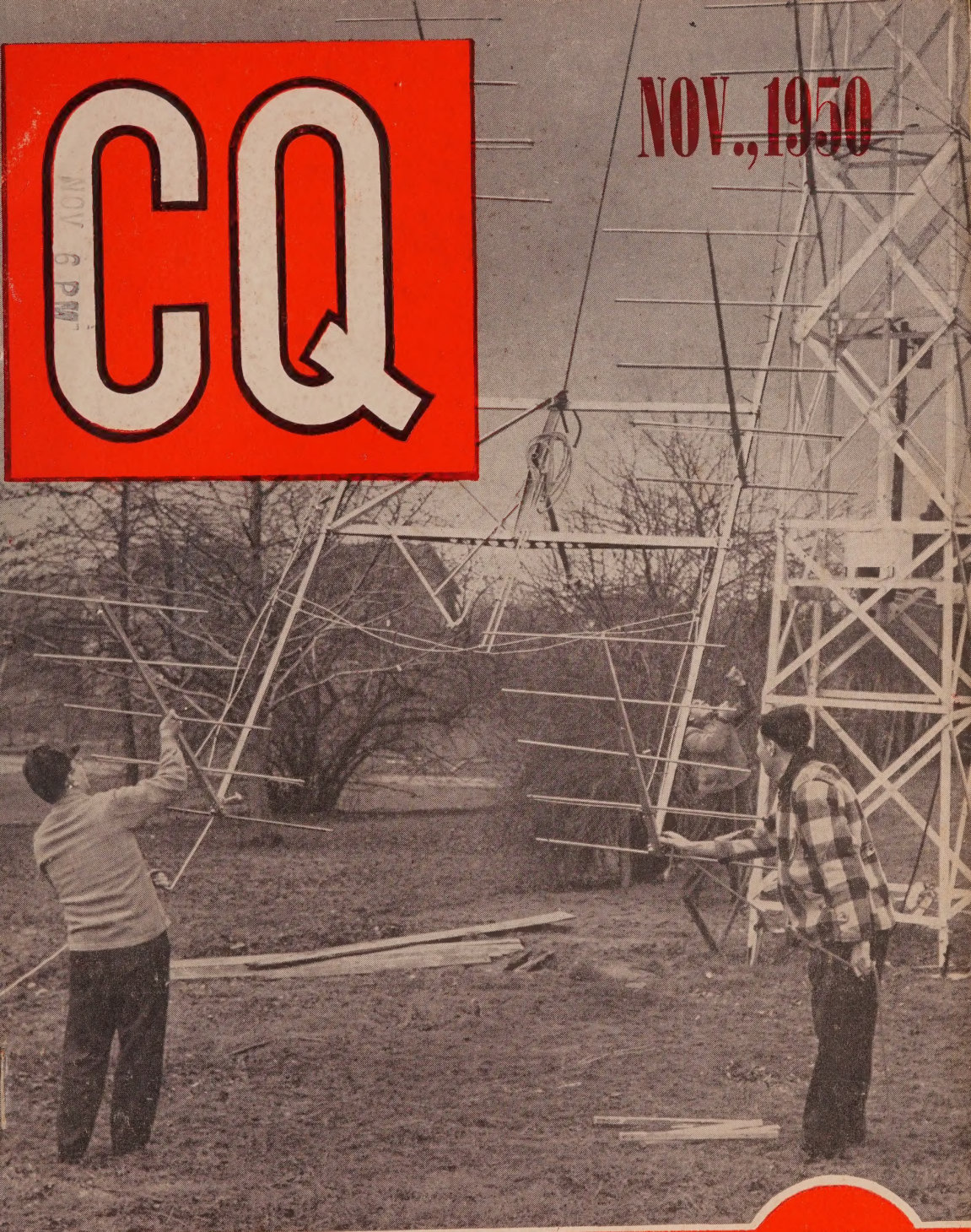
CQ

NOV 6 PM

NOV., 1950

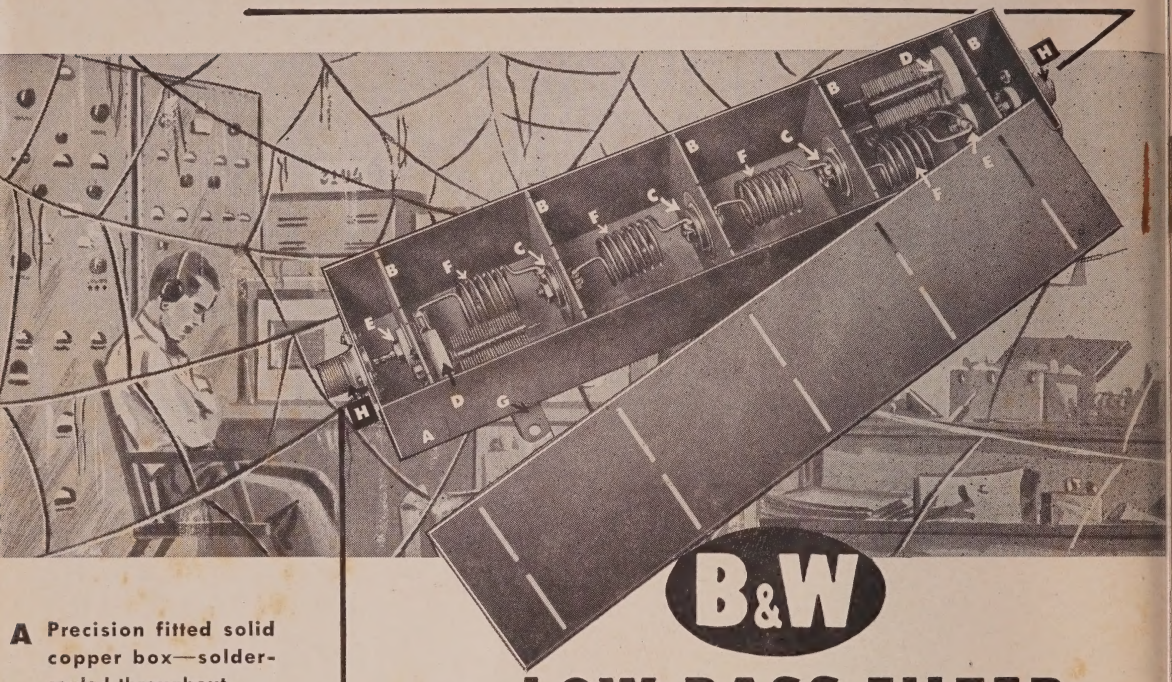


The Radio Amateurs' Journal

35¢

LET'S LICK TVI

and brush the cobwebs off the rig



A Precision fitted solid copper box—solder-sealed throughout

B Heavy copper ground plate shields

C Precision-Silvered, Low Inductance Mica Condensers

D "M" derived end sections peaked on Channel 2 (Coil not visible)

E Alsimag 196 Insulation

F Heavy, distortion-free, precision coils

G Convenient mounting brackets

H 52 & 75 Ω units fitted with standard coax connections

I Available in 52, 75, and 300 ohm models

B&W

LOW PASS FILTER

- *Provides extreme attenuation to all harmonics above 30 mc*
- *Eliminates individual filters for each band*
- *Handles 1 kilowatt with ease*
- *Insertion loss less than .25 db*
- *Low in cost . . . Easily installed*

$22.50
Amateur Net Price

Three years of intensive study of TVI problems first introduced the B&W Faraday Shielded Link. Now we proudly present a natural companion—*the B&W Low Pass Filter*. Properly installed in the antenna feed system, in accordance with our recommendations, the Low Pass Filter provides virtually complete harmonic suppression above 30 mc.

The B&W Low Pass Filter consists of two "m" derived end sections and three midsections of constant K type. Each section is contained in a completely sealed copper compartment to prevent inductive transfer of unwanted frequencies from section to section. RF bypass condensers in the K sections are of special low inductance design having resonant frequencies higher than 500 mc thus eliminating resonances within the TV bands, a fault common to conventional types of condensers.

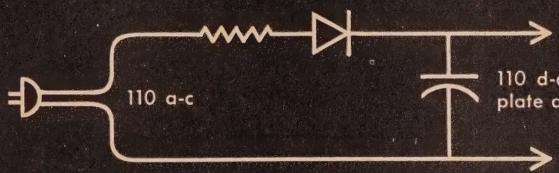
Complete details on how you can banish TVI are available in *Filter Facts*—packed with each Low Pass Filter.

See your dealer today, or write for bulletin to Dept. **CQ-110**

BARKER & WILLIAMSON, Inc.

237 Fairfield Ave., Upper Darby, Pa.

SIMPLIFY YOUR POWER-SUPPLY CIRCUIT!





New G-E 6BF5 is designed to operate with 110 volts on plate and screen!

IT'S *simpler* to apply this fine new beam power tube . . . because there's good efficiency at low plate and screen voltages. High tube sensitivity makes possible a high output at 110 v. Therefore, no step-up transformer need be included in your power-supply circuit. The circuit is called on merely to rectify the voltage from your regular a-c line—a job which a selenium rectifier will do readily.

As the ratings at the right show, a single 6BF5 in Class A audio will deliver almost 2 w at 110 v. If you wish to apply a higher potential, the max rating of 250 v allows for voltages up to that figure. Thus you buy tube versatility as well as sensitivity.

Originally designed for—and commercially proved in—the audio-output stage of TV and broadcast receivers, G.E.'s new 6BF5 is an outstanding ham choice for audio work. Besides its easily-handled power-supply requirement, the tube has a set of electrical characteristics that call for close consideration when you design your new speech-amplifier.

These figures are summarized here. Your G-E tube distributor will be glad to give you more detailed information about the 6BF5—also, show you the tube and let you know the favorable price. See him today! Or write *Electronics Department, General Electric Company, Schenectady 5, New York.*

6BF5

7-pin miniature beam power audio tube

Typical Operation, Class A Amplifier

Plate voltage	110 v
Screen voltage	110 v
Grid No. 1, voltage	—7.5 v
Transconductance	7,500 micromhos
Max signal plate current	50 ma
Max signal screen current	8.5 ma
Load resistance	2,500 ohms
Power output	1.9 w

ELECTRONIC TUBES OF ALL TYPES FOR THE RADIO AMATEUR

GENERAL ELECTRIC

180-JA8

When writing to our advertisers say you saw it in CQ

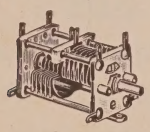
WHAT SCARCITY?

There never is a scarcity of *QUALITY and VALUE* in BUD VARIABLE CONDENSERS

Today is the time to look for savings! Note the prices on our condensers and compare. You will find that the entire Bud line maintains greater value while giving you the best quality and service. Illustrated below are two types of Bud condensers—there are over 400 different variable condensers in the Bud line. Consult your dealer for your requirements.

BUD "CE" TYPE DUAL MIDGET CONDENSERS

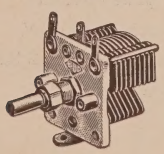
1. Extremely efficient, they embody everything that any other condenser has PLUS a positive rotor wiping contact in the exact electrical and physical contact permitting the design of balanced circuits.
2. Ball bearings are featured on this double bearing condenser for centering and elimination of end-play.
3. Any of three methods of mounting can be used.
4. Alignment is maintained by 4 rigid tie rods.
5. Two solder lugs on each stator permit the placement of other components for efficient, short lead design.



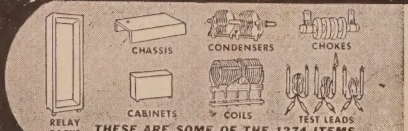
Catalog Number	PER SECTION Max. Cap.	Min. Cap.	No. of Plates	Air Gap	Distance Behind Panel	Dealer Cost
CE-2032	35	6	7	.030"	3 1/32"	$2.70
CE-2033	50	7	9	.030"	3 1/4"	2.97
CE-2034	75	8	14	.030"	3 21/32"	3.30
CE-2035	100	9	18	.030"	4 3/32"	3.75
CE-2036	150	10	27	.030"	5 3/16"	4.35
CE-2039	15	5	5	.060"	3 1/32"	3.15
CE-2040	35	7	11	.060"	4 1/32"	3.60
CE-2041	50	8	15	.060"	4 23/32"	3.96

BUD "CE" MIDGET CONDENSERS-SINGLE BEARING

1. Any of the three methods of mounting can be utilized.
2. Extended rotor shaft allows ganging of two or more condensers.
3. Smooth operating and noiseless bearings permit operation on high frequencies and prevent capacity changes.



Catalog Number	Max. Cap. MMFD.	Min. Cap. MMFD.	Air Gap	No. of Plates	Over-all Length	Dealer Cost
CE-2020	15	4	.030"	3	1 11/16"	$1.50
CE-2021	35	6	.030"	7	1 29/32"	1.68
CE-2022	50	7	.030"	9	2 1/32"	1.89
CE-2023	75	8	.030"	14	2 1/4"	2.10
CE-2024	100	9	.030"	18	2 15/32"	2.25
CE-2025	150	10	.030"	27	3"	2.40
CE-2028	15	5	.060"	5	1 15/16"	1.68
CE-2029	35	7	.060"	11	2 7/16"	1.89
CE-2030	50	8	.060"	15	2 25/32"	2.10



BUD RADIO, INC.

BUD

2120 E. 55th ST. • CLEVELAND 3, OHIO

CQ

VOL. 6, NO. 11 NOV. 1950

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OUR COVER

When W2NLY put his new 30-element beam atop his tower he had plenty of help. W2YUS is shown in the left foreground, W2UIY is at the right, while W2WHJ can be seen in the background at the base of the tower. W2NLY, the OM, himself? . . . he's up top, hauling away on the line. (*Photo by Richard V. Roller.*)

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Designed for

M

Application



The No. 74400

Shield Can *with* Octal Plug-Base

The versatile No. 74400 unit comprises an extruded rectangular aluminum shield 1 7/16" x 1 7/8" x 4½"; a low loss brown phenolic octal plug base to fit, and a base shield to further extend the shielding. Designed for mounting filters, tuned circuits, relays, IF transformers, audio components, complete midget amplifiers or other circuits, etc.

JAMES MILLEN MFG. CO., INC.

MAIN OFFICE AND FACTORY

MALDEN

MASSACHUSETTS

M



Feenix, Ariz.

Deer Hon. Ed:

Normally Scratchi are very sound sleeper (deep sound, not snory sound) and I are never dreaming, even about such things as the FCC finding out where I are living, but past couple of weeks Scratchi are having a reel nightmare, practically every night. Now, I are not one to believe in foretelling the future from dreams, but at least I thought I'd better telling you all about nightmare in case you are having idea on how I can stopping them.

In these dreams I always starting out as being a bigshot see-w man on east coast. In fact, are living on Block Island, on a part where nearest neighbor are lighthouse keeper. I are also rolling in the bux, or at least I'm not having any regular job, but just sitting down at rig whenever I want, and pounding brass all day and all night long. And boy oh boy, can I reading code. I just sitting idly at operating table, reading *IRE Proceedings* or *CQ* and listening to the forty-word-per-minute stuff pouring out of the receiver. I can reading the stuff with one ear tied behind me.

And talk about sending—Hon. Ed., Scratchi are terrific in this dream. I can putting my hand on straight key and sending at 35 per and you can hardly see my hand move. If wanting to speed up just taking bug (no weights) and letting myself go. It all coming out like tape machine.

Being such an expert on see-w I naturally are traffic man. Of course, not much traffic to Block Island itself, but as being only amateur on the island I are plenty busy relaying stuff over to gee-eyes in Germany, and also acting as relay point for all coastal nets. Are handling so many messages that I are needing 2 hooks, and I are always getting in Brass Bounders League each month.

In factly, are only one jarring note in this dream. My rig is a low-power job sitting on top of operating table, and antenna are half-wave job strung out the window. But, are never going after any DX, and rig seem to be doing good traffic job. Hon. Ed., you can just telling that these halcyon days (word I finding in dictionary) are not going to last.

One day are getting long unstamped envelope from FCC. In dream this not worrying Scratchi one bit, as only thinking that maybe government awarding me prize as outstanding amateur of the year or something. But, when opening envelope find that FCC are saying that it will be necessary to changing my call. It seeming that The DX Committee and others deciding that Block Island not actually a part of good old U. S. A. and that from henceforth my call are being KB1AA.

Scratchi are taking this in his stride. If good old FCC are wanting to change call, it are okendoke with me. I not even having to throw away any QSL cards, as are being a traffic man and not having any. So. that evening I calling into net as usual, only not as usual, not getting recognized when giving new call. Finally net control are coming

(*Continued on page 66*)



LAND, SEA and AIR

PRs stand the gaff! Wherever you go you find these fine precision crystals doing their jobs with honor . . . meriting the praise of engineers, operators and technicians. Yes—you can depend on PR for perfect frequency control . . . at low cost . . . for all amateur, commercial and industrial services.

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Model 400

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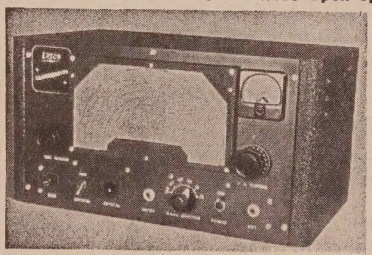
Input: High impedance (crystal or dynamic mic.)
Output: 40 watts into 4000-ohm p.a. load.
(Available for 500-ohm output on request.)
Tube Complement: 1st Audio, 6SJ7; 2nd Audio, ½-6SN7; Phase Inverter, ½-6SN7; Driver, p.p. 6SN7; Modulator, p p. 6L6s; Rectifier, 5U4G.
Meter: Modulator plate current.
Features: "Standby-On" switch on modulator includes spare contacts that may be used to control keying circuit of any transmitter for break in phone operation.
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Will modulate 100-watts of transmitter input.

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LYSCO KIT NO. 21—For Transmaster Owners: A means of providing oscillator operation alone, to enable the Transmaster to be calibrated or tuned to a desired frequency without "swishing." Kit contains prewired switch, designation plate, and knob, along with modification instructions. No drilling necessary. Fits into position occupied by meter jack. Amateur Net $3.95

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★ ★ Letters ★ ★

Federal Communications Commission
Washington 25, D.C.

Editor, *CQ:*

In connection with the hurricane which struck in the vicinity of Pensacola, Fla., and Mobile, Ala., on August 30 and 31, 1950, the Commission is in receipt of a report from its Gulf States Regional Manager indicating, among other things, that not only were the amateur emergency radio nets active in providing efficient emergency communications for the area, using emergency power when the commercial power lines failed, but also that the frequencies in use by those nets were voluntarily cleared by amateurs in all parts of the country.

The Commission is also in receipt of similar reports concerning the operation of amateur emergency nets in Florida during several storms which occurred during the recent hurricane season, including the one which on September 4 and 5, 1950, fortunately, failed to result in serious damage except in the vicinity of Cedar Keys. One report in this connection especially mentions the efficient operation of the amateur net which handled weather reports and warnings in cooperation with the United States Weather Bureau and the Florida Association of Broadcasters.

The Commission wishes to commend, through the medium of your magazine, the excellent spirit of public service displayed by all of the amateurs involved in the above emergency communication operations, not only those who performed yeoman service in the handling of emergency communications but also those who cooperated in making that service possible. It is such demonstrations of a recognition of responsibility and a spirit of public service on the part of the licensed amateurs of the United States which justify the faith of the Commission in the inherent public value of the amateur radio service.

Wayne Coy, Chairman

Braille Technical Press

980 Waring Ave., Bronx, N.Y.

Editor, *CQ:*

I wish to thank your readers for the excellent response to the Braille Technical Press appeal which appeared in the August, 1950, issue of *CQ*. Since the financial position of many of the readers of the BTP is considerably lower than that of the readers of *CQ*, we need the support of every amateur and feel that *CQ*'s readers have been largely responsible for the continued publication of the Braille Technical Press.

Bob Gunderson, W2JIO, Editor, BTP

Our Appearance

Jacksonville, Fla.

Editor, *CQ:*

. . . "New look" is vy FB. . . .

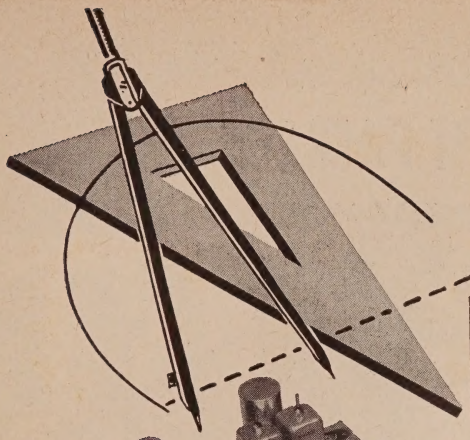
John Hollister, W4FWZ

Emporium, Penna.

Editor, *CQ:*

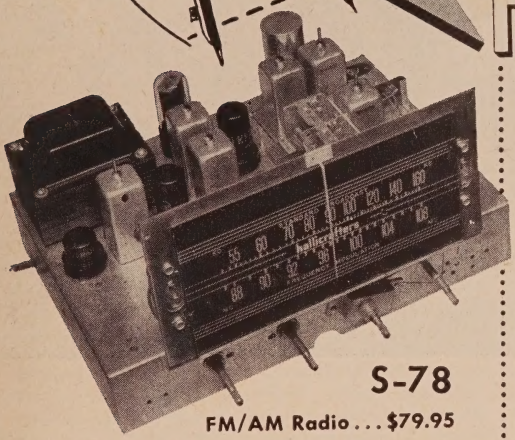
Let me congratulate you on the very excellent *new CQ*. . . .

T. A. Patterson, W2VBL/3



2 New hallicrafters

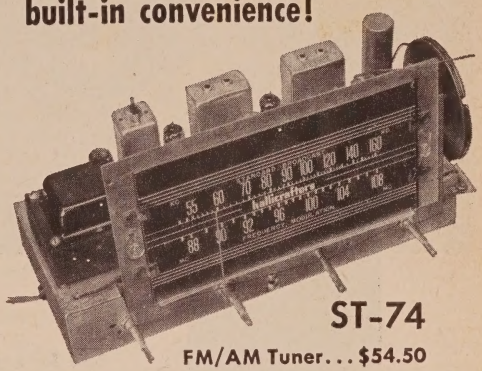
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FM/AM Tuner. . . $54.50

New tuner for use with high fidelity amplifier. Broadcast Band 540-1700 kc and FM 88-108 Mc. One broad-band FM r-f, two i-f stages. Freq. response 60-12,000 cps (± 3 db). Full-range tone control. Wide edge-lighted dial; escutcheon, tuning knobs supplied. Size 13¼" wide, 5½" high, 7⅞" deep. 6 tubes plus rect.—r-f, osc.-mixer, 2 i-f, FM Det., AM Det. For 115 V. AC only **$54.50**

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Built for convenience, the new Collins TVI-free, kilowatt-husky, KW-1 amateur transmitter incorporates the latest in modern design techniques . . . including Eimac 4-250A tetrodes. It has been designed specifically for the best possible performance through the 160 to 10 meter bands. Complete bandswitching is accomplished by a single control. Tuning controls have been reduced to four. This new Collins 1 kw. "package" transmitter provides the ultimate in operating simplicity, maximum power with reasonable economy .

Take advantage of modern circuit techniques and operating stability made possible through the use of Eimac tetrodes . . . You can have power to spare and, above all, be able to spend more time operating and less time tuning your rig.

Complete data on these outstanding tubes are available from Eimac . . . the world's leading power tetrode manufacturer.

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ZERO BIAS

EDITORIAL

WASTING TIME IS A LUXURY FEW OF US CAN AFFORD, and we feel the present status of amateur radio in the emergency communications and Civilian Defense pictures is a case in point. In the event of war in the near future all bets are off as far as the value of amateur radio is concerned in CD matters, since we have no idea of what, if any, frequencies are to be available to use for our emergency operations. Our representatives, when confronted with this situation, are quick to reassure us that steps are being taken and that "the proper people" are familiar "with the problems of the amateur." As we see it, the amateur is being placed in the position of a problem child by some of the Civilian Defense authorities and representatives of amateur radio who have been taking a woefully negative attitude toward the problems *of the country* in the light of the present emergency situation.

Instead of being willing to work amateur radio into the one "emergency plan" which has been presented—the Disaster Service—some amateurs have been making a major issue of their objection to the "non-amateur" frequency tolerances proposed in the Disaster Service rules. It is a known physical fact that the proposed tolerances can be met without difficulty. It is a further fact that the Disaster Service is not intended as an amateur service, but as a liaison service between organized emergency communications groups of many services. We don't feel that it is in the amateur spirit to object to the existence of a non-amateur service, into which we may be invited, and surely belong, on the grounds that the standards are higher than ours. There is no place in the deadly serious Disaster Service program for political flag waving on the part of the "hobbyist" philosophers in the amateur ranks. No matter how stringent the frequency tolerances, or any other requirements, are, we feel it is up to amateur radio to rise to the occasion!

The Frequency Question

Starting with two generally-accepted premises, that the amateur is of considerable value to the community in time of emergency, and that the amateur must have one or more segments of the radio spectrum on which to operate, we feel it is time for CD representatives to adopt a positive country-wide emergency plan, defining the frequencies and procedures best suited to the several types of emergency communications we may be called upon to render. There is very little time to be wasted with political and sectional controversies in these matters. Someone must come up with an amateur plan for the possible ultimate emergency, and must come up with it in a hurry. Our government agencies, the FCC, the NSRB, and the military should not be depended upon to decide the place of amateur radio in emergency communications.

