of less than 10 cubic inches or more than 100 cubic inches, or any size in between.

(2) MODULAR SETS can be worked without special tools, drills, reams, punches, etc. An ordinary pocket knife is all that is needed for a quick, neat, easy job. If tools are available, MODULAR SETS machine perfectly.

(3) MODULAR SETS permit compact construction because the builder works in three dimensions, length, width and height.

(4) MODULAR SETS break down complicated circuits into simple, single stages or units. Any electronics job can be simplified (and understood) by finishing one MODULAR plate at a time and then joining the units together.

(5) MODULAR SETS permit easy, quick servicing. There is no hodge-podge wiring jumble, but instead an easy-to-see, easy-to-get-at, systematic wiring circuit, broken down into basic units. MODULAR SETS can be disassembled for testing, repair, or design changes.

(6) MODULAR SETS enable the builder to add stages to his rig. For instance, an 807 final amplifier stage can be added to an existing 6AG7 oscillator to provide a 75 watt transmitter. Later, a modulator can be added to permit phone operation. Changes can be made without altering the original construction.

(7) MODULATOR SETS are safe to use. An operator cannot get an electrical shock by touching a MODULAR plate accidentally. And accidental shorts within the rig are minimized, since the MODULAR plates are non-conductive.

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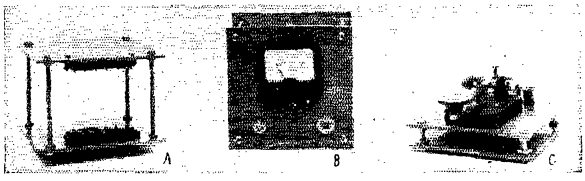
MODULAR FORMS MAKE BUILDING EASY!!

Modular plates are 4½" square hard rubber forms, ⅛" thick pre-drilled for the spacing hardware that is supplied. They are shock resistant, unbreakable, have high leakage resistance and high dielectric strength. Any number of plates can be combined to simplify construction, save space and eliminate the old-fashioned chassis-type construction.

- **MODULAR SET M-2,** consisting of two MODULAR plates machined for and containing all spacing hardware..$2.00 POSTPAID
- **MODULAR SET M-3,** consisting of three MODULAR plates machined for and containing all spacing hardware..$3.00 POSTPAID
- **MODULAR SET M-4,** consisting of four MODULAR plates machined for and containing all spacing hardware..$4.00 POSTPAID
- **MODULAR SET M-5,** consisting of five MODULAR plates machined for and containing all spacing hardware..$5.00 POSTPAID



MODULAR MADE PROJECTS

A. Blank unit with terminal board mounts
B. Field strength meter
C. Code oscillator

14 EASY TO BUILD MODULAR KITS!!

It's easy to build MODULAR kits. Intricate circuits are broken up into tiny sections and one unit at a time is built. Then the modular forms are joined with the spacing hardware, and that's all! MODULAR kits avoid tangle-web circuit nightmares. Every MODULAR kit is complete, except for tubes, crystals and batteries where needed. Practically the only tool you need is a soldering iron! Order today literature on kits available.

1 • Code Oscillator **$ 9.95**
2 • Band spotter **$ 9.95**
3 • Power supply, 150 volts **$12.95**
4 • Antenna tuner **$12.95**
5 • Field strength meter **$14.95**
6 • 10 meter mobile converter **$16.95**
7 • Simple modulator **$16.95**
8 • 6AG7 Low-power transmitter for novices **$ 19.95**
9 • 807 Amplifier **$19.95**
10 • Power Supply, 400 volts **$19.95**
11 • Single-tube novice receiver **$24.95**
12 • VFO, with 160, 80 and 40 meter output **$24.95**
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14 • 75 Watt Transmitter for novices **$38.95**

GOTHAM HOBBY CORP 107 EAST 126th STREET ATwater 9-5468 New York 35, N. Y.

new jr. operator. ZAU made 240 contacts for K8AIR during Field Day. OQP has a new Viking II. Flash! BF converted his YL to an XYL on June 29th. Congratulations, OT! Orrie, however, was deeply saddened to learn that TI9BR's equipment never left the ship at Cocos Island. Geagua County was represented by IGQ, CIV, PMJ, UKS, GKA, NAK, and OHL in the c.d. alert. RLR is QRT rebuilding during the summer months. ROX reports the CBA made 811 contacts with 2 ½ rigs during Field Day. WN8QYS received his 20-w.p.m. Code Proficiency certificate. DL and NNG will vacation in Ontario. DG is spending a month on the West Coast. ILC was NCS on 2 meters during the c.d. alert. The Canton group has over $1000.00 in club gear and is contemplating the purchase of a tent. DSX reports that the Ohioans are holding well on 8RN. LYD announces that the RACES plan for Cuyahoga County has been tentatively approved by both the County and the State. The CACARC also approved the plan. The Van Wert Club is the section's latest ARRL affiliate. Officers are ASL, pres.; DHG, vice-pres.; OWD, secy.; OWC, treas.; GLM, act. mgr. The West Park mobile group was out in full force on Field Day. Springfield's *Q-5* reports that HTE spoke on "The How and Why of RTTY" at the last club meeting; GLT's students are progressing nicely in code and theory; BFP has been nominated as club historian; and 15 members were active at the Field Day site. The Hamilton *Bulletin* announces that 765 contacts were made in the Field Day exercises; HXB and QEQ are vacationing in the Dakotas; new Novices are SBK and SCH; and local c.d. officials wrote a letter of thanks to the Club for its operation in the c.d. alert. Cincy's *Mike and Key* informs us that the annual Stag Hamfest and Radio Parts Show will be held Sun., Sept. 12th at Ash Grove on Winton Road. OVARA's *Ether Waves* states that the Club's transmitters made 1550 contacts in Field Day competition, with 1112 of them being on 20-, 40-, and 80-meter c.w. SDD made YLCC and needs but one more state for YL/WAS. LPD has worked his 19th state on 2 meters and TJM is up to 185 countries worked. Toledo's *Shack Gossip* mentions that DQR and GDE are operating 2-meter mobile; TNT has moved from Findlay to Bowling Green; and new Technicians in the area are RZM, RZN and RZQ. Over 25 WASS certificates have been sent out by the Sycamore Smiths! The Columbus *Carascope* relates that the Club made 460 Field Day contacts; PAØGE and PAØUN were guests at a recent club meeting; IZR is now operating out of Omaha; and LWO has completed building a 2-meter transmitter. Eastern Ohio's *Ham Flashes* mentions that Warren Harding High has 9 members in the school's radio club: LQW is president; MTC has recently gone mobile; MVARA's official call is QLY; the Ashtabula gang is building emergency 2-meter equipment; and BKM of Conneaut has purchased an antenna farm. Dayton's *RF Carrier* announces the results of its v.h.f. contest. Local winners were SVI, HOH, and LUZ while leading non-members were IED, SDJ, and EHW. Also included in the bulletin was a copy of Governor Lausche's proclamation which proclaimed the week of June 13-19 Amateur Radio Week in Ohio. Traffic: (June) W8FYO 506, RO 224, DG 165, ARO 155, AJW 144, AJH 102, HFE 101, PM 101, KZM 92, AMH 89, AEU 87, DAE 73, AL 69, IFX 61, HNP 54, SRF 46, MQQ 43, FSM 30, GZ 19, ZAU 17, LVH 14, CTZ 13, ROX 12, PMJ 10, KIH 9, OCR 8, PBX 8, DL 6, HPP 6, OQP 6, WAV 6, PIJ 5, ET 4, JIF 4, JMD 4, ILC 4, LMB 4, DMD 3, EQN 3, IVE 3, RZ 3, CSN 2, NQQ 2, THJ 2, AYR 1. (May) W8WAV 42, DL 16, JNR 3.

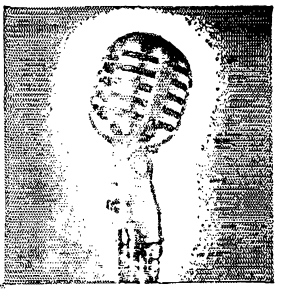
HUDSON DIVISION

EASTERN NEW YORK — SCM, Stephen J. Neason, W2ILI — SEC: RTE, RMs: TYC, KBT, PAMs: GDD, JQI, IJG. The SLRC has a Novice examining procedure all set up and invites prospective licensees in the vicinity of Rockland and Bergen Counties to contact QMV. K2BPG is mobile on 29 Mc. K2BFU dropped the "N." Rockland County AREC Net operates every Wed. at 7:30 P.M. on 29.6 Mc. SZJ is the NCS. The HHRL claims Field Day was a huge success, the Westchester County boys really turned out and the gang got a big write-up in the local papers. Similar claims were made by WARA, Yonkers, and the Highland Radio Clubs. WQL reports that *Zero Beat* is not being published during July and August. ILI and SZ were awarded WVT certificates. After Labor Day, Director Cooke, OBU, will maintain a speaker's watch on 3.6 Mc. nightly from 7:30 P.M. on, when at home, for contact with any amateur in our division for QSOs dealing with questions and discussions of League matters and policy. One of our very active clubs is located near your home; if you do not know its location and desire information, please drop a line to the SCM. MRQ is portable at a boys' camp in Lowville for the summer. K2DQH and OKI are organizing a 21-Mc. net in Westchester. Congrats to the SEC, RTE, and all the ECs for a job well done in the national c.d. test. AAO is conducting a code class at the VA hospital in Albany. There are about twenty in the class, including twelve M.D.s. ITQ is firing up a 522 on 144 Mc. New members of the SARA are OAK, K2s EIC, AWA, and HWN, also KN2HQJ. YXE is active on NYSEPN. Do not lose your appointment, check your endorsement date now. LEL is mobile on 144

(*Continued on page 82*)

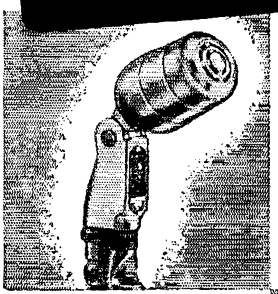
What do you want in a MICROPHONE?

Check the features and characteristics for which E-V microphones have become favorites in every field. Then take your choice, and know you can expect performance that is guaranteed by E-V research-engineering. Here are 9 models of today's most complete microphone line.



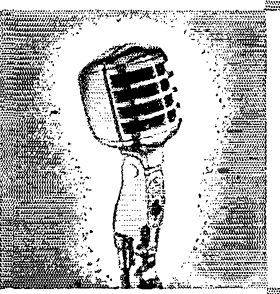
950 CARDAX

High level cardioid crystal microphone with dual frequency response for high-fidelity sound pick-up or for extra crispness of speech. Overcomes feedback and background noise. Wide range response. "On-Off" switch. Metal Seal crystal. List, **$42.50**



630 DYNAMIC

Popular high fidelity high output dynamic. Response 60-11,000 cps. Omni-directional. Exclusive Acoustalloy diaphragm. Extra rugged. Tiltable head. "On-Off" switch. Available in high or low impedances. Model 630. List, **$47.00**



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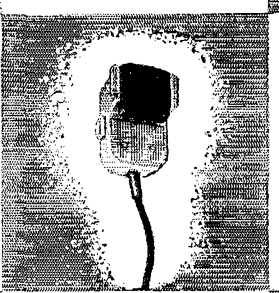
Model 611 Dynamic and Model 911 Crystal. Smart design. Rugged and dependable. Response 50-8000 cps. High output level. Omni-directional. Tiltable head. "On-Off" switch. Available in high or low impedances. List from **$25.50** to **$37.50**

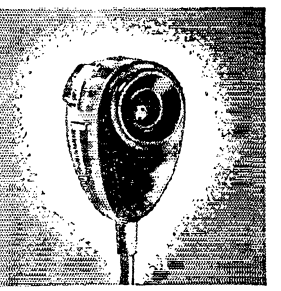
208 MOBILE

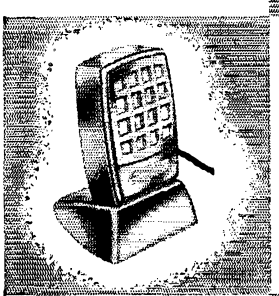
Small size, high output, single-button carbon microphone for maximum intelligibility. Close-talking, noise-cancelling Differential* type. High articulation. Blast proof, water proof, shock resistant. Comfortably hand-held. Press-to-talk switch. Panel mounting. bracket. List, **$16.50**



600-D and 210

Dynamic and Carbon high articulation mobile microphones. Give high intelligibility speech transmission. Light weight, yet extra rugged. Easily held in hand. Press-to-talk switch. Model 600-D. List, **$38.50** Model 210. List, **$28.50**





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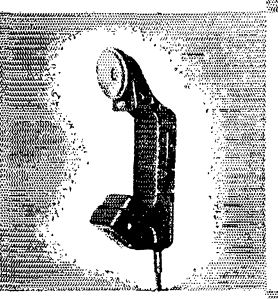
Low-cost all-purpose Crystal, Dynamic and Ceramic models. Can be used in hand, or on stand. Remarkable performer. Satin Chrome finish. In high and low impedances. List from **$11.25** to **$19.50** Model 415 Desk Mount lists at $1.70

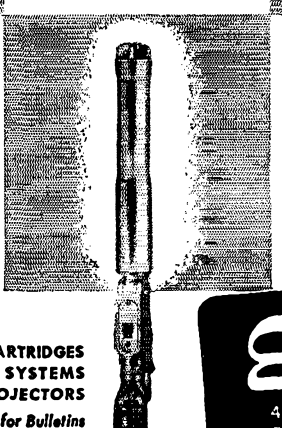


H-51/U HANDSET

Virtually indestructible. Transmits speech clearly and intelligibly under high ambient noise conditions. Noise-cancelling second order differential carbon microphone, 600 ohm receiver, black nylon handle, push-to-talk switch. 10" long. Weighs 1 lb. List, **$180.00**

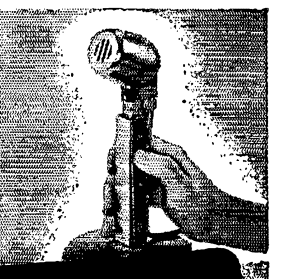
636 SLIMAIR

Slim, versatile dynamic of exceptional quality. High-fidelity response 60-13,000 cps. Output -55 db. Acoustically-treated grille head stops wind and breath blasts. Acoustalloy diaphragm. Tilts 90°. "On-Off" switch. High or low impedance selection. List, **$70.00**



TOUCH-TO-TALK

Model 428 "Break-in" Touch-to-Talk Stand with locking feature. Fits any microphone with standard ⅝"-27 thread. Lever-type switch gives finger-tip relay operation or microphone "On-Off." Single-pole double-throw. List, **$16.00**



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*Patent No. 2,350,010

Mc. HSM is moving to W3-Land. WØOYT is new in POK. Traffic: (June) K2BJS 332, W2MRQ 69, EFU 68, LRW 64, K2EOQ 36, W2APH 31, K2BE 27, W2ILI 26, ZBS 18, YXE 11, GDD 9, TYC 9, K2CXO 4, W2PHO 4, K2DQH 3, W2WSS 2. (May) K2BSD 88, W2LRW 47, K2EOQ 34.

NEW YORK CITY AND LONG ISLAND — SCM, Carleton L. Coleman, W2YBT — Asst. SCM: Harry Hannals, 2TUK. SEC: ZAI, PAM: JZX. RMs: VNJ, LPJ. K2CUI, on an extended visit to Europe, has so far called upon F8KW, F8UQ, and F9GM, and now goes to HB9- and IL-Land. The Columbia University Amateur Radio Club in recent elections came up with FXK, pres.; OLA, vice-pres.; DAI, tech. dir.; 4NXN, comm. mgr.; 3YXT, treas.; and KN2INI, secy. 2AEE operated /1 from Camp Columbia, Conn., the first Field Day in its 40-year history! The Northeast Traffic Net, a new one, operates on 3746 kc. Mon. through Sat. at 4 P.M. Net Manager is K2DYB; K2DXV is pub. mgr. Get your Novice friends to call in, the purpose is to train as well as handle traffic. MUM is new OBS, BKN new OES. The Fordham Radio Club also had its first Field Day this year held on the City's Rikers Island, by permission of N.Y.C. through the efforts of 2IN. K2CQY was the cook and did an excellent job! Needless to say Correction Warden Ed Dross is PVR. OME is rebuilding and coming up with a 300-watt rig for c.w. and 'phone on 10 through 80 meters. CLG is putting 2-meter mobile in that new Chrysler. How does ZAI get these Florida vacations every six months? GG has a new 38-ft. tower and two-element beam on 20 meters running 350–400 watts to an 813. KGN is up to 70 countries with that Viking and a new two-element Telrex mini beam. MFU has been active in TCPN and NYSEPN. K2AMM, active on 220 Mc., has been listening at 3 and 4 A.M. with carriers heard on 223 Mc. without modulation. He works with K2BKN Sun. 10 to 12 A.M. TUK gave the first mail exam to K2IPH, who passed Novice and Tech. Class exams. AEE, still trying for WAS, has 47 confirmed on 'phone and 48 worked. Summer code and theory classes have been started at Columbia. AIP reports. The Brooklyn Polytech Radio Club elected IGS, pres.; EEY, vice-pres.; K2HGC, treas. EC reports the UTL is keeping skeds throughout the summer. JOA graduated from high school. NLI is on three skeds a week with traffic down somewhat VNJ, the RM, reports. JZX was elected YL chairman for the second district of YLRL. OGX built new pi network final for all bands. KJG will be operating at SZ during the fall. Brooklyn EC, KGN, reports a very successful c.d. drill on 10 and 2 meters with a large turnout. OG, Queens EC, reports slow but steady progress in the amalgamation of AREC and c.d. Nassau EC, FI, reported a swell job done in June RACES with JKX, ADO assisting. K2BMQ moved to the West Coast. VKF, Staten Island EC, reports one large scale RACES and AREC drill per month and an informal get-together the other three Monday nights. Monday nights on 2 meters in the N.Y.C.-L.I. section there are several c.d. nets which one can join. GP says things are a bit slow but he manages to work a few Europeans on 3.5 and 7 Mc. JBQ was with FBA/2 Field Day near Rochester. The Mid-Island Radio Club has moved to Baldwin. DAI and K2DDC received A.B. degrees at Columbia. The Northern Nassau Amateur Radio Club had a real high-class Field Day at the Mackay Estate. A practical laboratory course — Transmitters — will be available this fall at the N.Y.C. Board of Education Queens Evening Trade High School. Candidates must be 17 years old or more and must hold a Novice ticket or the equivalent. Tuition is free. Write HNG, Box 131, Jamaica, L. I. Traffic: (June) W2KFV 899, JOA 726, KEB 608, K2CQP 535, W2IVU 315, AEE 302, LPJ 266, JZX 244, VNJ 181, JGV/1 79, EC 60, GP 35, GPQ 26, PF 26, AEV 24, KGN 8, TUK 8, EEY 7, IN 6, MUM 6, KN2DVT 2, W2JBQ 1. (May) W2AEE 271, IVU 263, GXC 97, IV8 46, IN 26.

NORTHERN NEW JERSEY — SCM, Lloyd H. Manamon, W2VQR — SEC: NKD. PAM: CCS. RMs: EAS, NKD, CGG. EAS is a new RM, replacing WCL. BAI has moved to Florida. We are sorry to lose Russ from the Northern New Jersey ranks. UWA is becoming active again. He has a new rig with 813 final nearly ready to go. KN2GER is operating portable from a boys' camp in Island Heights. YVQ is working on new 144-Mc. rig. JKH finally worked his first ZL after 18 years of trying. This all proves a good DX man never gives up. K2BCK expects to be transferred to sea duty about the first of the year. K2EUN is active in NTN, TAN, and NJN. Starting Sept. 7th Director Cooke will maintain a speaker watch on 3600 kc. nightly, for contact with any amateur in the Hudson Division. If you have questions on League policies or on any other matters, give him a blind call on 3600 kc. and he will come right back at you. K2CZX passed General Class exam. NIY reports that young hams who are Boy Scouts in his area are receiving Merit Badges in radio through his efforts as counselor. K2DOX and K2GBP are installing new mobile rigs in their cars. VYB netted a few new countries while home on leave from the service. ZPD is working on 220-Mc. carry-talkie emergency units. K2GBM is a new ORS. Russ moved here recently from Western Massachusetts. K2BWQ received MARS "Operator of the Month" award for May. The main purpose of NETN is to train and maintain a good reputation for operating and traffic handling. The net operates on 3746

(*Continued on page 84*)

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kc., Mon. through Sat. at 1600 hours EDST. New members are badly needed. Please give a listen and check in. It will be appreciated by K2DYB, the net mgr. Poor DX conditions are forcing EWZ to join HXU in stamp collecting. GVZ is away on vacation. Upon his return the new three-element 14-Mc. array will be put to work. CVW is active on NJN and MARS. K2GAS has summer employment as a life guard. K2GMI is going up for General Class exam. A 1954 transmitter hunt sponsored by the Morris-Somerset County group will be held in the Lyons-Martinville Area on Oct. 17th at 1000 hours. The new slate of officers elected by the Fort Monmouth Radio Club is as follows: FFX, pres.; K2BX, vice-pres.; K2HBI, secy.; K2DHE, treas. The Club meets the last Tue. of each month at the club house, the home of K2USA. Local amateurs are invited to attend all club meetings and to join up with the new organization. Code practice sessions are planned and there is plenty of equipment with which to work. Transmitters and operating positions are available for every band. Traffic: W2EAS 165, K2BWP 103, BWQ 49, DSW 44, GBM 29, BCK 26, EUN 21, W2FPM 13, CFB 9, NIY 6, YVQ 4, CJX 2.

MIDWEST DIVISION

IOWA — SCM, William G. Davis, WØPP — This being vacation time, the reports are few, which gives me an opportunity to explain my apparent laxity in the SCM job. It is because the demands of my job at WHO have increased by the installation of TV and until the installation is complete it will remain so. Please understand and bear with me. In spite of the summer slump BDR and SCA still make BPL. BDR is due for a vacation with his sister in California. PAN has been portable at Clear Lake. A new Burlington Novice is WNØUTG. New TLCN members are PKH and RJX. BBZ has received his commission as ensign and will report to duty aboard a heavy cruiser shortly. NGS had a vacation in Canada and was a neighbor of VE4RO. He also reports that his dad is QHV. WNØSQE reports from Sioux City and his traffic is climbing each month. There was the usual activity by the hams along the Des Moines River during the latest flood and they conducted themselves in their usual efficient manner. Reports on this activity to the SCM was nil but I know they were in there and their actions speak louder than words. By the time this gets into print the vacation season will be over. Perhaps I will be on routine work once more, so get your reports in. Traffic: WØBDR 1636, SCA 1324, CZ 251, PAN 29, LJW 28, WNØSQE 26, WØQVA 20, NGS 13, PUR 8, BBZ 4.

KANSAS — SCM, Earl N. Johnston, WØICV — SEC: PAH. PAM: FNS. RM: KXL. Field Day was one of the outstanding activities for Kansas amateurs this month. The Lawrence Amateur Radio Club operated 10 miles south of Lawrence with 2 transmitters and 12 operators. CJI's QTH was 10 miles west of Chanute with 10 operators. The Scott County gang operated TYL at State Park with 6 operators. The Se-Kan Radio Club operated 4 rigs with 10 operators at Coffeyville. The El Dorado Amateur Radio Club operated at Lake Eldorado with 5 operators from ECD/Ø. The Salina Kansas Radio Club operated from Coronado Heights with 20 operators. The Johnson County Radio Club operated six rigs with 42 operators, all on emergency power from Lenexa. The Ottawa Radio Emergency Club operated 2 rigs with 3 operators southeast of Ottawa. The Hutchinson Amateur Radio Club operated from the State Fair Grounds with 8 operators. The KVRC of Topeka operated 5 rigs with 28 operators southeast of Lake Shawnee. EXV reports the officers of the Ottawa Radio Emergency Club are KFU, pres.; EXV, vice-pres.; NFW, secy.; MND, treas. ORD is a new ham at Williamsburg. WNØUAT, who has only had his ticket since May 1st, has worked 16 states and handled 3 messages. WNØVFC is a new ham from Clay Center. WNØVGE is a new call from Colby (She is LOW's li'l YL). EOT is active on QKS, is NCS Wed. on 75-meter 'phone net, is OO, and has 2- and 6-meter rigs going. Traffic: (June) WØBLI 698, NIY 314, EOT 258, IFR 238, ONC 69, NLV 46, FNS 24, MLG 23, ABJ 18, QMU 18, TNA 18, YFE 16, NFX 15, ICV 11, DEL 8, KAJ 7, KFS 7, LQX 7, ASY 6, JDX 6, WNØUAT 6, WØIUB 5, KSY 5, FHT 4, FDJ 3, MXG 3, LOW 1. (May) WØSIG 191, FNS 18.

MISSOURI — SCM, Clarence L. Arundale, WØGBJ — SEC: VRF. PAM: BVL. RMs: OUD and QXO. The Missouri 'Phone Net held its annual picnic at Swope Park on June 6th with the State well represented. The ARCCM of Sedalia set up a station at the Scout Camporee to familiarize the boys and their parents with its operation. Many contacts were made from the camp site. QXO blew the power transformer in the big rig so was off the air part of the month of June. HUI is building a new final for the big rig. CPI earns his 21st consecutive BPL. The SMARC will hold its annual picnic Sept. 5th at Fassnight Park in Springfield. PUA is in the hospital. KA is a new ORS. CKQ has the new 813 final on the air. RCV is building a new 160-meter VFO. BZK is active on five nets. QBX has received his General Class ticket. NFC is Mayor of Lebanon. UFW, LRX, QGR, and EVN are going mobile. KWS is chief engineer at KWLT. NGX has a set of Balun coils and a 10-meter beam so is going after DX. LRX's father is UFW and is quite active. UOK is in the Air Force. Reports indicate many of

(*Continued on page 86*)

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our clubs participated in the Field Day activities this year. New AREC member: PUS. CPI, GAR, and QXO each earn another BPL. The KYTs have a new daughter. GAR is carrying a heavy load of schedules. Traffic: (June) W0CPI 722, GAR 718, QXO 514, BZK 228, GBJ 103, QWB 58, HUI 56, KIK 44, KA 32, CKQ 23, LQC 23, OUD 22, EBE 16, BVL 14, BUL 13, CXE 8, ZWI 6, RWT 3, RCV 1, WIS 1. (May) WØIJS 246, WIS 2.

NEBRASKA — SCM, Floyd B. Campbell, WØCBH — Asst. SCM-NCS: Tom Boydston, ØVYX. SEC: JDJ. The reports received during Field Day show that we are very much in need of AREC members. Contact your SEC or SCM for blanks. GDZ has mobile with Morrow converter and Elmac transmitter. UOB, DQN, WNØSVV have been appointed as Asst. ECs for the Sidney Area. DQN, KQX, and VIB can operate mobile units in case of emergency. RTC, at Sioux Ordnance Depot, is in full readiness just in case and will be on 3702 kc. The Panhandle Slow Speed Net is in operation with GDZ as NCS, aided by DQN and RTC. KXD has a new BW-5100. EXP is on with a new Slicer. HZE added a YL to his shack. ISV has a new A54-H mobile rig. RIN, NIX, and WNØYOF are new calls at Alliance. UFZ visited in North Platte with good fishing reported up in the Alliance section. WNØUOV and WNØUOW are new calls at North Platte. Any Novices interested in the Panhandle Slow Speed C.W. Net can contact GDZ at 1707 Third. Sioux Villa, Sidney, for rules, etc. This Net is run at 7 words a minute and handles any and all traffic. Traffic: KØAIR 3091, WØZJF 200, HTA 78, AEM 71, VYX 51, WR 22, KØWBF 20, WØERM 19, QHG 17, OFL 16, MAO 11, KDW 10, QMZ 8, DJU 7, NGZ 6, QOU 6, RRH 6, CBH 5, HQN 5, QVV 5, LEF 4, PQP 4, CIH 3, IRW 3, BEA 2, EFV 2, EGQ 2, GTW 2, ISV 2, KFY 2, FLA 1, PON 1.

NEW ENGLAND DIVISION

CONNECTICUT — SCM, Milton E. Chaffee, W1EFW — SEC: LKF. PAM: RRE. RM: KYQ. MCN and CN-3640, CPN-3880, CEN-29,580 kc. Traffic men note: MCN, Mon.-Fri. 0645 local time on 3640 kc., Conn., Mass., N. Y., and Pa. direct. JEQ put on an exhibit of amateur radio at the Cheshire Fair in June. TYQ is back on the air with 500 watts and a full-wave antenna on 80 meters. QLF has a new 14-Mc. beam. TJX has 12,000 feet of copper wire buried under his antenna. NPG is on s.s.b. and says it's tops. Thanks to MLT for his help on CPN during the illness of RRE. RWD renewed EC appointment. HUM is back on after a change of QTH in West Hartford. TD continues OBS skeds and reports AUK as a Silent Key. LIG sends a big news letter and reports 144 Mc. FB. KML and KGT have new 813 finals. JMI is active mobile on 2, 10, and 75 meters. RMZ has a new kw. rig. RY has moved to Michigan. UAD moved to Devon. Even though OKT and LIG are doctors and have the same name they are not related. ZHK and ZEE are two of the nine children of YQR and ZEF. The SARC was active in the V.H.F. Party with operators TCW, RFJ, ASO, GVK, FMU, URC, WAV, and RON and Novices ZEF, ZGF, ZNU, ZTY, BHZ, ZZU, and APS. UIZ skeds YQI on 144 Mc. and is looking for more local QSOs. HNF/1 is on 144 Mc. week ends from Black Point. Thanks to BVB and GIX for regular OO reports. HYF has a new Johnson Ranger. ZFF is a new OPS. HUM renewed ORS appointment. EOB has a new QTH, Danielson, and is back on the air looking for ORSs. Thanks to ZDX for the nice note. APA still is chasing DX, with VK7JP and DL4IQ recent conquests on 7-Mc. 'phone. CGD and VW scored well in the last F.M.T. UJG is on 220 Mc. with WHL. WN1AXE is a new ham at Groton. To those who supplied reports and news, my thanks. The deadline here is the fifth, so keep them coming up to that date each month. The Tri-City Radio Council elected CUH, pres.; CNC and RPQ, vice-pres.; TVN, secy.; NDX, treas.; QV and UQV, act. mgr. Traffic: (June) W1WNH 319, AW 293, TSZ 231, SJO 215, CUH 162, KYQ 133, LIG 130, YBH 115, RGB 105, UNG 105, BVB 87, EFW 76, MLT 46, GIX 35, BDI 32, YYM 31, LV 19, QJM 16, TWZ 14, APA 8, HYF 7, ZDX 4. (May) W1SJO 330, VOV 62, AYC 30, MLT 22, VOS 6, ZDX 4. (Apr.) W1SJO 258, ZDX 2.

MAINE — SCM, Bernard Seamon, W1AFT — SEC: BYK. PAM: BTY. RM: OHT. The Pine Tree Net meets on 3596 kc. at 1900, the Sea Gull Net on 3960 kc. at 1730, the Barnyard Net on 3960 kc. at 0730, all EST. Only two Field Day set-ups reported to your SCM, one at Shapley with fifteen operators, including eleven AREC men, and one at South Portland with ten present, five of whom were AREC members. Our SEC, BYK, and all his c.d. stations did a fine job during the alert on June 14th and 15th. Don wishes to extend his thanks to all who took part and especially to those who kept 3960 kc. clear for all those long thirty hours. YIS was heard manning the Lincoln County c.d. station, only a few days later he was heard aboard the Schooner *Blue Dolphin* off Nova Scotia heading north. LHA rounded up a crew of mobiles to assist in the handling of the MacMillan Day festivities in Boothbay Harbor, including WTQ, WTH, and TZV. 4BU, who is visiting us this summer, used to be 1BRU, of Norway. One hundred and fifty hungry hams gathered at Lewiston for the hamfest.

(*Continued on page 88*)

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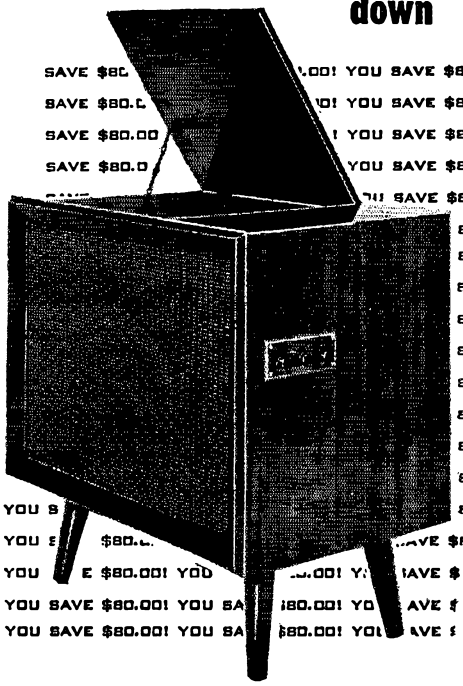

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EASTERN MASSACHUSETTS — SCM, Frank L. Baker jr., W1ALP — BL is our Section EC. AWA is PAM for 6 meters. UE is RM for 80-meter c.w. and AQE for 40 meters. Eastern Mass. Net is on 3660 kc. at 7 P.M. Mon. through Fri. Appointments endorsed: DW Westwood, SKN Medford, QVN Randolph, RQZ Abington, BBL Manchester as ECs; WAG, IH, and MX as ORSs; IH, SAI, and RQZ as OBSs; MX as OPS; PXH as OO. The Television Interference Committee of Greater Boston has been formed, representing the manufacturers, the broadcasting industry, the amateur fraternity, and the FCC. TWG is chairman, Jack Manning, secy. ALP, FWS, CQ, and AKC are on the committee. JED reports that the Merrimack Valley Amateur Radio Club station, NBN, is back on the air with the HT-9 on 10-, 20-, 40-, and 75-meter 'phone. Also a collinear for 2 meters has been erected at the club headquarters on River Rd., West Andover. ZQL has a Gonset. The following radio clubs were heard here on Field Day: Old Colony, Satuit, South Shore, Arlington, Framingham, Waltham, El-Ray, and Yankee. Hingham went up to Wilton, N. H. The South Eastern Mass. ARA of New Bedford, WKM, was on from c.d. headquarters. PXH, BGW, and BGH took part in the May F.M.T. Some new General Class hams: ZPY Lexington, ZHW Auburndale, YSY Needham, ZNW Lexington; Novice and Tech. Class: BTX Waltham; Tech. Class: BKW Peabody. The Bedford Radio Club elected KLO, pres.; SPL, vice-pres.; NAD, treas.; YFP, secy. An 80-meter c.w. traffic net has been in operation on 3600 kc. on Thurs. at 1815 with QJB as NCS and YFP, YWY, WYY, and SVU active. South Shore will hold a summer meeting on the 3rd Fri. of each month at the Quincy YMCA. Deep Sea Dragnet had a picnic at PU's QTH. LM is in Maine. WAI, Arlington, has a Viking II, 75A-1, and folded dipole, works c.w. on 20, 40, and 80 meters, and has worked 77 countries. WU is mobile only for the summer. Many c.d. groups took part in the nationwide c.d. drill. Quincy was on with IA set up in the City Hall with most of the towns in Sector 5 on. BL was on at Region 5 Headquarters at Mattapan. MCR reports that Boston had 32 amateurs taking part with 29 stations, of which 24 were mobile and 5 fixed. MCR handled 2-meter operation with 4 operators at Central Control on 2 and 10 meters. Col. Platt, of the State c.d. office, visited the New Bedford Club. AEN has a Viking II. ME has a 75A-3. WGN and SSS are on with TBS-50s. TZU has his Sonar mobile rig in a new car. CTZ built an emergency rig for 10 meters. KHV has a new QTH. VHH is in Hull for the summer. The Lynn group participated in the c.d. drill with LN, HVN, WRI, WMM, VVY, IO, NUH, and VMD. LN was on 2 and 10 meters. He relayed to VMD on 10 meters and he relayed to Sector Control in Lynn. PN writes he still is sailing for the Standard Oil Co. of N. J. aboard the SS *Esso Little Rock*, but does not have a rig aboard. He is pursuing his hobby of collecting all of the early wireless magazines in complete sets. CPD is moving to St. Louis, Mo. for awhile. MX was out on Field Day but the gas generator failed. New officers of the M.I.T. Radio Society are 4YHD, pres.; YFM, vice-pres.; Ralph Gage, secy.; WBR, treas.; 9OHX, station manager. The Falmouth Radio Club was out on Field Day. CLF is rebuilding the rigs and will be on 40- and 80-meter c.w. and 10-meter 'phone. As EC for Norfolk he has BU, MGL, MJO, and YWB lined up with him and they were on during the big c.d. test. IBE is active on many nets. Traffic: (June) W1VVA 331, UKO 229, AVY 65, WAI 29, BY 28, EPE 16, CLF 15, QLT 7, LM 4, WU 4, MX 2. (May) W1EPE 129.

WESTERN MASSACHUSETTES — SCM, Roger E. Corey, W1JYH — SEC: KUE, RM: BVR, PAM: RDR. WMN meets at 7 P.M. EDST. Mon. through Fri. on 3560 kc. WCC has a new 60-watt rig using a pair of 807s in the final and VFO control. WDW finds that the higher he puts his antenna the more DX he works. WEF spent his vacation operating portable in the Catskills. WN1AJX is up to 26 states and also has worked VE and WP4. WN1ABD lists WH6 as his best DX. Tay drove the c.d. float in the Northampton Tercentennial Parade. BVR has been appointed Sector 3 Radio Officer and LRA is Deputy Radio Officer. RHU now is K2GBM. TVJ has a new 80-meter antenna and a new mike and reports a marked improvement over his old set-up. ZEO, WN1AJX, BRF, and EFC were among those out on Field Day. New officers of the PRC are HRC, pres.; UUJ, vice-pres.; IW, treas.; TDS, secy. DPY, AZW, and OKA are on the activities committee, while HPA, TDS, and HJL make up the new Novice exam committee. LKO is publicity mgr. EFC, ZD, and LLT had a very fine write-up in an editorial of the *Southbridge Evening News* for their c.d. work. BDV operated portable from York Beach, Maine, on 75, 80, and 10 meters during the summer and, when the bands were dead, helped out in the local post office. WEF is a new ORS appointee. EFC renewed his EC appointment. Traffic:

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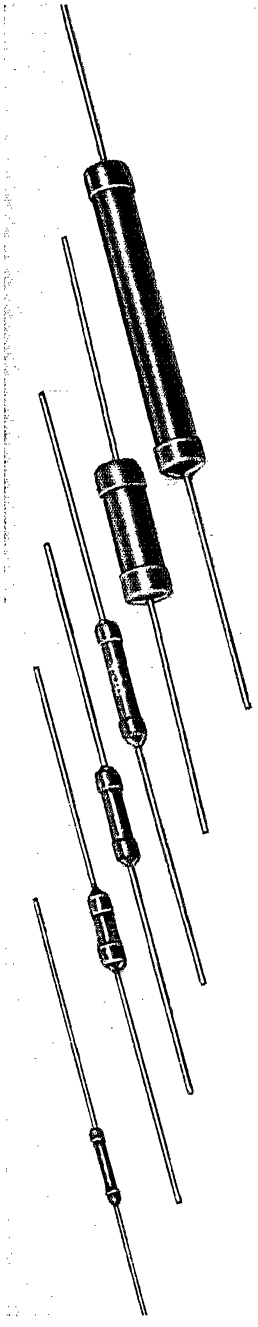
MALLORY HAM BULLETIN



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Many professional and amateur designers often overlook the fact that "fixed" resistors of the carbon rod type are not really fixed in value. As a result of ambient temperature changes and natural aging, ordinary carbon resistors can drift as much as 20% in resistance over a relatively short period of time.

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What can be done about resistor stability? Mallory has the answer . . . with DC and HS types of Deposited Carbon Resistors. These resistors are designed for inherently high stability even when exposed to unusual operating conditions. They are made by depositing pure crystalline carbon particles on specially compounded ceramic tubes. A tough, baked-on enamel finish protects the element from moisture and from physical damage.

Mallory Deposited Carbon Resistors have a negative temperature coefficient ranging from approximately 0.03% for low resistance values, to 0.08% for values over 1 megohm. On shelf life, their average change is less than ¼ of 1% per year. Their voltage coefficient is no more than 1% over a 100 hour test at full rated voltage. In other words, you get stability comparable to that of precision wire-wounds . . . at considerably lower cost . . . and in resistance values for which wire-wounds are not practical.

Your nearby Mallory distributor carries a complete line of these high-stability resistors. They are available in wattages from ¼ to 2 watts, and in resistance values from 10 ohms to 10 megohms. You can get them with resistance tolerances of 1% or 10%, with identical stability characteristics. The cost of the 10% units is so attractive that you will find them economical to use in many instances in place of ordinary carbon rod units.

See your Mallory distributor for high stability resistors when you start designing that new circuit! If you would like full specifications, write to P. R. Mallory & Co. Inc., Box 1558, Indianapolis 6, Indiana.

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W1TVJ 141, BVR 89, WCG 65, TAY 36, WEF 35, WDW 29, JYH 7, UVI 6, WCC 5, EFC 1, OBQ 1, ZEO 1.

NEW HAMPSHIRE — SCM, Carroll A. Currier, W1GMH — SEC: BXU. RM: CRW. PAM: AXL, WZB has a new rig with a 4-125A in the final. He has a code class about ready for examinations at La Salette Seminary in Enfield. UQF is now 9DEM. A new family duo is ZUR (Ann) and ZUS (Ralph). K2DEM is portable for the summer at Enfield. The Manchester Radio Club has WUU on code and TXK on theory at an FB class in the YMCA, as per FCC instructions in June *QST*. CRW is keeping skeds with the *Blue Dolphin* on its trip to the Arctic. WBM has just returned from a trip to New Jersey and called on many ham acquaintances en route. The following are new ECs: MUJ, RXA, and USB. SSK has an FB mobile rig and keeps in touch with his XYL, who is WVT, while he is away on business trips. UNV spent the holidays at home over the Fourth. He is on the U.S.S. *Intrepid*. In their two-day set-up "Club 73" handled almost one hundred messages at its traffic booth in the lobby of a local theater in Portsmouth. WUG has a rig set up at his summer QTH in Moultonboro. GMH had a fine visit from WBM, VXR, and his XYL. Traffic: (June) W1GMH 71, COC 70, CDX 63, POK 55, QGU 15, FZ 3. (Apr.) W1GMH 98.

RHODE ISLAND — SCM, Merrill D. Randall, W1JBB — Acting SCM, Don Schwardt, W1TRX. JBB, Rhode Island SCM, is enjoying his annual leave in Maine, away from Navy duties. The Cranston Radio Assn. has elected BTV, pres.; WN1ZPG, vice-pres.; W1OGY, secy.; and POP, treas. This group has a 10-meter net drill every Thurs. at 9 on 29.52 Mc. Ledr. Les Harlow, USN, 4CVO, is new president of the Newport County Radio Club. AJR, ex-4TTV, is new vice-president. 4CVO visited Wyoming, ARRL Headquarters, and W1AW during the month, participated in Field Day with the Newport group, and has been active on bands at the same time. May traffic reports reached the SCM too late. Mail or send reports not later than the 1st of the month. We need more ARRL appointees. Those interested in ORS, OPS, OO, or OES can contact JBB. Many Rhode Island mobiles are being heard these fine summer days. Hope to see you fellows at some of the hamfests around the New England Area. "Red" will be back next month. Traffic: (June) W1YAO 10, W4CVO/1 6, W1TRX 5. (May) W1AIT 47, BBN 22, YAO 9, TDG 7, TRX 4.

VERMONT — SCM, Robert L. Scott, W1RNA — PAM: RPR. RM: OAK. Vermont nets meet on 3860 and 3520 kc. Field Day reports were received from TRZ/1 at Sunset Lake, 20 operators 12 AREC; MEP/1, Woodford, EC at controls. Others were known to be on but have not reported. BJP is in the throes of building a Viking Ranger. YOQ and VVS have new Elmac mobile transmitter. CBW is back on the air 75-meter mobile and fixed. St. Johnsbury c.d. station now is located at the local broadcast station, WTWN. Thirty-two stations have been awarded W-VT certificates. VSA is ANCS VTPN until RPR gets his blown-up power transformer replaced. UGW has a job with R.C.A. as engineer in Camden, N.J. TAN reports code and theory classes as usual. Traffic: W1OAK 166, RNA 90, AVP 68, TLI 47, IT 28, UGW 24, TAN 11, KJG 9, VVP 6.

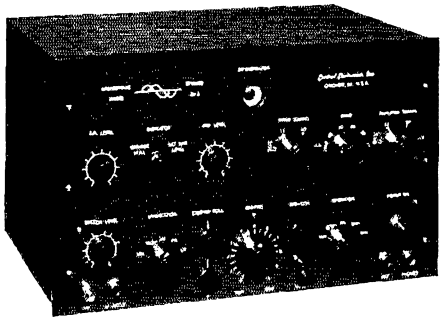
NORTHWESTERN DIVISION

ALASKA — SCM, Dave A. Fulton, KL7AGU — The Elmendorf ARC held its Field Day at Mile 39 on Glen Allen Highway. Those participating were AKE, ATU, AXL, BDV, BEY, BBY, ATL, and WØCVP/KL7. This was the first Field Day for most of the boys and the score indicated plenty of club spirit. MARS members of the EARC have received some surplus 2-meter gear and should be on the air soon. The Anchorage Club operated AA, the club station, during Field Day and made a fair showing. A vote of thanks should go to WL7BCH for his part in the Field Day exercise. Others operating during Field Day were the Kodiak Club, FA, and CC. Had there been a prize for key clicks we know who would have won first place and hope the party or parties concerned take steps to clean it up. The SEC, TI, reports a very good showing for the c.d. test. W7IKH and his XYL are back with us and Nick hopes to be signing MZ again. Traffic: (June) KL7AIR 1531, FAF 256, ATL 6. (May) KL7FAF 960.

IDAHO — SCM, Alan K. Ross, W7IWU — Gifford: WN7VWS's first QSO was a VE6. He says he averaged 4 QSOs per day the first month on 80 meters. Bonner County: NLJ went to VA Hospital in Spokane for a check-up. Kellogg: RQG reports heavy QRN from power lines. Lewiston: IDZ reports that NOG moved to Lewiston, and is with the County Soil Conservation Dist. as an engineering aide. GMC is rebuilding, as well as scheduling a W6 friend in the Bay Area. CTT works at the Atom Plant, Richland. AOO is going mobile in his station wagon. IDZ is building a 6-meter transmitter and converter. Boise: WNØSAK was in Boise for the summer. The gang from here, plus Mountain Home, Bliss, Shoshone, Dietrich, Meridian, Nampa, and Caldwell, all attended the hamfest at Anderson Dam, with HPH and his XYL as host and

(*Continued on page 92*)

Why Fight It?



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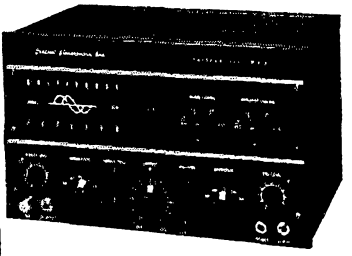

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- **20 Watts Peak Output SSB, AM, PM and CW**
- **Completely Bandswitched 160 thru 10 Meters**
- ***Magic Eye Carrier Null* and Peak Modulation Indicator**

Choice of grey table model, grey or black wrinkle finish rack model.

Wired and tested..... **$249.50**

Complete kit..... **$199.50**

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MODEL A IMPROVES ANY RECEIVER

Upper or lower sideband reception of SSB, AM, PM and CW at the flip of a switch. Cuts QRM in half. Exalted carrier method eliminates distortion caused by selective fading. Easily connected into any receiver having 450-500 KC IF. Built-in power supply. Reduces or eliminates interference from 15 KC TV receiver sweep harmonics.

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- **Perfected Voice-Controlled Break-in on SSB, AM, PM.**
- **Upper or Lower Sideband** at the flip of a switch.
- **New Carrier Level Control.** Insert any amount of carrier without disturbing carrier suppression adjustments.
- **New Calibrate Circuit.** Simply talk yourself exactly on frequency as you set your VFO. Calibrate signal level adjustable from zero to full output.
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- **40 DB or More Suppression** of unwanted sideband.

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- **10 Watts Peak Output SSB, AM, PM and CW**
- **Multiband Operation** using plug-in coils.

Choice of grey table model, grey or black wrinkle finish rack model. With coils for one band.

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QT-1 ANTI-TRIP UNIT

Perfected Voice Operated Break-in with loudspeaker. Prevents loud signals, heterodynes and static from tripping the voice break-in circuit. All electronic — no relays. Plugs into socket inside 20A or 10B Exciter.

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Plug-in IF stage — used with Slicer, allows receiver to be switched back to normal.

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Plug-in prealigned 90° phase shift network and socket available separately for use with GE Signal Slicer and SSB Jr..... **$8.95**

WRITE FOR LITERATURE

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Central Electronics, Inc.

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Watch For Early Announcement Of The New DeLuxe MULTIPHASE VFO.

hostess. A PE103, the door prize, donated by MARS of the Mountain Home AFB, was won by MKS of Meridian. The Elmore County Amateur Radio Club sponsored the affair. Traffic: W7NLJ 42, RSP 24, RQG 20, WN7VWS 4.

MONTANA — SCM, Edward G. Brown, W7KGJ — SFK, TGU, and THH have been operating portable from Glacier since June. SFK made BPL in 15 days of operating and by the end of the month had rolled up a traffic total of 702. JRG has been doing some good work on 6 meters with his operating time limited. Ken still was able to work 22 6-meter stations. Ken also is on 144 Mc. and is busy building gear for 432-Mc. work. Your SCM wishes to thank everyone for the wonderful help that was given him while he was holding the office and sure hopes that he might have the honor of being SCM again sometime. His only regrets were that more hams were not met personally and that operating conditions the last couple of years curtailed operating interest slightly. Let's help our new SCM make Montana amateur operating more interesting. Some of the things that would help the SCM a lot would be to send in our news and operating reports, get into the emergency or traffic nets, honor our appointments, and bring out all ideas that might be helpful. Traffic: W7SFK 702, TKB 56, FIS 14.

OREGON — SCM, John M. Carroll, W7BUS — The convention at Klamath Falls was a huge success, as reported by LY representing the Navy. ESJ represented the SCM, who still is on crutches. Portland has approximately 1000 amateurs and could use at least one more active organization. OAP applied for membership in AREC. KL has given up hamming for golf and fishing for the summer. FY requested a new certificate as EC. SO was chairman for the Albany Club Field Day. AWI has Gold Beach for a new QTH. The Oregon Slow Net has a fine bulletin for all members. QFY represented the Army at the convention at Klamath Falls. The convention will be held in Portland in '55. LMM almost made the "Silent Keys" column by getting across the HV of the transmitter but recovered OK. OSN reports a total attendance for June of 167. The Cascade Net reports 292 check-ins, 18 traffic and 26 contacts. PRA is active in State Advance Control Center. WN7WER is the only YL in the Rogue Valley Radio Club. TBT and his XYL are recovering nicely after an automobile accident. TBT now has his General Class license. ROM sends 73 to all, as he is moving to New York for school and future service. RLG and RLH kept daily skeds with PFI/m while he was out of the State on an extended vacation. EDU is active in c.d. work. KTL and QLC are setting up a message center at their place of employment. Traffic: W7PRA 85, TBT 57, AJN 43, THX 31, PHJ 18, KTL 6, EDU 2.

WASHINGTON — SCM, Victor S. Gish, W7FIX. SEC: QZF. RM: OE. PAMs: EHH, PGY. ZU reports PRZ home on vacation from Cornell. The OM has him QRL building 'scope, modulator, and 160-meter rig. BTV is putting up new 20-meter beam. The NYLON Net (Northwest YL Operators' Net) meets 0900 PST Wed. on 3820 kc. TGO, on vacation from school, is building VFO and 50-watt mobile. JHX reports good progress on the TV transmitter. The Puget Sound 2-Meter Net meets at 2000 PST Mon. on 145.8 Mc. UQY submitted a nice OO report for his first month's work. AHV, ex-5AHV, is a new Seattle ham interested in traffic. Twenty-four appointments were cancelled June 30th because of no replies from two mail inquiries as to activity. WSN Channel B (1988 kc.) has been discontinued until Oct. 1st unless needed before that time because of poor conditions on the regular 3575-kc. channel. TMU, a new OES, wants skeds with Oregon stations on 6 meters. HKA received MTHC No. 37 and ORS appointment. APS is improving — this month's traffic report shows three times that which he handled 20 years ago. The Washington section is in need of many more ECs and Asst. ECs. Volunteers for these *important* appointments, drop a line to your SCM for details. Your reports must be received by the seventh of the month — that is the date this activity report MUST be mailed to Headquarters. Traffic: (June) W7BA 1686, OQW 367, HKA 345, FRU 323, APS 81, USO 79, HAK 76, AIB 46, ZU 36, FIX 27, GAT 25, TGO 24, EHH 22, MBY 5. (May) W7KT 540, USO 23, BG 8, AVM 4.