The lame excuses we often get from our representatives these days is: "We can't plan anything because we don't know what NSRB is going to decide for the amateur." This is negative thinking on the part of our representatives! When we are fighting for our life they are waiting for someone else to carry the ball! Why haven't they worked out emergency plans on the community, county, state, and national levels, and detailed them with exact, engineered frequency assignments, operating procedures, and the like, to present to NSRB, the FCC, the military, and others? On the basis of published information, there is no complete definitive amateur emergency plan at the present time!

Phone vs. C.W.

Why deal with details such as the current action of some of our representatives in asking that more phone channels be assigned in the Disaster Service —a strictly non-amateur service? The proposed assignment of channels was made by the engineers of the FCC, not on the basis of the phone/c.w. ratio among hams, but on the basis of the maximum number of channels available for long-haul circuits throughout the country. This, again, is not a point on which the Disaster Service can be judged by our standards. Let's coöperate with the Disaster Service, take part in their plan in every case where we have the initiative and the organization to fit into it. And above all let us have our own master plan ready.

If the representatives of amateur radio do not come up with a workable coördinated nation-wide emergency plan, ham radio may find itself in the unenviable position of being left out of major civil defense plans. Statements such as, ". . . the big reason more . . . work has not been done is the lack of decision by state governments as to the part amateurs will play" may win a temporary respite from pressure by amateurs upset by the indecision or inaction on the part of our leaders, but they sure put ham radio on the spot.

What, especially, can amateur radio do for the country in time of emergency? Are we, the amateurs going to answer that question or are we going to let the inexperienced and uninformed answer it for us. The choice is ours, but the choice must be made now.

——Doc, W2BYF

For your convenience . . .

Here are the names and addresses of the carefully chosen distributors of Collins amateur equipment. They are our associates in providing you with transmitters, receivers and accessories engineered to serve you best under today's tough conditions on the ham bands. Choose your distributor, and buy your gear from him with confidence.

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Ft. Orange Radio Distributing Co., Inc., 642-644 Broadway

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P.O. Box 88

Atlanta, Georgia
Specialty Distributing Co.
425 Peachtree St., N.E.

Billings, Montana
Electronic Supply Co.
214 Eleventh St. W.

Birmingham, Alabama
Ack Radio Supply Co.
2205 Third Ave. N.

Boston, Massachusetts
Radio Shack Corp.
167 Washington St.

Butler, Missouri
Henry Radio
211 N. Main

Chattanooga, Tennessee
Specialty Distributing Co.
709 Chestnut St.

Chicago, Illinois
Allied Radio Corp.
833 W. Jackson Blvd.
Montgomery Ward & Co.
618 W. Chicago Ave.
Newark Electric Co.
323 W. Madison St.

Cincinnati, Ohio
Steinbergs, Inc.
633 Walnut St.

Cleveland, Ohio
Radio & Electronic Parts Corp., 3235 Prospect Ave.

Columbus, Ohio
Thompson Radio Supplies
218 East Gay St.

Concord, New Hampshire
Evans Radio
10 Hills Ave.

Council Bluffs, Iowa
World Radio Laboratories, Inc.,
744 W. Broadway

Covina, California
Sampson Electric
300 N. Citrus Ave.

Dayton, Ohio
SREPCO, Inc.
135 E. Second St.

Denver, Colorado
Radio Products Sales Co.
1237 Sixteenth St.

Des Moines, Iowa
Radio Trade Supply Co.
1224 Grand Ave.

Detroit, Michigan
M. N. Duffy & Co.
2040 Grand River Ave. W.

El Paso, Texas
C. C. McNicols
811 Estrella

Everett, Washington
Pringle Radio Wholesale Co., 2514 Colby Ave.

Greensboro, North Carolina
Johannesen Electric Co., Inc., 312-14 N. Eugene St.

Hollywood, Florida
Carl's Radio Shop
2323 Hollywood Blvd.

Indianapolis, Indiana
Van Sickle Radio Supply Co., 102 S. Pennsylvania St.

Lexington, Kentucky
Radio Equipment Co.
480 Skain Ave.

Long Beach, California
Fred S. Dean Co.
969 American Ave.

Los Angeles, California
Henry Radio
11240 W. Olympic Blvd.
Kierulff & Co.
820-830 W. Olympic Blvd.
Radio Products Sales, Inc.
1501 S. Hill St.

Louisville, Kentucky
Universal Radio Supply Co., Inc.,
533 S. Seventh St.

Memphis, Tennessee
W & W Distributing Co.
67 Madison Ave.

Minneapolis, Minnesota
Lew Bonn Co.
1211 La Salle Ave.

New Orleans, Louisiana
Radio Parts, Inc.
807 Howard Ave.

New York, New York
Harrison Radio Corp.
10 W. Broadway
Harvey Radio Co., Inc.
103 W. 43rd St.

Norfolk, Virginia
Radio Equipment Co.
821 W. 21st St.

Oakland, California
W. D. Brill Co.
Tenth & Jackson Sts.
Electric Supply Co.
149 Twelfth St.

Peoria, Illinois
Klaus Radio & Electric Co., 707 Main St.

Philadelphia, Pennsylvania
Radio Electric Service Co. of Pa., Inc., N.W. Corner 7th & Arch Sts.

Phoenix, Arizona
Radio Parts of Arizona
34-36 W. Madison St.

Pittsburgh, Pennsylvania
Cameradio Co.
963 Liberty Ave.
The Tydings Co.
632 Grant St.

Portland, Oregon
Pacific Stationery, Wholesale Radio Dept.,
414 S.W. Second Ave.
United Radio Supply Co.
22 N.W. Ninth Ave.

Providence, Rhode Island
W. H. Edwards Co.
94 Broadway

Rock Island, Illinois
Tri-City Radio Supply
1919 Fourth Ave.

St. Louis, Missouri
Walter Ashe Radio Co.
1125 Pine St.

St. Paul, Minnesota
Hall Electric Co.
386 Minnesota St.

Salt Lake City, Utah
Radio Supply Co.
P.O. Box 238,
157 Motor Ave.

San Antonio, Texas
Amateur Headquarters & Supply, P.O. Box 5086,
Beacon Hill Station

San Diego, California
Western Radio & Television Supply Co.
1415 India St.

San Francisco, California
San Francisco Radio & Supply Co.
1282-1284 Market St.

Seattle, Washington
Western Electronic Supply Co., 2609 First Ave.

Spokane, Washington
Northwest Electronic Co.
N. 102 Monroe St.

Tacoma, Washington
C & G Radio Supply Co.
2502-6 Jefferson Ave.

Tampa, Florida
Kinkade Radio Supply
402-04 W. Fortune St.

Texarkana, Arkansas-Texas
Lavender Radio Supply Co., Inc.,
520 E. Fourth St.

Topeka, Kansas
The Overton Electric Co., Inc., 522 Jackson St.

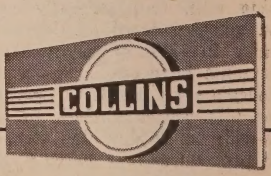
Tucson, Arizona
Elliott Electronics, Inc.
P.O. Box 5081,
418 N. Fourth Ave.

Tulsa, Oklahoma
Radio, Inc.
1000 S. Main St.

Washington, D.C.
Electronic Wholesalers, Inc., 2010 Fourteenth St., N.W.

Watertown, South Dakota
Burghardt Radio Supply
P.O. Box 41

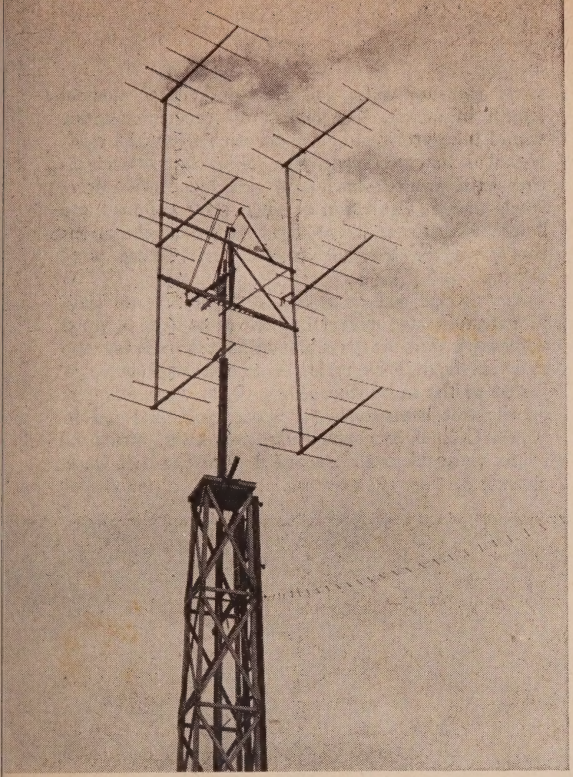
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COLLINS RADIO COMPANY, Cedar Rapids, Iowa

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JAMES A. KMOSKO, W2NLY*

Here is the story of the design and construction of one of the most ambitious 144-mc antennas in hamdom. Almost everyone contemplating the building of a multi-element rotary can profit from this account.

MORE GAIN WITH 30 ELEMENTS

SEVERE DAMAGE TO THE 16-ELEMENT HORIZONTAL and 24-element vertical arrays at W2NLY during a freak windstorm put the development of a new lightweight high gain flip-flop beam ahead of all other projects. As a goal to shoot at in designing a new antenna the following specifications were tentatively set: a power gain of 100, front-to-back ratio at least 200/1, good front-to-side ratio, reasonable drive impedance, light weight, low wind resistance, etc.

During the development of this array a number of interesting combinations were tested. The most promising of these are described below.

Of the many conventional combinations considered, using half-wave spacing, the array would have to take on large proportions to approach a power gain of 100, not to mention the number of elements involved.

This brought about the investigation of larger spacings than half-wave. We realized from past experience that the actual capture area of any antenna system for the given area it occupies is not at its maximum when half-wave spacing is employed, although one-half wave spacing is most generally used because of its ease of feed and phasing.

* *P. O. Box 8, S. Plainfield, N. J.*

After much thought a combination Yagi-broadside area shows up at about five-eighths wavelength spacing between the Yagi elements. Close spacing was avoided because of its band width and drive impedance limitations (keeping in mind the possibility of stacking four or more of these units).

Going over published information on various broadside spacings, the only data that could be found pertained to broadside arrays without parasitic elements. It is generally known that maximum capture area shows up at about five-eighths wavelength spacing. But what happens if two or more parasitic elements are added to each driven element? W2PAU came up with a good explanation in a very excellent article in March, 1950, *CQ*.[1]

Test Setup Preparation

The driven elements were step-up type folded dipoles using one-half inch tubing and No. 14 wire with a method of adjusting the spacing between these two conductors from one-half inch to two inches.

[1] The following tests were about complete at that time except plotting the curves and correlating the results. Upon doing so and comparing our results with Brownie's, we were certain of our findings.

Each Yagi frame was made up to support a maximum of five elements. Each element was made telescopic so that they were individually adjustable in length. All parasitic elements were made of one-half inch aluminum tubing.

The test boom was a sixteen-foot two-by-four with a one and one-half inch pipe flange fastened to its center with one and one-half inch wood screws. A short pipe nipple was screwed into the flange so that it might rotate on the test pole over a 360° calibrated scale.

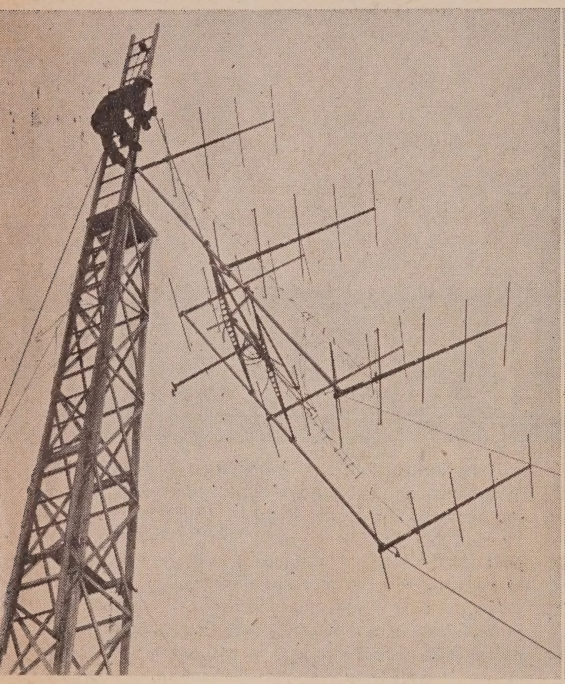
A remote dipole was mounted on a pole 120 feet away with the indicating meter mounted on the test pole proper just above a data board.

All standing wave measurements were taken with a home made standing wave detector working on a transmission line, one and one-half wave lengths long, made up of two section of one-half inch aluminum tubing spaced to give a characteristic impedance of 300 ohms. The indicator was a 0–1 ma Meter with a 1N38 crystal, suitable multiplier and a small pickup loop made from #12 wire. This assembly mounts on a piece of one and one-half inch polystyrene rod one foot long with two holes drilled near one end to accommodate the one-half inch tubing and to allow the detector to slide back and forth with uniform coupling. The extra length of poly rod extends out on one end to be used as a handle.

On the following experimental antenna systems to be described here, approximately twenty individual sets of data were recorded for different element length combinations—a total of 120 sets of measurements including: gain, front-to-back ratio, standing wave measurements, and each individual element length in inches. To publish all this information would take precious space. So each group of readings was analyzed separately, taking into consideration gain, front-to-back and side lobe ratio, drive impedance as a function of s.w.r. measurements and bandwidth. From these figures the combinations that gave the best all around performance were selected.

Tests were run on a single three-element Yagi to determine the correct adjustments for as good a forward gain as possible without sacrificing too much in front/back ratio. A second Yagi was adjusted to the same dimensions. Both were clamped on the test boom one-half wave apart and fed in phase. Gain, front/back ratio, and s.w.r. measurements were taken and recorded. The one-half wave phasing section was now replaced with a one wave-length section. The spacing between the Yagis was increased in small steps from half wave to one wave length, recording the data on each change. At no time during these tests was any attempt made to readjust the individual element lengths. The results are plotted with a dotted line (A) in *Fig. 1.* A second set of measurements was now taken, readjusting the parasitic elements for each change in broadside spacing. The results are plotted as a solid line (B) in *Fig. 1.* The corresponding curves for two broadside dipoles are also included.

The results (*Fig. 1*) show that when the broadside spacing is changed without readjusting the individual elements the change in gain and drive impedance follow closely the curves for two single half waves fed in phase at different spacings. When



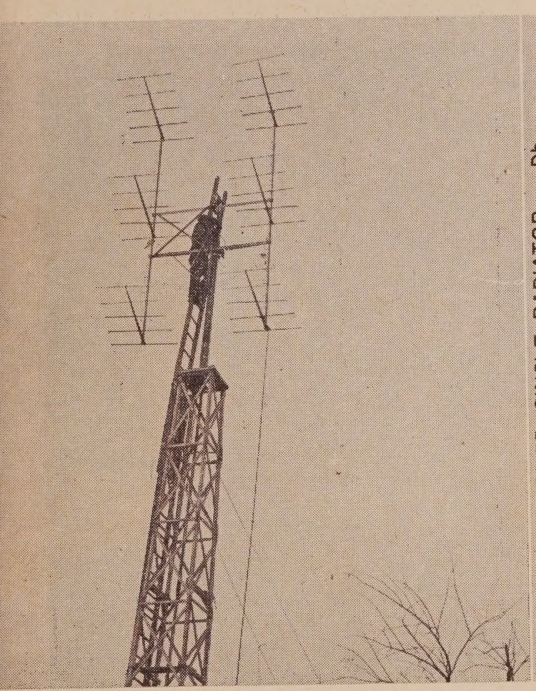


Getting the array to the top of the tower is often a trick in itself.

the individual elements are readjusted for each change in broadside spacing the story is quite different. Apparently changes in broadside spacing effect not only gain, beamwidth, and drive impedance, but also the individual element tuning.

By readjusting the element lengths a considerably better gain figure is possible at one wavelength spacing with a slight drop in drive impedance. If the evolution of patterns shown by Brownie (W2PAU) were taken a little bit further, comparing the differences in vertical and horizontal beamwidth of the six-element wide space array with the horizontal and vertical radiation (bi-directional) patterns of two single half waves spaced a wavelength and fed in phase (where maximum radiation exists in the side lobes), perhaps this experimental evidence will be borne out more clearly.

The higher drive impedance as well as the slightly



When it's up it's there to stay!

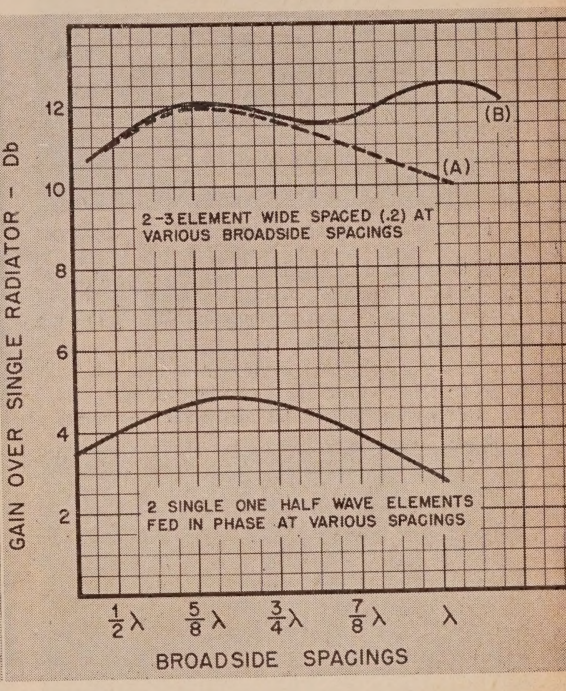


Figure 1.

higher gain should make it worthwhile to use one wavelength over half-wave spacing, not to mention less elements being necessary in a given size array to obtain greater gain. This applies only to arrays where the individual driven elements have one reflector and at least one director. These experiments were all made using 0.2 wavelength spacing between the individual Yagis. Further research would be necessary to determine if similar results would be possible with 0.1 or .15 (close) spacing.

The final figures on the wide spaced six were: power gain, compared to a folded dipole, 19.4, or 12.5 db; front-to-back ratio 125/1, or about 21 db.

The s.w.r., fed direct with 300-ohm line, was 1.47/1, which is equal to a reflected impedance of approximately 204 ohms at the center of the one-wavelength phasing section. The vertical beamwidth, as measured at the 3-db points, was 26°, with 62° measured at the half-power points when horizontal. Two major secondary lobes appear 55° off each side of the main lobe approximately 8 db down. *Figure 2* shows the field pattern.

Element lengths corresponding to the above data are as follows: Directors 35.5″, Reflectors 40.5″, driven elements 38″ with $\frac{5}{8}$″ conductor spacing.

The W2NLY Twelve-Element

The next series of tests were run on the twelve-element job sketched in *Fig. 3*. This array consisted of the "wide spaced six" with two more three-element Yagis added one-half wave on each side. Open wire one-half wave phasing sections were made up to tie them in. The array was fed in the center of the one-wavelength phasing section. Another series of tests and measurements were made on this combination with the following results: power gain of 22, or about 13.4 db; front-to-back ratio of 94/1, or approximately 19.7 db. A considerable amount of horizontal radiation was noticed from the half-wave phasing sections. This condition was remedied by making the two outer phasing sections out of four pieces of RG-59/U 75-ohm coax 52″ long. Each pair had shields connected together at both ends and grounded to the centers of the folded dipoles. A 52″ length represents a full wavelength electrically, but will only allow a maximum of $\frac{5}{8}$ wavelength spacing between the driven elements. Since on this test only half-wave spacing was involved, this system proved very

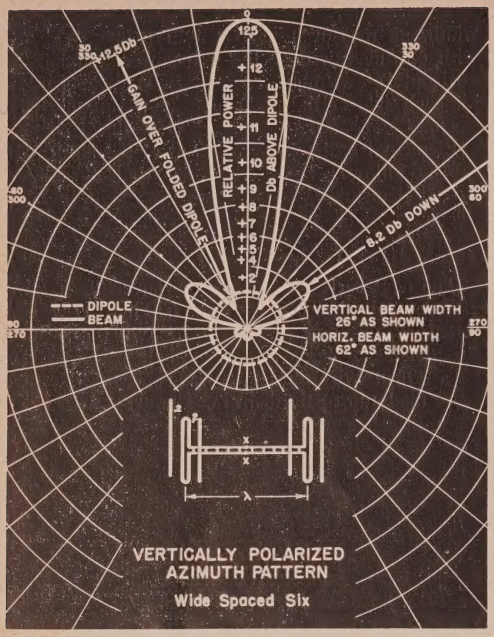


Figure 2

satisfactory as no radiation from any of the phasing sections was now detected. Another series of tests were run on this combination. The following data speaks for itself:

Power gain of 30.7 or 14.9 db
Front/back ratio 162/1 or about 22 db
Beam width 18° at the one-half power points

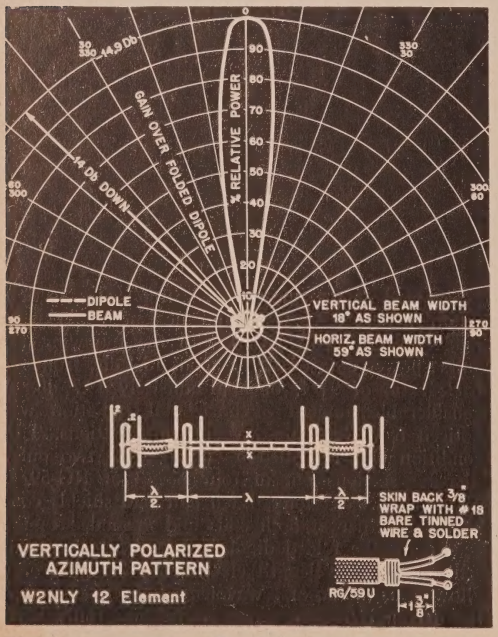


Figure 3

Largest secondary lobe 14 db down
S.w.r. of 2.9/1 (fed with 300-ohm line direct) or a drive impedance of approximately 103 ohms

The elements corresponding to this set of data are as follows: two outer directors 33½″, two inner directors 36½″, all reflectors 40½″, all driven elements 38″, with ¾″ conductor spacing.

The W2NLY Twelve-Element Special (Figure 4)

The fact that the outer phasing sections were 52″ long or one wavelength electrically (due to their velocity factor), the outer sections were extended until the coax stretched tight or just ⅝ wavelength spacing. The results of the series of tests run on this combination were as follows:

Power gain 32.3 or about 15.1 db
Front/back ratio 127/1 or approximately 21 db

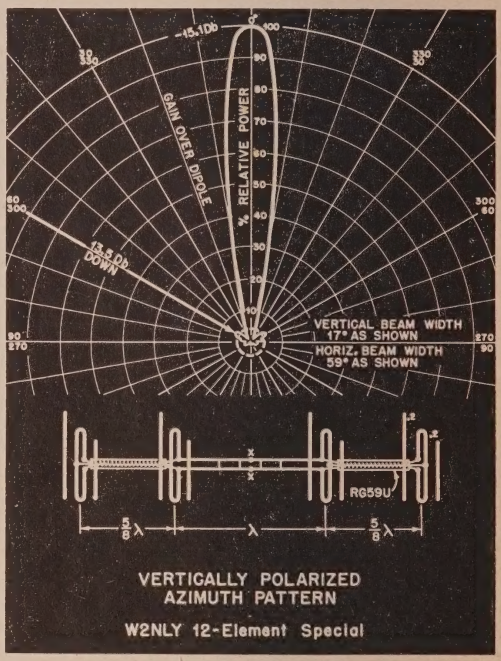


Figure 4

Beam width at half-power 17°
Major secondary lobes down 13.5 db
Drive impedance of 95 ohms

The element lengths for these results are: two end directors equal 34¾″, two center directors 35¾″, all reflectors 40½″, all driven elements 38″ with ¾″ conductor spacing.

By lengthening the two center directors to 37″ the power gain increases to 35.5, or about 15.5 db, but the s.w.r. increases to 4.54/1 so the array looks about 66 ohms to the transmission line.

The W2NLY Nine-Element Array (Figure 5)

The next combination consisted of three 3-element beams separated by one wavelength. The phas-

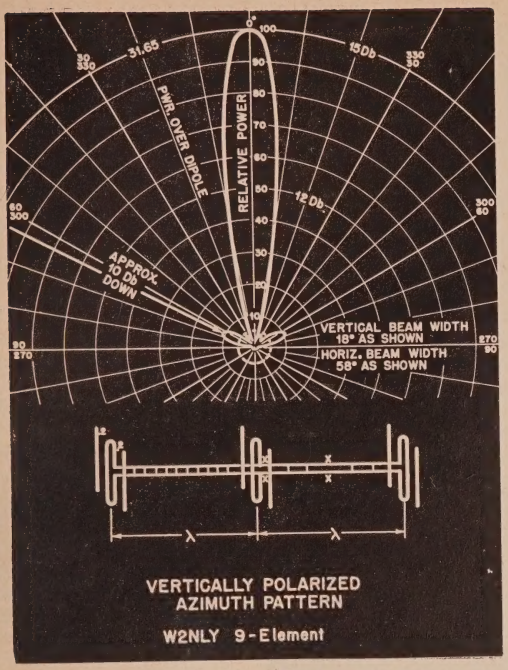


Figure 5

ing sections were made of open wire line. Several methods of feed were tried. Feeding the array either at the center folded dipole and one-half wave off center produced equally good results. The one-half wave off-center method was chosen (keeping in mind the possibility of stacking two or more of this combination). A series of tests and measurements were conducted on this combination with different element lengths, etc. Taking all around performance into consideration the following compromise lengths were chosen: all directors 35″, all reflectors 40½″, outer driven elements 38″, center 38¼″ all with ¾″ conductor spacing. The following data was recorded with the above settings; power gain 31.65, or 15 db; front/back ratio 144/1, or 21.5 db; beam width at half power 18°; two secondary lobes 65° either side of main lobe 10 db down, s.w.r. 2.3/1, fed with 300-ohm line, or approximate drive impedance of about 130 ohms.