PACIFIC DIVISION

HAWAII — SCM, James E. Keefer, KH6KS — The 1954 Field Day brought forth all the KH6 clubs and several individual groups who put on a very active display. This should put KH6 pretty well on the map! Fellows, I regret missing the May report because of press of business, which makes it necessary for me to submit my resignation as SCM to be effective with this report. I earnestly plead with all of you who are ARRL members to seriously consider a suitable candidate for my replacement and to vote for him at the designated time! The following stations made BPL for the month of June: KA2AK, KA2FC, KA2GE, KH6USA, KA7SL, KA4DR, KA2HQ, KA3AC, and KA8AB. BPLs for May were KA2FC, KA7RC, and KA8AB. Late April BPLs reporting were KA8AB and KA7RC. 73 and Aloha. Traffic: (June) KA2FC 4504, KA3AC 1502, KA7SL 1267, KA8AB 1190, KA2HQ 994, KH6USA 837,

(*Continued on page 94*)

PROVEN PERFORMANCE ON

144-148 MEGACYCLES

FCDA APPROVED FOR MATCHING FUNDS

MODEL

CD-2 DOUBLE CONVERSION RECEIVER

Designed for Continuous Duty.

27 watt input - 17 watt output

The CD-2 is a combined 2 meter crystal controlled transmitter and double conversion super hetrodyne receiver. It is designed for CD fixed and emergency operations, and is engineered to meet all the rigid specifications of the FCDA. The CD-2 is a rugged, quality constructed unit, dependable for the serious work of CD — ideal for just pleasant QSO'ing on two. Compare these fine outstanding features . . .

- **110 VAC AND 6 VDC OPERATION**
- **RCVR SENSITIVITY: 0.5 MICROVOLTS**
- **IMAGE REJECTION: 60 db**
- **HARMONIC SUPPRESSION: 60 db**
- **8 CRYSTAL CHANNELS**
- **NO MULTIPLIER TUNING REQ. (FACTORY SET)**
- **6252/AX9910 P.P. FINAL**
- **PLATE MODULATED**
- **ANTENNA INPED.: 32 - 72 OHMS**
- **PROVISIONS FOR COMPLETE REMOTE CONTROL**
- **PUSH-TO-TALK OPERATION**
- **AVAILABLE FOR 6 METERS (CD-6)**

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KA4DR 753, KA2GE 714, KA2AK 510, KH6FAA 383, KH6AJF 262. (May) KA2FC 5076, KA8AB 3069, KA7RC 932, KH6FAA 333, KH6AJF 194. (Apr.) KA8AB 1269, KA7RC 1083.

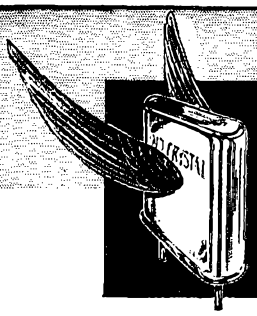
NEVADA — SCM, Ray T. Warner, W7JU — ECs: KOA, LGS, NRU, TJY, and ZT. OPS: JUO. ORSs: MVP, VIU. VDC, operating K7FDB, Stead Field, continues to be Nevada's most active traffic station with a total message count of 1122. Congratulations, Al. VYC, WN7VIQ, and WN7VIP are all new stations in Henderson. PRM has a new Commander transmitter for mobile work and is experimenting with antennas. VIU made 133 contacts while portable on Field Day. OBW, of Las Vegas, again is active after spending several months in the South Pacific. JU has a new Elmac mobile receiver and is all-band mobile 10 to 80 meters. Traffic: K7FDB 1122, W7JU 14, VIU 8.

SANTA CLARA VALLEY — SCM, Roy I. Couzin, W6LZL — At this writing your SCM has just been released from the hospital. K6BBD, of Santa Clara, has been appointed Asst. SCM to help out in such emergencies and insure a report in this column. Soon I hope to have an Asst. SCM in each county of the section to help facilitate League activities and take some of the load off your SCM, also to get closer with the groups meeting in the various areas of the section. Field Day has come and gone and I hope it was a memorable occasion. NUI was chairman of the San Mateo group at the Piumbo Quarry. JWD was chairman of the Palo Alto group up in the Saratoga Hills. UTV was chairman of the SCCARA group on top of Mt. Hamilton. K6AQM was chairman of the Mt. View group which stayed close to town. The South S.F. group operated next to the S.F. Bay, as they did last year. K6BBD now is bike mobile with one-half watt. JWD reports that a local 144-Mc. hidden transmitter hunt for the Palo Alto Net meets the approval of the gang. WLI moved the shack to a new room in the QTH and is almost back in swing. EXX has new 144-Mc. transmitter and receiver finished for portable or mobile. WMM is not completely settled yet. He has only one end of the long wire up in a redwood tree. Activity is restricted to 144 Mc. The Mountain View Radio Club has started a radio theory class which meets every Thurs. 7 to 9 P.M. at the Mountain View Police Station, 947 Villa St. K6DUD is instructor. Everybody is welcome; the only requirement is an interest in ham radio. Instruction is pointed toward the General Class exam. Traffic: W6UTV 96, K6BBD 29, W6WLI 12.

EAST BAY — SCM, Guy Black, W6RLB — Asst. SCMs: Harry Cameron, 6RVC, and Oliver Nelson, 6MXQ. SEC: WGM. RMs: IPW, JOH. PAM: LL. ECs: AKB, CAN, CX, FLT, NNS, QDE, TCU, and ZZF. This is the period when ham radio is traditionally slack — although it looks like the summer of 1954 will be an active one for v.h.f. men. But this column will appear at the beginning of the traditionally busy period of the year. It's a good time, therefore, to write down a few basic points. First, to be useful this column must have news from all groups and persons. Please don't be bashful or wait for recognition to seek you out. Don't wait for something big and important either. Anything you would write in a letter to a friend is fine for this column. Why can't every club appoint someone to pass on the news? Another point, *there is a place for the AREC even when civil defense is active.* The "honorary" ECs ought to resign, and the fellows in each town ought to help SEC Jay Amaro find one who will be active. We can help you develop your AREC organization consistent with c.d. and RACES. AREC does not require you to be mobile. Fixed stations with emergency power are extremely valuable. Why not sign up as a supporting member, even if you cannot take an active part more than once or twice a year? Because of the slowness of the Oakland TVI committee, the FCC has started sending complaints direct to the amateurs although they feel that it would be far more effective if the committee handled the entire situation. Oakland hams are likely to have more trouble with TVI complaints than those in any other part of the Bay Area, as their committee is not operating too successfully. Mac, the present committee chairman has done a marvelous job for years, but the pressure of business is too much. Those fellows who have worked with him deserve congratulations. But Mac feels he is handicapped by not being a ham himself, and that a new amateur chairman should take over. I sure hope the Oakland gang will rally behind the new chairman. Lastly, a lot of the gang who handle traffic, especially by 'phone, never send in traffic reports. Again, don't be bashful. Ask for a bunch of reporting cards, addressed and stamped, next time you write to your SCM. Traffic: K6FDG 2034, W6IPW 237, K6WAY 189, BDF 158, W6QPY 87, HBF 31, YDI 13, EJA 11, KZD/6 1, LUF/6 1, OT/6 1.

SAN FRANCISCO — SCM, Walter A. Buckley, W6GGC — EC: NL. The SFRC held an Old-Timers Night at its June Meeting. AHH took over for GGC, who was at Coyote for the Mission Trail Roundup. Many of the "Spark Day Boys" showed up with old-time radio gear and each gave a short talk on "way back when" days. An "Old-Timers Night" will be held once a year at the request of all the gang. The SCRA had a very able repre-

(*Continued on page 96*)



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.01% TOLERANCE—Crystals are all of the plated, hermetically sealed type and calibrated to .01% or better of the specified frequency when operated into a 32 mmf load capacitance.

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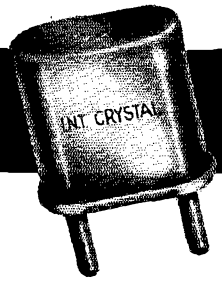

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TYPE FA-9

(fits same socket as FT-243)

RANGE (kc)	TOLERANCE	PRICE
3500-4000	.01%	$2.80
7000-7425 8000-8222	.01%	$2.80
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sentative at the San Jose Convention in LOU. The SFNSYC held its meeting with the discussion of the annual picnic being held in August. The Tamalpais Radio Club still is looking for a permanent meeting place for monthly club meetings. The 29ers showed up at San Jose Convention with 18 mobiles going out on a 10-meter hidden transmitter hunt. The Mobileers, local Bay Area 75-meter mobile gang, held its semi-monthly breakfast at the San Jose De Anza Hotel with 79 members attending. No report was received from the Humboldt Club this month. QMO, president of the San Francisco branch of the YLs, took over the meeting at the convention at the request of CEE, Vada Letcher, president of the YLRC. The CCRC was host to George Hart at the regular June meeting which was held at Albany. The John O'Connell Radio Club held Field Day at Diamond Heights. A teacher at the school who camped out with the boys said they did real good and learned a lot of real hamming on the trip. The Mission Trail Net held a breakfast at the St. Claire Hotel during the convention with most of the Bay Area check-ins attending. The AREC is busy on the air every Sun. A.M. with more calls adding to the list each week. The San Francisco Section Net also is adding calls to its 2-meter c.d. check-in list each Mon. night under the able direction of NL. EJY lost all four hub caps on his new Oldsmobile while at the recent convention. Congratulations to JZ, HC, FON, and WGO on the wonderful activities program they had at the San Jose Convention. Congratulations to SWP, PHT, QMO, and K6FCT on their BPL traffic totals for the month of June. ATO reports that PHS, Charles Bey, is a recent addition to the TVI Committee. GQA made a fine score of 2.9 parts per million on the May Frequency Measuring Test. Both PHT and QMO report fine outlets for Alaskan traffic. QMO reports a good outlet for Navy traffic. PHT reports a fine outlet for traffic to Japan, Oregon, and the East. K6FCT was off the air for two weeks while overhauling the maintenance shop. GCV's 30-kc. generator did a good job for the SFRC on Field Day, 30 hours without a stop. The following clubs had good turnouts for Field Day activities: HAMS, Mt. Rose; SFRC, McLaren Park; SFNSYRC, Windy Hill at KRON TV station; 29ers, Mt. Davidson; QRM (O'Connell School Club), Mt. Diamond Heights. The YKRC8F has a new call in its ranks, KN6GDC, Eva Hilt. She built her own Heathkit transmitter. Congratulations to HST, who married Lillian Blackburn on May 28th. We enjoyed meeting in person ØTSN and George Hart, National Emergency Coördinator. Traffic: W6SWP 1140, PHT 778, K6FCT 740, W6QMO 520, GGC 50, MWF 34, ATO 6, GQA 3.

SACRAMENTO VALLEY — SCM, Harold L. Lucero, W6JDN — Well, fellows, this month's report will be short so bear with me. GDO, our expert from Sacramento, came in second in the hidden mobile hunt on 75 meters. Great, Jay. Betty, REF, is high with traffic. SBH, of Redbluff, is doing a wonderful job as Official Bulletin Station. George Hart, of ARRL Headquarters, paid the Sacramento and the Redding Clubs a visit and explained the National Traffic System and emergency operation of amateur stations. The ARRL President attended the Division Convention and during this Convention gave the honor to ASE. In other words, Dos collected $4 from Roy for the next year's subscription of *QST*. Quite a number of the Sacramento Valley section members attended the Convention in San Jose. Wish more could have as it was really worth while. We have a very fine film from Headquarters and hope to show it as soon as possible to the various clubs in the Sacramento Valley section. Traffic seems to be quite low, but this probably is because of the vacation period. With the coming months it should pick up, especially after the talk by George Hart. Well, gang, this is the smallest so far and hope to do better in the coming months. Fellows, I am leaving it up to you for more appointments in the section. Traffic: W6REF 687, JDN 6.

SAN JOAQUIN VALLEY — SCM, Edward L. Bewley, W6GIW — SEC: KRO. RM: OPU. PAMs: ZRJ, WJF. The main activity in June was Field Day. From the reports I have received so far, this year was a little better than last year. We know of five groups in the section that participated, and I am sure there were some who did not send in reports. Most groups found that 40 dropped below last year, but 75 and 80 meters more than made up for it. In spite of poor conditions, all participating groups are finding that better organizing, improved equipment, and experience are giving better results each year. We have word that KRO is moving from this section. He has recommended EBL to replace him as SEC. We hate to lose KRO, but he has to go where his work is. Many thanks, Bill, for the good work as SEC. The Merced group, with the aid of ZRJ, EC, is getting well organized for c.d. work. A local emergency test on June 4th proved a big success. K6DUU, ex-6CIB, will be on the air soon with a Viking. Our former SCM, who moved to the East, is now settled in Belmont and has his old call, 6FYM. Howard soon will have his gear set up and on the air. The American Legion Net picnic at Visalia was attended by 75 people. Hams from this section were ARE, FEA, GCS, GEV, GRO, IEM, KMY, NGR, SJJ, SNF, WJF, and WUD. New officers of the Turlock Club are GYN, pres.; GIW, vice-pres.; ERE, secy.; K6CNT, sgt.

(Continued on page 98)

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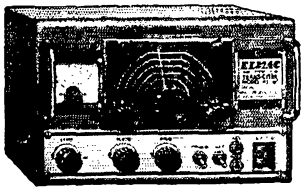

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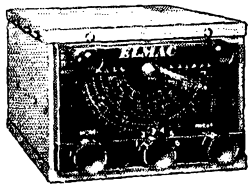

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ROANOKE DIVISION

NORTH CAROLINA — SCM, J. C. Geaslen, W4DLX — Report consolidated by ARRL Headquarters pending receipt of SCM nominating petitions called for on page 68, Aug. *QST*. Lumberton: SOD is our EC, OO, and OES. As a result of recent code classes we now have new hams (Novices) GIJ, GIM, GHR, GNQ, and HAY. A new class is to begin as soon as a meeting place is obtained. Ed Howell, of WTSB, who conducted classes, is glad to administer FCC code and written tests to all who are ready. TMY has a new Globe Scout. ZQZ has opened a TV shop. VOX (Tar Heel NC) sports a new Hudson "Jet." DCD (Raeford) is resting up after NCNG encampment. Charlotte: YPY has a new Globe Scout and is completing a five-element wide-spaced 10-meter beam. He's on the Tar Heel Emergency Net, 3865 kc. AH, on 20 meters, has a 38-ft. guyed tower above 61 ft. of self-supporting tower for his four-element rotary. Traffic: W4YPY 2.

SOUTH CAROLINA — SCM, T. Hunter Wood, W4ANK — Reports from ECs indicate that Field Day activity was high this year with the following club groups reporting with operators as follows: Aiken 8, Pickens County 6, Columbia, Greenville 8, Charleston 6, Spartanburg 13, Rock Hill 5. DX operated mobile on Field Day. MVX has cleared up his antenna trouble and will be on the air again soon. FM has his 304TL back in service and says it heats up his shack. AUL reports that TSU is installing 300-watt mobile, that LLH will be mobile soon, and that RXJ has left Florence for Nashville, Tenn. UFP reports that wedding bells rang for UFP and UNO on July 18th. PED is back on the air with 30 watts fixed and mobile after a long absence. AKC, former RM for North Carolina and present manager of the Fourth Region Net, has moved to Rock Hill and already is moving traffic from his new location. With AKC in the section ANK no longer can boast of being the only one in South Carolina to make BPL. Traffic: W4AKC 250, ANK 114, HDR 40, FM 5, TTG 3.

VIRGINIA — SCM, John Carl Morgan, W4KX — We know definitely of the following Field Day set-ups: ATQ/4, KEK/4, KQZ/4, PAY/4, RSS/4, LW/4, MK/4, RKC/8, UWS/4, WNZ/4. OOs IYC and PWX made nice showings in the May F.M.T. From the sound of things the Virginia gang was in there pitching during the c.d. dry run. A new traffic net is functioning, the Old Dominion Net, 3845 kc., Mon. through Fri. at 1300 EST. Net Manager is TFZ, who now has PAM appointment. New OPSs are CKI, DWP, TVO, and UBC. New OBS is OLD. TVO is doing a fine job as VFN Manager. We'll miss VMF, who is moving to Florida, and BGP, who is being transferred to Germany. ØJHY/4 reports from Norfolk, where he is at Navy Radio School. Reports of "summer-style" operation: CKI and his XYL, DWP, operate from their summer cabin; YZC plans to be on /4 from North Carolina. VPU says the thermometer pushed him out of the shack to 10-meter mobile. There are scads of mobiles to be heard almost any day on the VFN frequency, 3835 kc. BLR claims she's cut operating time in half, but still manages to be heard on plenty of nets and skeds, as well as helping ZFF. ZVE's 16-year-old daughter passed her Gen. Class exam. Ex-IJK now is 8REL in Ohio. TCK and WWM both passed out blue-banded "seegars." TCK now is in new wigwam and is planning to get the new 813 rig on the air. JUJ and BZE say they must concentrate activity during CD, SS, etc. ZFV is concentrating on v.h.f. experimenting. ZYV says he overcame bashfulness and dove into traffic handling, despite his 25 watts. We can use more traffic men, and gals too, especially on c.w. nets. A big windstorm forced KX to climb trees and the roof to replace the big transmitting antenna, as well as the TV array. Traffic: (June) W4FV 430, K4WAG 139, W4BLR 65, YVG 54, TFZ 50, BGP 35, DWP 26, LW 21, KX 20, TYC 20, TVO 13, OWV 12, IF 7, ZYV 7, CKI 4, YZC 3. (May) W4TYC 39, CFV 23, LW 5.

WEST VIRGINIA — SCM, Albert H. Hix, W8PQQ — SEC: YPR. PAM: FGL. RMs: AUJ, DFC, GBF, and HZA. Congrats to GBF on excellent results in the May Frequency Measuring Test. The Princeton Club is to be congratulated on the fine ham picnic which they sponsored recently. The turn-out was excellent. NYH has new mobile set-up operating very well. PNR has new antenna for 75 meters which does a bang-up job. The Huntington Club is making good progress with its 50-Mc. C.D. Net. BWX is home from M.I.T. and is working at WSAZ-TV. NII and GIO are new AREC members. ATF and IJM moved to Weston. VPO and HLF now are located in Virginia. They got their same calls with the W4 prefix. The c.w. net is to be congratulated on doing such a good job in its traffic work this season. They will continue three nights per week through the summer months. PRT has a fine mobile set-up. IWB was elected president of the Tri-City Club with LGB as secretary and ETF as vice-president. BKI is planning on high power for 2-meter operation. He is doing very well in out-of-state contacts on that band. IRN has new Ranger and 40-meter vertical. LSG has new 75A-3 receiver. Thanks

(*Continued on page 100*)

to the West Virginia hams who participated in the last c.d. test. Traffic: (June) W8AUJ 350, GEP 98, NYH 49, GGC 48, MBA 43, HZA 26, ISB 24, KDQ 14, PQQ 5. FUM 2. (May) W8AUJ 274.

ROCKY MOUNTAIN DIVISION

COLORADO — SCM, Karl Brueggeman, WØCDX — SEC: MMT. KØWBN will conduct Novice and General Class theory and code classes starting Sept. 21, 1954. All interested in details call Les at Empire 6-5322 Ext. 610, Fitzimmons General Hospital. The Convention was a success with over 200 registrations. We all want to thank the Denver Radio Club and those who helped for a real fine job. WLN and WRO received distinguished service plaques for their unstinting work on behalf of the Convention. IUF has moved to Pueblo. KHQ has been QRL around the house and has turned in a large goose egg for June traffic. RTA has 18 regular traffic skeds and made BPL. THZ is on 80-meter c.w. with a new home-brew rig. DRY has an SCR-284 at home for c.d. AGU has a new 2-watt mobile. A new net has been formed called the Hi-Noon Net. It meets at 12 noon every week day on 3945 kc. Don't forget the Coffee Club that meets on 3985 kc. every morning from 0600 to 0730. Last winter the net did some very fine work dispatching Santa Fe trains when the lines went down. The net covers Colorado, California, Arizona, New Mexico, Oklahoma, and Kansas. The last c.d. drill turned out very well with all mutual aid areas in operation. MMT has been doing a fine job and has gotten ECs for all the areas. New ones are DBG, Greeley; RQC, Craig; and SFS, Brush. Traffic: KØFAU 1620, WBN 1215, FAM 672, WBB 655, WØRTA 608, BWJ 16, IA 9, AGU 7.

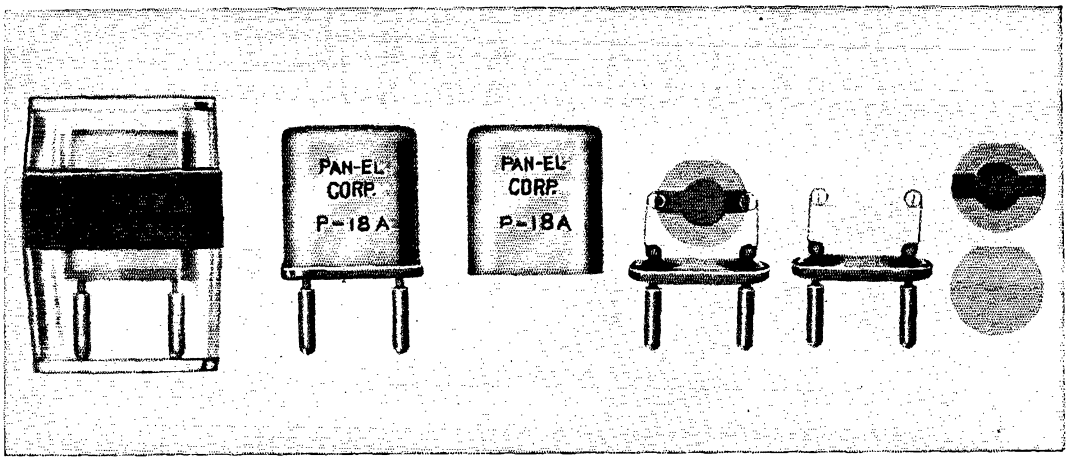
UTAH — SCM, Floyd L. Hinshaw, W7UTM — Three Field Day groups report activity in Utah this year. The Ogden Club had twenty operators for the first spot, with the Kaysville and Salt Lake City groups tossing for second spot. The Ogden group operated from Snow Basin and used two transmitters. The Kaysville group operated from Bountiful Peak, 9500 feet high, with two transmitters. The Salt Lake City group operated from Murray Park, also with two transmitters. SCM messages were received from the Ogden and Kaysville groups. JPN is on vacation in the East. SP now has his 2-meter transmitter going and is looking for contacts. "Operation Alert" appeared satisfactory from the standpoint of liaison to regional headquarters and also for state coverage. More power is needed at the control station, but good assistance was given in the test by TCC, BSE, GPN, TMK, ZN, LBZ, MQO, and RCP. Traffic: (June) W7UTM 23, QDJ 5. (May) W7TMK 68, QDJ 5.

SOUTHEASTERN DIVISION

ALABAMA — SCM, Joe A. Shannon, W4MI — SEC: ISD, RM: KIX. PAM: RNX. New appointments in the section are WOG as ORS and 5ONL/4 as EC for Auburn. Three clubs report election of new officers: Birmingham — DFE, pres.; YXX, 1st vice-pres.; KRL, 2nd vice-pres.; KNW, secy.-treas.; WLM, rec. secy. Anniston — SUF, pres.; PJB, secy.; and GBP, treas. Huntsville — WOH, pres.; RQS, vice-pres.; HFF, secy.-treas.; WOF, asst. secy.-treas.; TKL, activities; and NKX, training. Just a reminder — AENB (c.w.) Net meets daily at 1900 on 3575 kc. AENP ('phone) meets daily at 1830 on 3955 kc., and on Sun. mornings at 0800. AENR (Birmingham emergency) Net meets Thurs. at 1900 and Sun. at 1300 on 29,560 kc. AENR reports that 170 stations reported in during June with three new members: YXX, FZE, and YYH. OAO is back on 75 meters from new QTH in Anniston. WOG is working DX with new folded dipole while TXO continues his building. He has finished two crystal-controlled converters for 75 meters which work! USM is now meeting UTL. Traffic: W4WOG 104, KIX 75, TXO 53, USM 52, RNX 46, EJZ 39, BJL 32, EBD 29, DXB 26, TKL 25, AZX 22, VIY 13. (May) W4ZRQ 65, UHA 58, YAI 46, USM 42, BJL 21, BFM 13.

EASTERN FLORIDA — SCM, John W. Hollister, jr., W4FWZ — Typical of AREC in c.d. "Operation Alert" was Dade Emergency Net as reported by PBS. DEN had 5 mobiles going. Operators included IYT, PSB, and BSX. The K. of Kc. held its 1000th meeting with WS (charter member) in charge. About 72 stations were in on it. PUW is new MO and PNA is secy. RWM did a swell job during his tenure as MO. Now is the time to plan on getting into the c.w. traffic nets. See DVR on 3675 kc. 407 OK, write IYT. Alternate NCSs are needed. Bradenton: TAS says the club has permanent quarters in an unused school! Clearwater: AYX reports RACES activity. Daytona: RWM reports the c.d. station being enlarged. Deland: RVU is using a Heathkit on 80 and 40 meters. Englewood: ETI is using VP 20-meter beam. Ft. Lauderdale: MVR reports an FB plan for communications for the Gold Coast Marathon. Key stations will include MVR, SDI/NJM, RID, LFL, KGJ, PPR, HAW, VTJ, TH, and the Flamingo Net. JVF reports a large turnout for the c.d. test. IM, our SEC, says he is really proud of the AREC. Gainesville: TJU reports a West Florida station is needed in the Tropical

(*Continued on page 102*)



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Net, that ZQL is ANCS, that TKE moved up from St. Petersburg (on 50/144 Mc!), that OEX built cascode 144-Mc. converter for the club, and that WEG has gone to J-Land. Holly Hill: AYD says he has a new 20-meter beam, and that DKY is on 20-meter mobile. Jacksonville: GXZ is the XYL of COW. MARS c.w. frequency is 3347 kc. Field Day was held at the lake cottage of RTJ with UHY, NKC, RJE, UHE, HKR, QCJ, ZJ, ATM, EEW, WEF, ZBE, BCF, BXT, and others. UHE reports 135 messages handled on special Armed Services Day booth. Key West: ZUS is using Elmac AF-67/PMR-6A. Miami: DEN is getting QSLs for members from PAA. PBS reports nice 144-Mc. activity including UIW, GGO, IPW, CJT, and KQG. IYT reports plans for a Tri-County AREC drill for RC. Club officers are AZO, IEH, WYR, and QLC. IYT reports 106 AREC members! Okeechobee: PZT reports VBM using Elmac mobile. St. Petersburg: From the clippings sent often by EYI, I think St. Petersburg is the publicity champ. Traffic: W4DRD 207, PZT 114, LMT 71, WEO 62, IM 55. TJU 44, IYT 38, RWM 25, WS 21, LAP 17, AYD 16, PBS 15, FWZ 11, DES 2, ZUS 2, YNM 1.

WESTERN FLORIDA — SCM, Edward J. Collins, W4MS/RE — SEC: PLE. PLE sends in an excellent report of AREC activity at Eglin Field. CCY donated an HRO to the Pensy Club station. UCY is happy now that 10 meters is open more often. BGG now has General Class license. The newest ham in this area is WN4GMS. YFF, YFG, DUB, HIZ, UW, ZFL, CGX, and MS took part in the c.d. exercise. HJA has an FB new mobile antenna system. EQR is listening on 6 meters again. DAO/DEF is busy with 75 meters. MUX is editor of PARC *Ham News*. YRF is taking over the problem of obtaining the Pensacola High School Radio Club station license. NJB is getting set up in a new shack. RKH is giving 10 meters a whirl again. VR is 100 per cent 7-Mc. c.w. AXP runs him a close second. QK is reworking the mobile gear for AREC work. UUF is looking for a better 144-Mc. antenna system. UC and FDL promise about six new hams in the section from down at the store. UTB/VCB are on 20 meters as KA2NS. SOQ has completed the shack. 1REV/4 keeps the "V" beam going week ends. PTK/TTM made the Mobile Hamfest. ROM has been busy trading gear. BFD works 75 meters late at night because of working hours. SZH has left for VP7-Land. NOX/NYZ won a 4-250A at the hamfest. Please get in touch with PLE or ACB if interested in c.d. work. Traffic: W4MS 9.

GEORGIA — SCM, George W. Parker, W4NS — SEC: OPE. PAM: LXE. RM: MTS. Nets: Georgia Cracker Net meets on 3995 kc. at 0830 Sun. and 1900 Tue. and Thurs.; Mobile Round-up Sun. at 1300. New beams are sprouting all over the Atlanta Area. DMO has a new 10-over-20, ORI has a new three-element for 20 Telrex. ZUF is building a three-element 10. WUB, from Mississippi, was a guest of ZD. PMJ is back in Atlanta. Recent openings on 6 meters still failed to provide those last two states for FBH; he is still looking for Utah and Montana. IPL has a new mobile rig, Elmac throughout. NS is building a new mobile. GZA is a new ham at Ft. McPherson. LNG has completed a pair of 4-125As for a kw. on 2 meters. WN4FED is new in Danville and active on 80 meters. WN4DJP is new in Cedartown. The Cedar Valley Club participated in its first Field Day. ARH now is active on 40-meter c.w. OCG is off the air because of illness but will be back soon. WN4BXV needs one more for a WAS. Summer QRN has brought a dearth of reports to your SCM. Don't forget that your appointment carries with it the obligation to send in a monthly report. Appointments are available as OO, OBS, OPS, and ORS. We also need additional ECs. Contact the SCM or the new SEC, U.B. Abbott, OPE, 839 McMillan N.W., Atlanta. Traffic: (June) K4WAR 2790, W4IMQ 139, K4WBP 109, W4OCG 54, HYW 32, CAZ 30, NS 20, ARH 15, MA 14, WN4FED 12, WN4BXV 2. (May) W4MTS 28.

WEST INDIES — SCM, William Werner, KP4DJ — SEC: HZ. On June 14th-15th c.d. "Operation Alert" amateur stations were set up at Red Cross, San Juan; City Hall, Rio Piedras; police station, Puerto Nuevo; and c.d. control at Gurabo. PW, PD, DJ, CY, MV, HZ, MC, RC, LI, RK, and USA were at these stations, while ES, Ponce, and FAC, Ramey AFB, handled traffic to FCDA in Washington. QM provided real emergency traffic from Mayaguez to Red Cross, San Juan, when a flood threatened Mayaguez. PZ at Ensenada sent c.d. traffic to Gurabo. The PRARC held Field Day at San Martin using three Viking IIs and three 75A-3 receivers. TO, RC, RM, DJ YM, MV, TF, AZ, WU, ZL, WN, UW, ZU, ZR, TZ, VB, SK, PW, and KR6MD were present. TO is overhauling the 500-watt emergency power plant of KP4ID, the Club station. TO's XYL received General Class license and the call ZR. PD received Rag Chewers Club certificate. RK is now an ORS. DV's frequency measuring skill is .0005 per cent or 3 cycles of error on 7-Mc. measurement. CO3RC wrote regarding the Cuban Emergency Net, of which he is the NCS. Arrangements have been made for the exchange of daily weather information between Cuba and Puerto Rico during the hurricane season. Cuban stations participating are CM1EC, Prov. of Pinar del Rio; CO2CH,

(*Continued on page 104*)

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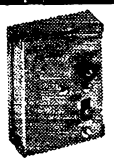

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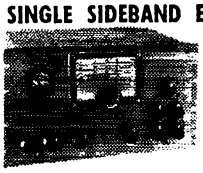

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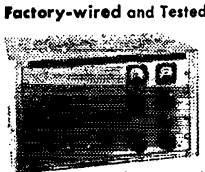

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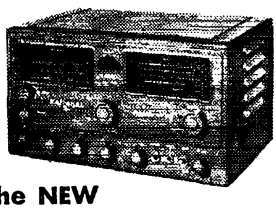
Factory Wired and Tested..... **479.95**

Anywhere in The World
ORDER BY MAIL DIRECT FROM HARVEY
Your Order Is Shipped The Same Day It Is Received.

NOTE: Prices Net, F.O.B., N. Y. C.
Subject to change without notice



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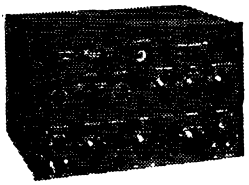
NATIONAL
NC-98 RECEIVER

An outstanding, sensitive receiver of advanced circuitry. Covers from 550 kc to 40 mc. Special features include: Crystal Filter . . . 'S' Meter . . . Accessory Socket . . . Calibrated Electrical Bandspread on either Amateur or SWL Bands . . . 1 RF Stage . . . 2 IF Stages . . . Slide Rule Dials . . . Antenna Trimmer . . . Noise Limiter . . . Provision for Narrow Band Adapter . . . Separate HF oscillator.

Complete with Tubes, built-in Power Supply *(less speaker)*..... **$149.95**
Speaker in matching cabinet..... **11.00**



New CENTRAL ELECTRONICS
Model 20 A Multiphase Bandswitching SSB Exciter

Has new performance features, plus the proven characteristics of the popular Model 10A. 20 watts peak output — SSB, AM, PM, CW..... **$249.50**
In Kit Form..... **199.50**

MULTIPHASE EXCITER 10B—10 watts peak output—SSB, AM, PM, CW. **179.50**
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SIDEBAND SLICER—An SSB adapter that will improve any receiver..... **74.50**

Write for HARVEY'S NEW HAM CATALOG

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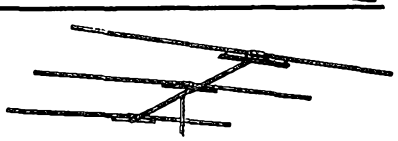

ROTARY SHORTBEAM

A completely weatherproofed, durable miniature beam for top 20-meter performance with elements individually factory adjusted and pre-set to middle of phone band.

Features Include:

- Elements: 16 feet from tip to tip.
- Boom: 16 feet with 1½" end sections, and 1⅝" center section.
- Special alloy T for mast-to-boom installation—tensile strength exceeds 35,000 lbs.
- Coil Assemblies: #12 Formvar wire on laminated bakelite forms and shields — with aluminum coil ends.
- Furnished with 18" length of 1¼" mast-extension pipe.
- Front-to-Back Ratio better than 20db. • Designed for 52 ohm coax.
- SWR 1:1 at 14,250 kc—1.3:1 at 14,200 and 14,300 kc.
- Spacing—Director: .1 wavelength, Reflector: .15 wavelength.
- Turns with TV rotator. • 61ST Aluminum used throughout.

Complete and ready for one-man installation..... **$59.95**

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HARVEY is known the world over . . . wherever Hams operate . . . as a reliable source for Ham Equipment . . . assuring fast service and prompt deliveries.

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Prov. of Havana; CO5PN, Prov. of Matanzas; CO6ED, Prov. of Santa Clara; CO7KK, Prov. of Camaguey; CO8DL, Prov. of Oriente. Cuban National Net frequencies are 7020 and 3750 kc. P.R. Emergency Net frequencies are 7205 and 3925 kc. The first three-letter call in P.R. we have heard is WP4AAB, Rio Piedras. WP4WS and WP4WF are regular visitors to NCS KP4ID on Wed. VP2KM and son, VP2KG, spent several days in KP4-Land. The Antilles Net schedule has been changed to 7 A.M. and 6:30 P.M. on 3865 kc. Members of the South Puerto Rico Amateur RC are purchasing six 2-meter Gonset Communicators for local network. WP4WS also will have one in San Juan. The most active mobile on all bands is WU/KP4. FI improved modulation by replacing 810s. Traffic: KP4HZ/KP4 80, RK 66, ID 51, PD/KP4 43, USA 4, ES 3, VC 2, OA 1, PZ 1, QM 1.

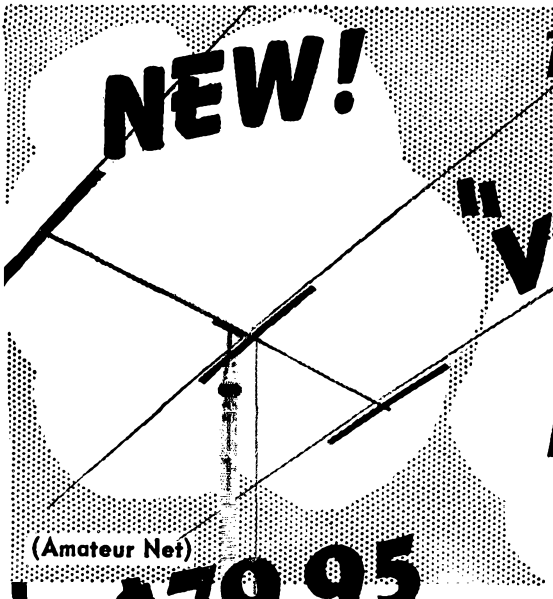
SOUTHWESTERN DIVISION

LOS ANGELES — SCM, Howard C. Bellman, W6YVJ — SEC: QJW. RMs: BHG, GJP. PAM: PIB. At this writing messages have been received from Field Day entrants RSU, TOI, YQQ, ROJ, ZAT, CG, MSO, QV, LDR, EKK, VIF, LS, K6FCZ, CEF, CLZ, and KN6EKY. We learned that CIX, a non-Observer, qualified in the May F.M.T. as Class I. HJK worked his first country across the Atlantic, Sweden. He reports that the Teen-Age Cactus Net, 7270 kc., meets at 1300 PDT Mon. through Fri. during the summer. Congratulations on becoming a certified member of LSN, Len. ZDO, who was one of the few on 420 Mc. on Field Day, reports he heard Yuma Airport on 433 Mc. for a half-hour on each of three nights in early July. Carle lives in Canoga Park. MLZ has sent out invitations to those interested to join with him in forming the Southern California Electronics Interference Committee, at the suggestion of the local FCC office. The purpose will be to make available "relief or counsel to anyone confronted with an interference problem." I am joining; hope we can enlist the aid of many others. NCP respectfully reports the passing of the Whittier Police Chief who, Ira points out, was a good friend of ham radio. Mr. Smith was made an honorary member of the Whittier "50" Club. The American Legion Radio Net had its annual picnic at Visalia June 7th, the fourth one, says PIB. In June our section was graced by the presence of 1NJM, George Hart, of Headquarters. Our SEC, QJW, tells of 160 meters showing 14 new stations, including Howard himself. Naval Air Missile Test Station, K6CST, is on the air with 500 watts in a BC-610 and 600 watts from a T350XM 'phone and 800 watts c.w. JGS sent this in and claims the station regularly checks in MCAN-4. Roxanna Griggs, the XYL of KW, Southwestern Division Director, is on her own now with the call KN6ELO. UED, of Eagle Rock Radio Club (teen-age style), reports 9 members of the Club operated at QV on Field Day. K6BEQ wants to know how to find the name of the telephone operator who announces the time on the record. He needs her name for his log. JJU, of Sunland, told me "Only activity at present is 20-meter s.s.b. 'phone-patch traffic from Far East and Europe." In a telephone conversation with Jerry, I learned he practically owns 20 meters. Boy, what a staunch s.s.b. advocate! NJU says that K6BAG, the Pacifico Club, bit off over 10,000 points in Field Day. MBA reports So. California DX Club's new officers are YY, pres.; NZW, vice-pres.; MBA secy.; GFE, treas. Traffic: (June) K6FCY 782, W6GJP 684, USY 328, LDR 300, HJK 107, K6EA 70, W6BHG 58, FMG 48, MBA 38, ORS 35, UED 18, AM 8, NIE 7. (May) W6MBW 128, K6CST 111, W6HOW 99, LDR 38, MBA 23, PIB 18, FAI 4. (Apr.) W6MBW 301.

ARIZONA — SCM, Albert H. Steinbrecher, W7LVR — Asst. SCMs: Kenneth P. Cole, 7QZH; Dr. John A. Stewart, 7SX. SEC: OIF. PAM: KOY. Over 100 stations, representing 23 communities in Arizona, participated and handled over 185 messages during "Operation Birdwatch." IRX acted as NCS, with JYH located at field headquarters, and KOY and MAE as relay stations. It was a job well done. Civil defense "Operation Alert" was well covered throughout the State. However, your SCM received only one report, that from the Tucson Group, which handled 116 messages with the following stations participating: SPK, HUV, PLM, PEG, QHD, MQE, DRQ, LHD, LAD (EC), NYT, UCX, and VZJ. Field Day this year saw several groups scattered around the State: on Mt. Lemon, near Tucson, were QFQ, VIJ, JGZ working mostly c.w.; LAD, HUV, LHD, and LVR working 'phone; and TFG and 7 operators in town. SUI and one operator were at Coles Ranch; and OIF and 23 operators were on Mingus Mountain. We regret to report the passing of WN7UYB, Phil Pickins. New Novice: WFY. The OPRC elected PEG, pres.; NYT, vice-pres.; and LAD, secy.-treas. Appointees: Please send in activity reports. Traffic: W7KOY 79, SUI 64, IRX 28, RUX 10, LVR 5.

SAN DIEGO — SCM, Don Stansifer, W6LRU — Asst. SCMs: Tom Wells, 6EWU; Shelley Trotter, 6BAM; Dick Huddleston, 6DLN. SEC: VFT. ECs: BAO, BZC, DEY, DLN, FJH, HFQ, HRI, IBS, KSI, KUU, WYA. RM: ELQ. The San Diego County TVI Committee now has FAY as its head. All TVI complaints should go through P.O. Box 5227, San Diego. Congratulations to the 10-meter

(*Continued on page 106*)



NEW!

The MOSLEY original design "VEST POCKET" BEAM ANTENNAS

(Amateur Net)

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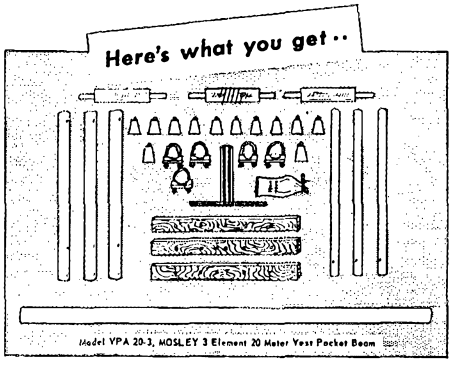
- **Pre-tuned!**
- **Ham Proved Performance!**
- **Quick Assembly!**

Model VPA 20-3

(OTHER MODELS LISTED BELOW)



The MOSLEY V–P Beam is complete ... ready to assemble in 30 minutes, or less, and mount on your rotor.

All parts designed for heavy duty. Aluminum element sections pre-cut, pre-drilled, pre-tuned – color coded! Husky 3" ceramic insulators! Varnished redwood element supports! All metallic hardware non-ferrous or plated! Aluminized steel rotor plate and stub mast! Sturdy, one-piece aluminum boom! Detailed, easy-to-follow assembly instructions!

VPA 20-2, *2 Element 20 Meter Beam.*
Amateur Net $55.95

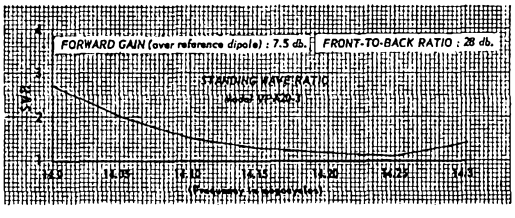
VPA 40-2, *2 Element 40 Meter Beam.*
(Price to be announced)
Write for full details

Here is the *Original Design* "Vest Pocket Beam" – the amazingly efficient miniaturized beam designed by WØVZC and WØQFG and described in May '54 QST.

It's the Beam so widely discussed and praised by Hams, the world over ... and it's available now, Factory Made and Factory Tuned; ready to give you more solid QSO's – more consistent DX!

Typical Performance Data

Performance figures achieved with production model VPA 20-3, 3 element beam, in typical house-top installation. Popular commercially built transmitter, receiver and test equipment was used.



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AREC group under WYA, the EC, who furnished communications with 22 mobile units at the 4th Torry Pines Sports Car Road Race. Those participating were 1KUH/6, 6AAY, K6AEI, AFP, APG, AWF, BPK, CBM, DXI, EZP, DGB, GIX, W6HBP, K6AWZ, W6PKV, WYA, ZUM, SK, QGQ, 4ENS/6, 9TWA/6, and 6UIU. K6DBG now is active on 144 Mc. BZE is back on 20-meter c.w. working DX after moving. His latest DX includes OD5AV and 7S4NX. JMD has left the area and will be active from Ohio as a W8. A new club, the North Shores Amateur Radio Club, was organized in June and elected the following officers: K6CMV, pres.; SKZ, vice-pres.; and SK, secy. From reports received all the clubs in the area enjoyed Field Day and a good time with much operating was experienced. Another new club, the Rohr Communicators, recently elected the following officers: UGG, pres.; KNV, vice-pres.; Van der-Hyden, secy. The Club is active 160 through 2 meters. DLN put in two weeks in the Navy after completing summer school at U.S.C. KNR finally has his 80-meter mobile going. Congratulations to IAB, whose traffic total for April topped the list for the country. The SCM welcomes news from clubs and individuals via the telephone, mail, or on the air prior to the 7th of each month. Traffic: W6ELQ 1010, IZG 575, K6KVB 159, DBG 18, W6CHV 3.

SANTA BARBARA — SCM, Vincent J. Haggerty, W6IOX — Emergency Coördinator KFM reports a fine turnout for the June 14th drill with 27 operators in attendance; eleven mobiles on 2 and 10 meters participated. An emergency power unit was in service at the control station. Three XYLs were in attendance at the drill. FYW reports the Paso Robles Club made 243 contacts during Field Day operations; BIY, BOZ, BRY, FYW, YCZ, MSW, TOP, MSG, OXJ, and KN6BZT took part. K6ASB reports that the Ventura County Radio Club made over 500 contacts with its Field Day set-up. K6NBI was the sole traffic reporter for the month. The Santa Barbara Amateur Radio Club reported by radio to the SCM from its operating base on La Cumbre Peak during Field Day operations. Traffic: K6NBI 244.

WEST GULF DIVISION

NORTHERN TEXAS — SCM, T. Bruce Craig, W5JQD — SEC: RRM. PAM: IWQ. RMs: PCN, QHI. IWQ is recuperating from a recent illness. Fort Worth hams belonging to the Civil Defense Planning Committee are CVW, KVA, FIR, SLI, UXP, YUK, and Chairman and EC for Tarrant County, CVA. UXP is the NCS. The Tri-City Amateur Radio Club at Borger reports the following new officers: TWA, pres.; ZKI, vice-pres.; NDD, secy.; and PSZ, TVI chairman. The Club has a Hutchinson County Emergency Net on 28,720 kc.; the mobile calling frequency is 3880 kc. YQO has transferred to Waco from the Oklahoma section. AQN now is in Amarillo, having moved into the section from Madisonville. LGY reports the following hams took part in Field Day at Bonham State Park: LGY, TYG, TKM, VYY, GZU, RXI, TMB, TMC, GML, LDS, MJN, SQT, ATG, RJM, UCQ, and KUC. LGY took part in the mock bombing of Dallas. ZWR has moved into the Northern Texas section at Levalland, from Tulsa. It's good to have a traffic report from RDG, indicating that he is on the recovery list. NIC vacationed in Northern New Mexico and ran up a good score of 24 stations in his home town of Lubbock. JQD failed to get more than half that many when he was working from a remote spot in Culberson County, Texas. PTK is vacationing in Louisiana, where he will visit PTJ. ZOK is on vacation in Colorado. Traffic: (June) K5FGI 734, W5TFB 262, UVC 194, UFP 128, KPB 116, YKE 30, TYX 28, RRM 27, DYU 18, RDG 18, YXR 16, ZWR 7. (May) K5FGI 544, W5LGY 6.

OKLAHOMA — SCM, Dr. Will G. Crandall, W5RST — Asst. SCM: Ewing Canady, 5GIQ. SEC: CKQ. RM: GVS. PAMs: SVR, ROZ. New officers of the Lawton-Ft. Sill Amateur Radio Club are FEC, pres.; RDK, vice-pres.; PML, secy. Your SCM attended two fine picnic hamfests, one at Tulsa and the other at Quartz Mountain State Park, north of Altus, and met a lot of both old and new friends. AOX has been going to hamfests for years hoping to win something worth while and he finally hit the jackpot, the first-prize transmitter and a pair of RK65s. The biggest thing this month was Field Day, with most of the clubs and many individuals throughout the State proving their portable gear and having a good time even if their scores weren't near the top. GIQ has moved to Enid to become farm program director for the new TV station. GIQ's mobile was put to good use when he was flagged down by a woman whose husband was having a heart attack. Help was gotten from the highway patrol via Hutchinson, Kans., and amateur radio. Ham activity is at a fairly low ebb because of hot weather, summer static, vacations, etc. SCX is on the honor roll for OES reporting regularly. The Oklahoma 2-meter gang did its share on the transcon. Traffic: W5GVS 386, PML 87, WQ 42, KY 34, TNW 29, SVR 26, SWJ 25, ADC 19, MFX 15, RST 15, FEC 13, GIQ 12, GVV 10, EHC 4, PNG 4.

SOUTHERN TEXAS — SCM, Dr. Charles Fermaglich, W5FJF — As yet there is no complete report on the amateur activities during the recent Rio Grande flood. A lot of the boys did a great job. I heard one fellow say, "I wish I could

(*Continued on page 108*)

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You can pack lots more fun into your operating time by adding Single Side Band to your station. Shut out QRM, kill TVI, work voice break-in, enjoy many MANY more solid QSO's with near land-line dependability and quiet! . . . And all at surprisingly low final cost — when you get everything from SSB Headquarters — HARRISON'S!

GO MODERN! — GO SSB!

SIDEBAND SLICER

TO RECEIVE SSB —

Plug the Central Electronics Sideband Slicer adapter into Detector socket of your communications receiver, make a simple connection to its audio control, follow the easy, clear instructions, and presto! — every Donald Duck sounds like your favorite radio announcer (almost) Improves your AM and CW reception too!

Complete "Slicer" kit **$49.50**
Factory wired "Slicer" **74.50**
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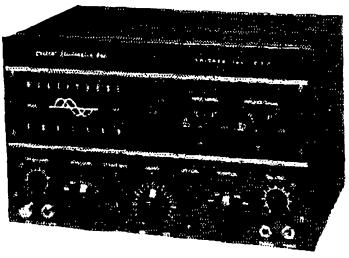
TO TRANSMIT SSB —

Get a "Central" Exciter (from Harrison, of course!) and plug in a high impedance mike, xtal or VFO, headphones, speaker, antenna, and AC. Follow the comprehensive (but simple) instructions, and in no time at all your signal is cutting right through the QRM! You'll be amazed at how effective the 10 or 20 watts is at piling up the QSO score! Or, you can drive a full KW RF amplifier with it.



MODEL 10B

- **10 Watts Peak Output SSB, AM, PM and CW**
- ***Multiband* Operations using plug-in coils**

Choice of grey table model, grey or black wrinkle finish rack model With coils for one band.

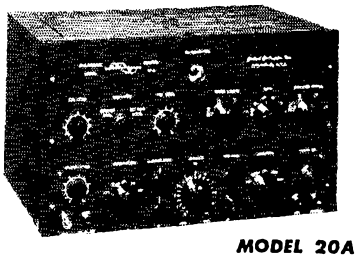
Complete kit **$129.50**
Wired and tested **179.50**

QT-1 ANTI TRIP UNIT

When using speaker, keeps receiver signal or noise from switching carrier on. Plugs into exciter socket

Complete, wired **$12.50**

MULTIPHASE EQUIPMENT



MODEL 20A

- **20 Watts Peak Output SSB, AM, PM and CW**
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- ***Magic Eye Carrier Null and Peak Modulation Indicator***

Choice of grey table model, grey or black wrinkle finish rack model.

Complete kit **$199.50**
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Gonset 500 Watt RF Amplifier
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400 Watt RF Final
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SAVE $35

By wiring this . . . . .