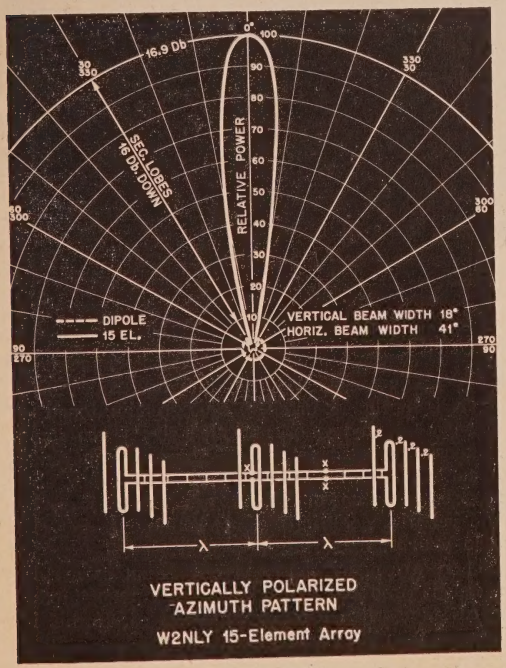


Figure 6

The W2NLY Fifteen-Element Array (Figure 6)

By adding two additional directors to each section, making a total of five in each bay, an increase in from 1.6 to 2.8 db in forward gain is picked up depending on element tuning. Not only was the front-to-back improved, but by further experiment with individual element length it was found possible to greatly attenuate the major secondary lobes experienced with the nine-element job without sacrificing too much of that precious forward gain The following element lengths were chosen after many hours of experiment and careful study of the recorded data and curves. As a double check, about two weeks after the initial tests on this combination were completed, the selected set of adjustments were remade and a new set of curves run. Comparing the two sets of data, the curves were found identical and the gain measurements checked within .15 db of the original results.

Here are the figures:

Power gain equals 49, or about 16.9 db
Front/back ratio equals 190/1, or approx. 23 db
Beam width at half power equals 18°
Major secondary lobes 16 db down
S.w.r., fed with 300-ohm line direct (no transformer) 3.81/1, or the array looks about 79 ohms to the feed line

The final dimensions are as follows: all reflectors 40½″, first directors on ends 35″, center 37″, second directors all 33¾″, third directors all 33½″, outer driven elements 38″ with ¾″ conductor spacing, center driven elements 38¼″ with ¾″ conductor spacing.

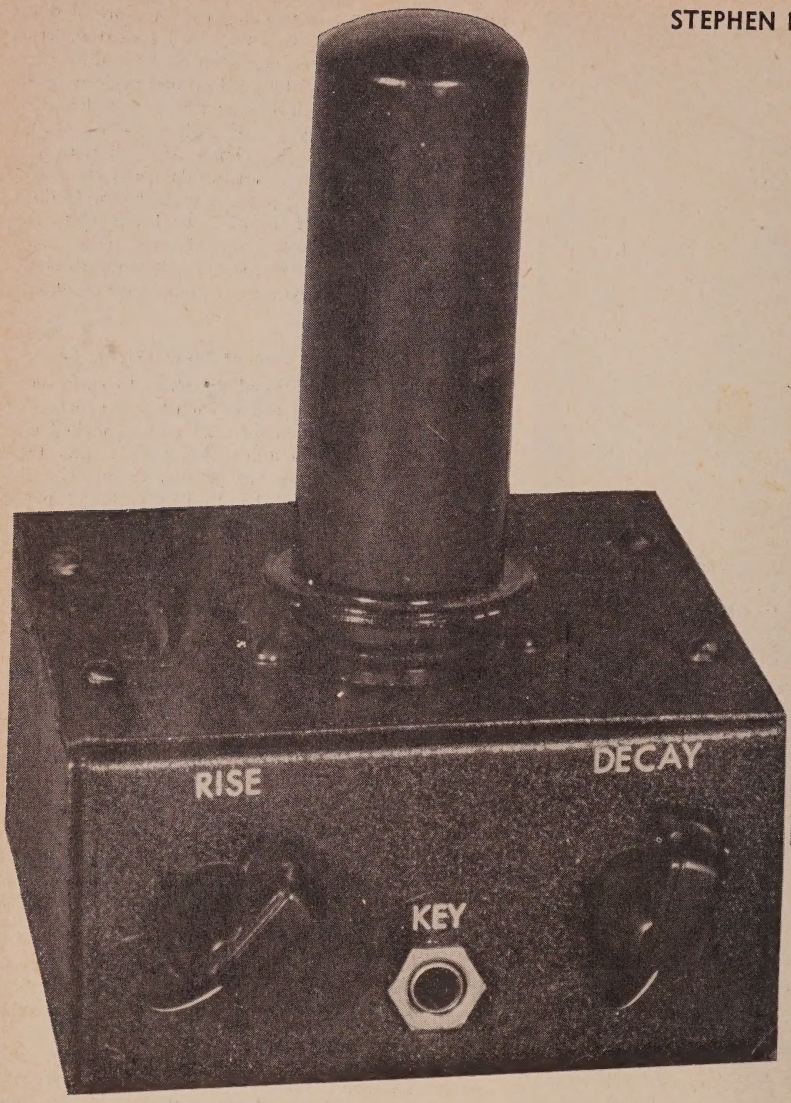
In regard to element lengths, slightly higher gain is possible with these arrays with a sacrifice in front/back ratio as well as a reduction in bandwidth and drive impedance. Gain will suffer when the elements are adjusted for greater front-to-back ratio.

The design center for data represented here was 146 megacycles. Although the bandwidth of any of the described systems excluding the twelve-element special is better than 4 mc at the half-power points, for optimum performance on any other frequency in the band desired the element lengths differ from those given by approximately ¼ inch per megacycle.

All the arrays described here were fed with 300-ohm line while under test to determine the approximate drive impedance as a function of s.w.r. readings. In actual use a half-wave shorted or three-

(Continued on page 63)

STEPHEN LEIBHOLZ, W2ZDE*



LOW

ONE OF THE MOST COMMON, yet one of the most easily remedied defects in a c.w. transmitter is its thump, or click. This gremlin, found in both crystal- and v.f.o.-controlled rigs (even some commercial jobs) can be a great source of annoyance to stations a few kc away from your frequency, and may easily rate one of Uncle Sam's pink QSL cards. And yet it is one of the simpler things to get rid of in your signal.

There are many causes of clicks, but as a rule a click is produced by the surge of current in the keyed stage when the key is depressed. If this is the case, then the obvious answer is to place a filter

* *54–55 69th Lane, Maspeth, N. Y.*

Here is an effective v.t. keyer for the ham with a lean purse.

LOW-COST VACUUM TUBE KEYER

in the keyed circuit to control the rise- and decay-time of the wave. Rather than play with chokes, resistors and condensers, it is easier to use the vacuum-tube keyer, which allows you to control the sound of your signal by merely turning a pair of knobs, one for the "make", or rise-time, and one for the "break", or decay-time of the circuit. In addition, the v-t keyer is a handy thing to have because it removes all dangerous currents from the key. You can key the rig with your fingers, if you want to produce a beautiful "bloop."

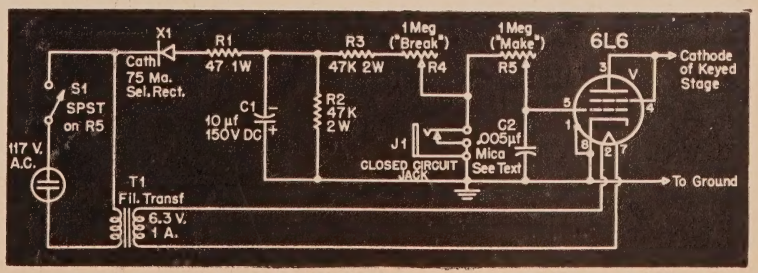
The vacuum-tube keyer shown here was designed for a specific purpose. We wanted to key the cathode of one of the low-power tubes (in this case the oscillator), and wanted the keyer to be as simple as possible, i.e. no transformers, preferably one tube, and practically no parts. We had a good ground available, so that an a.c./d.c. power supply was called for. A low-voltage supply such as this called for a comparatively high-mu tube, and the 6L6 was chosen as a keyer tube, largely because we had a few lying around.

Operation is as follows: referring to the circuit diagram, the triode-connected 6L6, in series with the cathode of the keyed stage, is normally biased to cutoff by the selenium-rectifier power supply. Note that this a.c./d.c.-type supply is connected only to one side of the line, and returned through the transmitter ground. When the key (in J_1) is pressed, the bias is effectively shorted out, and condenser C_2 discharges slowly through R_5, turning on the keyed stage by allowing the 6L6 to conduct. The time constant $C_2 \cdot R_5$ determines the rise-time of the waveshape, and hence R_5 is referred to as the rise-time, or "make" control. Now, when the key is released, condenser C_2 is charged by the bias supply in series with R_3, R_4, and R_5. The time constant of this circuit determines the rate at which the 6L6 is cut off, hence it determines the decay-time, or "break" of the keyed wave. Therefore, we may designate R_4 as the decay-time control, although R_5 affects it also. Hence we have two simple controls on the panel of the keyer, allowing us to control the transmitted waveshape.

The v-t keyer is built into a 4×4×2-inch utility box, but proves a tight squeeze. A 3″×4″×5″ box will be easier to work with, and still is sub-miniature compared to some of the vacuum-tube keyers extant.

Some notes about operation are advisable. It is important that your transmitter be well grounded, because the d.c. return for the bias supply is through the ground provided by plugging the keyer into the transmitter key jack. The 6L6 will effectively introduce about 1600 ohms resistance acting as cathode bias. The output of the stage may be reduced to some extent by this. Additional 6L6s could be placed in parallel with the original tube, to lower this resistance, if a bigger filament transformer is used. Not more than 450 volts or 75 ma should be keyed.

Lacking an oscilloscope, it is easiest to adjust the keyer on the air with another station. Adjust R_5, the "make" or rise-time control first, as it affects the decay time. If a large change is called for, C_2 may be increased for softer keying, or reduced for harder keying, although the value of .005 μf is about right. If the a.c. plug is inserted the wrong way, no bias is developed, and the keyer appears "key-down" continuously. The same is true if the transmitter is not well grounded to a waterpipe or to some other good ground.



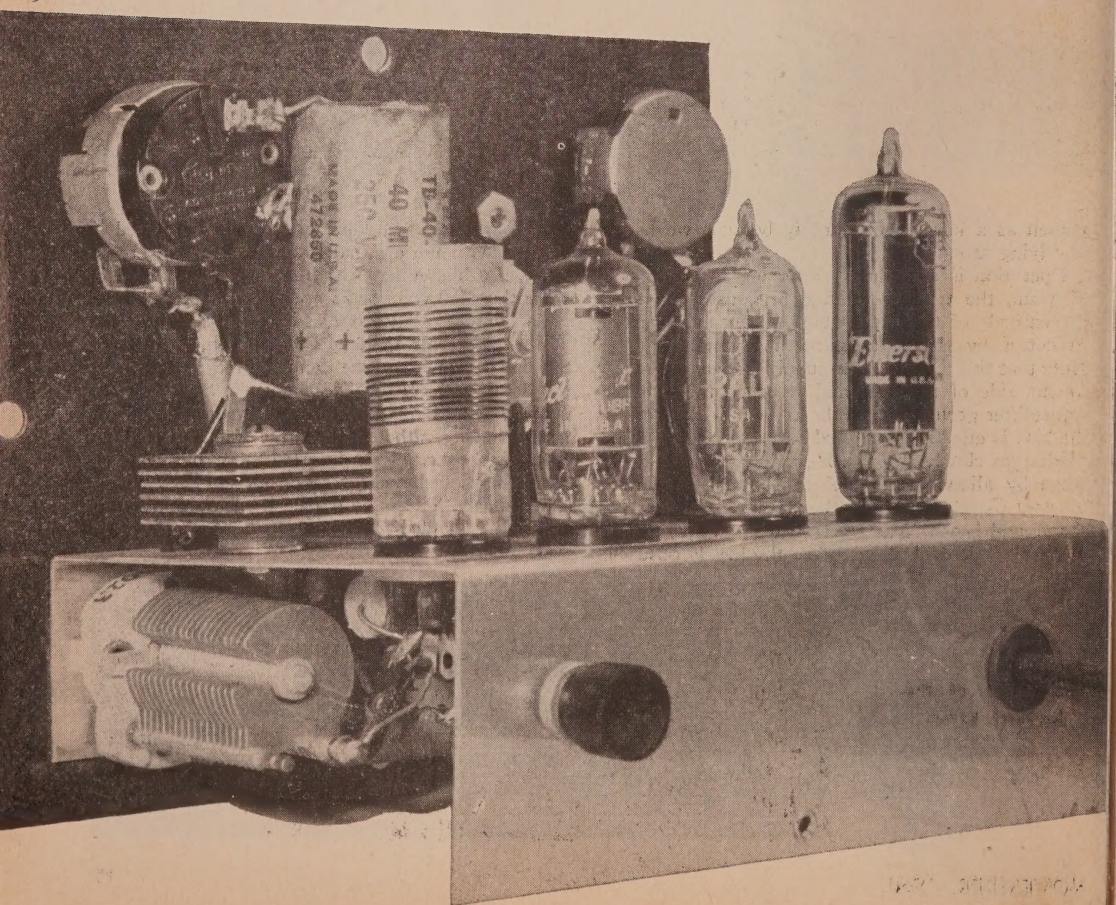
The circuit of the low-cost keyer.

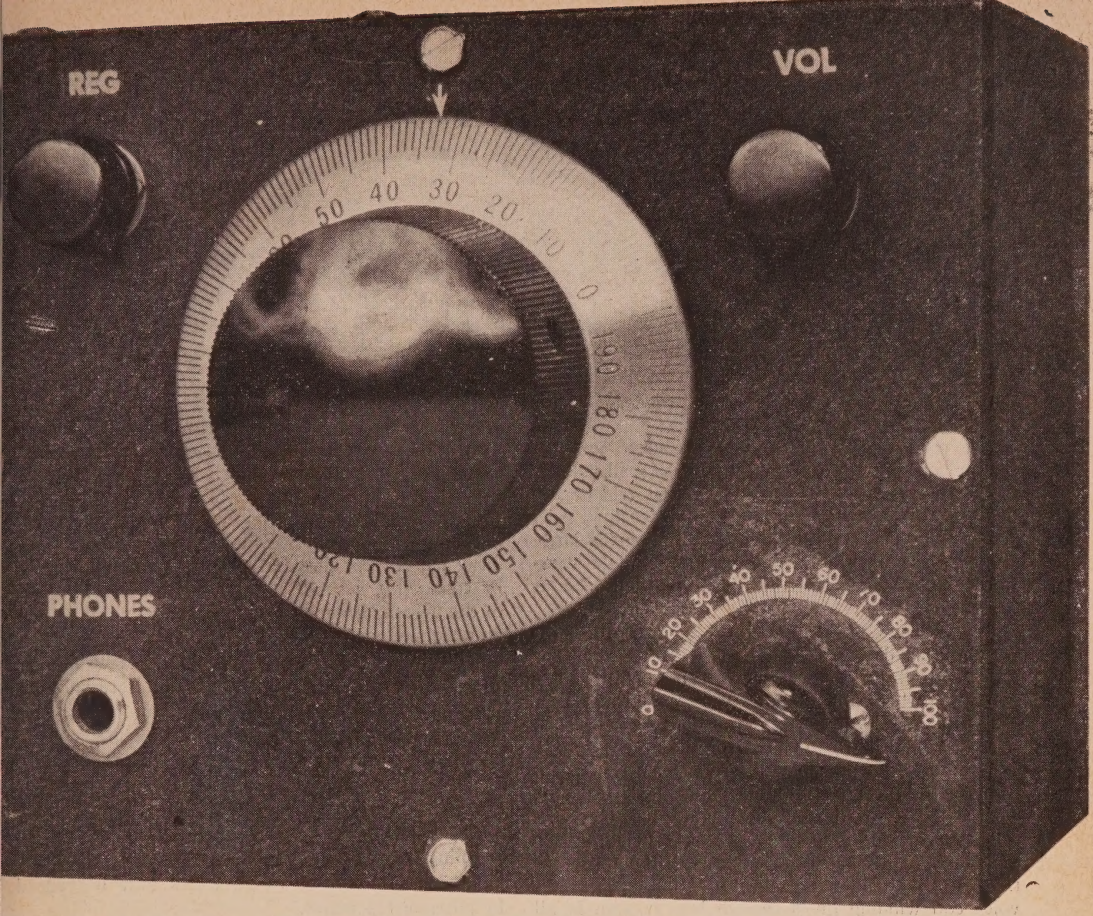
A COMPACT REGENERATIVE RECEIVER

1950 MODEL

LEON A. WORTMAN, W2LJU*

"BIG THINGS COME IN SMALL PACKAGES" is an old cliche. Here's a receiver in a small package that acts just like the big thing on the ham bands. In a box 4" × 5" × 6" is contained a plug-in coil receiver with its power supply, amplifier and loudspeaker. You'll recognize the circuit in *Fig. 1.* as a grid leak detector with regeneration, a circuit that is popular because of its amazing sensitivity to weak signals.





The circuit is simple and easy to assemble; its performance is versatile, and the cost of parts is quite modest. The receiver uses 3 tubes, a 12BA6 for detection, a 12AT6 first audio, and a 35B5 for power amplification to drive a 2-inch loud-speaker. A small selenium rectifier is used for power supply voltage rectification. The miniature selenium rectifier measures only 1″×1″×$\frac{3}{8}$″, yet it handles 75 milliamperes of current continuously. It does heat up a bit, so, it should be mounted on the top side of the receiver chassis.

The receiver operates on all bands down to 10 meters. However, no matter how well constructed, a regenerative detector is not particularly stable at 10 meters, especially for phone reception. The receiver is designed primarily for 80, 40 and 20 meters and, on those bands, it is superior in sensitivity to many of the more expensive receivers on the market. It is characteristic of regenerative detectors that they are especially sensitive to weak, distant signals. It is also characteristic that they tend to block on strong, local signals. The excellent shielding that results from the use of a metal box-cabinet enclosing the all metal chassis minimizes the blocking tendencies. At any rate, the reciver is now in use on 40 meter c.w. quite actively and plenty of rag-chews as well as DX are keeping the operator awake nights.

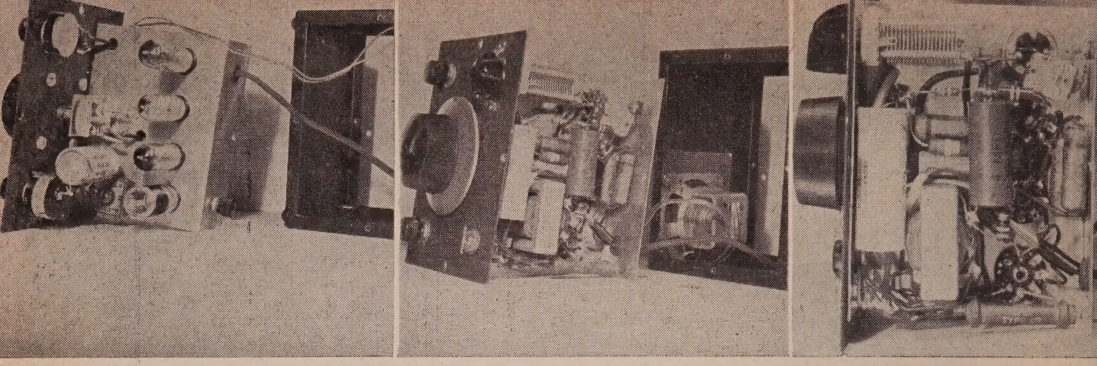
* *101 Perry St., N.Y.C. 14.*

The chassis consists of a 5″×6″ piece of light gauge aluminum, 1/32″ thickness is adequate. This sheet is bent to form a chassis 5″×4″ with 1″ lips. The hex nut of the phone jack and the bolts of the main tuning condenser secure the chassis to the front panel of the cabinet. The front panel is one of the two 5″×6″ removable covers of the utility box that is used as the cabinet. The other cover is not really necessary and may be discarded or thrown into the "junk" box.

Four $\frac{5}{8}$″ holes are drilled in a straight line across the back of the chassis. These are for the three 7-pin miniature tubes and the one plug-in coil.

For electrical bandspread, a midget variable air trimmer is mounted on a bracket on the chassis. This is clearly illustrated in the photographs. If you are concerned mostly with 40-meter listening and want the band to be spread all over the dial, use a 4-plate midget air trimmer. If you are concerned mostly with 80-meter reception, use an 8-plate midget air trimmer.

The loudspeaker is mounted in the box-cabinet. This is done by making a circular cut-out, 2$\frac{1}{4}$″ in diameter on the top side, somewhat toward the forward-left corner. The photo shows this. A miniature, permanent magnet loudspeaker fits very nicely. Use a piece of ordinary window screening as a protective grille for the loudspeaker diaphram. Don't judge the loudness capabilities of this speaker by its tininess;



it really puts out a powerful signal, readable across the shack.

The regeneration control is a standard potentiometer which is used to vary the screen grid voltage of the detector tube. The 12BA6 screen grid bypass condenser, C_8 does more than provide a return path for the r.f. current in the detector. It is made large enough to minimize the noise generated by the rotation of the regeneration control. It should be at least .1 μf.

The volume control is mounted to the right of the band spread dial (looking at the panel). The a.c. on-off switch is part of the volume control. The connections between the tubes and this variable control are rather longer than is considered ideal. However, if shielded wire is used for these connections, no unusual hum pickup will be experienced.

Inserting the plug into the phone jack transfers the secondary of the output transformer from the voice coil of the built-in loudspeaker to a headset. If a high impedance headset is used, the mismatch that results from connecting to a low impedance voice coil winding gives enough loss in gain at all audio frequencies to allow comfortable ear volume without the necessity of readjusting the volume control. Note that the volume control is in the circuit at all times, whether the loudspeaker or the headset is used. If you discover that touching the headset or squeezing the headset cord, while it is plugged into the phone jack, causes instability or an actual detuning of the receiver, it may be because of a stray r.f. current flow. It usually can be cleared up by connecting a small condenser from the high end of the voice coil winding to ground; about .001 μf is an adequate capacity.

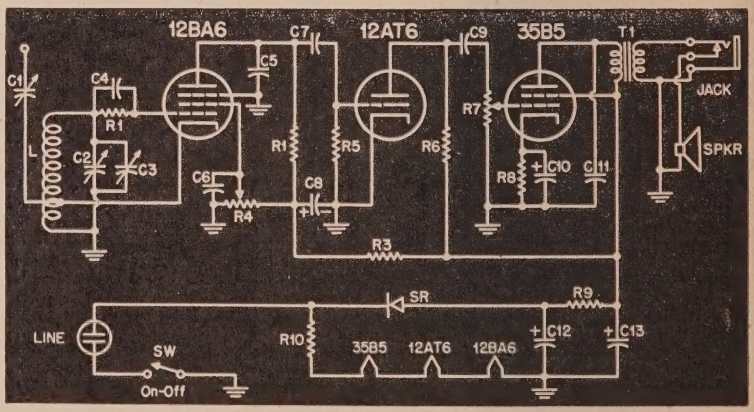
The antenna need not be very long, 50 feet of wire, in the clear, should do. The antenna terminal can be seen at the rear of the chassis and is an *Eby* binding post, insulated from the chassis with shoulder washers. The antenna is loosely coupled to the receiver through a 3 to 30 μμf compression adjustment type condenser. Set the compression screw so that the condenser is almost wide open. Such loose coupling will help eliminate any regeneration dead spots over the tuning range which may be caused by antenna resonance.

(*Continued on page 69*)

PARTS LIST

C1—Antenna trimmer, 3-30 μμf adjustable
C2—Main tuning condenser, 140 μμf air trimmer with ¼" shaft.
C3—Band spread tuning condenser, 25 μμf air trimmer with ¼" shaft.
C4—.00025 μf mica
C5—.00025 μf mica
C6, C7—.1 μf tubular
C8—4 μf, 150-volt electrolytic tubular
C10—10 μf, 25-volt tubular electrolytic
C11—.005 μf tubular
C12—30 μf, 150-volt tubular electrolytic
C13—50 μf, 150-volt tubular electrolytic

R1—2 megohms, ½ watt
R2—150,000 ohms, ½ watt
R3—50,000 ohms, ½ watt
R4—50,000 ohms potentiometer for regeneration control



R5—10 megohms, ½ watt
R6—150,000 ohms, ½ watt
R7—500,000 ohms, volume control with s.p.s.t. switch
R8—150 ohms, 1 watt
R9—1000 ohms, 10 watts

R10—390 ohms, line cord with built in resistor wire.