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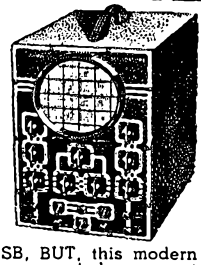
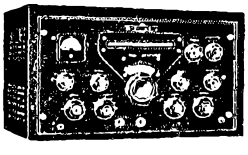
PUSH-PULL OSCILLOSCOPE



Not particularly required for SSB, BUT, this modern design, 5" push-pull oscilloscope can help you get lots more out of ANY ham transmitter, receiver, etc. So many time and money saving uses around the shack that you really shouldn't be without one (if only as modulation monitor for FCC regs.) .05 to .15 volts RMS/inch, input impedance - 1 meg. (horizontal AND vertical). Sweep 15 cps to 75 kc

Complete kit with CRT and 7 tubes, cabinet 15" x 9" x 18"; and full instructions.
Model 425-K **$44.95**
Factory wired **79.95**



NEW! COLLINS 75A3

Harrison has the new, improved production using the more efficient (less than 12 db insertion loss!) series C Mechanical Filters. FB for SSB!
Immediate delivery **$530.00**
Speaker **$20.00**

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have done something — I just listened and didn't transmit, because some others were handling the traffic." This man did a lot by standing by until needed and not QRMing the stations that were handling traffic. KSW, who is now home, reports QJE, LSO, ZNT, OOG, CXS, QEM, QKF, LOW, YJB, FPE, NZH, and BRO stood by and handled traffic. Many groups in Southern Texas were active during Field Day but there should have been more. Next year we should make a concerted effort to have a larger turnout. Listen for my new kw. I will be happy to work you on 75 meters. HRO is now single sideband. LSE has a new kw, and is starting on another one. NOT is heard on 75-meter mobile and is firing up a new 800-watt rig. OUG and his XYL have a new baby boy. BHO and family vacationed in Colorado. EKT, one of Houston's new hams, now is an OES. ITG is getting married in October. NN still is messing around. ADZ "ain't doing nothing." TFA and 9CSK are preparing gear for the ninth rocket test. The last time they decapitated a cow. The four-stage rocket is expected to reach an altitude of 100 miles. URU is going to town on 40 and 75 meters since repairing lightning damage. ZBK is working 75, 40, and 20 meters with vertical on 40 and 20 meters. YVJ has a new kw. URU has an FB mobile signal that really gets out. It is with regret that we report the untimely death of Ralph Levy, BHY. Traffic: W5KSW 19.

NEW MEXICO — SCM, G. Merton Sayre, W5ZU — PAM: BIW, V.H.F. PAM: FPB, RM: JZT. Field Day found most New Mexico club stations very active. Sandia reported 432 contacts, Mesilla 403 for 2616 points, Pecos 1407 points. In the practice alert on June 14th, 39 stations reported in on 3838 kc.; on June 15th, 47 stations were on. PLK, mobile, reported a fire in the Sierra Ladrones, and prompt reporting was made through the 3838 Net. Three test messages for A.F. bases in New Mexico were handled during the test. Only Albuquerque and Los Alamos had city drills, with amateurs helping. QD relayed traffic from Ozona to Lovington State Police. In the May F.M.T. QHK had .4 average error per million on two observations; AFB 33.3 average error per million on three observations. CEE sends Official Bulletins at 1745 MST, Tue.-Thurs.-Sat. on 3838 kc. NSJ completed c.c. converter for 420 Mc. EDK has completed AX9903 crystal rig on 420 Mc. FPB reports FJE, FPB, UEO, and WNL now have Vee-Dx CA-2 sixteen-element 2-meter beams. EYR is new on 2 meters. OIA, PQA, and YPP have Gonset Communicators. SUY and GYS are the only hams left in Gallup. FJT had to leave Gallup for health reasons. RFF has a new sixteen-element beam on 2 meters. He and others worked FAG east of Albuquerque 60 miles through or around Sandia Crest. The New Mexico Breakfast Club on 3838 kc. still is very popular. Traffic: W5ZU 28, CEE 22, HJF 22, WPA 22, VNZ 19, RFK 17, BZB 13, BXP 10, BZA 10, CXC 9, OME 9, BAG 8, SQI 5, OIA 4, BIH 3, WBC 3, FRP 2.

CANADIAN DIVISION

MARITIME — SCM, Douglas C. Johnson, VE1OM — Asst. SCM: Fritz A. Webb, DB. SEC: RR. ECs: EK, DQ, VO6U. PAMs: OC, VO6N. New OES is W7SNR/VO6. Halifax AREC members taking part in "Operation Alert" were RR, EK, OM, DB, PQ, WL, Binks Fisher, GC, and PC, and mobiles PT, AW, and NO. EC EK reports a successful exercise. Best wishes to JP and his XYL on their recent marriage. QY, EF, and OM are active on 50 Mc. BH was a recent visitor to Halifax. DQ has moved to his summer home at Grand Lake. Following are calls of some of the clubs and individuals active on Field Day week end: VE1s: NU, KK, AAM, GH, FO, JV, LC, VN, ND; VOs: 1D, 1X, 2F, 2L, 6H, K2CIS/VO4. This is the best showing yet. Bouquets to AAW and her OM, Doug, for a fine hamfest on July 3 and 4. About 100 hams and families attended. W2CO and his XYL were visitors from outside VE1. VO6N reports the Labrador Net meets daily at 2200 on 3780 kc. for the summer months. Other nets, please note. Congrats to VO6U on WAC and WGSA awards. W4KVM/VO6 is working out FB with s.s.b. 'phone on 14 Mc. Jim also went out on Field Day under a single operator status. Traffic: VO6N 242, VE1FQ 204, VO6B 83, VO6U 76, VO6S 58, VE1UT 55, VO1T 43, VE1ME 31, VE1DB 6, VE1OM 6, W4KVM/VO6 5, VE1ZZ 2.

ONTARIO — SCM, G. Eric Farquhar, VE3IA — Another Field Day has passed into ham history. Good weather was experienced at all locations. With competition high, everyone awaits the publication of final results. Participation in the event drew operators from many directions. Several W2s travelled to VE-Land for the event; likewise, we know of one VE3 who flew from the West Coast and made it in time to take part. We welcome to ham radio Marge, the XYL of NG, who got her ticket and call DZA. BUR vacationed in Connecticut, and JU went to North Bay and the Soo. AJR and DNV operate from summer cottage. AUU reports the Quinte Club has purchased a gas-driven generator. DPV spent July and August in camp at Haliburton. VC is NCS twice weekly on 3535 kc. on OSN. BQP visits Mexico. BSW completed building the signal tracer. CAB turns in an interesting OES report. We join the Nortown Radio Club in expressing appreciation to Bob Mitchell, BXF, holder of OBS appointment, for his untiring

(Continued on page 110)

MEDIUM-MU TRIODE
3C24/24G

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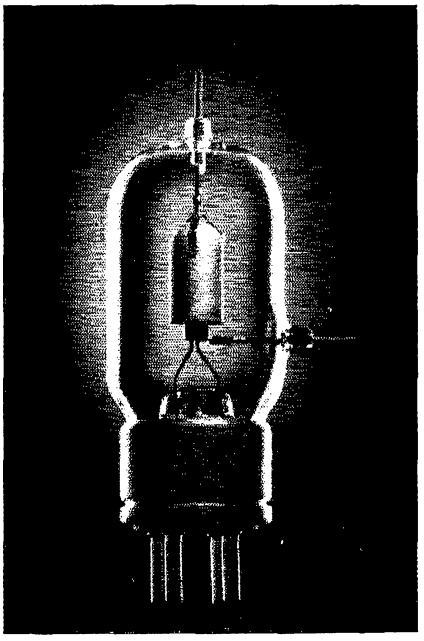

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efforts as code instructor during the past five years. During that period he trained some 40 candidates and on the morning of Field Day 8 of his pupils passed their examinations with the R.I. The best wishes of the gang will follow Buster Doubleday, Radio Inspector, on his transfer from Toronto to Kingston. MZ visited ATR. W2ZMK dropped in on AI en route to Minnesota. Traffic: VE3ATR 163, NG 139, BUR 108, TM 70, IA 62, NO 46, AJR 35, KM 26, AUU 23, EAM 14.

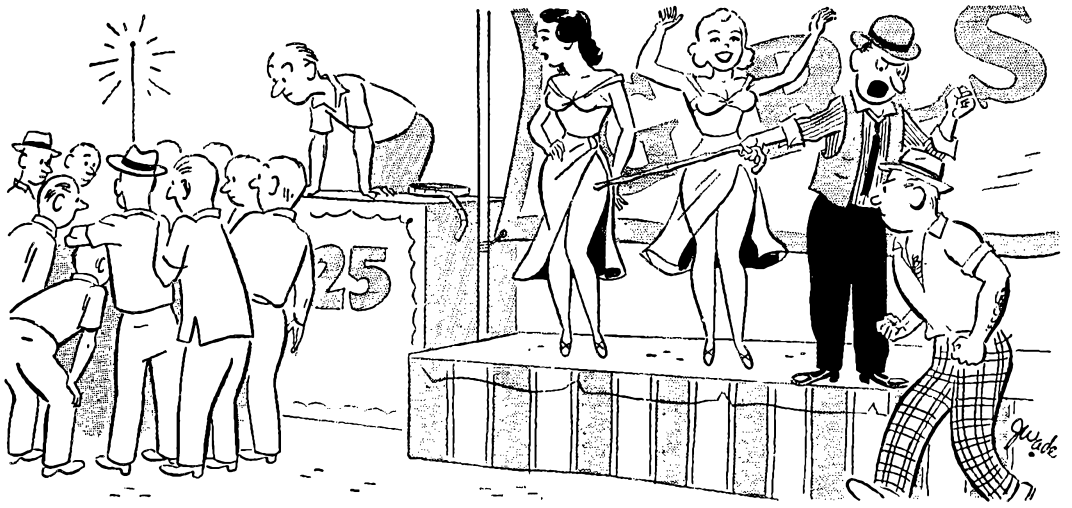
BRITISH COLUMBIA — SCM, Peter McIntyre, VE7JT — Reported activity is at a premium so the report will be short. Civil defense had an exercise, the communications group with AREC on an unofficial basis provided some communications. This test showed the necessity for more and varied communications. Many are away on holidays so next month's activity will be even less. FC, mobile, is cruising the interior on his vacation and is generally heard in Vancouver with a readable signal. S.s.b. is gaining more converts but only two VE7 signals are of any consequence on this medium. They are 7US and 7CN. Transmitter hunts and mobile mystery cruises are being held. A copy of a very interesting article from an interior paper written by VE7ARL was received. Hope it brings good relations in the area for which it was written. ALL finally made BPL with 102 originated messages. Many EC, OBS, and ORS appointees are very lax in sending reports so give forth, fellows, with the monthly reports. His August Majesty of Jordan River has been cruising the Island on mobile putting forth a potent signal. Join the gang around 3755 kc. nightly at 1800 PDST and check into AREC. Traffic: VE7ALL 116, QC 68, DH 46.

YUKON — (From VE8GY via VE5HR.) — MW, at Cambridge Bay, works DX with his Viking I. OJ and his XYL, OD, are moving to Ontario. RM will QSY Hay River after vacation. RZ plans a big rig for 4 bands in spite of TVI at Yellowknife. RY is the newest XYL in N.W.T. She shares the shack with RZ. SW is kept busy looking after Fort Simpson airport. WW and his XYL are the lone inhabitants of Wrigley and work 14 and 3.5 Mc. WD keeps the Frobisher boys happy with 'phone patches. UB, SE, NN, and NG keep Baker Lake active on 14 Mc. MC, MA, ML keep W9NZZ busy with traffic. GY has logged 65 VE8s and looks for more. KJ is back at Whitehorse. TO and SW are using plenty of stamps catching up on QSL cards. SC has a new 14-Mc. skyhook. ML is the world's most northerly ham on Alert Bay on Ellesmere Island. MD plans a new skywire when summer comes to the Arctic. AW has his rig idle but does a roaring business as QSL Manager. W3VYR. at GY with the motto, "We make 'em last," is a 2-hour QSO man. SO finally got a patch through to Connecticut, with a new two-element beam. PF, in a new shack with a two-element beam, keeps an excellent sked with W9NZZ and the boys appreciate numerous 'phone patches by VE1FQ. MA works W3TM with 5 watts. MZ has moved to Alert. SE has good 'phone patches through VE3KE with XYL. We need an SCM. Any volunteers?

MANITOBA — SCM, Leonard E. Cuff, VE4LC — Television is now in full swing in the Winnipeg Area. With the fall and winter season coming on more and more of you will be active again, and also there will be many more TV viewers, so it would be well if every operator took a little time and effort now and made sure that his transmitter was absolutely clean and free of harmonics and spurious radiation. We were honored with a visit from a couple of well-known DX hams during the past month, namely G8WS, from Surrey, England, and GM8MN, from Crieff, Scotland. Other visitors to the VE4 district were W9CRH, ex-VE4NO, from Morton Grove, Ill., and VE2JI, ex-VE4ZZ, from Senneterre, P.Q. DS and AI also visited in Winnipeg recently. WS visited the shack of HL at Portage la Prairie. HL, DS, and LC are active with mobile stations. QD has been spending the major part of the summer at Clear Lake. JM spent a well-earned holiday at Binscarth, compliments of AI. FD took a trip to the good old U.S.A. and came back with a new Master Mount antenna complete, in readiness for mobile operation. At the time of writing this column a large number of VE4s have indicated their intention of attending the "Grand Hamboree" being held July 18th at Grand Forks, N. D. New calls this month are XZ, BC, RC, and ES. Traffic: VE4AI 34, HL 30, EF 28, GE 18, VE5GO 10, VE4JM 8, JW 8, FD 6, RB 6, YR 4, EV 3, GV 3, MO 3, XP 3, IF 2, JW 2.

SASKATCHEWAN — SCM, Harold R. Horn, VE5HR — Thanks, fellows, for the fine job done during "Operation Alert." Mr. Moxham deputy coordinator for civil defense in Saskatchewan, was very pleased with the way traffic was handled throughout the exercise. CW and Regina mobiles did a fine job of dispatching and relaying to various centers throughout the section. AA, the Saskatoon Club station, took an active part, being manned for the full period, handling relays, at CDHQ. It is with deep regret that we record the passing of GG. George was an active c.w. man and will be missed by many. DR and his XYL and MK took in the Alberta Hamfest and Rodeo. DR won a prize as the ham with the least protection of his upper story. 5JK took first prize at the VE6 hamfest for the best mobile. Congratulations, Jack. HR still is getting new countries on 14 Mc. midst QRM. WØEIB/VE5 was on a fishing trip in Northern

(*Continued on page 112*)



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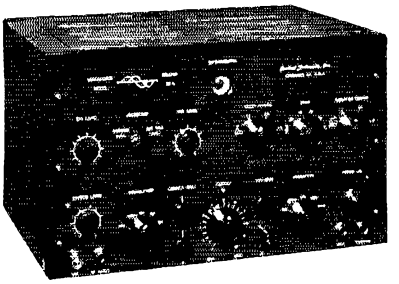

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Lakes. W2LDN/VE5, with Duke Ellington's Band, was a visitor at various points. 6YZ visited HR. Traffic: VE5CW 205, HR 37, RE 31, DS 18, FG 15, GO 14, LE 8, MX 6, BZ 2.

I.A.R.U. News

(Continued from page 63)

restriction on amateur licensing lifted (see page 33, June *QST*). The membership of OVSV is to be congratulated for their success in convincing the authorities of the desirability of amateur radio. Austrian amateurs now are permitted to work hams of any country not prohibiting such communications.

Regulations have been enacted which, in most respects, are not too different from those of other countries. Residents over 16 who can show proof of sufficient knowledge and skill are now being licensed. The application must indicate proposed maximum power, method of operation and specification of control equipment, and the applicant must already be the holder of a broadcasting-receiver license. Four classes of license are issued: Class A, power input up to 25 watts; Class B, power up to 50 watts; Class C, one year as Class B, power input 100 watts; and Class D, club stations only, with trustees who are citizens over 21, 250 watts. The examination, which includes a 12 w.p.m. code test, is conducted in public by a three-man board which is appointed for a three-year term in each of several districts. The board then deliberates in private and later announces the results. Apparently, the full Atlantic City frequency allocation for Region I is allowed. The license is good until revoked, provided the yearly fee is paid. Mobile operation is permitted. Other hams may operate a licensed station, with the licensee, of course, responsible for their actions. Third-party message handling is permitted only for messages concerning protection of human life, during the failure of normal systems.

W/VE Contest

(Continued from page 60)

A station using a power input of 30 watts or less will receive an additional multiplier of 2, and a station using from 30 watts to 100 watts will receive one of 1.5. The final score consists of "total points" multiplied by "sections" (times 7.11 in case of W/K stations) multiplied by the "power multiplier."

5) Each entry must be accompanied by the following declaration: "I hereby state that my station was operated strictly in accordance with the rules of the contest and governmental radio regulations, and I agree that the decision of the Contest Committee of the Montreal Amateur Radio Club, Inc., shall be final in all cases of dispute."

6) All entries shall be sent to the Montreal Amateur Radio Club, Inc., 535 Lansdowne Ave., Westmount, Quebec, Canada, and must be postmarked not later than midnight October 15, 1954.

Strays

W8JET is an instructor at Connally AFB, Texas. — *W5ADR*

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V.H.F. Mobile

(Continued from page 19)

phasing section are carried in the rear deck ordinarily, and just the bottom portion is used except when we need another 5 or 6 db.

The Polarization Question

One of the time-honored arguments for vertical polarization in v.h.f. work is that it makes mobile operation more effective. There is no doubt that matching polarization does help to extend the range of the mobile station in open terrain, and vertical is certainly the natural polarization for the mobile. But cross polarization may not work as much hardship as might be expected. Over short distances, with elevated antennas and open terrain, the loss from cross polarization may run to 20 db. or more, but as the distance increases, and particularly as the terrain becomes more irregular, there is a considerable polarization shift. In very hilly terrain it is often difficult to tell which polarization is in use at the other end of the path, and it is not uncommon to find spots where cross polarization gives better signals than matched polarization. The same is true in cities, as the result of the numerous reflections from buildings, overhead wires and the like.

Tests we've made, both with the home station and the mobile, have shown that the use of horizontal polarization works no great hardship on the vertically-equipped mobile. Perhaps it would be a different story in completely flat terrain, but in the hills of western New England we have no trouble working the predominantly horizontal 2-meter stations of the Connecticut Valley. And, in a recent trip through western New York, we had good coverage over the rolling terrain south of Lake Ontario. When our travels have taken us into predominantly vertical areas, we've noticed no marked difference in effective operating range.

We have made a horizontal antenna, as shown in one of the photographs, but we've not found it of any great advantage up to now. Nor does it appear that we can hear the few vertical adherents appreciably better than their horizontal brethren when we use the regular whip. There are many ways of achieving horizontal polarization in a mobile antenna system, but none of them is beautiful or very convenient. The one shown in the last photograph is a gamma-matched dipole made of brass rod, bent around into a circle. It works well, apparently, and it shows a considerable gain over the whip when we are working the horizontal gang from a hilltop that is well above surrounding terrain. But at times like this we are not concerned with actual "mobile" set-ups ordinarily, and if we want to go to the trouble of putting on a different antenna, we prefer a portable beam of some sort. With a knock-down array, it is a simple matter to make it either horizontal or vertical, as local preferences may dictate.

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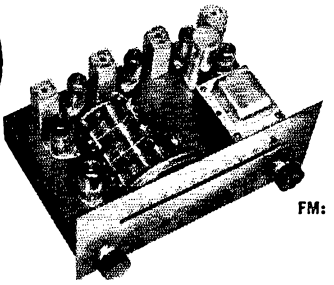

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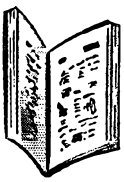

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Panoramic Adapter

(*Continued from page 24*)

by reducing the band-scan width. The higher the frequency of modulation the farther away these pips will move from the center pip, the carrier. This is shown at B of Fig. 5. Single-sideband modulation, with carrier, has a similar appearance, but is minus one of the sidebands. (Fig. 5C.)

Single-sideband suppressed-carrier transmission appears as a single pip, or small group of pips, varying in amplitude and is most noticeable by its appearance and disappearance. (Fig. 5D.)

An f.m. signal appears as many deflections spreading over a variable bandwidth. During periods of no modulation, a single carrier appears.

An m.c.w. signal looks like a c.w. signal of periodically varying height, if only the modulation is keyed. If the modulation frequency is high enough, sidebands will be distinguishable.

Noise such as static appears as irregular deflections and flashes along the whole sweep. Noise due to electrical equipment operated from the power lines is likely to be synchronous or nearly so and will stand still on the screen or drift slowly from one side to the other.

If the receiver's rejection of the images is poor (most noticeable on the higher-frequency bands), the images appear as signals, but move in an opposite direction across the screen when the receiver is tuned.

Operation

When the panoramic adapter is used with a receiver whose h.f. oscillator operates on the high-frequency side of the mixer, the lower frequencies appear on the left side of the adapter's screen, and the higher frequencies on the right. Some communications receivers operate the h.f. oscillator on the low-frequency side of the mixer on one or two of the higher-frequency bands, namely, 10 and 20 meters. When this is done, the high- and low-frequency ends of the screen are interchanged.

Most receivers operate with a.v.c. applied to the r.f. stages. If such is the case with the receiver to which the adapter is connected, the effect of the a.v.c. will be noticed on the adapter's screen. When a strong signal is tuned in it will reduce the amplitude of all the signals on the screen.

To check modulation, reduce the band-scan sweep to zero. A single horizontal line will be seen if no modulation is present. With the receiver tuned to the center of the carrier frequency, adjust the center-frequency control for maximum vertical deflection of this line. The gain control is now adjusted to center the line vertically. This d.c. level represents the strength of the carrier signal. As modulation is applied to the signal, it will appear across the screen with this line as its axis.

Circuit Variations

Different sizes of cathode-ray tubes could be substituted for the 3AP1 at the builder's discretion without undue difficulty. Some of the larger-

(*Continued on page 118*)

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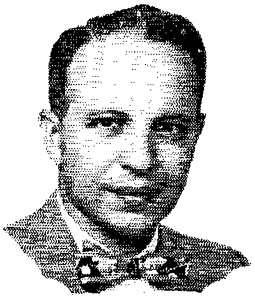

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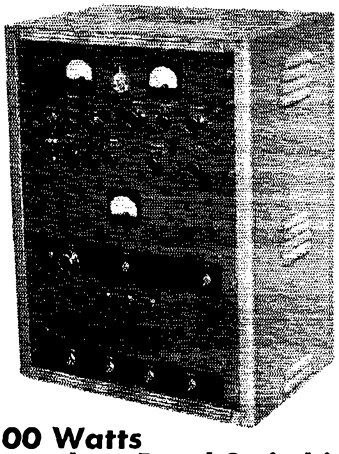

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screen cathode-ray tubes require higher operating voltages, and thus would require some circuit changes.

The r.f. oscillator coil, L_1, is 1.1 mh. tapped at 0.2 mh. If a slug-tuned coil is used in its place, trimmer C_{19} can be replaced with a fixed capacitor of 82 $\mu\mu$f.

Return-trace blanking was tried and found to be of little consequence. This is the reason for the unused socket as seen in the photos.

Bandswitching Converter/Preselector

(Continued from page 87)

the side of high inductance since the removal of turns is an easy matter even after all connections are soldered. After all bands have been aligned, readjust the oscillator to exactly 18 Mc., using the receiver and 100-kc. oscillator. Alternatively, the unit can be aligned by using as a "signal tracer" a borrowed receiver that covers the 21- and 28-Mc. bands, and adjusting each stage separately.

Check the rejection of direct signals by switching S_2 to 21 Mc. and S_1 to direct. Pick up a strong signal at about 3.1 Mc. Then switch S_2 to "Conv." The signal should drop at least 7 or 8 S units if proper attention has been given to shielding the output of the converter and to the ground connections as previously indicated. Repeat the test on 28 Mc.

That is about all there is to it, except to hook up the antenna and enjoy the results. You should now have a combination that is hard to beat, with plenty of what it takes to haul in that weak DX signal. The 21-Mc. band is an adventure in itself — don't pass it up because your present receiver only goes to 18 Mc.

Let Joe brag about his new gold-plated supersnooper special that has depleted his bank account. You will be amazed at what this simple unit plus a good surplus receiver and "Q5-er" can do.

Low-Cost Gallon

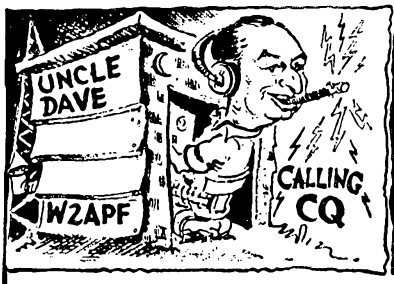
(Continued from page 32)

Coax connectors are provided for r.f. input and output. The output line that goes to an antenna tuner was tried at first without tuning the line, and some mighty strange manifestations were wrestled with for a while. Adding a series condenser fixed up all of that, and now the final is very sweet to operate.

Economizing

There are numerous cases of make-do with available items, hence low cost. For instance, the rectifier-filter unit, and the series booster for the plate transformer originally were two APQ-9 400-cycle radar-jammer power supplies (surplus cost $1.50 each). These were hack-sawed apart and reassembled as shown in one of the photographs. The transformers were reconnected with

(Continued on page 120)



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No fancy talk or pretty pictures this month! Just a heap of good buys for you guys and gals. Look over these used equipment and specials list that Uncle Dave, W2APF and "Tiny" Miller got together for you. We have all the new rigs, too; so if you don't see what you want . . . call or write; 24-hour service on all stock items.