L—see coil table
SR—75 milliampere selenium rectifier
T1—output transformer, 35B5 to voice coil

JACK—closed circuit phone jack
SW—s.p.s.t. on-off switch (part of R7)
Coil Forms
Tube Sockets
Tubes
Utility Box, 4" x 5" x 6"
Knobs (3)

M. W. CONWAY, JR., W6UPP*

"THE ANTENNA HERE IS...."

WE HAVE ALL WONDERED what are the most popular beam types, so we decided to shake down the log and arrive at a cross section determination of this. Practically every set of figures that is compiled and offered on the journalistic chopping block is subject to many variations in opinions, inaccuracies, and speculations as to its value. The following is not intended to comprise a scientific research nor to influence future builders and certainly not to suggest hauling down the "old reliable." The observation does tend to show, however, the veracity of the statement in some antenna manuals that the parasitic 3- or 4-element beams are the most economical from space and pecuniary ($$$$) standpoints for directive arrays.

Explanations for any table are always in order; so here goes—

Each figure represents an individual antenna; in other words some stations worked tried 2 or 3 different types. Once the antenna was logged it was not counted again in subsequent contacts. As you will note this is a modest figure compared to some "eager beavers" who no doubt work this many different antennae (or antennas) in a few months or so. All stations worked were on 10-meter phone (a few on 11 meters just to keep it honest) over a period of the last 3 years and 5 months. There was a noticeable increase in percentage of 3- and 4-element beams in the last 1½ years, possibly due to many fellows achieving the ultimate (?). Likewise the increase of those using the folded dipole might denote more temporary locations (as many stated they were). Nearly all mobile stations were logged in the last 2 summers, which is a noticeable trend, suggesting that the home rigs are well taken care of and more time is available for building and traveling. The terminology used is largely that of the owner of the beam and in no way reflects the opinion of the writer (with a few exceptions, Yagi for instance).

Oh, yes, denizens of DX will probably be interested in what few of these were DX stations; about 2 dozen, mostly 3-element Yagis with a few each of "V", rhombic and ½-wave dipoles. The loudest DX signal was a ZL using a simple half-wave doublet with 20 watts input, wouldn't you know.

Sometime when we get a few spare hours we hope to figure out comparative signal reports, but that's another chapter.

P. S. Yep, you guessed it, we use a 4-element (so called plumber's delight) Yagi.

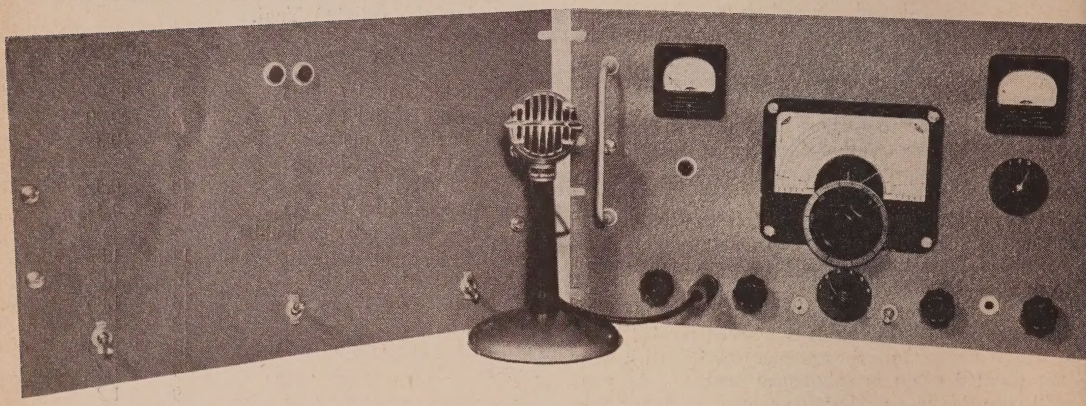
ANTENNA TYPE	NUMBER	APPROX. %
3 element horizontal (Yagi)	274	36.7
4 element horizontal (Yagi)	152	20.30
Folded dipole (10 m)	77	10.3
Horizontal ½ wave (dipole, doublet, etc.)	49	6.5
2 element horizontal (Yagi)	32	4.3
75-meter ½ wave (Zepp., doublet, etc.)	14	1.87
¼-wave vertical (mobile)	14	1.87
"V" beam	13	1.86
Longwire	12	1.85
Vertical ½ wave (center fed) ...	12	1.85
Lazy-H	9	1.2
8JK	9	1.2
Vertical folded dipole (10 m) ..	8	1.0
5 element horizontal (Yagi)	6	.9
40 meter ½ wave	6	.9
2 half waves in phase	6	.9
Cubical quad	5	.8
6 element horizontal (Yagi)	4	.5
6 ½ waves in phase	4	.5
Vertical "J" ½ wave	4	.5
Ground plane	3	.4
Vertical ¼ wave	3	.4
Rhombic	3	.4
Vertical coax	2	.2
Bi-square	2	.2
8 half waves in phase	1	.1
4 half waves in phase	1	.1
Lazy-H with reflectors (8 el.) ..	1	.1
3-element vertical Yagi	1	.1
¾ wave vertical	1	.1
Stacked 3-element pair horizontal (6 el.)	1	.1
20-meter half wave	1	.1
Umbrella type (?)	1	.1
Double twin-3	1	.1
6 half waves in phase with chicken wire reflector	1	.1

* *1419 W. 9th St., Santa Ana, Cal.*

(Continued on page 62)

THEODORE G. DELL, KH6MS*

75 WATT VFO TRANSMITTER



AFTER THE WAR, I had decided that what I wanted was a simple, relatively inexpensive transmitter that would be VFO on all bands, and come within the limits of 100 watts input. A lot of the midnight oil was burned, checking through handbooks, radio magazines, drawing up the circuit, then later the building, testing, finally the tearing of it down. This was a long tedious process, but much was learned about oscillators, design, and construction.

The coming of the Clapp circuit proved to be the answer to my VFO problems. Shortly afterwards, the first in my series of transmitters began to take shape. It was built and tested and it proved that I was on the right road, but had not quite reached my goal, so it was taken apart and another was built, and another, and another. This was repeated three times, finally the fourth one proved to be within 95% of my goal. This one is by no means the end, but it is here that I will pause for a while and enjoy some operating before I continue with this never-ending process of improving.

* *Box 27, Makena, Maui, T.H.*

The Circuit

Looking at the circuit, starting with the oscillator, we immediately recognize it as the Clapp circuit. Coils L_1, L_2 and L_3 are the heart of the circuit and great care should be taken in their construction. Coil L_1 consists of 95 turns of #30 enamelled wire, close wound on a 1" diameter coil form. L_2 is 52 turns of #26 enamelled wire, close wound on a ¾" diameter coil form. L_3 is 24 turns of #22 enamelled wire, close wound on a ¾" diameter coil form. All coils are given two coats of coil dope, this is an excellent protection against moisture and is highly recommended.

The plate circuit of the oscillator is untuned on 160, 80 and 40 meters, but on 20 and 10 meters the plate then doubles the frequency of the grid circuit. L_4 consists of 15 turns of #22 enamelled wire

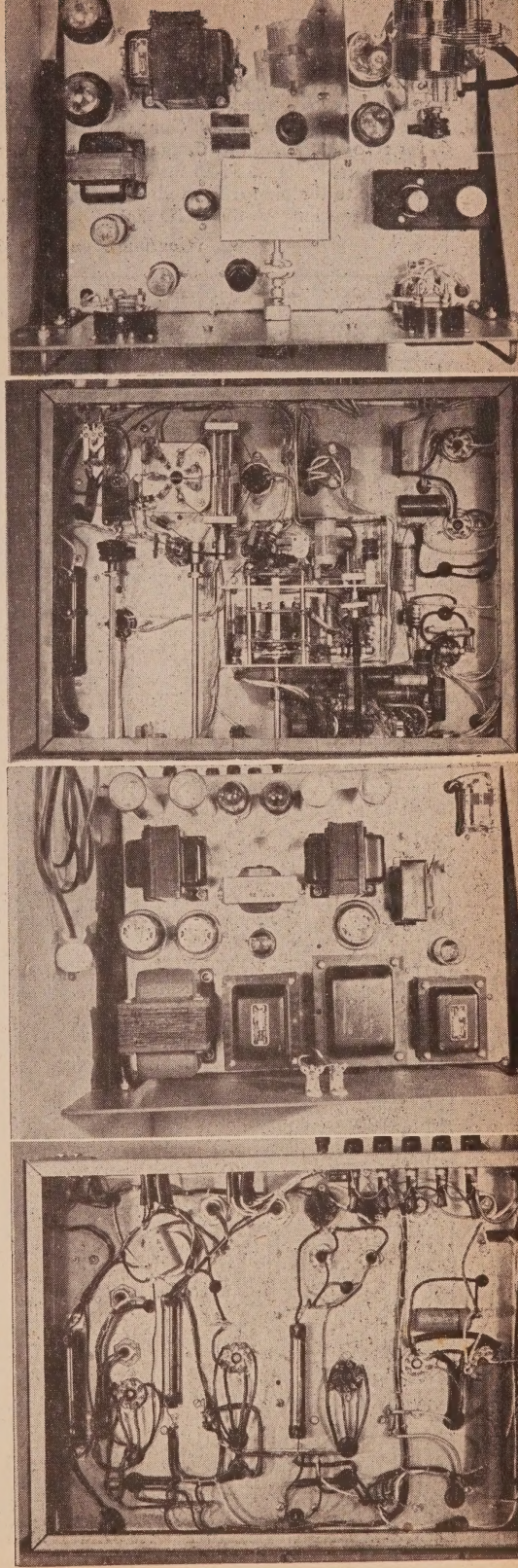
space-wound the diameter of the wire on a ¾" diameter coil form. C_9, across L_4, is a small ceramic padder (3-30 μμf). This *LC* combination is adjusted for maxmum grid drive to the buf/dblr/amp in the center of the 20-meter band. I have not found it necessary to readjust C_9 when going from one end of the band to the other (20 and 10 meters). Admittedly, the drive does drop off at the ends, but it is not enough to be objectionable.

The buf/dblr/amp is link-coupled to the 829-B. This means another tuned circuit, but I found it the best means of going from single ended to push-pull. The link on either L_5 or L_6 should be adjustable. With C_{15} tuned for minimum current and C_{18} for maximum grid drive, the link of either L_5 or L_6 should be adjusted so that the total grid drive to the 829-B does not exceed 12 ma. This link adjustment can be repeated for each set of coils, 160 through 10.

With the band switch, SW_1 in the *#1* position, or 160 meters, the grid of the oscillator is operating on 1.7 to 2 mc. The plate of the oscillator being untuned, the next stage acts as an amplifier with L_5, L_6, and L_7 on the same frequency as the oscillator. On the *#2* position, or the 80-meter band, the grid of the oscillator still operates on 1.7 to 2 mc, with the plate of the oscillator still untuned. The next stage becomes a doubler with L_5, L_6, and L_7 on 80 meters. On the *#3* position, or the 40-meter band, coil L_2 is cut into the grid circuit. The grid now operates on 3.5 to 4 mc, with the plate still untuned. The next stage becomes a doubler with L_5, L_6, and L_7 operating on 40 meters. On the *#4* position, or 20 meters, coil L_3 is cut into the grid circuit. The grid of the oscillator now operates on 6.9 to 7.5 mc. The plate of the oscillator now doubles the grid frequency (20 meters). The next stage acts as an amplifier with coils L_5, L_6, and L_7 being on 20 meters. In the *#5* position, or 10 meters, the grid of the oscillator is still on 6.9 to 7.5 mc, the plate of the oscillator doubling to 20 meters, and the next stage becoming a doubler with coils L_5, L_6, and L_7 on 10 meters.

Calibrating the Oscillator

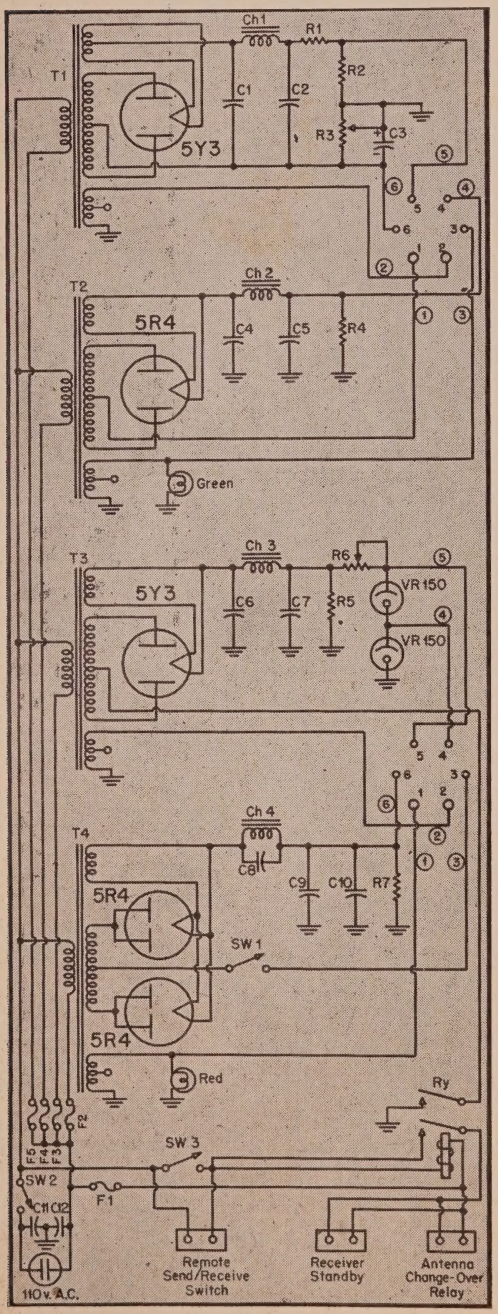
At this point, it becomes necesary to bring into use your receiver, and/or, a frequency meter. The frequency meter, and/or, the receiver should be accurately calibrated so that 25-, 50- and 100-kc markers can easily be read. C_4 is set to minimum, (this puts the dial pointer of the Bud dial at 100, capacity all out), SW_1 is in the *#1* position. Now adjust C_1 so that a beat note can be heard in the receiver or frequency meter, at 2 mc. Rotate C_4 counterclockwise and at every 25-kc interval make a pencil mark on the dial card. On band *#3*, C_4 at



The illustrations at the right show most of the constructional details of the rig. The r.f. unit with its 100-kc standard is shown in the top two views, while the audio chassis is detailed in the lower two pix.

minimum again, adjust C_2 to zero-beat at 4 mc. Again rotate C_4 counterclockwise and mark every 50 kc on the dial. Band #4, C_4 at minimum, adjust C_3 for zero-beat at 7.5 mc, C_4 again rotated counterclockwise, marking at 50-kc intervals. Reference is now made to the photos for a close up detail of the calibrated marking on the BUD dial.

(Continued on page 60)



PARTS LIST

Reference is made to the schematics on this and the facing page. The complete power supply is shown at the left, while the r.f. and audio units are shown on page 25.

Power Supply

C1, C2, C6, C7—8 µf, 450 w.v.
C3—50 µf, 50 w.v.
C4, C5—8 µf, 600 w.v.
C8—.25 µf, 600 w.v.
C9, C10—2 µf, 1000 w.v.
C11, C12—.003 µf, 500 w.v.
R1—1.2 K, 1 w.
R2—10 K, 50 w.
R3—1 K, 4 w., pot.
R4, R5—30 K, 50 w.
R6—5 K, 50 w.
R7—100 K, 50 w.
Ch1—12 Hy., 80 ma.
Ch2, Ch4—4 Hy., 270 ma.
Ch3—10 Hy., 120 ma.
T1—350-0-350 v., 90 ma; 6.3 v., 4 a; 5 v. 3 a.
T2—400-0-400 v., 200 ma; 6.3 v., 5 a; 5 v. 3 a.
T3—350-0-350 v., 120 ma; 6.3 v, 3 a; 5 v, 2 a.
T4—750-0-750 v., 250 ma; 6.3 v, 5 a; 5 v, 4 a.
Ry—D.p.s.t. relay, 117-v. a.c. coil.
Sw1-Sw3—S.p.s.t. switches

R. F. Section

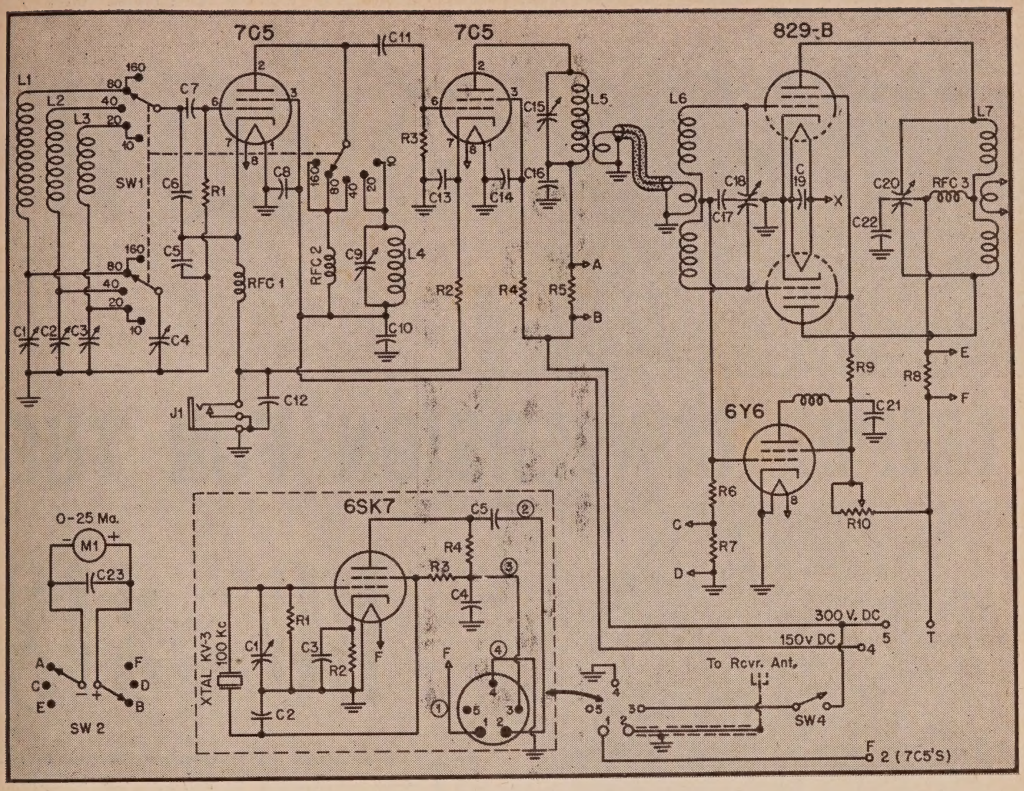
C1—50 µµf variable, screwdriver adj.
C2, C3—75 µµf variable, screwdriver adj.
C4—25 µµf variable
C5, C6—300 µµf, ceramic
C7—100 µµf, ceramic
C8, C10, C12-C14, C16, C17, C19, C21, C23—.0.1 µf, mica
C9—3-30 µµf ceramic trimmer
C11—50 µµf, ceramic
C15—50 µµf variable
C18—100 µµf per section, variable
C20—75 µµf per section, spacing .06"
C22—.01 µf, 5000 v., mica
L1, L2, L3, L4—See text
L5—Set of midget end-link coils, (Bud or B&W)
L6—Set of center-link coils as above
L7—Set of 150-watt variable-link coils (Bud or B&W)
R1, R3—100 K, ½ w.
R2—500 ohms, 1 w.
R3—100 K, ½ w.
R4—20 K, 1 w.
R5—Meter shunt, 4x
R6—5 K, 2 w.
R7—27 ohms, ½ w.
R8—Meter shunt, 10x
R9—50 ohms, 1 w.
R10—20 K, 50 w.
RFC1, RFC2—2.5 mHy, RFC
RFC3—1 mHy, 300 ma, RFC
SW1—3-pole, 5-position wafer switch
SW2—2-pole, 3-position ceramic wafer switch
SW4—S.p.s.t. toggle switch

100-kc Standard

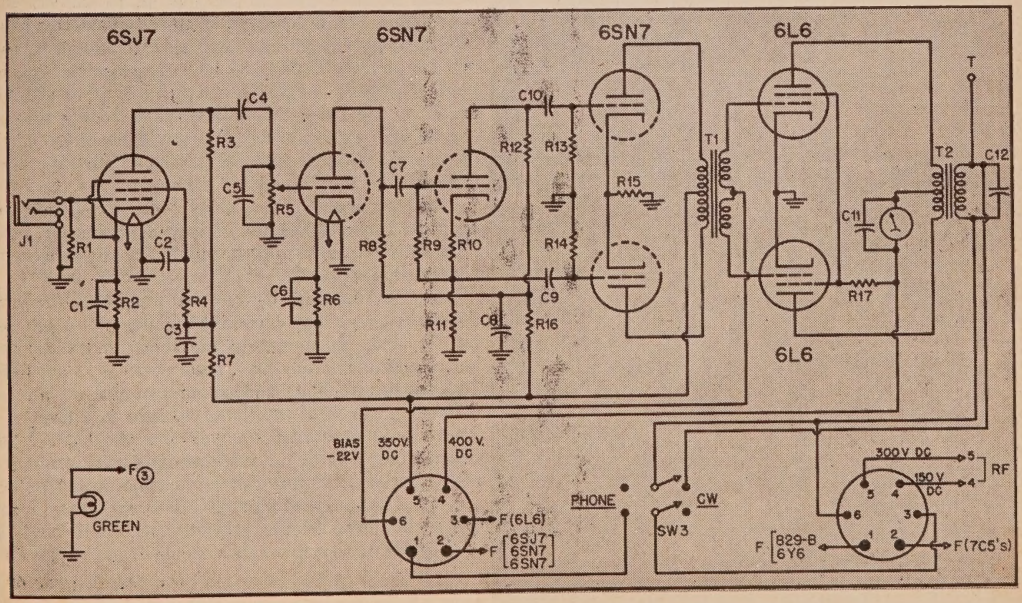
C1—50 µµf variable
C2—150 µµf, mica
C3—.003 µf, mica
C4—.01 µf, 400 v.
C5—50 µµf, ceramic
R1—.47 meg, ½ w.
R2—1 K, ½ w.
R3—100 K, ½ w.
R4—150 K, ½ w.

Modulator

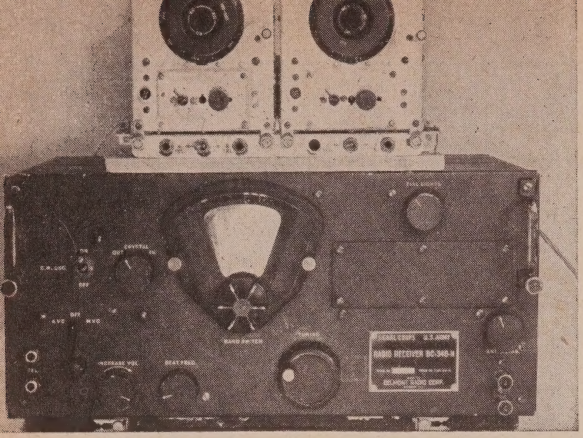
C1, C6—25 µf, 25 w.v.
C2, C4, C7, C9, C10—1 µf, 450 w.v.
C3, C8—8 µf, 450 w.v.
C5—500 µµf, mica.
C11—.001 µf, 500 w.v.
C12—.01 µf, 1200 w.v.
R1—4.7 meg, ½ w.
R2, R6—1.5 K, ½ w.
R3—.22 meg, ½ w.
R4—1.5 meg, ½ w.
R5—.5 meg potentiometer
R7—47 K, ½ w.
R8, R12—56 K, ½ w.
R9, R13, R14—470 K, ½ w.
R10—18 K, ½ w.
R11—29 K, ½ w.
R15—470 ohms, ½ w.
R16—10 K, 1 w.
R17—10 K, 10 w.
T1—Class AB_2 driver transformer
T2—50-watt universal modulation transformer
Meter—0-250 d.c. ma.
J1—Microphone jack
Sw3—D.p.d.t. toggle switch



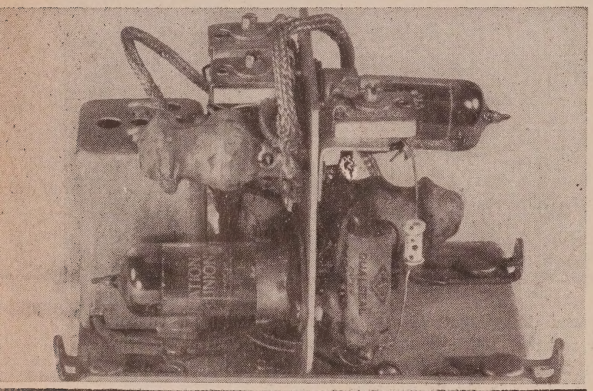
The complete schematic diagram of the r.f. unit and its integral 100-kc frequency standard is shown above. The use of link coupling between the driver and the final, although adding another control, greatly facilitates proper adjustment. The audio chassis is shown below, and is quite straightforward. The new 6SN7GTAs might be a good bet in the driver stage.

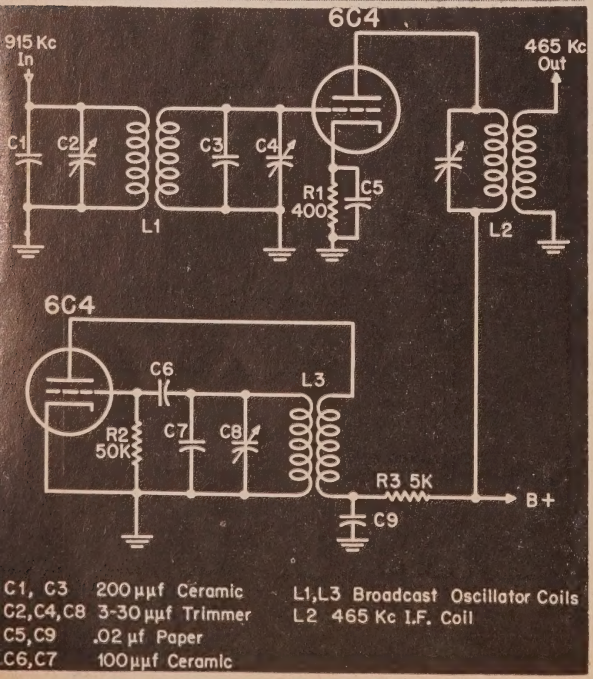


C. R. WADE, W9HZZ



TRIPLE CONVERSION FOR THE BC-348





MANY ARTICLES HAVE APPEARED in this magazine on methods to increase the selectivity of receivers for the amateur bands. From the original Q5er to complete double conversion narrow bandpass receivers the common factor was the use of low frequency i.f. channels.

Having a BC-348 I could not use the "lazy" Q5er method because the BC-348 has an i.f. of 915 kc. I probably could have used the BC-946-B (520–1500 kc), but would have lost the advantage of the low i.f. of the BC-453 (85 kc) so came the idea of *triple* conversion. By constructing a unit to change the i.f. of the BC-348 to 465 kc, and feeding this to the BC-453 (200–500 kc) I would have the quality of the BC-348 r.f. and i.f. sections, plus the low bandpass of the BC-453 i.f. channel.

I had a number of surplus 6C4 tubes so I decided on a two-tube converter. A pentagrid mixer tube or a double triode could be used if a one-tube converter were desired.

I used the base of the dynamotor that comes with the receiver so that I could plug the unit right on the BC-453. By mounting the tubes and coils opposite and alternately on a plate vertical to the base I solved the shielding and mounting problems nicely. I found no need of oscillator voltage injection.

One might expect a number of audio beats from the heterodyning of the fundamentals and harmonics of the three oscillators but I found no such trouble.

The i.f. signal from the BC-348 was taken from the diode plate of the second detector through a .002-μf condenser through a shielded lead. The cir-

(*Continued on page 69*)

HONGKONG JAMBOREE

PAT MILLER, W2AIS/MM*

MOST OF US THINK OF "RARE DX" in terms of mosquito-ridden jungle outposts or a missionary alone in some wild mountain fastness. However, Hong Kong is just about as modern as tomorrow with everything available from bubble gum to the jet fighters that patrol its uneasy borders.

Hong Kong is, in reality, two towns. The City of Hong Kong is situated on mountainous Victoria Island, about a mile off the South China coast. The other town, Kowloon, is located on the mainland on a sort of peninsula. Both towns are connected by a frequent rapid ferry service.

I had no luck contacting any VS6 hams on my /MM rig but I did have VS6BA's QTH. Finding my Cantonese dialect a bit rusty, I decided to call for help when I arrived in VS6 land. My phone call resulted in a cheery greeting and an invitation to some beer. VS6BA, Bill Musty to you, rounded up a few more rare bits of DX in the form of VS6BC, Ronny Mac Kichan, and VS6AE, Pat O'Brien the dean of Hong Kong hams.

Several rounds of beer later found VS6BC leaving us with the promise to meet us that night at the home of John Hunt, VS6JH. John, incidentally, is probably better known to you DX hounds under his old home call G2FSR or his Borneo call VS4JH. With VS6BC QSYing to work, Pat O'Brien suggested that we go down to the harbor and greet the arrival of the S/S Kwang Sai from Macao. According to Pat, Hong Kong's most fabulous ham was the Chief Engineer of the ship, and well worth meeting.

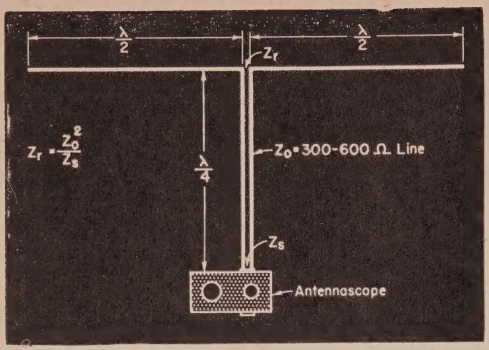
The Kwang Sai arrived in a downpour but our dampened spirits were put aright by some smooth scotch that was poured by our host, a veritable giant of a man known as "Tiny Houghton, VS6AM. Tiny is everything that you read about in adventure books all rolled into one human frame. His life has indeed been a full one and any page of his diary is full of action-packed drama. One time you find him chasing Chinese pirates off his ship with the aid of a live steam hose. Then you find him sabotaging Japanese war equipment. Still he regards ham radio as being as much fun as anything he has ever done. A few hours passed and the Kwang Sai blew a warning blast making us QSY quickly to the dock where we waved a fond goodbye to Tiny.

We then hopped into a cab and headed for VS6JH. En route I pried a few interesting facts from my companions about themselves. Bill Musty is a relative newcomer to VS6 working for the Royal Navy as film distributor. He took up hamming as a hobby a few years ago. An 803, suppressor-modulated, serves him as a rig. Bill is quite active on ten and is located on the outskirts of Kowloon. Pat, Hong Kong's senior ham, hit the airways officially in 1929. He is treasurer of H.A.R.T.S., the Hong Kong Amateur Radio Technical Society. Naturally, Pat has quite a few VS6 firsts, such as WAC, etc. But one first he is glad he missed out on was the dubious honor of being shot as a spy by the Japs. It seems they took a dim view of all the QSL cards he had received and put him on trial. Only the fortunate arrival of an exchange ship saved him. He was traded off for some Japs, sent to CR7 where he was put on a ship to England.

Finally he reached VS6JH who turned out to be a very charming youg fellow with one of those fierce bristly British Colonial mustaches. When he discovered that I was not only W2AIS but also ZC8PM he was delighted and plyed me with queries about Arab Palestine and how I liked being rare DX. Ronny arrived once again with a newcomer just released by the commies in Shanghai named Woody Woodward, VS6AR. The beer flowed and the conversation oscillated between Chinese politics and ham radio when suddenly Bill Musty pipes up and says, "Say, Pat, can you tell us who that

(*Continued on page 61*)

** Far-Eastern Correspondent, CQ.*



WILFRED M. SCHERER, W2AEF*

FURTHER NOTES ON THE ANTENNASCOPE

QUITE A NUMBER OF INQUIRIES have been received concerning the use of the Antennascope[1] for the measurement of antenna resistances above 1000 ohms. Fairly satisfactory results may be had by substituting higher values of resistors in the bridge arms, but the sensitivity of the device will be considerably decreased and leakage will make it difficult to obtain good nulls; however, another method, which does not involve any changes in the instrument, may be employed.

The original article described how to conduct measurements through the utilization of a half-wave line. It was also shown that a quarter-wave line will invert its load, and $Z_s = \frac{Z_o^2}{Z_r}$ The quarter-wave line may, therefore, be also used with the instrument for antenna measurements, provided that the line impedance is known, and that this impedance falls within the correct range. This is especially convenient for measurements involving high values of antenna resistance, such as may be found at the feed point of two colinear half waves.

If a 300-ohm line a quarter wavelength long is used, the Antennascope will read 90 ohms when the terminating resistance is 1000 ohms, 45 ohms when terminated by 2000 ohms, and 30 ohms with a 3000-ohm termination, etc.

For example, in the case of the colinear elements mentioned above, all that is required is that a 300-ohm line an electrical quarter wave long be connected at the antenna feed point to be measured, with the Antennascope connected at the other end of the line. See *Fig.* 1. The antenna resistance is then $Z_r = \frac{Z_o^2}{Z_s}$, where Z_r is the antenna resistance, Z_o is the line impedance, and Z_s is the Antennascope reading at the input end of the line.

The resonant frequency of each half-wave element must be known in order to determine the correct length for the quarter-wave line. This may be found by either the Antennascope or the grid dip method, *Fig 1.* It may also be approximately calculated by $f_{mc} = \frac{492 \times .975}{L_{ft}}$. When the line is connected to the antenna, and if the antenna frequency has been correctly determined, the frequency at which the null is found with the Antennascope, should be the same as that of the line section alone. If the frequency, found when the line is connected to the antenna, goes up, the antenna frequency is higher, and the line is too long. If the frequency goes down, antenna resonance is lower, and the line is too short.

The use of a quarter-wave line during measurement procedures is not limited to the above case,

(*Continued on page 63*)

* *100 E. Palisade Ave., Englewood, N. J.*

[1] **Building and Using the Antennascope, Scherer, CQ, Sept., 1950.**

A Letter from the Publisher

To CQ Readers:

Few regular magazine readers look at the fine type which lists the business side of its staff. So, perhaps you failed to notice two months ago that I again became *CQ's* publisher, after an 18 months absence.

Although I have been in the radio publishing field for over a quarter of a century, at present I have no ticket—a situation which I expect to remedy in the near future. Interrupting my code practice was the task of planning a bigger and better *CQ*. You already see the results of some of these changes in a more readable magazine—and many more improvements are imminent.

Of no incidental interest to *CQ* readers is the fact that I also happen to be the publisher of "Radio-Television Service Dealer" —a technical monthly for servicemen which I launched 11 years ago, and which now happens to rank as the leading publication in its field.

Since it first became apparent that TVI was going to be a problem to some amateurs, I have worked unceasingly to reconcile the varied interests of servicemen and amateurs. I believe that through my re-association with *CQ* and my becoming more intimate with hams my attempts to be of help will be enhanced immeasurably.

Between round-table discussions held by the staffs of both *CQ* and "Service Dealer", and with many friends in the ham and service fields I know that *CQ* and "Service Dealer" will now play important parts in solving mutual problems. TVI is a "mutual problem" as many of you know, since the competent serviceman is as concerned about the difficulties of TVI as the responsible amateur. Rest assured that everything that can be done to help lick this knotty problem, and others like it that may subsequently arise, will be attempted with dispatch.

It is only on rare occasions that a publisher has the good fortune to be associated with a field that is more than a means to a livelihood. I have long been interested in the service field and I have always been a radio hobbyist. To be back in my old stand publishing magazines in the two fields that are as much an avocation to me as a vocation, has given me an enthusiasm to tackle the job that I know will bring to our readers and to myself much pleasure. Our staff shares this enthusiasm and all of us can promise you in *CQ* a dynamic, vigorous publication that will bring you many hours of satisfaction, and benefit amateur radio as a hobby.

73

S. R. Cowan


INSIDE STORY

of the KW-1

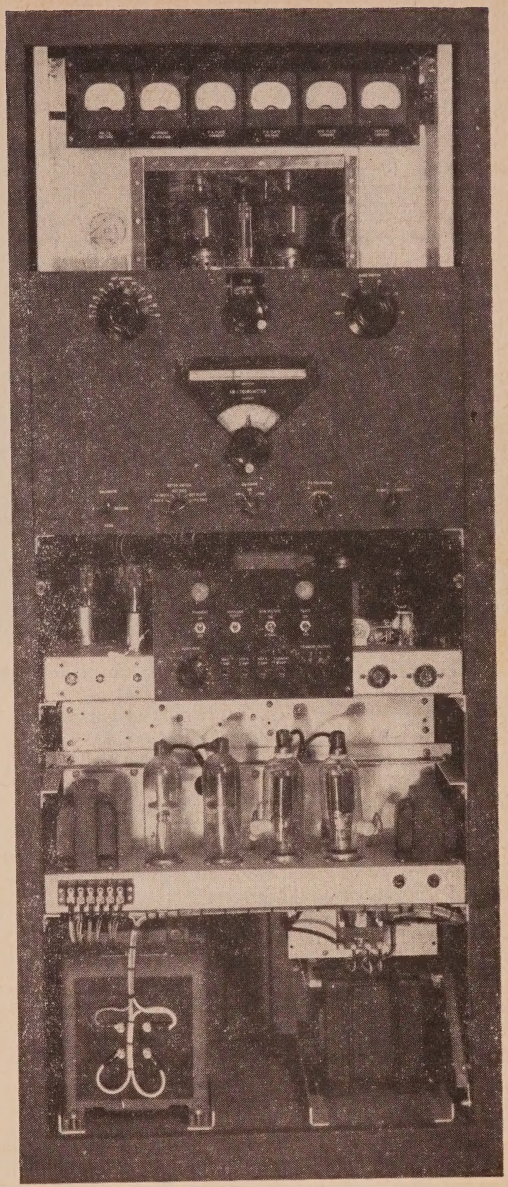
DON E. ROBERTS*
AND
BEN W. ROBERTS, WØIEU*

THE WIDESPREAD AND EAGER ACCEPTANCE OF television has imposed on the amateur fraternity a problem of major proportions. The use of high power makes the solution of this problem even more difficult. After much research and development, including a great deal of attention to the elimination of undesired output frequencies, the new Collins KW-1 transmitter has been designed and built. Reduction of TVI; one thousand watts input on all frequencies in all amateur bands from 160 through 10 meters; AM phone, c.w., or NBFM at the flip of a switch; peak clipping plus low- and high-level filters; a stable, hermetically-sealed master oscillator; and band switching of all circuits including the Class-C amplifier, are among its features.

The r.f. tube lineup, like the remainder of the transmitter design, was selected with the neighbor's TV receiver in mind. This consideration dictated the use of tuned low-power stages for the doublers, and a final amplifier that could operate at a cool kilowatt without requiring large amounts of driving power. The tube lineup shown below was found to meet these requirements. Individual shields are provided for many of the sub-assemblies in addition to the shield around the entire r.f. section and the shielding provided by the steel cabinet.

The parallel 4-250A tetrodes in the final amplifier operate well within their ratings at 1000 watts input. The ease of neutralization, stability, and low driving power requirements of these tubes make them ideal for a high-power, TVI-proof transmitter. Although the power amplifier assembly is completely enclosed in a shielded box, a clear view of the tubes is provided through a glass window and a shielding screen. The conventional plate circuit tuning capacitor was eliminated in favor of a variable high-vacuum capacitor to simplify the problem of mounting the band switching final amplifier and output network on one chassis.

A pi network is used to match between the plate impedance of the final amplifier tubes and a value of approximately 300 ohms at the input of the L matching section. The matching section transforms from the 300 ohm impedance to 50 ohms to feed a standard coaxial line such as RG-8/U. Use of the L



section in addition to the pi section normally encountered in transmitters of this kind increases the attenuation of the higher harmonies to a great degree. A gear-driven band switch ganged with the band switches of the exciter selects the proper value of inductance in both L and pi sections. While the pi-L network used in this application will match into a wide range of load impedances, for reasons of harmonic attenuation and high voltages the standing-wave ratio should be held to 2½ to 1 or less. This value of standing-wave ratio is quite easily obtained over the amateur bands with a properly constructed antenna system. The use of RG-8/U coaxial line is recommended for all trans-

* *Collins Radio Co., Cedar Rapids, Iowa.*

mission lines inside the ham shack.

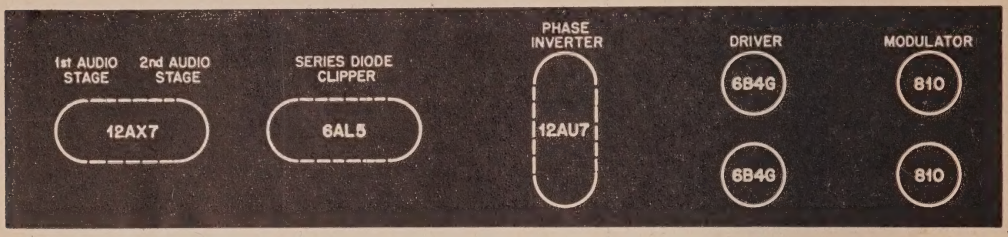
A convenient direct indication of frequency is provided on the main tuning dial of the exciter for all bands, but only the frequency scale for the band in use is visible. A stable, hermetically-sealed oscillator is followed by suitable buffer and multiplier stages to provide adequate excitation on all bands including 10 meters. High oscillator stability is made possible through regulation of the filament voltage as well as the plate voltage. Gas type regulator tubes control the oscillator plate supply voltage and a current regulator tube is used in series with the oscillator filaments. Double-tuned circuits are used in many of the exciter stages to provide the necessary sub-harmonic and higher-harmonic attenuation. Permeability tuning is used in the low-power exciter stages while the driver stage makes use of a variable air capacitor which is ganged to the powdered iron cores used in the low-power permeability tuned stages including the oscillator.

Narrow-band FM emission is provided for by introducing phase modulation into a low-level buffer stage. This modulation principle was used in order to make NBFM available without affecting the original frequency stability or accuracy of calibration of the master oscillator.

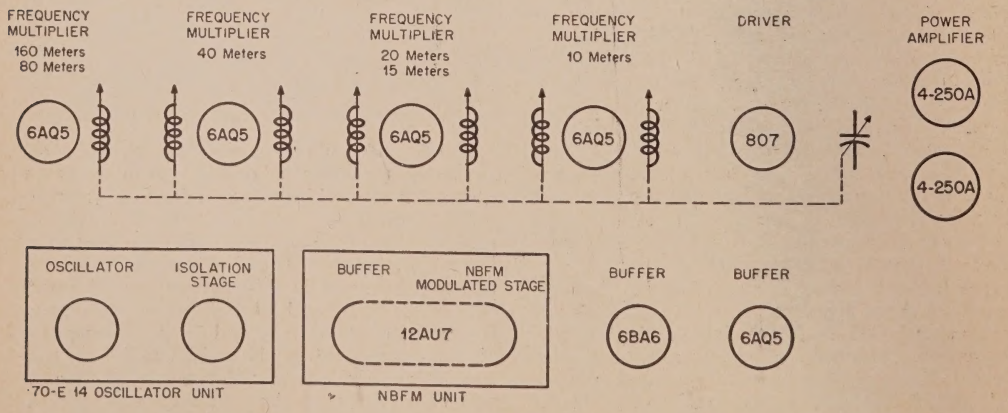
Good keying without interference-producing thumps and clicks is secured by using a special version of the blocked-grid keying system. Fixed bias is supplied to the doubler and buffer stages as well as the power amplifier to limit the key-up plate current.

All of the power and control leads entering the exciter and power amplifier TVI shield are filtered through the use of Hypass feed-through capacitors, thus preventing radiation of undesired signals from these leads. All controls normally operated for transmission and reception are available on the power amplifier exciter unit. This entire assembly, including its TVI shield, can be removed from the main transmitter cabinet and placed on the operating table if desired.

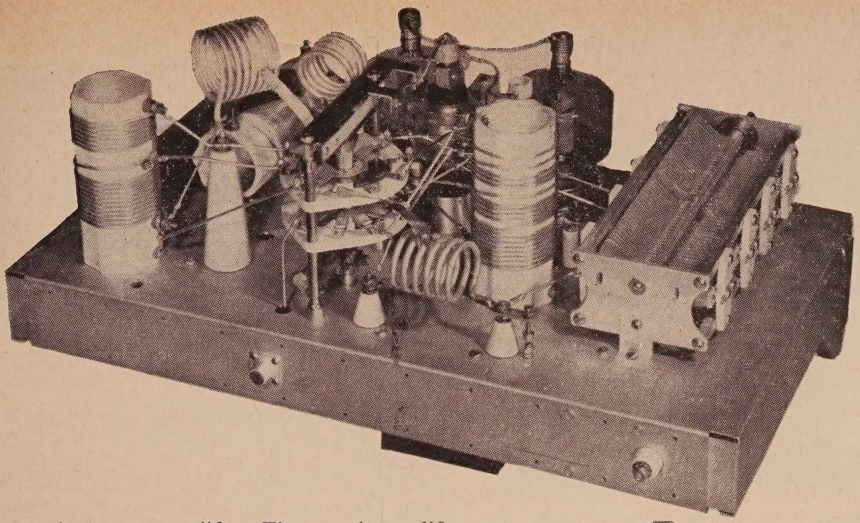
The speech amplifier may be used with either crystal or high-impedance dynamic microphones. Suitable filtering is used at the input of the speech amplifier to keep r.f. voltages out of the first audio grid. A peak clipper consisting of a series diode gate limits the amplitude of the input signal to a predetermined value so as to provide a high average level of modulation without danger of overmodulation. The square-topped audio waves so generated are high in harmonic content, but these higher order harmonics are greatly reduced in amplitude by a low-level speech filter which attenuates all audio frequencies above 3000 cycles. A pair of 6B4G tubes are used for the driver stage. They provide sufficient grid swing for the push-pull 810s in the Class-B modulator. A second low-pass filter is placed at the output of the modulation transformer to further attenuate the high frequencies caused by the speech clipper and to eliminate distortion products generated in the speech amplifier subsequent to the low-level speech filter. The modulator provides sufficient power output to modulate 1000 watts in-



Block diagram of the audio section of the KW-1.



Block diagram of the radio frequency stages of the KW-1.

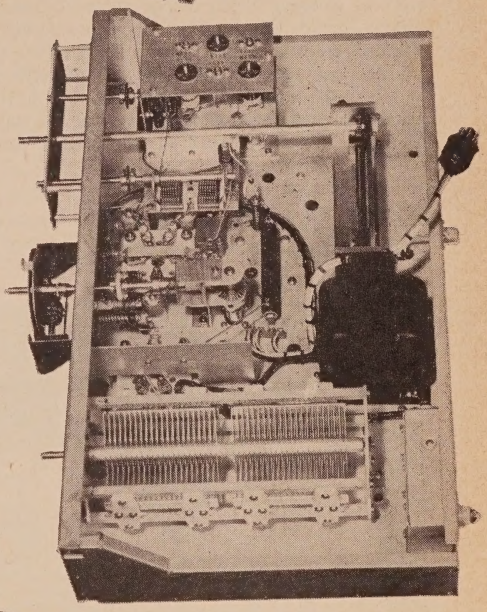


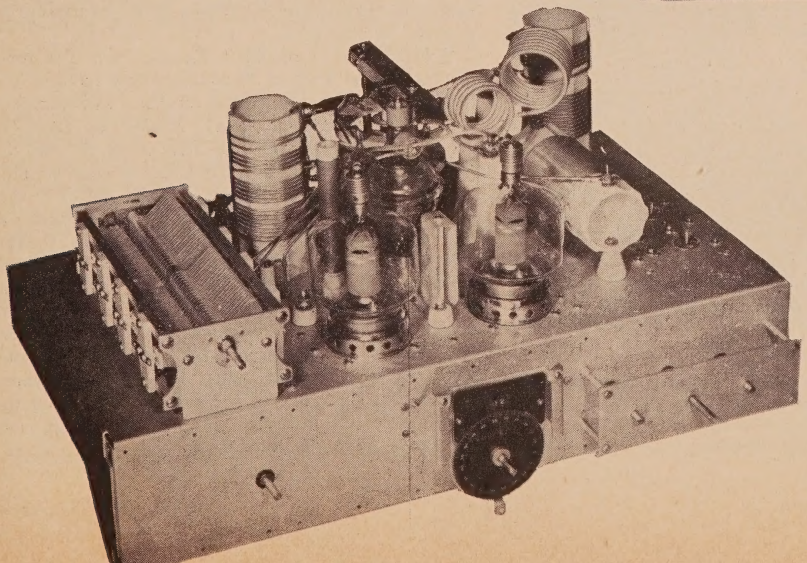
put to the power amplifier. The speech amplifier also provides the necessary audio voltage to the phase modulated stage in the exciter when narrow-band FM is used.

Only one switch need be operated to select AM, FM, or c.w. emission. On c.w. an audio oscillator is keyed with the exicter to provide an audio side-tone for monitoring purposes. Receiver muting is provided as an aid to the c.w. man who likes to work breakin. Each time the key is pressed, a voltage is made available that may be used to mute the audio in a receiver such as the 75A that incorporates provisions for using this feature.

The bias and plate power required by the transmitter is furnished by a bias supply, two low voltage supplies, and a high voltage supply. In the interest of safety, electrical interlocks are used to remove the high voltage when any of the transmitter doors are opened. Additional interlocks are provided to mechanically short circuit the high voltage filter condensers after the electrical interlocks have operated. This protection is in addition to the usual bleeder resistor. The transmitter can be operated

(Continued on page 56)







Conducted by E. M. BROWN, W2PAU*

THE FALL OF 1950 will be remembered as an another exceptional DX season by the v.h.f. workers. True to form, September and early October brought to the v.h.f. bands samples of just about every kind of DX. The outstanding results were obtained via the troposphere. Although there were no changes in the official record columns conditions could be described as "record-breaking" without stretching the truth. If "heard" reports counted, we would have a new two-meter record and the 420-mc record distance would have been nearly doubled. And who knows what has happened to those "States Worked" totals lately? Let's get on with the story:

**Send all contributions to E. M. Brown, 88 Emerald Ave., Westmont, Collingswood 7, N. J.*



Two of the biggest two-meter operators in the east get together in person. W3ASD, the Ol' Fat Boy from Smyrna, Delaware, meets W2DFV, from "Megacycle Hill," Fords, New Jersey. (Reading from left to right.)