USED EQUIPMENT LIST

Sonar MB611	$ 25.00
Sonar FM Exciter	45.00
Morrow 3BR	45.00
MM–1 Micro Match	30.00
Web 10 meter, 25W Xmtr	25.00
National 5886, power supply	25.00
Thor Darsen, 100W, Xmtr	95.00
Collins 32V3 (Demo.)	695.00
Nat. NC183D (W Spkr)	295.00
Hallicrafters, S53A rec.	75.00
GE No. 155 Scope	25.00
RME, DM30X	20.00
Lafayette VHF Converter	25.00
Precision 864, Rack Mtg Multi-Meter	35.00
RME HF10–20	75.00
RME DB22A	75.00
2 – Eldico, TR75-TV	50.00 ea.
Nat. HRO60 (W/coils & Spkr)	450.00
WRL, Globe Trotter Xmtr	95.00
Nat. NC100X (no Spkr)	50.00
Meissner Analyst.	50.00
Rider Chanalyst (W/UHF)	75.00
Gonset Tri-Band	30.00
2 – Gonset 3-30 Conv.	35.00 ea.
Hammarlund, 420 & 411	95.00
1 – Hallicrafters, SX42 (no Spkr) (As Is)	90.00
1 – Hallicrafters, SX42 (W/R44 Spkr)	175.00
Hallicrafters, SX42 (W/R42 Spkr)	150.00
Hallicrafters, SP44 (Panadapter) (As Is)	40.00
Motorola, FMT30DS (Complete)	150.00
Jackson, 106 (Sig. Gen.)	35.00
Jackson, 109 (VTVM)	35.00
CBY, 52208 (ARC 5-TYPE)	35.00
National NC57 (W/"S" meter)	75.00
Collins, 32V2 (Converted 32V1)	450.00

SPECIAL Large Stock Used Panel Meters – Giveaway Prices

SPECIALS LIST

Condensers, Oil 2MFD X2500 V.
$3.95 ea. 10 for $35.00

Condensers, .1 X .1 MFD X7000 V.
$1.95 ea. 10 for $15.00

Ready made Xmtng Antennas —
10 meter – $4.80 40 meter – $ 7.00
20 meter – 5.40 80 meter – 10.10

American EL4 Microphones	$ 4.25
Astatic JT30, W/Stand	9.15
Astatic 54M3, W/Stand	6.88
Astatic D104	13.25

PLATE XFMRS

415–0–415 V., 300 V. at 200 MA, 425 V @ 160 MA.	$ 6.51
515–0–515 V., 385 V. @ 235 MA, 500 V @ 200 MA.	8.34
1200–0–1200 V., 1000 V. @ 225 MA.	13.61
1790–0–1790 V., 1500 V. @ 225 MA.	24.89

100 – Resistors Ass'd, plastic bag	$ 1.95
50 – Mica Cond., Ass'd, plastic bag	1.95
35 – Ceramic Cond., Ass'd, plastic bag	1.95

1000 FOOT – WIRE KITS – ALL COLORS, SIZES TYPES, 100 FT. – HOOKUP (Per Kit) $ 4.95

FILAMENT XFMRS –

6.3 V – 10 Amps	$ 4.05
5.0 V – 10 Amps	3.81

MODULATION XFMRS –

A3808 – PRI 3800/3300/CT – SEC 10M/5M/4M/60W.	$10.12
A3829 – PRI 9M/6900/CT – SEC 6250/5M/4M/175W.	12.82

TUBES

Jan 872A	$ 2.25
Jan 866A	.95

6 Ft. AC Cords ..... 5 for $ 1.00

Advance 8204, Coax Relay	$11.14
Advance 8200, Coax Relay	8.98

Fort Orange RADIO DISTRIBUTING COMPANY
904 BROADWAY, ALBANY, N. Y.
TELEPHONE ALBANY 5-1594

their primaries in series, and their secondaries in parallel, for both filament and plate. The chokes and condensers were rewired in various combinations of series and parallel to avoid exceeding their ratings too far. The two units just fit the space available at the bottom of the cabinet. Yes, the doors can be closed.

No meters were bought for the job. The 500-ma. plate meter is OK, of course. The 15-volt a.c. voltmeter can be used to indicate grid current, even though its scale doesn't apply. By means of two toggle switches, the grid current of either tube, or both, may be checked. A spare 5-ma. d.c. meter was mounted in the panel space formerly occupied by the "patient-load" resonating condenser. The milliammeter was converted into a 5-kv. voltmeter by adding 1-megohm ½-watt resistors in series-parallel.

Originally, the unit was unshielded. Shielding has been added from time to time, more from a sense of fitness of things, however, than from compulsion of TVI. The TV receiver is only 20 or 25 feet from the rig, and shows not a shadow when the rig is keyed. The shielding is a heterogeneous mixture of aluminum foil chiefly, but also includes copper screening, and punched aluminum sheet, the latter once having housed a Sperry amplifier rack.

Operation

The GO-9, used as the exciter for this amplifier, is operated at about quarter power, except when the final is running at maximum input. Then the exciter is run at half power. The final can be operated at plate inputs from about 160 watts with the autotransformer set at Tap 1, to a maximum 1000 watts on Tap 9 where the series booster is on full. On Tap 9, a dummy antenna was fed with gratifyingly rapid heating-up of the noninductive resistors, and thus it qualifies as an honest-to-goodness "full gallon." (The XYL, overhearing various conversations about how the "gallon" was coming along, once inquired about the "jug." And the Jug it has been ever since.)

One lives a bit more dangerously when pushing the voltages higher. The plate tank condenser used to arc over unduly until an overlooked bent plate was discovered. The worst casualty thus far has been a punctured coax neutralizing condenser, while operating on Tap 8. The 2300-volt r.m.s. rated coax was replaced with an equivalent with 4000-volt rating, and no trouble has been experienced since. The extra power available is very useful in QSOs with the writer's son, W7PSR, in Tuscon, Arizona, where the noise level is notoriously high. Upping a few taps on the plate transformers often makes the difference between very poor and good QSOs. Reports from several who have worked us with both the GO-9 alone, and the GO-9 plus Jug, say that the note, keying etc., are identical, but the signal louder, with Jug. Apparently, the latter mirrors and amplifies what is fed to it which, after all, is what is expected of it.

The out-of-pocket cost of Jug was just under

(Continued on page 122)

NOW HEAR THIS

ALL THREE UNITS ONLY **89.50**

A BUY OF A LIFETIME

PORTABLE ELECTRONIC MEGAPHONE and AMPLIFIER SYSTEM

COST U.S. NAVY ~~$1850.00~~

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20 WATT POWER AMPLIFIER

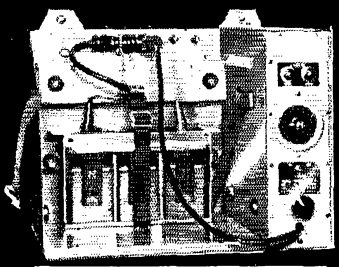
MEGAPHONE-Dynamic MICROPHONE Pistol GRIP-TYPE

All Units BRAND NEW and GUARANTEED

BATTERY CHARGING RACK Included

MEGAPHONE

AMPLIFIER



BATTERY CHARGING RACK

QUANTITY LIMITED

Lafayette made a terrific deal with the U. S. Navy—bought a quantity of U. S. Navy Model PAE-2 Portable Amplified Electronic Megaphone Systems which enables us to offer the complete system at a price which can never be duplicated again.

Here is an ideal system for such applications as fishing boats, yachts, traffic control, sports events, construction crews, surveyors, carnivals, car owners, life-saving stations, or any place where handling of large crowds is necessary, and wherever convenient power line connections are not available, because unit operates from self-contained rechargeable 6-volt storage battery. Can also be used as a stationary or permanent system when used with charging rack, which is designed to hold entire portable amplifier and battery.

System consists of portable amplified electronic megaphone—operated by a trigger switch in the pistol-grip-handle—dynamic type microphone unit rated at 50 ohms at 1000 cps, and a reproducing unit, all contained in megaphone mouthpiece and housing.

A powerful 20 watt 6 tube amplifier, housed in a water-proof, two-piece, portable metal case (as illustrated), having compartment for and supplied with 3-cell 6-volt storage battery. Amplifier built with finest quality parts to rigid Navy specifications.

A UNIVERSAL BATTERY CHARGING RACK that operates from 110 volts AC 50-60 cycles, 110 volts DC, 12 volts DC, 24 volts DC, 48 volts DC, or 96 volts DC. The charging rack consists of a battery recharger with time switch and also provides a space for stowing the portable amplifier. Two pilot lights in the front panel of rack indicate a "Low" or "High" charging rate. Timing switch controls the rate of charging. Has separate On/Off switch.

Approximate Dimentions & Weights: Megaphone 20" long, diameter 13½". Shpg. Wt. 12 lbs. Amplifier dimensions—in 2-piece Portable Metal Case, housing 6 volt storage battery—13¾" H, 12¾" W, 9¾" deep. Shpg. Wt. Approx. 25 lbs.

Charging Rack 15½" H, 13" W, 12" deep. Shpg. Wt. 34 lbs.

Complete System consisting of electronic megaphone, 20 watt portable amplifier with tubes and storage battery in case, as illustrated, Universal Battery Charging Rack with all necessary interconnecting cables and plugs and 30 page Instruction Book with schematic diagrams of all units. Net **89.50**

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NEWARK, N. J.	24 Central Ave.
PLAINFIELD, N. J.	139 West 2nd St.
BOSTON, MASS.	110 Federal St.

$40, not counting the drain on the junk box. Those interested might call on medical-equipment sales places, second-hand motor dealers, and so forth.

Many thanks are due several hams for their help and sympathy, notably W1FTH, who also took the pictures, and W9CPV, W9DKW, and W7PSR (who now says he can relax).

Lightning Calculator

(Continued from page 41)

divided by 2, such as setting 2 inches diameter to 2 inches length. At *half* the number of turns per inch you want to calibrate, read the inductance. Now set length and diameter to 1 inch (each, half of 2 inches). Opposite *half* of the inductance previously read, place a mark. This mark calibrates the turns-per-inch scale at the desired point. For instance, to calibrate a point for 200 t.p.i., set 2-inch length to 2-inch diameter. Read inductance 1400 opposite 100 t.p.i. Set 1-inch length to 1-inch diameter. Opposite inductance 700 mark t.p.i. 200.

Frequency Scale

The frequency scale can be extended in either direction simply by marking off the intervals with a divider. The distance from 150 Mc. to 200 Mc. should be the same as from 15 Mc. to 20 Mc., or from 1500 kc. to 2000 kc., etc. Similarly, the distance from 400 kc. to 300 kc. should be the same as from 4000 to 3000 kc., etc.

In conclusion, it should be reëmphasized that the error (percentagewise) is likely to be sizable in cases involving the smaller values of inductance and capacitance. The values indicated should be considered only very approximate, and subject to experimental adjustment.

Silent Keys

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

W1IDY, William S. Koehler, Pelham, N. H.
K2CCO, Arnold J. Schwartz, Malverne, L. I., N. Y.
W2QKS, Charles H. Schrader, Clinton, N. Y.
W3OW, Charles H. Walton, Downington, Penna.
W3RUF, George D. Custer, Berlin, Penna.
W4CA, John F. Wohlford, Roanoke, Va.
W5HYA, Carl L. Fletcher, Colorado City, Texas
W5ND, William C. Campbell, Orange, Texas
K6ARG, James W. Smith, Long Beach, Calif.
ex-6AU-6CO, Paul Clark, San Jose, Calif.
W6CEU, A. C. Gall, Manhattan Beach, Calif.
W6IF, Leslie J. Riedman, Long Beach, Calif.
W6UBQ, Burton B. Wetherbee, Turlock, Calif.
W8BLB, Frank M. Natherson, Parma Heights, Ohio
ex-W8CNJ, Army G. Belle Isle, Syracuse, N. Y.
W8NBZ, Frank F. Lehman, Lakeside, Mich.
WØAML, James B. Heard, Berthoud, Colo.
WØYKN, Harris W. Shields, Kensett, Iowa
G3IRF, D. C. Hill, London, England
GM6RG, Bryan Groom, Galashiels, Scotland
VE5GG, George A. Gauld, Lampard, Saskatchewan

NEW MicroMatch

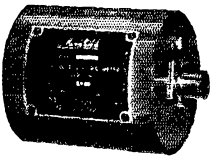
MEASURES RF POWER AND VSWR IN FREQUENCY RANGE FROM 0.5 TO 225 MCS., 0 TO 1 KW.

Sensitive, accurate and unusually compact, the Micro-Match 260 Series monitors both incident and reflected power without the necessity of removing the coupler or reversing its connections. Three models of this equipment are available.

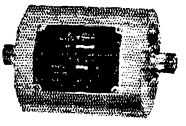
WRITE FOR 44 PAGE CATALOG ON

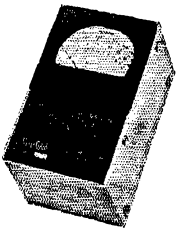
- **DIRECTIONAL COUPLERS**
- **STATION GUARDIANS FOR TRANSMITTER PROTECTION**
- **RF LOAD RESISTORS**
- **RF POWER AND VSWR INSTRUMENTS**
- **ABSORPTION-TYPE RF WATTMETERS**
- **PRIMARY STANDARD RF POWER MEASURING INSTRUMENTS**

Model 261 Coupler (only) with Type 83-1R Connectors. Complete instructions to build #262 Indicator are included $22.50



Model 262 Indicator (only) provides relative power measurements when used with the #261 Coupler $14.50





Model 263 Laboratory Type Coupler and Indicator (complete). Coupler equipped with type N connectors. Indicator provided with three scales calibrated in watts, 0-10, 100, 1000 ..... $85.00

M.C. Jones

M. C. JONES ELECTRONICS CO., Inc.

BRISTOL, CONNECTICUT

YL News & Views

(*Continued from page 47*)

W3TYC — Miriam Reinhardt of Emporium, Penna., is Chairman for the Third District. The XYL of W3IIX, Miriam has built both a midget 50-watt and Heathkit transmitters, plus an antenna coupler, since receiving her license in May, 1952. She operates 80 and 40, 'phone and c.w.

W6WSV — Carol Witte, the Sixth District Chairman, has been active in many capacities since first becoming interested in amateur radio when she was thirteen years old. Licensed in 1936 as W9WWP, she operated intensively for five years, particularly enjoying DX hunting with low power — still her chief delight. In 1952 as Asst. Communications Manager, she was the first ARRL woman staff member to hold a call, and in 1944 she became Acting Communications Manager. The first vice-president of the YLRL, she served two terms in that office, and in 1946 she was elected the first president of the Los Angeles YLRC and later served several

♦

l., to r., top row, YLRL officers W9YBC, W8SPU. *Center row,* W3TYC, W6WSV. *Right,* W3RXV.

♦

terms as the club's publicity chairman. Now residing at South Pasadena, Carol and her OM, W6WSW, can be found regularly on 20 c.w.

W8SPU — Helen Smith, Eighth District Chairman, has an "all-ham" family — OM W8QOV, son W8KGL, and daughter W8OSD, Virginia. Licensed since 1938, Helen has WAS, and she is now EC for Wyandot County in Ohio. Working more than 200 mobile stations has been her special interest.

Keeping Up With the Girls

Thanks to OM W2LSD, Nils Michaelsen, for sending the Nov. and Dec. 1940 copies of his paper *Ethercttes*. It was interesting to read the clever poetry of W6NAZ, Lenore (then W2NAZ) and to note items on W1FRO, Alice; W3CDQ, Liz; W5IGO, Thelma; and W8UDA, Dottie — all of whom are still very active 14 years later. . . . Using club call W6MWO and operating Field Day at 8000 feet altitude in the Blue Ridge Mountains, 2-meter net members K6ANG, KN6ACF, KN6DRS, W6s DXI JZA and WRT of the Los Angeles YLRC logged exactly 100 calls on two, plus a number of contacts on lower frequencies (three-transmitter class). . . . YLs who attended the Mobile, Ala., Hamfest May 30th were W4s AAN GDV NOX TTM VDL WJX WJU and W5TXK. . . . Ex-KZ5BM is now in

(*Continued on page 126*)

NEWARK

offers for immediate delivery

B&W

Model 5100 Transmitter $442.50 Net

- ★ INPUT — 135 WATTS PHONE 150 WATTS CW
- ★ SELF-CONTAINED VFO
- ★ COVERS 80-40-20-15-11-10 METER BANDS
- ★ RAPID BAND SWITCHING
- ★ BUILT-IN LOW PASS FILTER
- ★ TVI SUPPRESSED
- ★ PI NETWORK OUTPUT
- ★ UNITIZED CONSTRUCTION

Complete self-contained amateur transmitter designed for maximum efficiency and operating ease. Only three tune-up controls:—VFO set, final amplifier tuning, and pi network loading—no tuning of exciter stages at any time. Single band-switch selects correct multiplier output frequency and pi-network inductance for desired band.

Tubes: 1-6BJ6 VFO; 2-6BJ6 Crystal Osc-Buffer-Keyer; 4-6AQ5 Freq. Multipliers; 2-6146 RF Amp.; 1-6U8 Speech Amp.; 1-6AQ5 Driver; 2-6146 Modulators; 1-5V4G LV Rect.; 2-5R4GY HV Rect. 1-VR150 and 1-VR105 regulators.

Blue-gray steel contoured cabinet with recessed touch-latch cover.

97F135. Size: 22x11½x14¾". Wt., 80 lbs. Net **442.50**

Single-Sideband Adapter in compact matching cabinet is now available for the Model 5100. This permits operation on either CW, AM telephony, or SSB with comparable power output on all bands.

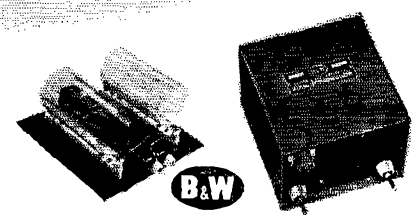
B&W Model 600 Dip Meter

- ★ COVERS 1.75 to 260 MC.
- ★ 500 MICROAMPERE METER
- ★ WEDGE-SHAPED FOR EASY ACCESS TO HARD-TO-GET PLACES

Highly sensi ve, accurately calibrated instrument for the ham shack. As Grid Dip Meter, Model 600 may be used to determine resonant frequency of tuned circuits, antennas, feed lines, and parasitic circuits. It may be used to neutralize transmitters, and to tune all stages to approximate operating frequency with power off. Also useful as an RF Signal Monitor, Auxiliary Signal Generator, and Absorption Wave Meter; can be used to measure capacity, inductance, and circuit "Q"—all operations fully described in instruction booklet. Size: Approx. 3x3x7". Wt., approx. 2 lbs.

97F140. .....Net **39.75**

Newark stocks the full line of Barker and Williamson Amateur Equipment and Test Instruments.



BALUNS

Provide maximum transfer of power, maximum signal-to-noise ratio, minimum SWR, and minimum line radiation without tuning.

ALL-BAND BALUNS

Sturdy bi-filar airwound coils for impedance matching of feed lines in both transmitters and receivers. When two coils are assembled and wired, the assembly will operate as a multi-band balun to match 75 ohms unbalanced to 75 ohms balanced, or to 300 ohms balanced.

40F927. .....Each Coil, Net **3.75**

1 KW SINGLE-BAND BALUNS

Weather-proof cases, with coax input connectors and ceramic feed-through output connectors.

For T-Matched Beams: match 75 ohms unbalanced to 100 ohms balanced. (00x000).

40F890	Model 700	10 Meters
40F891	Model 701	15 Meters
40F892	Model 702	20 Meters

For Folded Dipoles: match 75 ohms unbalanced to 300 ohms balanced. (00x000).

40F893	Model 710	10 Meters
40F894	Model 711	15 Meters
40F895	Model 712	20 Meters
40F896	Model 713	40 Meters
40F897	Model 714	80 Meters

Wt., 3 lbs. NET, EACH.....**16.50**

F.O.B. Chicago, Include Shipping and Insurance Charges.

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El Monte, Calif., as W6GST. . . . W5CHR, Jean, is active in the Knights and Ladies of the Roundtable and the West Texas Emergency Net. . . . W4RLG reports that the Southern Belle Net meets each Friday on 3920 kc. at 0730 CST. Frances, the YLRL Fourth District Chairman, will be off the air until January, 1955, as the hospital at which she is staying prohibits transmitters. . . . On July 3rd in Syracuse, K2DYL, Joan Hofmann, became the bride of K2ATE, Al Michel. K2ATC was best man and W2WNO was an usher. . . . W8s FPT HUX HWX IAA LIV MBI OSD SPU and WN8REI were present at the Great Lakes Net Picnic at Napoleon, Ohio, on June 27th. . . . WNØ-VRM is a new 11-year-old YL from Gering, Nebraska, who is moving soon to Lava Beds National Monument, Calif. Susie's dad is WØIXL and her proud uncle is ARRL's General Manager, W1BUD.

YLs You May Have Worked

[With this issue, a new column feature is inaugurated. Henceforth each month we hope to present a YL you may have worked or heard or know. The YL need not necessarily be BPL, DXCC, YLCC, etc., at all — the requisite for recognition is simply that she be a YL. The idea behind the project is to become better acquainted with more of the wonderful YLs of our hobby. So if you know a YL whose photograph and amateur biography you would like to see published here, write and let us know — and don't hesitate to tell us about yourself, either. — ED.]

OM W9OTL, County Supervising Teacher Clarence Wentland in Rhinelander, Wisconsin, suggested that the story of W9YUD, Dorothy Richter, might encourage more high schools to follow through with courses in radio theory and code, with ham tickets for report cards.

In February, 1953, after a demonstration of amateur radio at her high school, Dorothy's interest flared, and soon code sessions and study of the *License Manual* supplemented regular school homework. A "first-class pep talk" induced Dorothy's father to study along with her. With high school graduation in June, there was an added

W9YUD

extracurricular diploma for both Dorothy and dad — General Class licenses and the calls W9YUD and W9YUB, and amateur equipment solved the graduation gift problem.

Now studying at Stevens Point State College, Dorothy keeps daily schedules with her dad on 75 and 80.

W9OTL observes that, "As a future Home Economics teacher, Dorothy's ham radio hobby may be reflected in changes in house planning, taking into account some special radio facilities — maybe a new slant on cooking or sewing or even home management. Moral to her story: Let's get more high school students acquainted with ham radio!"

Addenda: Forty-four amateurs in three states recently received "Trail Blazing" citations issued by the Oneida County, Wis., School Department for their efforts in promoting the amateur school radio program initiated by W9OTL in 1952. Purpose of the program is to broaden the scope of school studies by arranging on-the-air discussions among different groups of pupils and between pupils and adults engaged in various professions. In Oneida County alone, as a result of the program, some 2000 pupils have spoken via amateur radio in the past 18 months.

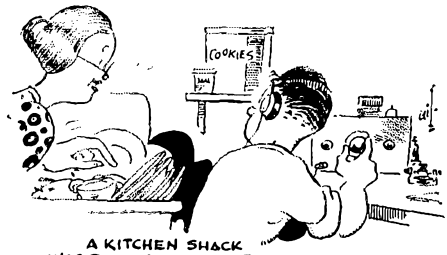
Hamshacks

(Continued from page 49)

such item but a flock of early DX was worked from that tiny space. Besides, one leap and I was in bed, lights out, when any "inspection" took place. Or conversely, early morning 80-meter skeds with 6CTO were a lot easier because I didn't have to dress. Just one long jump from bed to chair, turn on the 203, put the clip on the storage battery, wait till the "detector-and-one-stage" lit up, and I was ready to go!

Then there was another "*little-room*" *shack* that I knew well, except that I never really got into it — that is, not all of me. Out in Cleveland's east side lived Norm McConnell, 8BS (now W9??). Mac was a little guy, and whoever built his house must have had him in mind, for while Mac's closet shack was tall enough for him, it was not for a 200-pound near-six-footer. But cute — I'll tell the world! Tucked away in that closet shack, 8BS was as cozy as a kitten, and with the rig purring away, just as happy. But it was tough on a visitor, a big one anyway! Why, that shack was so small Mac had to put his Edison gramaphone out on the living-room floor when we played it into the microphone for the first 5-meter tests made in Cleveland. Too bad we didn't have subminiature components in those days; 8BS sure needed them!

Did you ever have a *shack in the kitchen?* I still can see 8CGI in a corner of a Cambridge, Ohio, kitchen with the "two-tuber" on the table, a single 210 on a shelf in the corner complete with plate transformer. Rectifier? Naw! Straight a.c.! Those were the rugged days before 1929! A kitchen shack was both good and bad. The op



A KITCHEN SHACK WAS BOTH GOOD AND BAD

was close to the source of goodies but also too close to the sink. Need more be said?

The garage shack was popular in the '20s. How many recall that haven of rest, good rag-chews and super DX — Loren Windom's garage shack out on Franklin Avenue in Columbus? Windy's two-call station, 8GZ-8ZG, with the 75-foot downspout masts and the trolley wire off-center-fed Hertz!

Although my Hamericana scrapbook holds a prized photo of Windy's shack in 1926, no photograph is necessary to bring back that long, simple operating bench with the 204 sitting in the corner and his famous "plate-glass receiver" resting in the center in front of a big op's chair.

(Continued on page 130)

DX? Just ask any lucky ham who visited 8GZ in the mid-20s. Australian 6SA worked on schedule at 6 P.M. local time on 7 Mc.! Skeds 'round the world, clicking off on the nose when the mercury arc in the attic was tripped. Outside wind and rain howled and stormed but inside all hands and other places were kept warm with the biggest "parabolic-reflector" unit I ever saw — and felt! Or was it the warm glow of the most genuine ham spirit I have ever known, or the coffee Mrs. Windom would serve up at any old time upon a shout from the shack?

That "plate-glass receiver" and its two tubes outperformed anything you had! Well, Windy never *said* there were only two. Who was suspicious enough to look under that table for that *second a.f. stage*!

Winter or summer 8GZ's shack was aglow with DX, good ham chat and hams, not to mention the warm feeling as you pawed through the bushel baskets (yes, honest) of DX cards!

Something passed out of ham radio when those tall pipes fell and the Franklin Avenue 8GZ closed down for the last time.

The years roll on and hamshacks change but the spirit contained within their walls continues. Take a look at the 1936 shack of W6QD at Manhattan Beach, Calif. Two things stand out — QD's antenna masts sitting in the surf and the "corn-fed kilowatt" in its wooden cradle rack! QD was located in a tiny, cozy apartment (made from a garage) right on the beach. How better to get an edge on Chuck Perrine, W6CUH, who lived high above on the hills overlooking the beach? I wonder which *was* the better location.

The same year of '36 recalls a visit to the U. S. A.'s highest station, W9DOA, on Colorado's Italian Mountain. W9DOA, made famous by a yarn in Clint DeSoto's *Calling CQ*, was over 13,000 feet above sea level and surrounded by even higher peaks. W9DOA was a simple ham layout but a wonderful boon to the Clara L miners during the long winter months. At W9DOA the operator sat on a case of dynamite when he pounded brass. But who cared? . . . the "caps" were in another room! W9DOA, where the antenna lead dropped 500 feet vertically from an 80-meter Windom supported by steel cables between two cliffs.

Ten years later at Kayenta, Ariz., W7TLY was one of the most remote hamshacks in the country. A bedroom shack at the end of Bennett Hyde's huge stone trading-post home with a BC-610 sitting in the corner and overhead a five-element beam with the never-ceasing wind singing through it. W7TLY's 10-meter signal will be long remembered. W7TLY, where the op was stared at by the silent and searching eyes of Hyde's customers, friends and neighbors — the Navajo!