September 6

Our last issue carried a brief announcement regarding the extensive two-meter band opening of September 6th. Star performer in this affair was W2BAV, of Claryville, N. Y. Bill had been waiting a long time for a chance like this, and he made the most of it. As the founder of the UHF Resonator Company, and long a proponent of bigger and better antennas, Bill is also a proponent of bigger and better two meter locations. In years past he had been operating from a hill-top location in Bedford, N. Y., using a tower loaned to him by an ardent amateur astronomer. After an extensive search for greener pastures, Bill decided to move to a new site, atop "Red Hill" (elevation 3,000 feet) near the little town of Claryville, in the Catskills. During the day, the hill-top installation is used as a laboratory for commercial radio propagation tests, during the night, it is strictly a ham shack. Equipped with a 48-element horizontal array and a 32-element vertical job, for two meters, a rig which runs 750 watts input, to a pair of VT127s, and a receiver (which was the culmination of three years' experimentation) using cascaded lighthouse tube grounded-grid r.f. amplifiers, W2BAV was, indeed, due for a break in conditions!

Starting at about 10:20 p.m. EDST Bill worked just about everything there was to work between his location and the central part of the United States. Space does not permit a complete listing of the evening's activities, but the list of 29 W9s, 10 W8s, 5 WØs and 3 VE3s worked by W2BAV represents practically a "Who's Who" of two-meter activity in this area.

WØDSR, of Greenleaf, Kansas, was the most distant station worked. Was this a new record? We think not. Calculation of the distance, assuming the location of W2BAV to be 41° 55′ 30″ W. Lat., 74° 33′ 30″ W. Long. and WØDSR to be 39° 45′ N. Lat., 97° 0′ W. Long., yields a figure close to 1178 miles. The existing record, set by W5VY and W8WXV, figured by the same method, comes out approximately 1196 miles. So it looks as though this misses it by just a few miles. But W2BAV's signals were going out a lot further. W5CUH, of Durham, Oklahoma, heard W2BAV for about 45 minutes. This distance is approximately 1450 miles! Bill, W5CUH, complains that his 40 watts just were not enough, that night. This episode demonstrates that there is still a good possibility that the existing record may yet be broken without any assistance from the ionosphere.



The OM and the XYL at W5AJG/W5JKM. This pic is not to be construed to represent the normal distribution of labor in the running of the W5 QSL bureau!

Though some may complain that W2BAV's use of high power helped him produce these outstanding results, it should be remembered that WØDSR was running only *12* watts when the QSO was made. WØEMS worked Bill using only a 522 into a 16-element array 14 feet above the ground. Apparently the reports of "S9 plus" that the boys were handing out to W2BAV were not exaggerated! But, to some of the fellows who heard W2BAV but couldn't get through, remember that he was using high power—maybe enough to make the difference between a "Heard" report and a QSO.

Here in the East, the opening was much more localized than it seemed to be in the West. At the time when all the DX activity outlined above was going on, there were several other two-meter stations active in the northeast. W2NLY was about the only other eastern station who had much to report. Jim aimed his new 30-element array to the West on horizontal, and hooked, among others, W8RWW, W9EQC, W9HKQ, W9WOK and W9UCX. Jim also heard several of the WØs, including WØDSR, ONQ, MNQ, and EMS. Jim thought that he heard WØEMS coming back to his call, but Frank, via the mail, says that he is not even sure that he heard W2NLY. Jim is thinking about dusting off his as yet un-used 1 kw. amplifier after this experience! He now has 18 states plus VE1 and VE3.

W1HDQ was alerted by a 'phone call from W9NFK, Editor of the VHF News, during which Bill re-transmitted the signals of W2BAV via the land lines to Hartford. Despite this tip-off, W1HDQ was not able to QSO the Chicago area, however, Ed's signals were reported by some of the Mid-West stations. Ye Ed was on the air at the time, listening to W2BAV's activities, and straining the old beam to the west on horizontal. Despite the fact that the band was good into Western Pennsylvania (we heard W3RUE working W1BCN) there were no W8s or W9s heard at this location. W3QKI of Erie, Pa., had a similar experience. Herb sat up until 4:30 a.m. listening and calling CQ without much success. A few W9s came through, with medium-sized signals, but most of the DX that W2BAV was working went right over his head. Apparently the eastern terminal of the opening was centered on the New York City area, and W2BAV, with his 3000-foot mountain plus his 64-foot tower was right up in the middle of it. Congratulations are due to W2BAV and W2NLY, for if they had not caught this opening, it might well have gone un-reported.

Oct. 2nd and 3rd

The second band opening of record-breaking proportions within 30 days built up over the northeastern seaboard during the early evening hours of October 2nd. The operators who make it a habit to look over the band before signing off to watch TV found to their surprise that DX signals were coming in off the backs of their beams and cross-polarized! Thus alerted, there were plenty of stations active during the entire evening. In fact, the low end of the two-meter band sounded just about like the high end of the 75-meter band!

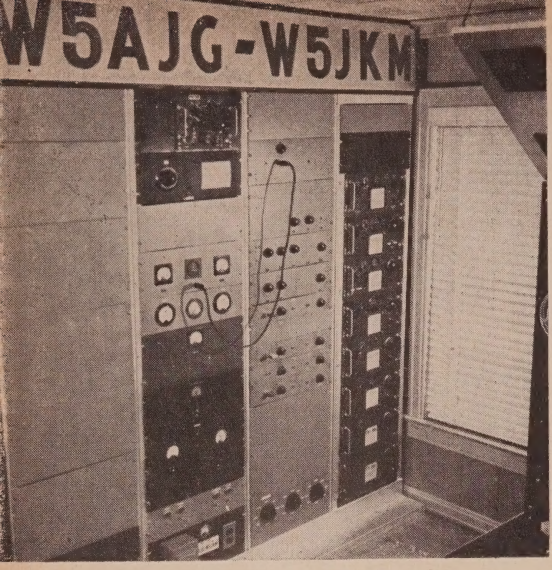
VE1QY was on deck at the northern end of the opening, and his signals were riding into Southern Virginia, 710 miles away, with sufficient strength to QRM comparatively local stations! W4OLK told us that VE1QY was coming in so strong that his signals could be detected with the antenna disconnected from the receiver—but Ed would like to have it on record that it was a horizontal antenna that he was hearing Jerry without!

It was indeed a band opening "for the little fellows". W1IO mobile at Danvers, Massachusetts, using a pair of 6J6s in the final feeding a 4-element Yagi array mounted on the car, worked W4JFU at Parksley, Va., a nice 475-mile hop. (A few more QSOs like this, Bob, and some of us high-powered guys will also be operating portable from Danvers!) (Local joke.) W2PQD, at Babylon, L. I., was running his 6J6 final off the converter power supply, and his signals were coming in like a local's down here despite the ½-watt input level!

This opening seemed to be split into two sections, one inland, the other along the coast. In the Philadelphia area, about 60 miles from the ocean, W1HDQ was running S9 plus, VE1QY, on nearly the same frequency, was barely audible. At the same time, W2JAV, only 30 miles closer to the shore, reported VE1QY as S9, while W1HDQ was down in the noise! Both Ed and Jerry were working stations in the Norfolk, Va., area, and down there VE1QY seemed to have the upper hand.

The most-heard complaint at this time was "where are the North Carolina stations?". It hardly seemed logical that with conditions as they were into Virginia that the signals would observe political boundaries and stop at the border!

Meanwhile, the 420 mc experimenters were not



The transmitter bay is neatly arranged and efficient at W5AJG/W5JKM. These transmitters are among the most active in v.h.f. work, and have been for many years.

idle. W2QED had just completed the installation of a high-powered modulated oscillator, capable of handling about 150 watts input. This set-up was putting a tremendous signal up and down the coast. W4CLY, at Cape Henry lighthouse, reported W2QED's mc signals loud and clear, but Bill, unfortunately, was not equipped to transmit on 420. W4ODG, of Hampden, Va., was alerted, and he fired up his 420 mc rig. His signals were heard immediately by W2QED. In fact, K2AH of East Orange, N. J., 300 miles distant, heard W4ODG. There followed a long and persistent effort to get at least one of the northern stations hooked up with W4ODG, whose receiver was, quite obviously, not up to par. K2AH was even using mental telepathy to try to get through! Finally, after many tries, W4ODG recognized W2QED's signals on 420, reports were exchanged, and an official QSO was established. The distance, according to our calculations, is about 191 miles. This is sufficient to break the former record for fixed-station to fixed-station QSOs by a decisive margin. It is not up to the record of 262 miles established by W6VIX and W6ZRN operating mobile from mounatin-top locations in Southern California. But, if K2AH had been able to push a signal into W4ODG's receiver during the opening of Oct. 2nd, the new record might have been 300 miles. That 420 mc band is going to surprise a lot of people someday soon!

This band opening was easily the best night of the season for north-south work along the northeast coast. The good conditions continued unabated throughout the night, and on the morning of October 3rd, some of the flea-powered stations operating in the "Dawn Patrol" (7:30 to 8:00 a.m., presided over by W2PEN/2, in Camden, N. J.) were able to get reports from stations 100 miles away as they drove to work! The lucky few who were able to be on the air from their home stations found signals coming in practically un-attenuated. W4CVQ, of Fayetteville, North Carolina, making up for his absence of the previous evening, was laying a tremendous signal toward the north. W2BV, using vertical polarization, gave Jake an S9-plus report when they hooked up for the first New Jersey-North Carolina QSO. W2QED also hooked W4CVQ, likewise, cross-polarized. VE1QY showed up around 10:30 a.m. EST, and hooked W4CVQ for the first VE1-North Carolina QSO on 144 mc—a fine 910-mile contact. It seems that this might stand for quite a while as the north-south east coast DX record! W4CVQ promised to return to the air later in the day to give the working men a break, but the good conditions seemed to drift out to sea, leaving W4CVQ and most of the two-meter stations in the northeast separated once again by that seemingly impenetrable barrier of about 500 miles of rugged terrain.

Activity on the VHF Bands

It hardly seems appropriate to comment on the lack of activity of the v.h.f. bands after the stories we have just related. One might assume from reading these and other similar accounts of the recent band openings that, of all the things we have to worry about, lack of activity is the least. But, strange as it may seem, when a bunch of v.h.f. workers get together to discuss their hobby, one of the first topics of discussion is "where in heck are all the stations when the band isn't open?" And it's a reasonable question. The six and two meter bands could certainly accommodate much more routine activity than they are now carrying, and the 220 and 420-mc bands are at this time practically useless for non-scheduled work, even around our larger cities. We can be certain that the lack of activity is not due to a shortage of equipment for the v.h.f. bands—there are stations ready to go on the air, but they seem to have gotten out of the habit of routine operating. When the incentive of a band opening is offered, there are generally plenty of stations active.

The recent Fall QSO Party demonstrated that a contest, as such, is not sufficient inducement to bring the gang out in force. Except for the annual VHF Sweepstakes contests, which seem to arouse the spirit of inter-club rivalry, these contests have gradually lost their following, and the latest one, in September, was apparently the quietest on record.

We recently had an opportunity to ask a group of v.h.f. specialists for their ideas on how we might tempt some of the silent stations out of hiding on normal week-nights, and their answers were most enlightening.

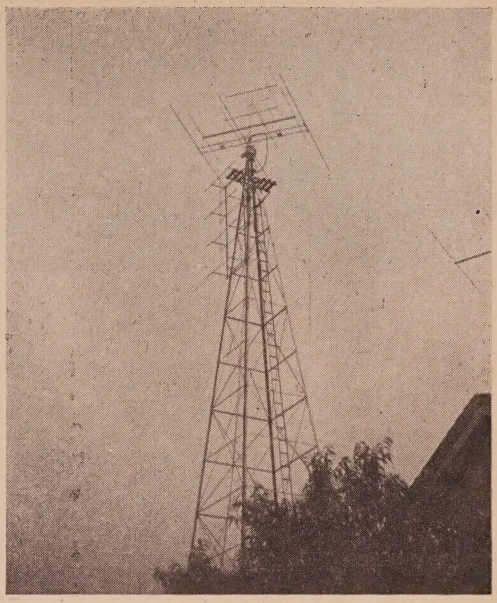
W2PCQ blames excessive "gum-beating" for the fact that many fellows do not like to get involved in local contacts. It is a sad truth that the v.h.f. bands seem to be the refuge for certain long-winded characters who seem to be unable to say "73" before

it's too late. Harold claims that a return to reasonably snappy operating procedures, whereby a QSO could be accomplished and facts of mutual interest exchanged in a matter of a few minutes, instead of a few hours, might result in greater activity.

W2JAV supports the theory that too many of the gang are only equipped for *local* contacts and cannot make full use of the capabilities of the bands. Limited by low power, poor receivers, and small antennas to a small working radius, they quickly tire of the type of contacts available to them, and never realize that they might be enjoying many interesting inter-section QSOs at distances out to 100 miles and more if they would only spend a little time and effort improving their stations. Phil claims that most of the talk one hears about "poor locations" is the bunk, and many a "poor location" can be compensated for by a decent receiver and antenna. W2IG and W2OG are strong supporters of v.h.f. network activity. They find plenty of opportunity to talk to other stations during normal periods, but their activities are confined pretty much to their scheduled net system. They would like to have other stations call into their net, they invite general participation. But they find few takers. The answer to this may be that the gang have found that stations operating in a net do not tune the band often enough, or do not tune the whole band. When one finally succeeds in crashing a net, it often takes a long time to get out. Quite often it is impossible to hear all the stations operating in a net, especially when calling in from a distant location.

W2YEK seems to think that the present state of the art has outstripped many of the non-technical amateurs, giving them a decided inferiority complex. The beginner attempting to invade the v.h.f. bands may find that his gear, which he painstakingly built from the designs in last year's handbook, is already obsolete. Unless he is blessed with an exceptionally good location he will find it hard to compete with those stations which have been developed over a period of years by the seasoned old-timers on the bands. In short, unless a beginner can afford to go out and buy a complete station, including antenna, it is pretty difficult for him to get started on anything approaching an even basis with most of the stations on the band.

W2PFQ advances the theory that since our techniques have become pretty well established on both six and two meters, the spirit of experimentation has practically vanished from our bands. Joe thinks that we have degenerated to a bunch of rag-chewers. And, except for the small amount of public-service traffic handled on these bands, we have now very little to justify our operations in the eyes of the public, the victims of our TVI! Joe looks back to the time a few years back when we were not sure that we could push signals over 100 miles on two meters—when most of our contacts were for the purpose of trying new equipment or discussing ways to improve the art. At least, in those days, we were justifying our experimenter's privileges by doing things for the first time!



The antennas at W5AJG. On the tower are arrays for ten, six, and two meters. A spare 16-element beam for two meters hangs on the side of the tower.

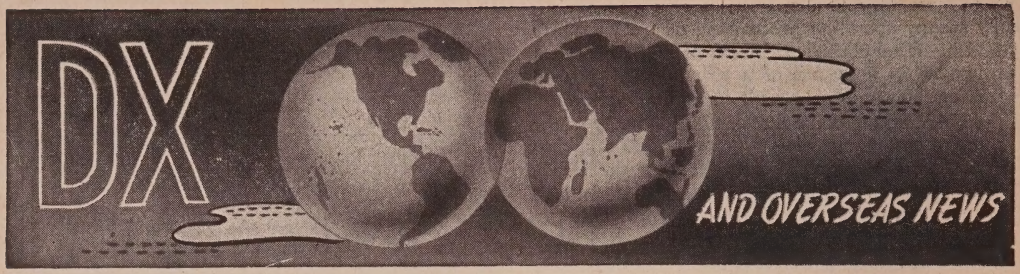
W3AIR suggests that regular schedules between DX stations will help stimulate activity by demonstrating the capabilities of our bands and thus giving the boys a goal to aim at.

TVI has many of the fellows stopped—perhaps more than some of our leaders of amateur activity would care to recognize. Most of the cases of v.h.f.-band TVI are not the fault of the amateur, but, in many areas, lack of a reasonable and forceful stand by the FCC officials has put many hams off the air due to pressure from neighbors who could not be convinced that the amateur could do nothing to

(*Continued on page 46*)



The receiving position at W5AJG/W5JKM is equipped for just about everything the v.h.f. worker could desire.



Conducted by HERB BECKER, W6QD*

IT GIVES US A GREAT DEAL OF PLEASURE to congratulate the following in achieving WAZ.

227	W6IDZ	Daniel M. McPeak	40–130
228	I1XK	Mario Bosia	40–140
229	G3TK	Ron E. Wood	40–157
230	W4CYY	J. B. Smith	40–147
231	VK3EK	Harry J. W. Hall	40–160

Most of the fellows have complained of very poor DX conditions during the past month or so, and by golly, they must be right judging from the relatively slim pickings in this month's mail bag. If the stuff isn't being worked, we certainly can't record it, but now let's see what we do have. I think there are a few items which will be of considerable interest to everybody.

ZS2X passes along the information that ex-FB8XX will be back on Kerguelen early in 1950, and this time for one year.

WØPNQ and YXO each received cards from HV1X, and both bearing the proper stamps. . . . However, the cards contained no name or signature. . . . W3JKO answered a CQ from someone signing HV1AA. According to I1ADW, there is a good HV1AA, and let's hope that 3JKO worked the right one. Anyway, we are showing the QTH given us at the end of the column.

Still in the eyebrow raising department, we run across FS8AD again, who supposedly was G2AD. However, G2MI says he never heard of him.

WAZ HONOR ROLL

To enter the Honor Roll, fill out one of the Zone and Country List forms, which we will supply on request. Please send a stamped, self-addressed envelope.

The Honor Roll contains totals of postwar contacts only, that is, contacts made since November 15, 1945.

It is not necessary to submit combinations until you are eligible for a WAZ certificate. To be awarded a WAZ certificate, send confirmations for the 40 zones, as well as a list of them, direct to the DX Editor. If a Country List has not been previously submitted, then one must accompany the WAZ certificate application. For these lists, please use one of our standard Zone and Country List forms, and it will then become our permanent record.

The Honor Roll is in two divisions; the c.w.-phone section, which gives the current total of zones and countries any station has worked while using c.w. or phone, or both; the other section contains a list of "phone only" stations. All contacts claimed in this section must be on a "phone-to-phone" basis.

All-time WAZ certificates will be issued upon presentation of proper confirmation. The Certificate will be similar to the postwar certificate, although no listings of all-time WAZ certificate holders is anticipated at this time.

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

Amsterdam Island

It has been decided that Amsterdam Island will be counted together with Kerguelen Islands as one country. Alphabetically, in the country list, it should show up as "Kerguelen Islands and Amsterdam Island." For your information, this island is located at approximately 37° south and 77° east.

ZL1DA passes word along through W6PQT that there should be a station on Wallis Island signing FW8AA. Apparently, he is supposed to be on 7 mc but not until he receives a crystal sent by FK8AC. You are supposed to send your QSL via Noumea, New Caledonia.

XE1AC told W6ENV that TI9ES will be on Cocos Island some time in December. This time he will operate 7 and 14 mc phone and c.w. While there a short time ago, he had an opportunity to work only a few Ws, so this next spell should help a lot of you.

ANDORRA? . . . You have NOT worked it!

It is without regret that we record the passing of PX1A. Nope, nobody was buried, in fact no one died, but the greatest hoax of all was finally exposed. On August 17th, the Mexican authorities raided this station in Chihuahua, Mexico, and all equipment and logs were confiscated and the operator lodged in a jail, pending a court trial. The charges were illegal operation of a radio transmitter and suspicion of communist espionage! On

W. A. Z. HONOR ROLL

CW & PHONE

WAZ

W1FH	234
W6VFR	233
W2BXA	228
WØYXO	226
W6EBG	226
W6ENV	226
W3BES	225
W6MEK	224
W6PFD	224
W6GRL	224
W3GHD	224
W6ADP	224
G6RH	224
G6ZO	222
W3LOE	221
W6ITA	219
W8BHW	218
G2PL	216
W3EVW	215
W2PEO	215
W6FSJ	215
W6SN	215
W6SYG	214
W6AM	213
W2AGW	213
W4AIT	213
VK3BZ	213
WOPNQ	213
W6TT	212
PY1DH	212
W6MX	211
W6NNV	211
VK2ACX	211
W6SAI	210
W6DZZ	209
W9VW	209
ZL2GX	209
W6MJB	209
W6OEG	208
W2AQW	208
W8HGW	208
W9NDA	208
ZL1HY	208
W6SC	207
VE7ZM	206
W4BPD	206
LU6DJX	205
W6MVQ	205
W6ZCY	204
W6DI	204
W6PKO	204
VK2DI	204
KH6CT	204
CE3AG	204
W4CYU	203
ZS2X	203
VE4RO	203
W7GUI	203
W8BRA	203
W6RM	202
W6OMC	202
W6PB	202
W6AOA	202
W7AMX	201
W6PQT	201
W6BPD	201
W6DLY	200
W9KOK	200
KH6BA	200
VK5JS	199
W6TS	198
W2IOP	197
PY1AJ	196
W6WB	196
G2FSR	196
G4CP	195
W5KC	195
G6QB	195
OK1FF	194
KH6IJ	194
W6GDJ	194
W6GAL	193
W6EFM	193
W6RBQ	193
W6AVM	192
W6HX	192
WØDU	192
VK2NS	191
W6RW	190
W6SRU	190
VK3JE	189
W6TI	189
ON4JW	189
W5GEL	189
W6EPZ	188
WØNTA	188
W6AMA	186
W2CZO	185
W6RLN	185

CW & PHONE

W6SA	184
W6UCX	184
G3ATU	183
W2JVU	183
W6VE	183
LA7Y	182
W6KRI	181
G8IG	181
WØELA	181
W6IFW	180
W6EHV	180
CE3DZ	180
W8SDR	179
I1KN	179
W6UHA	179
KH6QH	179
VK4HR	178
G3DO	178
W7DL	177
WØUOX	177
VK6KW	177
W6UZX	177
CX1FY	176
W6IBD	176
KH6CD	176
W1AB	175
W6WKU	174
W6CIS	174
W7FZA	174
W6PCS	174
W6KUT	174
W6TZD	173
W9VND	173
KH6VP	172
G5YV	172
OK1LM	172
W6WWQ	172
W6SRF	171
WØSQO	171
PY1AHL	171
OK1HI	171
VK2HZ	171
OE1CD	170
W6BAM	170
W6PZ	169
W5AFX	169
W6JZP	168
W6ANN	167
VK3CN	167
G2VD	167
W6DUC	166
KH6MI	166
W6CEM	166
W6JK	165
VE7GI	165
W6LRU	165
W6BUD	165
W6LN	165
W6BVM	164
W6EAK	163
W6YZU	163
VE7VO	162
W6PH	162
ZS6DW	162
W7ENW	162
VK4EL	162
W6PDB	161
W6BZE	161
OK1SV	160
VK3EK	160
W6PUY	160
JA2KG	160
W6MHB	160
I1IR	158
W6CYI	157
W7BD	157
WØOUH	157
G3TK	157
W7BE	156
KH6LG	156
W6BAX	155
G3AAM	154
W6KEV	153
G3YF	152
G2IO	152
VK2QL	151
W6LEE	150
W6FHE	150
W6EYR	150
W6LDD	150
OK1CX	147
W6LS	147
W6RLQ	147
W4CYY	147
W7DXZ	146
W6AYZ	146
VE6GD	146
W9NRB	145
W6MUC	145
W6QD	145
W6LER	145

CW & PHONE

ON4TA	144
G3BI	144
KH6PY	144
W7LYL	143
I1XK	140
W6ONZ	139
W7KWC	139
W6ID	138
ZC1CL	138
OK1WX	135
G3AZ	133
W6TEU	133
W6RDR	133
W6OBD	131
ZS2CR	131
W6IDZ	130
W7ASG	129
W7GBW	127
G8IP	127
G5BJ	126
PK6HA	124
G5VU	124
W6BIL	124
W6NRQ	123
W6MLY	123
ZS6CT	113
KG6AL	103
VK6SA	103
W7KWA	98
W6DUB	89

39 Zones

W3JTC	220
W8NBK	219
W3KT	219
W3DPA	218
W9ANT	218
W2NSZ	212
WØNUC	211
W9RBI	211
W3IYE	209
W1ENE	209
W1BIH	209
W2HHF	208
W1JYH	208
F8BS	206
W3OCU	206
W3EPV	203
W9IU	201
W2HZY	200
VE3QD	200
W5ASG	198
W4GG	197
W2WZ	195
W2GWE	195
W2CWE	192
W3DKT	192
W3JNN	191
W1HX	191
W2AGO	191
W1AWX	191
W2EMW	187
W8SYC	187
W3JKO	186
W9LNM	186
WØEYR	186
W9MXX	185
W1ZL	185
KP4KD	185
W8RDZ	184
W3DRD	183
W4INL	183
W3KDP	181
W1DQH	181
VO6EP	179
VE3IJ	177
W9FKC	175
W2CNT	173
W8CVU	172
W4LVV	171
W9LM	170
W6CTL	169
W1NMP	169
W3JTK	169
OZ7EU	169
PY2AC	168
W4DKA	168
F9BO	167
W2CYS	167
OK1VW	167
VE3AAZ	166
W2BJ	166
W4VE	166
W8LEC	166
W7PGS	164
W2RGV	163
W4BRB	162
W4RBQ	161
HC2OT	159
W4AZK	159

CW & PHONE

WØGKS	158
W4OM	158
WØAIW	157
I1AY	157
W9YNB	155
DL1FK	155
W8VLK	155
I1AIV	154
W9TQL	154
W9ABA	153
W2RDK	152
W8WWU	152
SM5WI	148
W2COK	146
W2GUR	146
GM3CSM	146
W2MEL	145
OK1AW	144
W6LGD	142
TF3EA	142
W6ATO	142
G3AKU	141
W9DUY	140
W6KYV	139
W5FFW	137
W6KYT	135
W6NTR	132
W7ETK	132
W6TE	131
CR9AG	131
W6WJX	131
W5CPI	130
OE3CC	128
VE7KC	127
DL1DA	127
W9NZZ	126
W7BTH	126
VR5PL	124
W6MI	124
W6MUF	123
KG6GD	121
DL3DU	118
W6NRZ	117
KL7UM	117
ZS2EC	116
W7HXG	115
W6JWL	114
W6EYC	114
KL7GG	114
W6VAT	110
W6FBC	110
W7GXA	105
W6LEV	103
W7LEE	91

38 Zones

W2HMJ	190
W2PUD	180
CM2SW	174
W8KPL	173
W8FJN	167
W8EYE	158
W2SHZ	158
W2UEI	156
LU7CD	155
W2GVZ	154
4X4RE	146
W3LVJ	145
W8ZMC	143
ZS2AT	143
WØAZT	143
VE2BV	140
W9FKH	135
VE3ACS	134
W4FPK	131
W2PQJ	130
W3ZN	129
WØRBA	127
W9MZP	126
FE8AB	126
W9TB	122
GW4CX	120
W6ETJ	119
WØFET	118
VE7VC	116
W6CAE	113
KL7PJ	108
W7EYS	107
DL3AB	103
W6FXL	92
C1CH	84

37 Zones

W1KFV	168
W2ZA	160
W3WU	157
W4IWO	149
W3FYS	147
ZL3CC	143
GM2UU	142

CW & PHONE

W4ML	140
W2WC	136
W2AYJ	133
ZL3AB	131
W7HKT	130
W4DIA	129
W9HUZ	126
VE5JV	126
W1APA	125
W9LNH	122
VE1EA	116
W6AX	110
WØFWW	108
W7PK	104
W8HSW	104
W2BLS	99
OH3OE	93
KL7KV	88

36 Zones

W4HA	151
W9WCE	136
OA4AK	128
VE1PQ	128
I1IZ	126
W3AYS	124
F8TM	124
W9LI	124
SV1RX	119
W2BF	115
4X4BX	112
OE1FF	111
W5CD	108
EA1AB	103
W2JA	102
W5BK	99
VE8AS	98

35 Zones

W2OST	146
W1BFT	141
W4DHZ	132
W9CKP	132
W5JUF	121
W6ZZ	120
W9RQM	119
CO6AJ	119
G6QX	117
W9DGA	115
W9FNR	114
W8AVB	113
W2HAZ	109
KZ5IP	108
WØGBJ	101
ZL1QW	99
KL7CZ	69

34 Zones

W1DEP	150
W8NSS	133
W4IYT	127
W3MZE	121
W1MRP	118
W5NTT	107
W8JM	102
G2BVN	91
W9WEN	83
W8PCS	80
W6OKL	61

33 Zones

W5FXN	118
W4QN	110
W2SEI	100
W8QUS	85

PHONE ONLY

39 Zones

W6DI	192
W6VFR	172
HB9DS	164
W7HTB	161
VQ4ERR	160
VE7ZM	145
DL1FK	125

38 Zones

W2BXA	179
W4CYU	173
ZL1HY	162
W9NDA	159
G8IG	155
W1HKK	153
W6KQY	149

PHONE ONLY

F9BO	143
W6AM	121

37 Zones

XE1AC	191
W1JCX	179
W9RBI	173
W3LTU	169
W8REU	163
W7MBX	158
VK3BZ	158
G3DO	155
G2PL	154
W6WNH	153
W6PXH	153
W8BF	146
W3JNN	144
W6TT	139
F8VC	124
W7MBW	107
C1CH	83

36 Zones

W1NWO	174
W1MCW	171
W1BEQ	164
W9HB	159
W4ESP	152
PK4DA	150
W2DYR	140
W9BZB	139
GM2UU	135
W6PDB	130
W4INL	129
W1FJN	128
W8AUP	128
G6BW	127
W9HP	127
VE7HC	123
VE3BNQ	122
WØHX	120
W3GHD	114
W8CYL	112
W3DHM	96
W6SA	92
F8DC	87

35 Zones

HC2JR	158
W4HA	142
W6PCK	141
W2RGV	135
W9RNX	135
W6CHV	133
W2GHV	131
HC2OT	131
WØEYR	131
WØPRZ	124
W9CKP	124
G8QX	123
W8ZMC	122
CE3AB	121
WØPUE	117
W5LWV	108
W4OM	106
W3PA	105

34 Zones

LU8CW	129
W9BVX	126
W5KC	125
W2ZVS	124
W4LZM	124
W6UZX	123
W8BIQ	122
W5JUF	117
WØANF	115
W1BPH	105
W8UIG	100
W4IWO	100
W8QBF	92
WØBFB	70
W2NXZ	65

33 Zones

W5ASG	134
W9MIR	131
W5ALA	122
W9WCE	119
W3KT	118
W2ZW	115
W8BFQ	114
I1VS	114
W8SDR	113
W8NSS	112
VE3BQP	108
W2PQJ	100



Here is a shot of the first non-W call letter license plate we've seen. The idea seems to be getting around!

occasions when the call PX1A caused too much bedlam on the bands, XE2LP was used, but this was unlicensed also. So that there will be no mistake, the mail QTH for this PX1A was Box 273, Chihuahua, Mexico. The rumored story of a half-brother operating PX1A from Andorra, although pleasingly plausible to the jaded DX man's ear, was just so much hog-wash. Sooo . . . scratch one and file your card in the circular file. We are not crediting anyone, anywhere with Andorra as a country worked for the simple reason that there have been *NO* amateur stations operating there since the war. Where, oh where is PX1QF?

Yemen

All but a very few missed a good one in MD9AA. He was in Yemen for sure, but not for long. Perhaps another time? Could be.

Wondered what happened to W9FNR, and now it comes out. He sold out after the last DX contest, but the DX infection was in his system to stay, and now he is back on the air again with a tiny transmitter which uses 18 miniature tubes including audio and the rest of the works. The final, however, is a 807 running 60 watts. . . .

W2RGV worked something signing PX1B with the usual results, that is . . . his card bounced. Jack still needs Zone 23, so if any of you boys can give him any ideas how to knock over this last one, I am sure it would be appreciated.

YV5BZ heard UP7NJ working a TI2, but faded out before he could get a crack at him. This was on 20 phone. A few good ones that Luis did work however, included YO7WL, 3V8VB, ZB1AR, MB9BL, and EQ3FM. Another new one that Luis is happy about is PK4KS on 14158. One phase of it that made him happy was that he worked this station in the evening, whereas most of the boys seemed to have worked them previously in the early morning hours.

W5FFW was complaining somewhat about poor conditions, thus accounting for only eleven new countries in two months. Yeah . . . conditions are lousy. . . . W9HB who is using NBFM forever, adds a flock of new ones . . . eight to be exact, including such stuff as SP5AB, HS1SS, ZM6AA, CS3AA, EA8AP, and VR5GA.

W6SYG adds a good one in FQ8AC. . . . KC6WC on Palau Island told W4RBQ that he would soon be on the air on Ponape Island . . . W5FXN who does all his work on 20 c.w. can't seem to find any new zones, but does very well in picking up new countries. Who knows, Jim, maybe next month it will be all new zones and no countries.

OK1SV tells me that there are now 7 OK stations who have made WAZ, the latest one being OK1RW. He also relates there are about ten other Hams who have 39 QSL cards, and all, of course, are awaiting that one last confirmation.

From the "Southern California DX Club" Bulletin we see that Hal DeVoe, W6MI has been transferred to the FCC at Juneau, Alaska. Hal was an RI in San Diego. He left with 39 Zones and 135 countries to his credit. He just wasn't able to knock over Zone 21. Good luck, Hal.

W6EHV, also in San Diego, is a field engineer in conjunction with some Government work, and has left for other parts—probably overseas . . . W6LRU has been ordered to dust off his uniform and get back in the Navy. He also hails from the same town and both of these fellows are WAZ.

W6ANN received word from CT3AA, who said that he was a member of the engineering staff of the Western Telegraph Company, Lmtd. for thirty-six years, and is now retired. He, however, is teaching in a technical school in Madeira now.

Want sked with VR1C?

KX6BA says that VR1C has a daily sked with W6CZQ on 14130. Contacts can be arranged, I suppose, by getting in touch with CZQ, but not at sked time from 0400 to 0430.

VR1C is now being run by Coast Guard radioman Harold Townswick. KH6BA shipped a bunch of gear to VR1C, so you might expect him on 20 phone very shortly.

It seems that there are some attractions at Ensenada, as a card was received from W6SA, who said, of all things, that he was down there studying the rules of the CQ DX Contest. I have a rough idea what he was studying. . . . And it certainly wasn't contest rules. It seems that this resort town in Mexico appealed to three other boys—W6BPD, W5FOZ, and W6DYH. Rumor has it they were down there for fishing, but they claim that this was about as poor as DX has been lately.

W6ZY is a new father of a junior op, so his 40-meter DX will probably be picking up—you know . . . after the two o'clock feeding, and all that sort of stuff. Congratulations, George!

W6EPZ who is another Navy man in San Diego, apparently feels pretty sure that he is going to stay put until at least next summer. While saying this, "Epsie" is of course knocking on wood.

OK1FF is still hard after the elusive ones, and comes up with about fifteen new ones to add to his list. Yes, I could use about fourteen of them myself. And . . . by the way . . . does anyone know what has become of W6QD lately? I certainly don't know. The log book shows no evidence of him being around, so I guess he just "ain't."

A lot of the boys have been wondering about the stations on in Saarbrucken. Well, there are some licensed stations on, but as yet this is not considered a country on the official list. Don't give up however, as we are now looking into the various angles pro and con.

W8EBC, who many of you will remember as W3AYS, has gotten fed up with his 68-foot antenna, which runs from the third floor down to the garage. Thirty-five feet high on one end, and seven feet on the other. He now has convinced the landlord that he should have at least a 2-element 20 meter beam. This should make a difference.

Fourth All-European DX Contest

Many of you will again want to get into this contest, so here are the dates:

CW Section	November 25th, 1950 at 00.01 GMT till November 26th, 1950 at 24.00 GMT.
Phone Section	December 2nd, 1950 at 00.01 GMT till December 3rd, 1950 at 24.00 GMT.

European hams will be calling other continents by *CQ AW* (CQ All World)—Stations outside of Europe will use *CQ EU* (CQ Europe).

The headquarters for the S.S.A. Contest committee is Box 609, Gothenburg, Sweden.

HC20T is sweating out cards from Zone 17 and 23. He has received those from 18 and 19, and will be at this QTH for another couple of months. Steve, naturally, is interested in making WAZ from his present location.

W9RBI whose DX seems to run hot and cold, appears to have hit a hot spell in working five new ones on c.w. and three on phone. W9BVX, also on phone, logs six new countries, but he has quite a few to go to catch up with his pal RBI.

W3JTC is another one of the impatient, waiting for his AC4YN card. Can't blame Larry very much, as he is sitting there with 222 countries and 39 Zones. All he needs is that number 23.

ZL2GX launched into what he calls "Operation QSL." Jock said, to his amazement, the results were very gratifying, and it wasn't even necessary to promise any Ford coupes for QSL cards. The nearest he got to this offer was sending a stack of "reply coupons" with a plea written on tear-stained paper. His countries now total 202 and if you will recall, Jock was going to retire when he hit 200. He seems to have reached the point that when he now gets on the air for more than five minutes at a crack, his XYL says "I thought you were going to retire at 200." ZL2GX is going after a phone WAZ, and requires only Zone 17 and 18.

W9DGA who is doing a good job at DX, also is building up his traffic total. W6GYH on this end handles a lot of DGA's DX reports. . . . W2WZ says he could do better if the 20 meter band would stop acting like 10 meters in May. He too, is still waiting for a peep out of Zone 23.

We are exceedingly sorry to hear of the recent passing on of that real old-time DX man, VK4RC. Most of us will remember Bob as a wonderful DX competitor, and his call will be missed in all the contests.

W5LVD has a slightly different angle to add to this DX business we seem to be in. He calls it a "Hobby within a Hobby." Here's what it is—Dan has started a DX album. He wants to get as many pictures of DX men and their stations as possible. He is probably not too much alone in this idea, but he is writing to as many DX men as possible in order to build this album up in a hurry.

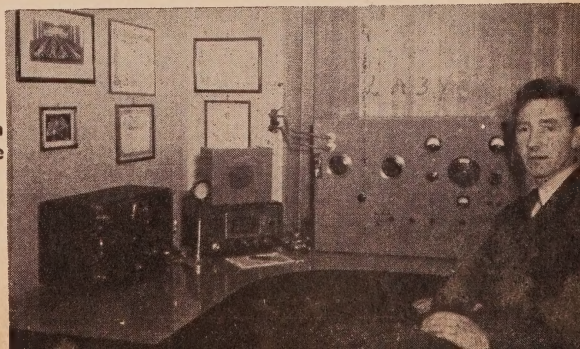
HC2JR tells me of a new station in the Galapagos signing HC8CI. His operation will be on 10 and 20 phone only, using a TBS-50. John says that all stations who have sent cards to HC8GRC should have received theirs in return long before now. If you have not received yours, suggest you check with your bureau first, and then to Guayaquil.

OE1FF says the French occupational troops are supposed to use only the prefix FKS8. He names the following as being active—FKS8AA, AB, AG, AL, AS, AD, and AR.

I hope we are favored with good conditions in the contest, and I would like to remind all of you, both in the states and overseas, to get your contest logs in as soon as possible. Don't wait for the November 30th deadline. We are going to try and have the final contest results announced much earlier than the results of last year's contest. I am looking forward to exchanging numbers with a flock of you fellows the first weekend in November. Yes, I still remember the code. 73

QTHs

AG2AG A.P.O. 209 c/o Postmaster, New York, N. Y.
FQ8AC Box 175, Bangui, French Equatorial Africa
HV1AA Morus Lebaurader, Castel Gandolfo, Vatican City State
KV4AU Albert W. Tamm, Bourne Field Housing, St. Thomas, Virgin Islands
KX6BA Via W6PZ
SP1JF Box 30, Pozan 5, Poland



The neat installation at LA3Y includes a BC-342 and an HT-18 exciter. That curved operating desk should make for comfort during the contest.

The Monitoring Post

gleaned by THE BRASSPOUNDER

RADIO CONVENTION TO EMERGENCY COMMUNICATIONS and back to the convention—all in one day with a good job having been done. Saturday morning started festivities, then a climb to the 8,000-foot level of Mt. Shasta, Calif., to see what the mobile rigs would do. All sorts of gear was on display with plans including a meeting to discuss better and more emergency stations to participate in communications emergencies. The evening was spent at a picnic supper for all, including the families of the gang numbering more than 400, and then a dance held at City Park Lodge.

At 9 A.M. Sunday, a fire that was seen by the group the previous day while high on Mt. Shasta at the base of Black Butte, north of the city, was reported out of control and racing toward the city park and north end of the city proper. Wind and the draft of the fire were carrying lighted pine cones of the burning Ponderosa pines for hundreds of yards to the tops of unburned trees within the limits of the park. The convention broke up temporarily, and the entire group went to work setting up for emergency operation in aiding the fire department with communications. Very soon the park was threatened and the entire conclave was evacuated from the park area, with more hasty activity taking place on the lawn in front of city hall getting a central communications control headquarters set up. One station used on the lawn had been purchased by the local Red Cross chapter for exactly this type of work. W6YNM, v-p of the Mt. Shasta ARC, supplied the second of the two transmitters on city hall lawn.

W6EWG offered his station to the fire department. Mobile rigs were dispatched to danger areas, the city fire chief, police department, and the fire crews. Twenty-two mobile units operating on 10 and 80 were kept busy, some patroling the streets of the city reporting small spot fires which were beginning to break out. Along the entire fire line 27 spot fires were reported with such speed that fire fighters were able to check them immediately.

W6MDQ worked with highway police directing traffic that had become jammed as a result of the fire. W6HRF, of the city fire department, and W6NFU, of the forestry district fire crew, were in the thick of the fire fighting, working with shovel and ax. W6JDN had his own jab also, standing by on the electric power lines running into Mt. Shasta. The XYLs, hearing that some of the firefighters had not eaten for many hours, set up a table at city hall message center and began handing out hot roast beef sandwiches and other nourishment to passing firemen, and sent food to the front fire lines.

The complete mobile station won by W6GOS at last year's convention was doing its stuff with GOS reporting spot fires at the edge of the city. W6BPT in Santa Clara stood by as a secondary headquarters in anticipation of the hams and their families having to be evacuated from Mt. Shasta, as well as helping to keep clear for emergency traffic the 3854-kc channel. Those working at NCS W6BML throughout the fire were: W6s OMR, prexy of the Mt. Shasta RC; HPL, CIS, NYS, WVS, CAT, and W7AMF. On the NCS staff on 80 were: W6s YNM, GOO, and NYS.

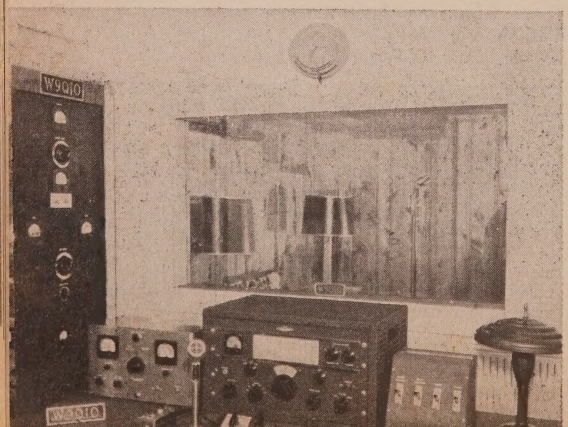
Others busy erecting antennae, running messages, and other special work were: W6s EWG with a PA system driving through the streets paging individuals needed in connection with fire fighting; IZC, ILY, CFU, DDC, ELW, IEO, IXF, GUA, EJA, SXF, OJB, GPV, YPW, CCY; W7s JHF, MSW, and BDU.

Mobile units active in combating and controlling the fire were: W6s RL, FKI, CSS, GOS, GGC, PNY, YSK, EJY, WVS, ZIO, YNM, FYY, WGM, AK, FDP, and W7s LEU, HHQ, KTG, KZU, LWW, GNJ, and LYT. After eight hours of intensive emergency QSOs the gang was relieved when the fire was brought under control and the convention program resumed.

Immeasurable aid had been rendered to fire fighting, to the county Red Cross, and to the Mt. Shasta Police Department. In reviewing the work of the hams Fire Chief Frank Melo commended them for their excellent cooperation and participation. The fire, threatening to cross a main highway which would have reached a storehouse full of blasting powder and the Shell Company oil and gasoline storage tanks, was brought under control. Had the mobile units not been on hand to report spot fires so instantaneously, Chief Melo said, the blaze might well have flamed beyond control and razed the northern part of the city.

Monday evening, after contests, exhibits of emergency gear and methods, lectures and other convention activities, the gang headed homeward after a swell time enjoyed by all and another emergency met by ham radio. Chalk up one more for ham radio.

(*Continued on page 68*)



The operating position at W9QIO is tailored for maximum efficiency and comfort.



Conducted by RALPH V. ANDERSON, W3NL*

MOBILE STATIONS ARE BECOMING AN IMPORTANT FACTOR in Civilian Defense plans being formulated at various cities. The "national" test operation at Seattle some time ago and the recent Chicago activity demonstrated that mobile stations provide extremely valuable channels of communications during simulated emergencies. Washington is the third and last of the series of "national" tests and will be held shortly. It is expected that a master plan for all cities will evolve from this series of tests and it is definite that mobile stations will be included. At the present time, police, fire, taxis and various other services are correlated under a make-shift arrangement. To correct this situation FCC Docket 9749 seeks to establish a number of fixed frequencies in the "160-meter region" which will be used for the purpose of transmitting information from one service to another, thus providing a channel whereby, for example, a ham could get information to the police, or vice versa.

To those hams and organizations that are seriously engaged in Civilian Defense work, may it be suggested that identification cards be obtained from the local police department because, after all, these cards are the only ones that are going to be of any value in getting your station on the scene of a disaster. In most cases this can be accomplished only by an existing organization which will guarantee that the cards will be issued only to those stations actively engaged in emergency work and promptly recalled when a station becomes inactive.

This column would be interested in Civilian Defense Plans of Mobile Clubs.

Caravan Club

The "Caravan Club" of Dallas, Texas was organized May 9, 1948 with 14 charter members. The present membership is 42. Club officers are: W5MQH, Caravan Master; W5LSP, Assistant Caravan Master; W5JNK, Secretary/Treasurer; W5NEK, Finance Director; W5IFY, Program Director; and W5JKY, Assistant Program Director. Club frequencies are 29.150 and 3990 kc. Practically all bands are used for mobile activity including 40 c.w. Some activity is planned for each Sunday during the summer months—when no activity is planned, the club holds net operations from mobile or home stations.

The club has done a great deal of outstanding work since it was organized. One of its first activities was airplane spotting at the Air Show at Redbird airport in which mobiles were posted at various points to relay information on the races. Later a group of mobiles served as communications units at the Sherman-Denison tornado.

Several have been on 40 c.w. mobile with good success. The fellows would like a good electronic key for mobile operation though.

The club has voted to affiliate with the North Texas Emergency Net. An attendance meeting is held each 12 net meetings with first prize a subscription to *CQ*.

144-mc. Mobile

A number of mobile groups are overlooking the advantages of 144-mc. mobile. For net operations, this band is hard to beat—there's no QRM from distant stations and communications always seem to be reliable for distances up to 30 miles. Very little power is required, even the receiver can be a simple "rush-box." The Chicago boys are using 147.5 mc. wide-band FM for a variety of purposes. A recent show of hands at the South Jersey Radio Association showed more 144-mc. mobiles ready to go than any other band. The Cumberland Radio Club has a high percentage of its mobile members on 144 mc. The Glouster County Emergency Net and the Havertown, Pa. Emergency Corps are using 144 mc. for mobile work.

Maritime Mobile Amateur Radio Club

The 10-meter band, having opened consistently, activity in the club has been resumed. There have been a great many changes in assignments during the summer months and all members are urged to inform the Secretary of their present status. Up-to-date lists of mms are particularly desired.

W3NL participated in a "tape" interview relative to the Maritime Club which will be broadcast on the Voice of America in the near future. We wonder if all hams are acquainted with the fact that the Voice of America has a program devoted exclusively to amateur radio each Sunday at 9:45–10:00 EST. Seventeen stations in the standard SW broadcast bands transmit this program. Other stations transmit the same program at other times. All phases of amateur radio are covered.

Certificates for 30 MM QSLs have been issued (in addition to those previously listed) to W8DXO, HC2JR, W3PKE, W4OPS, W4WK, W5QKF, W1AVY, W4LLF and W8DEU.

29.6—29.7 Mobile Allocation

A petition has been presented to the FCC asking that the 29.6—29.7 portion of the ten-meter band be set aside for mobile operation. It just does not

(Continued on page 58)

** Send contributions to R. V. Anderson, 2509 32nd St., S.E., Washington 20, D. C.*



Conducted by LOUISA B. SANDO, W7OOH*

VISITING YLs IN PERSON seems to be getting to be more of a hobby with us than QSOing them on the air, at least a lot more time is spent at it. With summer over and our camp closed we were free to pick up the trail once more. First stop was Concord for a day with WIFTJ, Dot, and family. Many hours were spent talking YLRL and getting together material for *Harmonics*. We've always known W1FTJ was a veritable landmark to YLs passing through New England, and proof of it came that afternoon when W3NHI, Marion, and OM on vacation stopped by, and also W3FXZ, Mary, and family returning from a trip to upstate Vermont.

After returning the FTJ–BFT rig we'd had all summer, we next stopped to see the YL we'd had most of our QSOs with on 160 this summer, W1SCS, Ruthe Ferguson, operating portable from Bow Lake at Strafford, N. H. To Ruthe ham radio came almost as a necessity, though she's found it a fascinating hobby, too. Early in the winter of '49 Ruthe found herself "bedded down" with a second encounter of tuberculosis and though she had long been exposed to ham radio (her OM is W1IIM and during the war she worked as a radio technician) it wasn't until she found herself on strictly limited activity on a farm in Strafford that she found the extra time for studying. "The 160-meter band due to open, we with a perfect transmitting and receiving location, and IIM wishing to QSO with us during the week, what more incentive necessary?" Ruthe remarked, "plus the fact of at least six months of idleness staring me in the face and IIM's promise to build my transmitter, sent us scurrying for the license manual, etc." Ruthe worked hard at it, studying theory during the week, and weekends with the OM to help, were devoted to code. In April she was rewarded with the call W1SCS, and from then on it was morning and evening QSOs each week day with IIM back home in Jamaica Plain (Mass.), working crossband on 75 and 160, a great morale builder during Ruthe's convalescence. During all this time Ruthe had her jr. YL with her, her OM weekends and daily skeds so time passed pleasantly. Recovered now, W1SCS and family still spend the summer at Bow Lake where we visited her and got in on one of the crossband QSOs with IIM. W1SCS runs 90 to 100 watts to an 829B in the final modulated by an 815, into a half-wave doublet. Incidentally, they also have a Vee beam for their TV set! Does an FB job, too, picking up sigs from Boston.

And soon in Boston ourselves, there we had a pleasant reunion with W1MPP, Eunice, who is back on the job with the New England Power Co. Every few weeks she gets home to Lovell, Maine, for a long weekend and in between keeps skeds with the OM on 75. Eunice is developing many other hobbies in her free time. Look at this list—hooked rugs, ceramics, metal (aluminum) work, and jewelry. Truly an artist, Eunice's work left us with mouth watering.