W7TLY is gone from Kayenta. But not forgotten is that remote Arizona hamshack, as different from all others as it could possibly be, but in which there was that timeless, ageless *ham spirit* which lives in the hamshacks of yesterday and today!

V.H.F Party Results

(Continued from page 55)

W7KO.....90– 45– 2–AB
WN7UZB.....90– 45– 2–B
W7ALU.....28– 14– 2–B
W7QQC/7 (W7s OUI QQC RAP).....159– 53– 3–B
W7BB (W7s IEE QKE) 68– 34– 2–B

PACIFIC DIVISION

Santa Clara Valley

W6YEQ....2286–123–18–ABD
W6CGA.... 665–133– 5–B
W6EIC.....585– 65– 9–AB
W6SAW.....450– 90– 5–B
KN6DTS[1]..265– 53– 5–B
KN6CQG....260– 51– 5–B
W6OTN.....210– 42– 5–B
W6INN.....165– 33– 5–B
W6ZBS/M...115– 23– 5–B
KN6EJZ.....39– 13– 3–B
KN6DTR.....1– 1– 1–B
W6GCG/6 (W6GCG K6BIE) 1768–104–17–AB
W6ZEA (W6s ODK S8A ZEA K6CZI)...1260–126–10–AB

East Bay

W6OHQ/6..1035–112– 9–BD
W6JHV.....620–124– 5–B
W6WGM (W6s AFC WGM) 1608–134–12–AB

San Francisco

W6AJF.....2380–113–20–ABCD

Sacramento Valley

W6PIV[5] (W6s HAN PEI PIV) 765– 85– 9–AB
W6EKP/6 (W6s KDJ TEE K6DEO KN6EWO WØEVL) 192– 48– 4–B

San Joaquin Valley

W6ALW/6[5] (W6s ALW BHR) 581– 83– 7–AB

ROANOKE DIVISION

Virginia

W4JCJ.....413– 59– 7–B
W4UMF.....357– 47– 7–ABC
W4MLR.....148– 37– 4–B
W6LON/4....56– 28– 2–B
W4ERE.....30– 15– 2–B

ROCKY MOUNTAIN DIVISION

Colorado

WØCNM.....315– 21–15–A
WØFKY.....170– 17–10–A

SOUTHEASTERN DIVISION

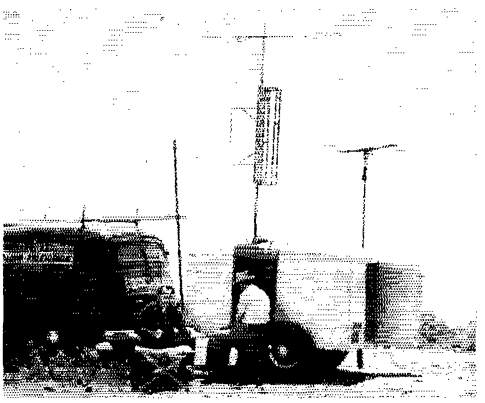
Alabama

K4WBX/4.....8– 4– 2–A

Georgia

W4LNG.....12– 6– 2–AB
W4ZXA/4 (W4s KGD ZXA) 10– 5– 2–B

(Continued on page 134)



Here's a Field Day-style set-up that makes life interesting throughout the Atlantic Seaboard states in every V.H.F. Party: W3KX/3, Big Pocono Mountain, near Stroudsburg, Pa. Operators include W3MRQ (facing camera), W3LZD and W3LCK. Below is a close-up view of the interior of the trailer, showing the complete rigs for 50, 144, 220 and 420 Mc. Operator sits in forward compartment.

SOUTHWESTERN DIVISION

Los Angeles

W6AXK/6...212-106- 2-B
KN6CHK/6 (KN6s CAD CHK K6BTJ W6SDW) 152- 76- 2-B

WEST GULF DIVISION

Northern Texas

W5SFW.....777- 37-21-AB
W5SNX.....12- 6- 2-B

Southern Texas

W5FXN.....392- 28-14-A
W5SVB.....351- 27-13-AB
W5EZB.....70- 10- 7-A
WN5EHD.....5- 5- 1-B

New Mexico

W5FPB.....3- 3- 1-B

CANADIAN DIVISION

Maritime

VO6U.....4- 2- 1-C

Ontario

VE3BQN....872-106- 8-ABD
VE3AIB.....792- 96- 8-ABD
VE3DNX....426- 67- 6-BC
VE3AET.....216- 54- 4-AB
VE3DHG.....200- 50- 4-AB
VE3BOW.....180- 45- 4-B
VE3DER.....180- 36- 5-AB
VE3BMB.....132- 44- 3-B
VE3QT.....40- 20- 2-B
VE3BQT.....32- 16- 2-A
VE3DGF.....26- 13- 2-AB
VE3DPG.....26- 13- 2-B
VE3DOJ.....22- 22- 1-A

Quebec

VE2AOK.....60- 12- 5-B

British Columbia

VE7ASM/7..176- 22- 8-AB
VE7JG/7.....96- 32- 3-B
VE7FJ.....42- 14- 3-B
VE7CM.....20- 10- 2-B
VE7DH.....5- 5- 1-B

[1] Novice award winner. [2] W9DRN, opr. [3] Hq. staff — not eligible for award. [4] W1YNC, opr. [5] Multiple-operator station — not eligible for single-operator award. [6] Multiple-operator award winner.

World Above 50 Mc.

(Continued from page 53)

south. The 50-Mc. band open frequently during early summer for contacts as close as 400 miles. Single-ended 6AN4 and 5842 grid-input r.f. amplifiers for 50, 144 and 220 Mc. now tamed and in regular use.

W6ZDO, Canoga Park, Calif. — Completed new crystal-controlled 420-Mc. converter using 6J4 r.f., 6J4 mixer with i.f. output 48 to 55 Mc. working into modified ARR-3 for either a.m. or f.m. reception. Also increased power of 2-meter mobile to 170 watts.

W7TMU, Snohomish, Wash. — Keeping sked with VE7 on 50 Mc. Monday nights; would like Oregon sked.

W7JHX, Port Orchard, Wash. — Completion of new 50-Mc. crystal-controlled converter improved results on 420, where the first i.f. is the 50-Mc. band. Completed work on sync generator for TV rig, using 46 tubes. A 10,000-Mc. rig now also complete, including a.f.c. circuit. Puget Sound 2-Meter Net meets each Monday night at 2000 MST, 145.8 Mc. Net control rotates each week.

W8UZ, Columbus, Ohio — From 20 to 25 stations heard regularly on 144 Mc. in Columbus area. Six-meter DX logged 19 days in June, including VE2UF, who was running 1½ watts input. June 27th.

W9KLR, Rensselaer, Ind. — WØIFS and WØTJF worked on 144 Mc. the night of June 26th — first Minnesota stations heard other than by aurora. Experimenting with long Yagi arrays, starting with 8-element job on 10-foot wooden pole. Shows considerably more gain than previous 5-element. Worked 15 states between July 5th and 15th.

W9LEE, Westboro, Wisc. — Excellent opening June 26th brought in Illinois, Indiana, Ohio, Kentucky, Minnesota and South Dakota all at once. Many stations now getting South Dakota contacts, thanks to WØRSP, Marvin, and W0ORE, Gary, S. D. Building automatic keyer with view to stirring up band to the east during last hour of sack time.

WØMOX, Overland Park, Kans. — Note to Illinois stations: Several of you heard over here from time to time, but no contacts possible because you don't stand by and look around often enough. How about turning your antennas west and giving the Kansas stations a break now and then? WØDSR now has his 2-meter rig running on s.s.b., with fine signal on the crystal-controlled converters. Is this the first successful 144-Mc. s.s.b.?

VO6U, Goose Bay, Labrador — Our most remote OES reports 50-Mc. openings to eastern USA. How about getting up there OMs and giving the boys a break? Experimenting on 220 Mc. with VO6R and W7SNR/VO6.

W5MJD Wins 50-Mc. WAS

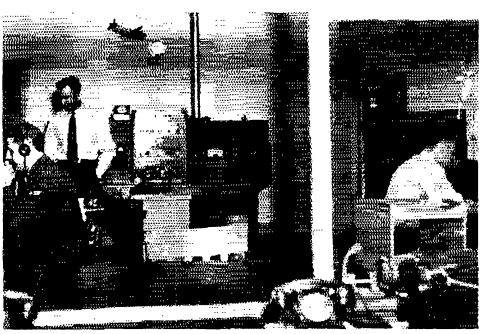
As reported earlier, working W1GJO/Vermont gave Joe Pryor, W5MJD, Amarillo, Texas, 48 states on 6. Now, with a few lines showing up in which we can include a late report, we are pleased to report that 48 cards have been received and found in order. As of Aug. 2nd, W5MJD is the proud holder of 50-Mc. WAS No. 10.

M.A.R.S.

MARS Air Force Station AF6AIR

MARS (Air Force) station AF6AIR of Headquarters 4th AF, Hamilton AF Base, California, became an active part of the joint MARS program early in 1949. Fourth AF MARS mission involves the training of MARS members in the eight western states. AF6AIR is NCS of the western net operating on 7832.5 kc. The major part of MARS Air Force APO San Francisco traffic is handled through this station which is connected by radioteletype with AIR, the headquarters USAF–MARS station in the Pentagon. This circuit utilizes a relay station, AF5FKF, at San Antonio, Texas. Offshore MARS Air Force radioteletype facilities are utilized at Hickam AF Base, Hawaii, and Tokyo, Japan. AF6AIR is an alternate link station in the MARS civil defense networks tying into the seven FCDA regional offices. AF6AIR is also a liaison station of the MARS-CAP. The MARS director is WOJG Daniel J. Olivier, AF6IHC of Novato, Calif.

The photograph shows three of the four operating positions of AF6AIR. Two positions on



AF6AIR

the left, not shown, use BC-610 transmitters and SP-600-JX receivers. The man standing in front of the hidden operator is the station chief, T/Sgt. Rodriguez. The center of the picture shows an operating position utilizing a Globe King transmitter.

To the right in the photo is shown a portion of the radioteletype facilities which include the Collins KW-1 transmitter, Haufman CV-89 converter, SP-600-JX receiver and Heintz-Kaufman frequency-shift exciter. Behind the operator on the right is a 2½-kw. amplifier using push-pull 833s in the final. Printing is accomplished by Model 19, 15, and 28 printers. There are two typing reperforators.

The antennae at AF6AIR include a number of multiband T2FDs, a Gordon 3-element beam, numerous doublets, and a stacked vertical on two meters.

U. S. N. R.

Amateur radio operators are offered opportunities for advancement by enlisting in the Naval Reserve Program.

Civilians who are qualified for enlistment in the Naval Reserve and who hold radio licenses issued by the Federal Communications Commission may be enlisted in the rates in Column 2 of the table below. At any time following enlistment in the rate indicated in Column 2 they may be examined for advancement; when qualified, they may be advanced to the rates in Column 3.

1) *License Held*	2) *Rates in Which Enlisted*	3) *Authorized Rate When Qualified*
Radiotelegraph Commercial		
First Class	Seaman	Radioman, Second Class
Second Class	Seaman	Radioman, Second Class
Third Class	Seaman	Radioman, Third Class
Amateur		
Extra Class	Seaman	Radioman, Second Class
Advanced Class or Class A	Seaman	Radioman, Third Class
General Class or Class B	Seaman	Radioman, Third Class
Conditional Class or Class C	Seaman Apprentice	Seaman

— • • • —

Naval Reserve Electronics Division 12-1 at Eureka, California, has an excellent representation of amateur radio operators. They are Cmdr. Cecil Chisholm, K6EKC; Julio J. Sannazzari, RMC, W6CWR; Don Hitt, SN, W6PKJ; Edward Kirkwood, CEL1, W6SLX; and Louis Baribault, ET1, K6AJB.

— • • • —

Eighteen amateurs are authorized to operate their equipment at naval stations in Alaska.

Amateur radio stations at Kodiak are operated by Leo W. Fitzpatrick, ET1, KL7AZW; Ronald James Custer, AT2, KL7AWR; John Trent, KL7DG/KL7; Lt. Comdr. Harry W. Jackson, KL7BCP; Cmdr. A. H. Stewart, KL7ALJ; Charles Hamilton, KL7EX; Lt. Cmdr. Albert McLane, KL7AUJ; and Mrs. C. H. McLane, KL7AYI.

Amateur radio stations at Adak are operated by Robert E. Mooring, KL7AER; Ralph A. Reedy, KL7AVA; William B. Ryburn, KL7AYQ; John E. Nichols, KL7AYT; Arnold P. Simmons, KL7BAM; Harold R. Jones, W6ZVV/KL7; Lee C. Rabie, KL7AZP; James R. Bartoo, W8DGS/KL7; Joseph A. Brown, W4ONJ/KL7; and Norman L. Lake, KL7BBP.

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 20th 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. Typewritten copy preferred.
(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., 248 Madison Ave., New York City 16.

MOTOROLA used communication equipment bought and sold. W5BCO, Ralph Hicks, 204 E. Fairview, Tulsa, Okla.

SUBSCRIPTIONS. Radio publications. Latest Call Books, $3.50. Mrs. Earl Mead, Huntley, Montana.

WANTED: Cash or trade, fixed frequency receivers 28–42 Mc. W9VIY, Troy, Ill.

WANTED: All types of aircraft radios, receivers and transmitters. Absolutely top prices. Dames, W2KUW, 308 Hickory St., Arlington, N. J.

DON'T Fail! Check yourself with a time-tested Surecheck Test. Novice, $1.50; General, $1.75; Amateur Extra, $2. Amateur Radio Supply, 1013 Seventh Avenue, Worthington, Minn.

WANTED: Early wireless gear, books, magazines and catalogs before 1925. W6GH, 1010 Monte Drive, Santa Barbara, Calif.

TUNING shafts for ARCS, 274N, ARN7, ARB, RU16, $2.00; *MC211A, right-angle for tuning shafts, 35¢; MC136*, $2.50; SCR274N, racks and mountings, $1.00; BC348 potentiometers, $2.00. All new. L.I. Radio, Box 474, Montrose, Pa.

CODE slow? Try new method. Free particulars. Donald H. Rogers, Hatboro, Penna.

POSTCARD brings you free information on our new Amateur Desk Signs and money-saving club purchase plan. Hawkins Distributing Co., Paquatuck Terr., East Moriches, N. Y.

ATLANTIC City vacation. Kilowatt accommodations at low power prices. Luxury rooms with private bath and radio, or budget special rooms with running water. Garden-like atmosphere in quiet location yet near everything. Write for information or reservations. Commodore Hotel, 715 Pacific Ave., Atlantic City, N. J. Phone 4–6993, Ben Robin, W2BIG, Manager.

SURPLUS specials! RG-8/U Cable 100 ft. $5.95, 250 ft. $13.25, 500 ft. $25.00. Coaxial Connectors — PL-259 5 for $2.25, SO-239 5 for $2.00. New tubes — 807 — $1.65, 811A — $4.25, 812A — $3.50, 813 — $10.50, 866A — $1.48, 304TH — $8.75, 872A — $3.95, 24G — $1.85. Postage extra. Request free bulletin and visit our new store for thousands of bargains. Want to buy or swap: Selsyns, Synchros, Servo Motors, Amplidynes, RTA-1B Aircraft Radio. Lectronic Research, 719 Arch St., Philadelphia 6, Pa.

MICHIGAN Hams! Amateur supplies. Store hours 0800 to 1800 Monday through Saturday. Purchase Radio Supply, 605 Church st., Ann Arbor, Michigan. Phones 8696 and 8262. Roy J. Purchase, W8RP-Leroy Reichenberger, W8LJD-Edmund E. Gunther, Jr., W8HMW.

URGENTLY need AN/APR-4 items. New high prices. Littell, Far Hills Branch, Box 26, Dayton 9, Ohio.

PERFORATED Sheet Aluminum 18 gauge with 1/16" holes. Easily worked with hand tools or cut to your pattern. Perfect for shielding. One dollar per square foot. Minimum order four feet. Write for bulletin. Nortmann-Duffke Company, 2740 S. 32nd Street, Milwaukee 46, Wisconsin.

RK-4D32, brand new, $17.50 postpaid. W5AXI.

HOTTEST Ham List in the nation! Trade-ins and closeouts of all leading Amateur brands including Collins, National, Johnson, Hallicrafters, Gonset, Elmac, Morrow, Harvey-Wells, RME, Millen, Meissner, Sonar. We trade and offer our own time payments tailor-made for you. All leading brands of new equipment in stock. Write for latest bulletin. Stan Burghardt, W9BJV. Burghardt Radio Supply, Inc., Box 41, Watertown, South Dakota.

QSLs? SWLs? State-map? Rainbow-map? Cartoons? Photographic? One-day service! Samples, 25¢ (refunded). Rus Sakkers, W8DED, P.O. Box 218, Holland, Mich.

QSL's-SWL's Meade WØKXL, 1507 Central Avenue, Kansas City, Kans.

QSLS-SWLS, 100, $2.85 up. Samples, 10¢. Griffeth, W3FSW, 1042 Pine Heights Ave.; Baltimore, Md.

QSLS of distinction. Three colors and up. Uncle Fred, Box 86, Lynn, Penna.

DELUXE QSLS. Petty, W2HAZ, Box 27, Trenton, N. J. Samples, 10¢.

QSL-SWLS, Samples, free. Bartinoski, Houlton, Me.

QSLS. Samples free. Albertson, W4HUD, Box 322, High Point. N. C.

QSLS! Two colors, $2.00 hundred. Samples for stamp. Rosedale Press, Box 164, Asher Station, Little Rock, Ark.

QSLS "Brownie," W3CJI, 3110 Lehigh, Allentown, Penna. Samples 10¢; with catalogue, 25¢.

QSLS-SWLS, samples, 10¢: Malgo Press, 1937 Glendale Avenue, Toledo 14, Ohio.

QSLS of quality. Reasonably priced. Samples. W3QCC, Bescsparis Printing, 207 So. Balliet St., Frackville, Pa.

QSL samples, 10¢. Plenty styles. W4AVV, Stinnette, Jr., Box B155, Umatilla, Fla.

QSL samples. Dime, refunded. Roy Gale, W1BD, Waterford, Conn.

QSLS! Taprint, Union, Mississippi.

QSLS. Samples, 10¢. C. Fritz, 1213 Briargate, Joliet, Illinois.

QSLS: Beautiful blue, silver and gold on white glossy stock: $3.85 per 100. Two-day delivery. Satisfaction guaranteed. Rush order and get surprise of your life. The Constantine Press, Bladensburg, Md.

QSLS: Kromekote. W1KMP/6, Dauphinee, Box 78374, Los Angeles 16, Calif.

QSLS-SWLS: Samples, dime. Backus, 5318 Walker Ave., Richmond, Va.

QSLS! "America's First Choice!" Interesting samples, 10¢. Tooker Press, Lakehurst, N. J.

QSLS 150, $2.00. Samples, 10¢. Bob Garra, Leighton, Penna.

QSLS-SWLS? Cartoons, rainbow, etc. Reasonable. samples, 10¢ (refunded). Joe Harms, *W2JME*, 225 Maple, North Plainfield, N. J.

WANTED: Bargains in transmitters, receivers, laboratory and test equipment, husky power supplies. Especially need plate transformers putting out 4000 V or more each side center, filter chokes, condensers, miscellaneous gear, etc. What have you? Please state price desired. Harold Schonwald, W5ZZ, 718 No. Broadway, Oklahoma City 2, Okla.

NEED ARC-1 — Bill O'Connell, 4908 Hampden Lane, Bethesda, Maryland.

UNUSED, factory-wired, de-TVI'd, complete 150 w. phone/c.w. transmitter, $100 or best offer. *K2DQH*, Chris Lane, North Street, Harrison, N. Y. Tel. Rye 7–0114.

NOMINAL Trade-in will bring you $90 allowance on new Barker & Williamson transmitters, Hallicrafters HT-20, or any model Concertone tape recorder; $100 on SX-88, $60.00 on Viking II, $40.00 on Viking Ranger, or Elmac AF-67; $30.00 on Elmac receivers or Pentron tape recorders, 20% on Lansing, Stephens, Fisher, etc. Hi-Fi components. Other terrific bargains! Telcoa, Azurelee Dome, Malibu, Calif. Tel: Globe 6–2611.

BEST check takes two Gardner transformers 220 primary, 1125 and 2625 secondary, 60 cycle at 1.5 kva; two *304TL*; Thordarson choke 30 henries at 0.5 amperes; Westinghouse parts-Induction voltage regulator, 103–125 volts input, 115 volts output, 60 cycles, 250 volt-amperes, secondary current 2.17 amperes, 47.5 pounds; capacitor 30 mfd at 330 volts; time-delay relay, 115 a.c. 60 cycle glass covered. Gross *L60 modulator*. Husting, 521 Piper Drive, Madison, Wisconsin.

HANDIEST gadget the c.w. man ever had. Variable speeds for your bug key. Whether QSO or traffic, you can change speeds instantly to suit the receiving operator. Chrome plated. Send $1.00 with make and model of key to J. A. Hills, 8165 Inwood Ave., Dayton 5, Ohio. W8FYO.

WANTED BC-610E-C. Hoffman, 4908 Hampden Lane, Bethesda, Maryland.

NEED: AN/ARC-3. R. Ritter, 4908 Hampden Lane, Bethesda, Maryland.

WANTED: BC-348 receivers. Write James S. Spivey, Inc., 4908 Hampden Lane, Washington 14, D. C.

SURPLUS Crystals, ham freq., FT-243, guaranteed to oscillate; 10 xtals for $6.90, postpaid in U. S. Your choice: 7000, 7006, 7025, 7040, 7050, 7073.3, 7075, 7100, 7106, 7125, 7140, 7150, 7173.3, 7175, 7200, 7206, 7225, 7240, 7250, 7273.3, 7275, 7300; 8000, 8006.7, 8008.3, 8010, 8016.7, 8020, 8025, 8030, 8033.3, 8040, 8041.7, 8050, 8058.3, 8060, 8066.6, 8070, 8073, 8075, 8083, 8090, 8091.7, 8100, 8106.7, 8108.3, 8110, 8116.7, 8120, 8125, 8130, 8133.3, 8140, 8141.7, 8163.4, 8166.7, 8170, 8173.3, 8175, 8180, 8183.3, 8190, 8191.7, 8200, 8206.7, 8208.3, 8210, 8220. W. W. Brough, W6EFX, 805 So. Union Ave., Los Angeles 17, Calif.

HIGHEST prices paid for BC610 transmitter, BC614 amplifier, BC939 antenna unit, JB70 Junction box, plug-in coils and TU's from BC610. Tubes receiving and transmitting, 2K35, 2K39, 2K50, 3C22, 3C45. We buy *all types*. "TAB" 111 Liberty St., New York 6, N. Y. Phone REctor 2-6245.

FOR Sale: Late model Meissner sig. shifter, factory-wired; DB22A preselector; Good AC model BC342, shock mounts, matching LS3 speaker; BC454 & 455 receivers in dual rack, power supply in 3rd compartment with LS3 spkr; BC459 & 457 in dual rack with pwr supply meters, bug key and mod. xformer; Q5'er and brand new 453 receiver; many small ham parts; monitor, several Amphenol folded dipoles with molded T-match; late model AC electronic multimeter, S38C recvr, new, Millen VFO, Radar calibrator (good parts, tubes); many years of radio mags, textbooks, call books, QSTs, COs and Radio. J. Bunnel, telegraph instruments, relays, etc. W8MF, 229 W. Burnham, Battle Creek, Michigan.

CW Men! Modulate any c.w. rig. Modulator, complete with instructions, $14.95. Satisfaction guaranteed. Northeastern Electronics, 337 South Main Ave., Albany, N. Y.

ART-13 parts, new, speech amplifier, VFO dial mechanism, doubler unit, DC motor, all for $25.00. W8CVU, 305 Plummer, Essexville, Michigan.

ATTENTION Hams New York City vicinity! Selling *32V2, 75A2*, like new. Best offer cash & carry. W2AEB.

CANADIANS: Modified PV500 for sale, cool KW with 2PP-304T1 RF, 1–813 driver, 1–807 osc. 1–6K6 xtal, 2-VR-150 with Variac; 2–872 and 866 power supply, 5–3" meters, 63" x 31" x 20". Modulator 2–805 with separate power supply; 5" viewmeter, 23" x 19" x 16". Speech amplifier, Stromberg-Carlson model 200 25 watts. Reasonable offers will be considered. VE2OU, P.O. Box 23, Riviere du Loup, Quebec, Canada.

FOR Sale: Collins 32V3 in new condition, Johnson low pass filter, spare 4D32 — all $625.00. Would consider taking in trade: variable vacuum capacitor, Precision E200 C signal generator, Emerson 10" Television. W5FZB 2101 Washington, Waco, Texas.

SALE: C.F.L. unit from AN/ART-13, converted per Jan. '49 CQ with 6 v. tubes, xtal and pwr supply; Eico 315K Sig. generator, $35.00; $27.50 P.P. R. J. Williams, 1444 11th St., Gt. Bend, Kans.

COLLECTION of ham and service equipment: Riders' Manuals Vol. 1 to 12 and 14 to 22 inclusive; Precision oscillograph ES500; sweep generator E400, tubes, meters, speakers, resistors and condensors, transmitters. Many other items. Write for details. All inquiries answered. Marian Reed, Clark, Penna.

IMAGE orthicons, type 5820 with data sheet. Just taken out of service. Resolution still exceptionally good. $50.00 postpaid. W4VFC, 401 Williams Avenue, Madison, Tenn.

FOR Sale: 80–40–20–10 180-watt c.w. 120-watt input 'phone xmitter incorporating Meissner EX signal shifter push-pull 6146 amplifier with all band tuners, heavy duty 750–600 volt power supply complete in Bud cabinet 36" high, also push-pull 807-W Class AB2 modulator and power supply external built. Low pass filter, Antenna tuner 300 ohm output, 90% de-TVI'd. Fully metered; $125.00 or best offer. Pair 304-TL, $5.00 each. All inquiries answered. Phil Girard, W8GRN 14025 Norborne, Detroit 39, Michigan.

REAL Bargains! Sell all new 1.87 Kw 120V, 60-cycle 1800 rpm generator with exciter, BC458 57 Mc., prop itch motor, 300 v., 100 Ma., 6 V. Vibrapack, 803s, BDCST farm radio, also repairable TV chassis, complete with 12" tube. Want: 2 element 20-meter rotary and 32V3. W2PUK, 79 Sunset Ave., Glen Ridge, N. J.

SELL: Alaska only: all excellent, Harvey-Wells Bandmaster Senior, AC power supply, VFO, crystal mike preamplifier, $170; rack mounted SX-28, $90; Astatic dynamic "G" stand $20; 1200 VDC 350 mils xtormer, $30.00; crystals, $1.50; 110 VAC power supply for AN/ART-13, $100. Trade Ampro 16 mm sound projector or Shopsmith with accessories for late communications receiver. KL7AZL, Col. O. Heinlein, USAF, Ladd AFBase, APO 731, c/o Postmaster, Seattle, Washington.

FOR Sale: Lettine 240 minus B&W coils, best offer over $45.00; Millen 90881, 500 watt amplifier, pp. V-70-D's, fil. xformer, coils all 5 bands best offer over $60.00. Both in good clean condition. F.o.b. Charlotte, N. C. W4TVR, Pete Snow, 2900 Saint Andrew's Lane.

WANTED: Operating instruction manual for GP7 Navy transmitter; also 160 meter tuning unit. W3CEO.

FOR Sale: Hallicrafters S-38C, $30.00. Phil Merikle, 23 Norman Place, Tenafly, N. J.

FOR Sale: 400 w. de-TVI'd transmitter, Bud final modulator clipper and driver. Separate H.V. supplies. Antenna tuner, low pass in 5 ft. case, Lyraco AM-CW and 3" RCA 'scope. Best offer over $390. Photos? W9NNS, 340 Pine, Stevens Point, Wisconsin.

STANDARD AC model Instructograph with AC oscillator, eleven continental code tapes, instruction book. Used two months. Cost $50.00. Best offer over $25.00. J. A. Berube, 342-D Gulick Drive, Ft. Monroe, Va.

SELL: Meissner 90–1090 Signal Shifter with NBFM attachment. Viking I with spare final; HRO50T1 with Panadaptor and freq. standard. A, B, C, and D coils and speaker. $500.00. W2RYD.

WANTED: TV type rotator, motor in good condx. Cash or swap for what? C. Kelley, 7204 Clovernook Ave., Cincinnati 31, Ohio.

ATTENTION Collectors! What am I offered for Kennedy intermediate wave receiver and matching amplifier in good condition. W8QV, 2307 Allison Rd., Cleveland 18, Ohio.

ATTENTION DX men! Push-pull 304TH final with KW power supply and filament supply. 75A1 in excellent condition. This rig worked 90 countries in few months. What am I offered? Bob Turner, W3RBW, Box 81, Accokeek, Md.

RADIOTELETYPE 21-A complete, converter, D.C. supply, distributor, Western Union manual and tape. Ready to plug into your receiver. Trade for good receiver. W8FRB, Polen, 227 Stewart Ave., S. E. Massillon, Ohio.

COLLINS 30-K1, complete, in new condition: $900.00. BC-348M, 11 AC, $65.00. F.o.b. Dunbarton, N. H. A. Brizzolari, WITHM.

FOR Sale: Home built 500 watt all-band transmitter. TVI proofed. Rack mounted, 810 final. Best offer over $100. Also A54H Elmac and power supply. Only $120.00. Ray Shirley, W4BTS, P.O. Box 224, Newport, Tennessee.

URGENTLY Need AN/APR-4 items, particularly Tuning Units for important defense contract. New high prices. Engineering Associates, 434 Patterson Road, Dayton 9, Ohio.

WILL sacrifice 32V2 perfect condition, complete with 148-B optional NBFM unit, new spare 4D32, Drake lo-pass filter and connectors: $400.00. A. Earle Fisher, K2HJF, 45 East 66th St., New York 21, N. Y.

FOR Sale: Coast Guard R138 receiver advertised in Dec. QST, 200 Kc to 18 Mc range, equal to NC125. Factory-wired and tested, $70.00. H. H. Piper, 506 Truitt Ave., Milford, Del.

WILL pay cash for a Collins 32 transmitter. Any model but prefer V3. Must be bargain and in good condition. Advise price, model and condition. Frank Shopen, 4466 Bedford, Omaha, Nebraska.

SELL: Millen 90800 xmtr, power supply and instruction book. Best offer over $25.00. Edmund Schenke, KN2GJG, 146 Jay, Freeport, N. Y.

WANT: Test equipment by Lampkin; GR; H-P; others. TMA-150A condenser; sockets for Eimac tubes; Lettine 240. Will swap new G-3024 commercial rack for two standard-size racks. Howell, W4SOD, Lumberton, S. C.

QST, complete from 1943 to date. Also old copies of CQ and Radio. Make an offer. F.o.b. Umatilla, Fla. W4AYV.

SELL, Swap: 1200 v. 200 Ma. supply, new 813, 500 Ma. meter, 813 filament xformer and socket for 813, all $35. 400 V. dual Vibrapack, $15. 40-watt modulator, $20. All parts for 750 V., .350 Ma supply, $12. All parts for 25 amp. selenium charger, $20.00. Command xmtr supply $10.00; Masco 10-watt amplifier, $10.00; Vibrapacks: 400 V., $10; 300 V., $7.00; several 2–4 amp. chargers, $5.00 each. Novice xmtr, $25.00; 1000 packaged solder lugs, $4.00; 100 A.C. push switches, $5.00. Wanted: Grid dipper, S-38 or BC-348. W8QKU, Zuchora, 2748 Meade Street, Detroit 12, Mich.

NOVICE 25-watt xmtr, $30. Write Bob Ellis, Frost, Texas.

METERS! Voltmeters, Ammeters, Multirange testers, repaired, calibrated. Martin Vycnielo, 89 Southridge Road, San Francisco 24, Calif.

TRADE: Hallicrafters S-72, S-40A with S meter, and VHF-152A for NC-57 and HFS with power supply. H. K. Graham, W6OGT., 2805 Elmwood Ave., Bakersfield, Calif.

75A-1 with speaker, like new, $250.00; Thordarson plate xfrmr, 1500–1250 DC 500 Ma., $15.00; Thord. swinging choke type T20C57. 500 Ma, $10.00; Thord. Multimatch mod. xfrmr type T21M62, $10.00; Thord. Multimatch driver xfrmr type T20D83 500 line to Class B grids, $10.00; 811 Rf. amp stage, enclosed in alum. cabinet, complete coax. fittings, tube, induc. tuning conds.; 1 turn B&W shielded Link, Sprague Hi-pass, conds. in leads, Triplett Mod. 327–0-500 plate Ma. and Mod. 327, Triplett 0–100 grid Ma., $20.00. J. H. Robinson, W5BG, 522 Cumberland St., Dallas 3, Texas.

BARGAINS: With New Guarantee: Gonset Triband $27.50; VHF-152 $39.50; S-72 $59.50; S-40 $65.00; NC-57 $69.00; RME-45 $99.00; HRO Senior $99.00; Lysco 600 $89.00; S-27 $109.00; SX-43 $129.00; S-76 $149.00; SX-71 $169.00; HRO-50 $275.00; 75A1 $275.00; HT-17 $32.50; EX Shifter $59.00; Globe Trotter $59.50; Harvey Wells Sr $79.00; DeLuxe $99.00; Viking I $189.00; New SS-75 $199.00; Elmac A-54 $99.00; HT-9 $169.00; Globe King $295.00. We need used receivers: We give highest allowances for S-20R; SX-71; NC-100; S-40B; NC-125; SX-24; SX-25; HQ129X; and similar receivers. Free trial. Terms financed by Leo, WØGFQ. Write for catalog and best deals to World Radio Laboratories, 3415 West Broadway, Council Bluffs, Iowa.

COMPLETE Station: 75A1 converted to 75A2, 32V2 de-TVI'd, both by Winters Lab; Two 1 K.w. finals covering 10, 20, 30 and 75 meters with modulators and all power supplies, rack mounted. All for $1000. Will sell separately. Also, 40 ft. steel tower, Mims rotator, head and Signal Squirter 10 and 20 meter beams. All for $250.00. Station of W2KAX, deceased. Local sale preferred. Contact W2AIH, C. F. Moretti, 1619 Blvd., Peekskill, N. Y. for complete and detailed list.

FOR Sale: HRO-50T with coils A, B, C, & D: $225.00. Set is as good as new with hardly a scratch. Will deliver locally. Pressman, W2JAZ, 409 Avenue L, Brooklyn 30, N. Y.

NOVICES! S-53A, $46.40; Sonar SRT-75 (75-watts VFO/xtal & NBFM), $86.75 or both for $120.00. Write W9ZVE, 1010 N. Randolph, Champaign, Ill.

FOR Sale: New Sonar MR-3, 75–20–10–11 meter mobile receiver, never used, $65.00. Original price $92.00. Ted Miller, WØOVC, 834 Cherokee Ave., St. Paul, Minn.

FOR Sale: Collins 32V-1, like new in performance and appearance. Includes new spare 4D32. $375.00. Gullberg, W5GGS, 405 Bluebonnet Drive, La Marque, Texas.

WANTED: From Florida amateur: S-76 or similar revr; 75 watt xmtr; Vibroplex "Original" bug. Must be in gud condx and priced right. Lew Carver, W4HIW, Box 2309, Lakeland, Fla.

SCR-522 transmitter, in good working condition, $25.00 or trade for small pitch prop motor. W5AYZ, 3719 Zephyr, Houston, Texas.

FOR Sale: HRO-60 with A, B, C, and D coils. Also 15-meter bandspread coil and speaker, $420.00, total. Wendell S. Thomas, M.D., K6CBJ, 374 Mancha Pl., Monterey Park, Calif.

FOR Sale: SX-71 in excellent condx, $175.00; 28 Mc. police xmtr with 6VDC input 600V 150 Ma. output, Dynamotor, $32; B&W CX40A butterfly condenser, $16.00; factory wired Eldico GDO $23.00; Elmac PMR6A with Vibrapack, $105.00. W8ZBD, 511 N. Warner, Bay City, Mich.

SELL: Cheap, 250 watt AM Bassett police transmitter in 67" gray cabinet, four illuminated meters, modified to work all ham bands. H. Vanderwal, 325 Franklin, Grand Haven, Mich.

FOR Sale: 2400 volt 300 mil supply, 807 buffer complete; all parts, tubes, meters for 400 watt P.P. final, all paneled for rack. No oscillator. Supreme 580 tube checker. Pick them up for $62.00. Harold F. Cushing, W1EUS, 16 Preston Drive, Manchester, Conn.

NEW Crystals for all commercial services at economical prices; also regrinding or replacement crystals for broadcast, Link, Motorola, G.E. and other such types. Over 19 years of satisfaction and fast service. Send for L-7 catalog. Edison Electronic Co., Temple, Texas.

SELL: Harvey-Wells TBS-50D, TVI-proof with pwr supp., $100; National HFS 27–250 Mc and new power supp., $110; Master Mobile Whip and coil, $5.00; Vaaro all-band coil, $5.00; 2-meter 522 trans., $13.00; SX-71 and R-46 apkr, as new, $225.00. Fada FM tuner, new $12.00. W2HDR, 111 W. Hoffman Ave., Lindenhurst, L. I., N. Y.

ENGINEERING design data on broad band amplifiers, miniature equipment, harmonic reduction. Low amateur rates. Arnold K. Beauchemin, Electronic Engineer, Member I.R.E., ARRL, W2CTB, 11-A Wayne Gardens, Collingswood, N. J.

FOR Sale: Collins 310-B3 exciter, in excellent condition, no home-brew changes, $195.00; 50-watt c.w. rig, xtal switching, 2-meters, built-in power supply, 8¾ x 19 panel, metal cabinet, no haywire, $45.00. Cash, no trades. WØCZA, 239 Bristol Rd., St. Louis 19, Mo.

FOR Sale: Johnson Viking Model 122 VFO, like new condition, with tubes. $45.00 prepaid. Thor Lyford, WØQIK, Waseca, Minn.

FOR Sale: Like new, SX-71 receiver, $179.00. Going to college. Shipped p.p. WØABS, West Plains, Mo.

SELL or swap for HRO or Collins receiver or H.P. final or components: DuMont BC241 'scope, excellent, $225.00; BC474 perfect, $75.00; BC-453 "QSer" ex. converted 6 v., $20.00; BC455 ex. $12.00; BC457 and 458 both ex., $15 ea.; Morrow 2BR 80 and 10 converter, ex. $20.00; PE103 gen. only, good, $20.00; NC-88 revr, as new, $90. W7QJ, Rt. 4, Box 598, Halliday, Salem, Oregon.

FOR Sale: Harrison prop pitch motor, mast coupling and indicator, complete, $40.00. H. J. Reed, Buttonball Lane, Weston, Conn.

SELL: SX-71, Harvey-Wells xmtr. Both slightly used. Make an offer. Harry Melling, 32-41 202 St., Bayside, L. I., N. Y.

LYSCO 600 TVI proof transmitter, good condition: $75.00; Eico 425 oscilloscope, new, $40.00; National CRU modulation 'scope, never used, $18.00; Heath VTVM, V6, $20.00. Philip Schwebler, Jr., W2ZHE, Alcove, N. Y.

SELL: Complete 10 M Motorola T-69-20A transmitter with Vibrator power supply, $45.00. W1VDH, Woodhouse, 8 New Hampshire Ave., West Barrington, R. I.

SELL: 32V-1, $375, AR88-D, $275; #21A teletype midget tape printer, $45; 12,000 ohm d.p.d.t. relays for 110 vdc, $1.75; Boehme automatic keyer with McElroy 3-key tape puncher for Morse code, $145.00; Collins 30-J transmitter, 600 watt input c.w. and 'phone, $325.00; Want: ART-13, DY-17, ARN-7, APK-4, APN-9. Cash or trade, Tom Howard, W1AFN, 46 Mt. Vernon St., Boston 8, Mass. Richmond 2-0916.

DX Crystals: 7001.25 kcs, $1.75 Avitron, Vox 66, Bethpage, L. I., N. Y.

MOBILE: 6v Dyna. solenoid start relays, contacts handle 100 amps 7.2 ohm coil; $1.50 each, postpaid. Motorola T69-20A Vibrator, dual supply, 345 volt, 240 Ma., $22.00. A. Brocato, 699 Idlewild, Cir., Birmingham, Ala.

WANTED: Barcol speed reducer 14 watts, 7 rpm output. W4LW, 414 New Hampshire Ave., Norfolk 8, Va.

PRESTO 1D 15 ohm professional disc recording head with advance ball for MG, recently factory recalibrated. Will sell or swap for late model 17" TV chassis or 8 MM projector. W2JQD, 356 Bullard Ave., Paramus, N. J.

WANT: APR-4 tuning units, ART-13, DY-17, CU-25, BC-312, BC-342, BC-348, ARN-7, APN-9, APR-6, ARC-1, ARC-3, RTA-1B, BC-610, BC-614, BC-939, BC-221, TS-174, TS-175, and parts, technical manuals. Cash or trade for new Viking, Ranger, Elmac, Morrow, Gonset, National, Hammarlund, Hallicrafters, Barker & Williamson, Central Electronics, Telerex, Alltronics, Box 19, Boston 1, Mass. Richmond 2-0048, 2-0916.

FOR Sale: GE type signal slicer $40.00; 807 modulation transformer, $6.00; Eico VTVM, $25.00; Vibroplex key type J-36, $8.00; Jensen Speechmaster speaker, $5.00; 852 tube, $5.00. Also list of other parts. W3PKI, 737 Pine Street, Steelton, Penna.

HALLICRAFTERS: S-18 $59.95, S-29 $40.00, S-38 $34.95, S-38B $39.95, S-40B $79.95, S-72 $59.95, S-76 $149.95, S-77 $79.95, 5R10 $39.95, R-46 $12.95; National HFS $110.00, HRO-Sr $119.95, HRO-3 $125.00, NC1-10 $29.95, NC-46 $69.95, NC-88 $89.95, NC-100 $75.00 NC-173 $139.95; Gon-set 6-10-15 $44.95, 10-11 $19.95, Tri-band $29.95, Super-6 $39.95, 3008 $29.95; RME MC-H4 $29.95, DB-20 $29.95, VHF-152A $59.95, 45 $99.95, HF10-20 $59.95, 69 $84.95, DB-23 $39.95; Collins 32V-2 $495.00; Harvey-Wells TBS-50A $79.95, TBS-50B $64.95, TBS-50C $79.95, TBS-50D $89.95; APS-50 $29.95, VFO $39.95; other used items available; write for latest list to W1BFT, Evans Radio, Concord, N. H.

SELL: Collins 32V2, factory condition, $400.00. No trades and no shipping. W2NCY.

WANTED: BC-348 receiver. W. Richards, 4908 Hampden Lane, Bethesda, Md.

REAL bargains: New and reconditioned Collins, National, Hallicrafters, Johnson, Elmac, Gonset, Babcock, Morrow, RME, Millen, Lysco, others. Reconditioned S-38 $29.00; S-40A $69.00; S-76 $129.00; NC-57 $69.00; NC-88 $89.00; NC-125 $129.00; NC-183 $199.00; HRO-50T1 $299.00; HRO-60 $399.00; HQ-129X $169.00; VHF-152A $39.00; RME-45 $99.00; Gonset Tri-band $29.00; Super-Ceiver $89.00; S-40B, SX-71, SX-28A, SX-42, SX-62, HFS, HRO-5, HRO-7, Collins 75A-1, 75A-2, 32V-2, 32V-3, Viking II, Harvey-Wells Bandmaster transmitters, others. Shipped on trial. Easy terms. Satisfaction guaranteed. List free. Henry Radio, Butler, Missouri.

QST for sale: October, 1916, excellent condition. Also have 1931 (Volume 15) through 1944 (Volume 28) except for 1938 and 1941. Each year is bound in black buckram with gold letters. Low price per volume — special price on all twelve. L. A. Morrow, W1VG, 99 Bentwood Rd., West Hartford 7, Conn.

COLLINS 75A2, $325. New HQ-140X with matching speaker in sealed cartons, $225. HQ-129X with crystal calibrator built in, $160. Hunter Cyclemaster 20A exciter similar to 310B, $125.00; Hunter 20B Band-It, new, unused, $40; 150 feet coil RG-57U twinax unused, $25.00; pair new 4-65A's, $25. QST magazine 1932 through 1946, perfect condition, $20 entire lot. All F.o.b. Ed Schmeichel, W9VFV, 190 E. North Avenue, Elmhurst, Illinois.

MOBILES! Reflectorized aluminum call sign. Regular 2" x 5", $1.50; "Jumbo" 4" x 12", $2.00. Overnight service. Whitley, W2LPG, 133 Airsdale Ave., Long Branch, N. J.

SWAP or sell 3 BC645 new units; Eicor Genemotor 6 volts input, 425 volts 375 Ma. output. Want transmitter. W4ESV, Vereen, 211 Southport, N. C.

AMATEUR transmitter construction course and radio receiver repair course, Queens Evening Trade School, 47th Ave. and 37th St., Long Island City, N. Y. Opens September. Register now. File application by writing Gustav Motz, Teacher in Charge, care of Box 131, Jamaica, L.I., N. Y.

MOBILEERS! Identify your new ham license plates with amateur radio. Beautiful die-cast chrome license-plate frames with the words "Amateur Radio Station" cast in the area normally occupied by a car-dealer's advertisement. Dress up your car and let the public know the meaning of your call-letter plates. Sent postpaid with money-back guarantee — $3.50 per pair or $2.00 for single frame. Amrad Specialties, Box 3596, San Francisco 19, Calif. Dept. Q.

RADIOTELETYPE: Sell Model 12 complete, UTC S-22 Universal modulation transformer, several PE-103 generators. W6DOU, 1558 "B" St., Hayward, Calif.

FOR Sale: EX Shifter, $40. Master Mobile antenna and body mount, $10; 6 v. dynamotor 390v. @ 250 Ma., $15; 30 watt 80 meter mobile, $20; KW rig, fone/c.w. 80-40-20-10, enclosed, de-TVI'd complete, $350; Meck T-60, $65; Victor Mod. 40 16 mm sound projector, $75; BC454E 80 mtr rcvr, $10. Need cash. F.o.b. Stancel, W4PHY, E. 10th St., West Point, Georgia.

SELL: Viking II, good shape, $250. Write Robert Ramsey, WØEVN, 321 Taylor, Lebanon, Missouri.

SELL: Grid dip oscillator, $12.00; 500 Kc xtal calibrator, $12.00; 15 watt VFO/exciter, $50; new 829B tubes; 829B transmitter; microphone floor stand. Robert F. Clough, 172 Boulevard, Pompton Plains, N. J.

WANTED: Service, maintenance manual for ARC-4. Ekstrand, W6NSH, 10222 Bryson, Southgate, Calif.

NO time for ham radio. Have Collins 75A2, 32V3, Morrow and Gonset mobile, Gonset 2M equipment, EX signal shifter, Elmac mobile, Johnson Viking and Matchbox, low pass filter and many miscellaneous items. WØUEV, Hansen, 4369 Barker Ave., Omaha, Nebr.

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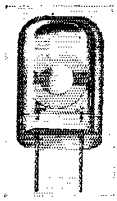

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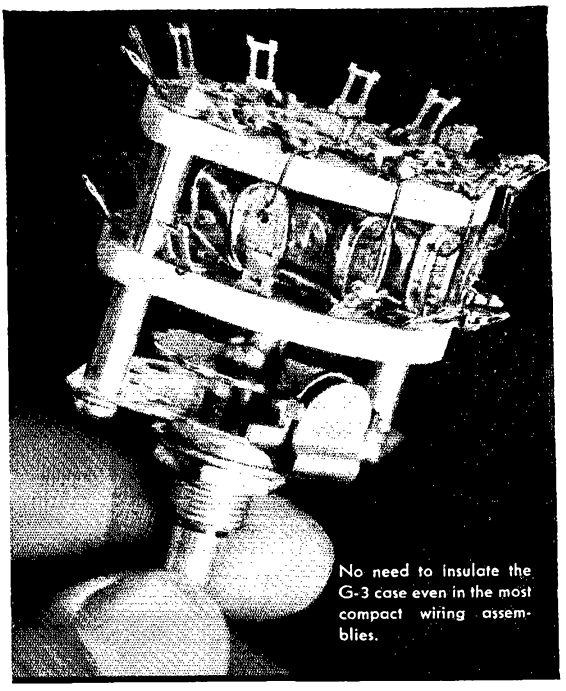

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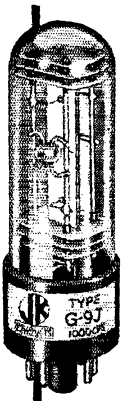

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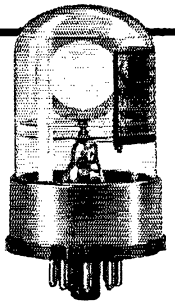

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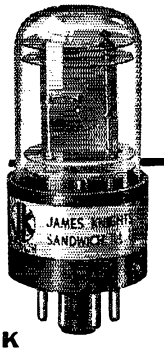

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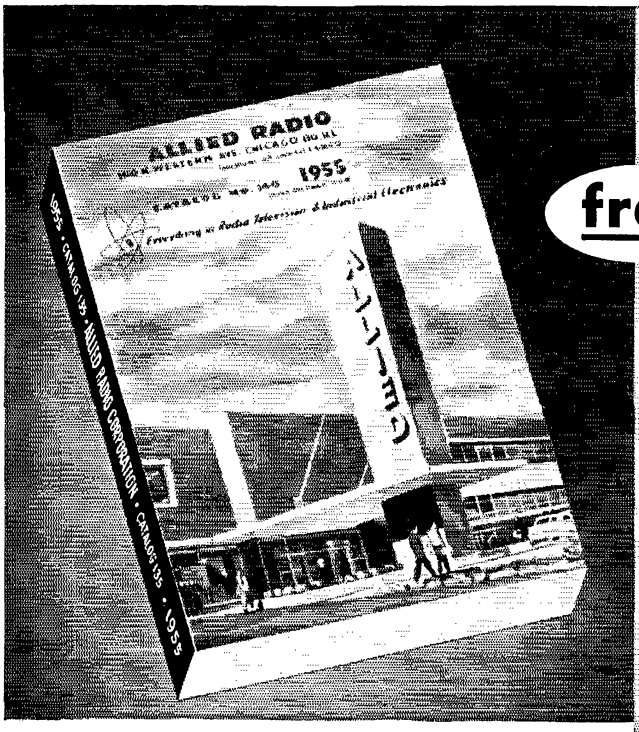

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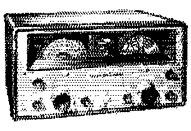

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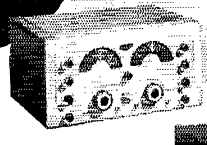

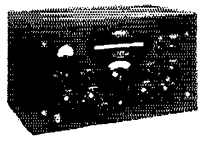

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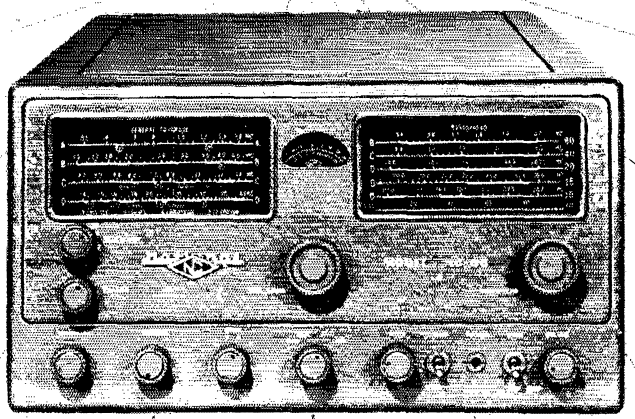

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RCA High-Perveance tubes—power triodes and beam power types—are available at your RCA Tube Distributor. For technical data write RCA, Commercial Engineering, Section I37M, Harrison, N. J.

RCA High-Perveance Tubes fo
high power at lower plate voltag

RCA Amplifier Service—Max. Amateur Ratings, Class C CW

RCA No.	Type	DC Plate Input (watts)	DC Plate Volts
2E26	Beam Power	40	600
807	Beam Power	75	750
810	Triode	750	2500
811A	Triode	260	1500
812A	Triode	260	1500
813	Beam Power	500	2250
815	Twin Beam Power	75*	500
829B	Twin Beam Power	120*	750
832A	Twin Beam Power	50*	750
833A	Triode	1000	3300
5763	Beam Power	17	350
6146	Beam Power	90	750
6524	Twin Beam Power	85	600
8000	Triode	750	2500
8005	Triode	300	1500

*Total for tube

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