After ten days with family and friends in New England the OM loaded the jalopy till the springs arced in the opposite direction and we headed West once more. The first night we spent in Binghamton, N. Y., with friends from the OM's Navy days, and the following night found us in Buffalo at the QTH of W2RUF. Her OM made us at home for Clara was far away on a trip to California. Clara went with three other ladies and the route was to include Yellowstone Park, the Redwoods, San Francisco, and Los Angeles, returning via Arizona and New Mexico. We enjoyed Clara's home, even without her, and had fun looking over her shack and her scrap books of the writeups she's had in newspapers and magazines. By the way, we hear that when she returns W2RUF will be on phone too after many years as strictly c.w. Clara, incidentally, is taking over as 2nd district chairman for YLRL so W2 YLs be sure to send your news for *Harmonics* to W2RUF, 435 Best St., Buffalo, N. Y.

Although it was decidedly late to be called honeymooning, we couldn't pass by without stopping at Niagara Falls—and it was just about as wet *look-*

(*Continued on page 58*)

**W7OOH is very mobile these days. The address "c/o CQ Magazine" is still the best available.*



Ruthe Ferguson, of W1SCS, XYL of W1IIM.

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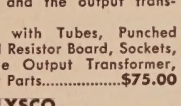
Kit is complete with Tubes, Punched Chassis, Pre-wired Resistor Board, Sockets, Genuine Partridge Output Transformer, and All Necessary Parts.....**$75.00**

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35 watts input on 10, 11, 20, 40, 80 & 160 meters. Output 50 ohm coax. Break-in keying—P.A. meter—Band switch and all controls on front of panel. Large illuminated vernier dial. Series/Tuned "Colpitt's" Oscillator—Voltage regulated power supply-Modulator terminals at rear of chassis.

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Model 600.....$119.95
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Descriptive bulletin on request.

Model 50 Antenna Coupler designed to feed long wire from transmitter....**$11.95**

NOTE: In view of the rapidly changing price situation in both complete units and components we wish to emphasize that all prices are subject to change without notice, and are Net, F.O.B., N.Y.C.

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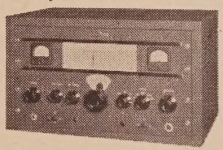
Type 20, 3 amp $12.50
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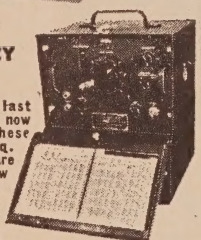
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Special Price $79.50

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EE-2, with integral monitor, Kit form $29.95
Wired and tested. **$39.95**

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Copper mesh shielding, 36" wide, min. order 6 sq. ft., per sq. ft.....**$.85**
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(*from page 37*)

cure the trouble except to cease operations. The FCC seems to be willing to tell the ham that he has no further responsibility in the matter, but apparently will not notify the complainant that the case has been investigated and the trouble can only be cured by redesign of the affected receiver. This wishy-washy stand has effectively put some of our outstanding v.h.f. operators off the air.

And then there is the sad case of the ham who prefers watching TV to operating! Guess that Scratchi's S.P.A.O.T.S. is the only cure for this situation.

Well, gang, there are a few constructive ideas. Keep your QSOs snappy and interesting to the other fellow. Tune the whole band—even those sections above 50.5 and 145 mc! Break up those round-tables with frequent listening periods. Try improving your equipment—if you're convinced that your present v.h.f. gear is the best that you can afford, try getting on one of the higher bands. W2DZA invites all fugitives from 144 and 420 mc to give 220 a try! (Modulated oscillators, even are welcomed!) Help out those new-comers in your area. If you hear a beginner having troubles getting on the band, help him to get started—by aiding him in getting those bugs out of his rig, by loaning him that spare converter to show him how the band sounds on a good receiver, by showing him how to match his antenna, etc. Anything that helps maintain activity on our bands will help us to get more enjoyment from them.

As for TVI—don't give up without a fight. Find out which sets in your neighborhood you do not affect (other than your own) and enlist the help of these neighbors in publicizing the fact that they are having no troubles. Clubs can help, by appointing fact-finding committees which in the final showdown, may have to visit the complainants with specific recommendations as to how the trouble can be cured—even if it means replacement of the TV set with one of adequate design. If we can uncover enough facts, we may be able to approach servicemen's organizations with sufficient ammunition to force them to help us clear up that amateur interference which is not the responsibility of the amateur. In the final phases of this fight we may have to go to the FCC for a firmer statement of policy.

But, most important of all, get on the air and use our bands at every possible opportunity!

The Month in Review

Sept. 3rd: An aurora opening occurred between the hours of 1830 and 1930 EST. Among the stations active on two meters were W1HDQ, W1IZY, W2NLY, W2PAU, W3LNA, W3KWL, W3LZD, W4AO, W8WXV, W8YEG and W9ALU. On

(*QSY to page 53*)

SEE LEO FIRST . . . for National NC RECEIVERS

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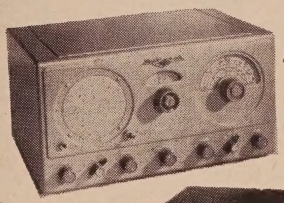
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$99.50	$24.95

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NC-183 (with matching speaker) $282.00
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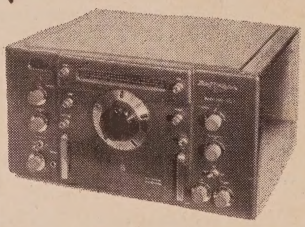


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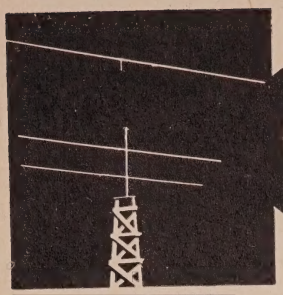
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Contains carbon mike and hi-impedance phone for use on Walkie-Talkies or mobile rigs. NEW.

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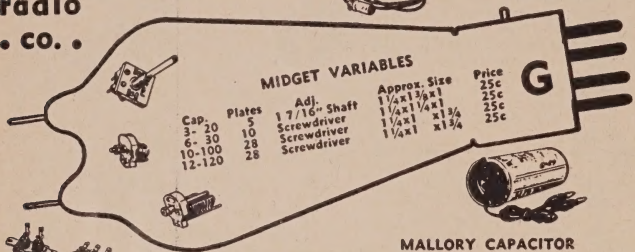
TURBO AMPLIFIERS, Lots of 10..... 29c ea

Originally made for use on 110 V. 400 Cycle, the boys are finding lots of uses for the components of this item. The power transformer has been found adaptable to 60 Cycle 110 V., giving 300 V. CT and 30 V. outputs at very small current drain, about .5 Amp. on 30 V. winding. Also used as small transceiver modulation transformer and output transformer. The case is useful for building other equipment, measures 8¾" long x 4½" high x 4" wide. Other components such as carbon resistors and sockets. Less tubes.

Lots of 10.....29c ea.

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Cap.	Plates	Adj.	Approx. Size	Price
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6- 30	10	Screwdriver	1¼x1¼x1	25c
10-100	28	Screwdriver	1¼x1 x1¾	25c
12-120		Screwdriver	1¼x1 x1¾	25c



BATHTUB BY-PASS CONDENSERS..... 10c ea

Use these metal cased bathtub type condensers in place of tubular paper where a high quality low leakage condenser is required. Order a stock at this price.

Cap.	Voltage	Size			Price
.01	100	1¾	x1	x¾	10c
.1	1000	1¾	x1	x¾	10c
.3	50	1¾	x1	x¾	10c
.1x.1x.1 triple	600	1¾	x1	x¾	10c
3x.1	400	1¾	x1	x¾	10c
4 Mfd.	50	2	x2	x1	10c
2.25	100 V. AC	2	x1¼	x¾	10c
.125x.125 dual	400 V.	1 5/16	x1⅜	x⅝	10c
.5	600	1⅞	x1	5/16x11/16	10c
.5-.5 dual	400	1⅞	x1	5/16x11/16	10c
.25	400	1¼	x1⅛	x11/16	10c

MALLORY CAPACITOR SELECTOR

Here's a handy gadget which takes the guess work out of replacement of defective unmarked motor starting capacitors. It also provides a substitution method for determining defective capacitors in any range from 26 Mfd. to 180 Mfd. Merely clip the alligator clip-leads to across the capacitor terminals and turn the knob to various capacity ratings to give proper operation. Full instructions included with each unit, Mallory catalog No. MSS-100. Size 6¼" dia., length of lead 34". Regular dealer price $6.80.

OUR PRICE **$3.75**

TRANSMITTING FILTER CONDENSER

Guaranteed quality transmitting filters at unbelievable low prices.

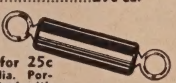
Mfd.	Voltage	Type	Case	Mfgr.	Size	Price
2	1000	Oil	M	CD	1½ D.x5¼ L.	50c
2	1500	Oil	M	CP	4x2½x1¼	75c
1	5000	Pyranol	M	GE	5⅞x4⅝x3 15/16	2.75
4	2000	Oil	M	INCCO	4⅞x3⅜x2¼	2.95
5	1000	Oil	M	Solar	5⅜x3¾x1⅝	2.00
4	1000	Oil	M	Aerovox	5⅛x2½x1 3/16	1.75



ANTENNA STRAIN INSULATORS.....2 for 25c

Heavy duty type IN-86, 1¼" dia. Porcelain 3" long. Glazed brown finished with heavy imbedded metal eyelets.

NEW — 2 for **25c**





VARIABLE CONDENSER AND GEAR MECHANISM. $1.50

This split stator condenser is made of extra heavy plates silver plated. Contains 3 rotor plates per second and 2 stator plates per second. Capacity approx. 3-20 Mmfd. Insulated coupling and 23:1 gear mechanism. Used on BC-1268 Radar Indicator.

New **$1.50**

PR-10 MAZDA BULBS.

10 for 35c

Box of 10 PR-10 bulbs for 5-cell flash lights. 6 V., .50 Amps.

BOX OF 10 **10c**

C



MOBILE ANTENNA MOUNT — L **75c**

This mount has heavy spring base to prevent breakage of mast and allow antenna to be tied down to vehicle top. Threaded bushing takes 7/16 dia. Threaded MS51 mast section. Bottom bushing 11/16" dia., 3" long, with ½" dia. hole. Entire unit measures 9½" long. 1½" dia. overall.

NEW 75c ea.



TRIMMER CONDENSER 10c
4—30 Mfd. 3 Sec. Screw. 2-1 Sec. 10c

K **10c**



H

JOHNSON 4-PRONG TUBE SOCKET .....50c ea.

Low absorption type for 866's, etc.

NEW **50c**



When writing to our advertisers say you saw it in CQ

HOW WELL DO YOU KNOW YOUR TUBES?

Esse Radio Company has devised a very interesting and ingenious little game for your amusement. You will note throughout the pages of this month's advertising, the outlines of various tubes. The purpose of this is to determine whether you can successfully identify each tube by type number. There is positively no obligation on your part nor any rewards offered for successful participation in this game. If you care to forward us the results of your efforts, we would be very much interested in determining how good you hams are as detectives. For your convenience, we have enclosed on the last page of this advertisement the Identification Blank to be filled in and sent back to us.



TERMS:
CASH with ORDER or 25% BALANCE C.O.D.
All Items Shipped Collect

ESSE Radio Co
48-47 W. SOUTH STREET
INDIANAPOLIS 4, IND.

LUBRICATING AND PRESERVATIVE OIL.....19c qt.

A high quality oil for guns or any application where a light oil is needed. Specification No. L1165M. Packed in quart tins 16 to case, 8 per carton. No less than 1 carton sold.



PRICE **19c**

PAPER TUBULAR BY-PASS CONDENSERS.....10c ea.

All have pigtail leads.

Mfd.	Volts	Mfgr.	Dia.	Length	Price
.002	100	Dumont	1/4"	7/8"	10c
.05	600	American	1/2"	1 3/8"	10c
.5	100	Aerovox	5/8"	2"	10c
5	50		3/4"	1 5/16"	10c
.5	400	Chicago	7/8"	2 1/4"	20c
.5	400	Aerovox	1 1 16"	2 1/4"	20c
5	50	CD	11 16"	1 1/4"	20c
.25	400	Aerovox	11 16"	2 1/8"	10c
.1	1500	Fast	11/16"	2"	20c
.5	150		9 16"	2"	10c
.1	400	Micamold	9 16"	1 5/8"	10c
.005	600	Aerovox	3/8"	1 5/8"	10c



AN-80A CITIZENS BAND ANTENNA.....79c ea.

465 Mc. Antenna designed to be used with BC-645. Use on roof-top of car. Rubber gasket for mobile mount included. Made to match RG-8 U cable. 5 1/8" element. Length overall 8 1/2". Packed 2 per carton.



PRICE **79c**



COIN INSERT SPEAKER BOX....$3.95

Contains 5" PM Speaker and Haydon timer in attractive chrome plated metal streamline housing. Size 7 1/2"x5 1/2"x6" approx.

PRICE **$3.95**

AMPHENOL 83-LAP,

Lots of 100.....10c ea.

Type 83-LAP right angle Low-Loss UHF connector for RG type cables. Polystyrene insert.

PRICE .....20c ea.
100 or More.....10c ea.

CH SPST TOGGLE SWITCH

With 7/16" threaded mounting bushing 1/2" long. Overall size 1"x1/2"x1 3/4" **20c**

PAPER TUBULAR FILTERS

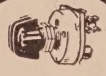
40-40 Mfd. 150 V. Dry electrolytic, 1" dia., 2 3/8" long, three 3" pigtail leads ..... 25c ea.
30 Mfd. 250 W. V. Dry electrolytic, 7/8" dia., 2 1/4" long, pigtail lead each end ..... 20c ea.



AUTO HEATER SWITCH

Fused type. 15 Amp. single pole two position center off. Requires 5/8" mounting hole. 5/8" threaded mounting bushing 1/2" long.

NEW **25c**



AIRCRAFT TYPE TOGGLE SWITCHES

Bat-handle type with two mounting holes spaced 1 7/8" between centers.

Poles	Rating	Manufacturer	Approx. Size	Price
SPST	5 A. 125 V. AC 35 A. 24 V. DC	CH	1 1/2x1 x 3/4	25c
SPDT Center off 1 side momentary	5 A. 125 V. AC 35 A. 24 V. DC	CH	1 1/2x1 x 3/4	25c
DPDT momentary	20 A. 125 V. AC 35 A. 15 V. DC	CH	1 1/2x1 1/4x1 1/4	35c

FILTER CONDENSERS

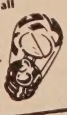
These condensers are all new quality stock. No junk or defective merchandise. Money-back guarantee.

Mfd.	Voltage	Type	Case	Mfgr.	Size	Price
5.2	50 V. DC	Oil	M	Industrial	3 3/8x1 3 16x2 1/2	35c
1.5	300 V. DC.	Paper	M	W. E.	4 1/2x2 1/4x7/8	20c
2	600 V.	Oil	M	CP	1 3/8x4 L.	25c
2	600 V.	Oil	M	CD	2 3/4x1 7/8x1	35c
2	1000 V.	Oil	M	CD	1 1/2 D.x5 1/4 L.	50c
10	50 V.		M		1 3/8 D.x3 1/8 L.	20c
100-100-100	35 V.	Elect.	M	Industrial	1 3/8 D.x2 3/8 L.	35c
30	150 V.	FP	M	Mallory	3/4 D.x2 1/2 L.	25c
30	450 V.	FP	M	Mallory	1 D.x3 1/2 L.	35c
20-20-20	25 V.	FP	M	Mallory	1 D.x2 5/8 L.	35c
40	450 V.	FP	M	Mallory	1 D.x3 5/8 L.	35c
30-15 @ 450 WV, 15 @ 350, 40 @ 25		FP	M	CD	1 3/8 D.x3 1/2 L.	60c
1000	50 V.	FP	M	Sprague	1 3/8x3 L.	35c
2000	50 V.	Elect.	Plastic	Mallory	2 3 32 D.x4 5/8 L.	1.50
8-8	600 V.	Elect.	M	GH	2 1/2 D.x5 L.	1.25
100	300 V.	Elect.	M	GH	2 1/2 D.x5 L.	1.25
25	475 V.	Elect.	M		2 D.x3 1/2 L.	35c
1 @ 100 V., 6 Mfd. @ 400 V.			M	Fast	4x3 5/8x2 1/2	50c

AR-1 ARGON BULB, Lots of 100..... 15c

2 1/2 Watt Argon lamp, useful for nite hall lights. RF indicator or AC-DC indicator.

PRICE .....15c ea.
In Lots of 100.....10c ea.



M

OSCILLATOR 35c ea.

Approx. 200 Mc. variable frequency oscillator. Contains all essential components, including acorn socket for 955 oscillating tube. All metal electrical components silver plated.

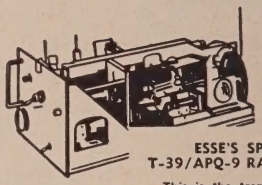
PRICE, NEW **35c**

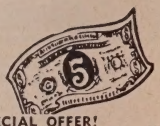
D

When writing to our advertisers say you saw it in CQ

MIX BUSINESS WITH PLEASURE







ESSE'S SPECIAL OFFER!
T-39/APQ-9 RADAR TRANSMITTER

This is the transmitter described in the February "CQ" for conversion for the 420-450 Mc. Amateur band and is now being subjected to approval by the F. C. C. for the 465 Mc Citizen's band. The oscillator has excellent frequency stability. Two-way communications for distances of 22 miles have been reported.

If conversion is not desired, the transmitter contains many excellent parts for the VHF experimenter such as a cavity oscillator using 2—RCA 8012 tubes rated at full output to 500 Mc. Tubes are forced air cooled by 24 V. DC motor which is easily converted for 110 V. AC operation. Other valuable parts such as switches, potentiometers, gears, revolution counter, etc., make this an offer not to be repeated.

(8012 tubes only, incl.)

PRICE **$5.00**

CO-AXIAL CABLE

RG- 8 U 52 Ohm $8.95 per 100'
RG-21 U 53 Ohm 5.95 per 100'
RG- 7 U 90-105 Ohm 5.95 per 100

BC-342 RECEIVER

Covers 1,500 to 18,000 Kc. Crystal filter. 110 V. 60 cycle operated. Complete with 9 tubes with 2 RF stages, mounting rack.

PRICE, NEW.....$125.00
USED 80.00



AIRCRAFT GYRO HORIZON, $4.50

Here is an expensive instrument used on aircraft, at a fraction of its value. These instruments just as removed from aircraft.

PRICE **$4.50**

AMPHENOL 165-4 CONNECTOR..... 35c
Both sections—chassis socket AN3100 and cable plug AN3106 included. For two No. 16 wires. **COMPLETE, NEW** **35c**



RADIO KNOB ASSORTMENT

25 knobs, ALL NEW, $1.19

Consists of following knobs, all for ¼" standard radio shafts. All are set screw type, some with double set screws.
5—Black Pointer knobs 1⅜" in dia.
5—Gray Plain knobs 1⅜" in dia.
5 Gray Pointer knobs 1 3 16" in dia.
5—Black Plain knobs 1" in dia.
5—Black Pointer knobs with the word audio 1⅛" in dia.

Kit of 25

$1.19

F



PP51/APQ-9 POWER UNIT .....$1.50 Ea.

Used for operation of above unit. Contains 2—4 Mfd. 1000 V. cond., 2—1 Mfd. 1500 V. cond. Transformers, power resistors, etc. A useful item for parts or in conversion of above unit for amateur use. Unit complete except tubes.

$1.50

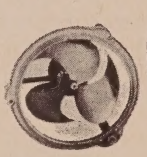
BLEEDER RESISTOR 35c
160,000 Ohms, 200 Watts, HV type for clip mounting. 1⅛" dia., 11½" long.
$190.00 per Thousand
NEW
35c



91-MC3M AMPHENOL MIKE PLUG ..... chrome
Has three male contacts plated. ..... 25c ea.
NEW ..... 19c ea.
100 or more

110 V. VENTILATING FAN....$14.95

Ideal for kitchen ventilators, etc. Enclosed explosion-proof motor. Built for rugged, trouble-free requirements. Specifications: Maximum dimensions 12¼" dia. x 7¾". Input voltage 80-110 V. AC. Frequency 50-60 cycle single phase. Rmp. 1550 at 110 V. AC. Finish, 1 coat Navy gray Gyptal over 1 coat of zinc chromate primer. (New.)



PRICE **$14.95**

115 V. 60-CYCLE SELSYN INDICATOR UNIT

Type XV Selsyn contained in this unit, making an ideal beam position indicator. Mount into your control console by cutting 6½" square hole and fastening by 4 corner screws through holes in panel. Scale is calibrated 0-360 degrees. By use of another Selsyn on the beam and a suitable relay connected to your beam motor, you have but to set the position desired on the calibration and the beam will stop when reaching the correct set position. Unit has self-contained 6.3 V. transformer for illumination of scale at desired brightness by rheostat adjustment provided on front panel. Size 6¾x6¾x8⅜".

PRICE, While Small Stock Lasts



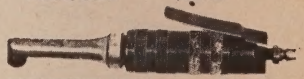
$9.50

J

BC-312 RADIO RECEIVER

1,500 to 18,000 Kc. operation. 110 V. operation.

PRICE, USED $80.00

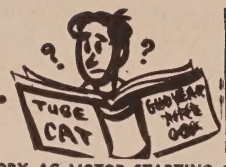


PNEUMATIC DRILL $8.95

Model D No. 301. Manufactured by Chicago Pneumatic Tool Co. Good used condition.

PRICE **$8.95**

SEND IN YOUR SOLUTION OF ESSE'S TUBE TEASER.

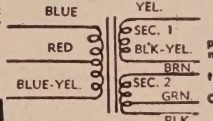


ESSE radio co.

OUTPUT TRANSFORMER.....39c
For 12,000 Ohm plate to B+ single ended 7B5 or equivalent at 10 Ma.
Sec. 200 Ohm headset at 50 Milliwatts level.
Dimensions: 1 5/16"x1⅛"x1 13/16".
Vacuum impregnated with varnish.
Wire lead lengths 3½" to 9½" stripped and tinned.



9G1006 — BRAND NEW **39c**

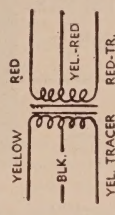


SCHEMATIC

VIBRATOR POWER TRANSFORMER
Manufactured for Harvey-Wells for use in aircraft transmitters. These are brand new quality merchandise. Dimensions 2⅝"x2½"x2 3/16". Secondary consists of 3320 turns No. 34 wire center tapped. Primary 6 V. consists of 54 turns No. 16 or larger center tapped. Pri. 12 V. consists of 126 turns No. 20 or larger center tapper. Core 1" stack with electrostatic shield between windings. Will deliver 300 V. 65 Ma. with 4.6 Amp. at 6 V. input, or 1.8 Amp. at 12 V. input.

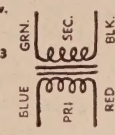
C-8075—2 6 V. .....85c ea.
E-8075—1 12 V. .....49c ea.





MODULATION AND OUTPUT TRANSFORMER 50c
Transceiver transformer originally manufactured for Harvey-Wells aircraft transceivers.
Notes: Pri. 10,000 Ohms P-P, push-pull 7C5's or equiv. 79 Ma.
Freq. 300-3000 CPS.
Sec. 1—6000 Ohm 50 Ma. DC modulation wind.
Sec. 2—200 Ohm .5 Watt level tapped at 3.2 Ohm 3 Watt level. Used in 3 modes of operation:
1. Pri. 2—7C5's Sec. 1 6000 Ohm lead Sec. 2 open.
2. Pri. 2—7C5's Sec. 1 open Sec. 2 3.2 Ohm load.
3. Pri. 2—7C5's Sec. 1 open Sec. 2 200 Ohm load.
Transformer vacuum impregnated with varnish.
Dimensions: 2 13/16"x1⅝"x1¾".
Wire leads approx. 4-6" long.

9D1003 — BRAND NEW **50c**



PEC-181 RECTIFIER — BRAND NEW

The PEC-181 rectifier is a tube rectifier designed for float charging a lead-acid battery of 57 cells or may be used to supply current without connection to a battery. Conversion of AC supply line current to direct current is accomplished by means of two CE-306 grid controlled gas rectifiers. A constant voltage section is employed to maintain uniform filament voltage to rectifier tubes. Output voltage is controlled by means of a 6F6G Amp. tube and a 313C voltage regulator tube. The output current is limited to a selected max. value (7.5 Amps.) by means of a small gas filled thyratron tube, type 2050.

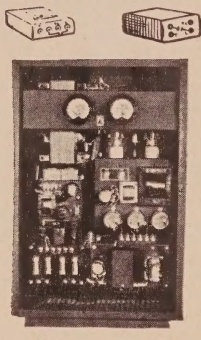
A time delay relay provides a period of 1¼ minutes before application of plate voltage to the CE-306 tubes. Input to rectifier: 105-125 V. or 210-250 V. 50-60 cycle AC. Output: 110 to 135 V. 0-7 Amps.

Unit measures 32½" high x 20½" wide x 14½" deep. Weight approx. 265 lbs. unpacked.

Provision for connections by rigid or flexible conduit.

Unit brand new, moisture-proof packed. Shipped complete with tubes and all spares.

PRICE $89.50



MALLORY AC MOTOR STARTING CAPACITORS

Here's a chance to stock practically a full line of motor starting capacitors at very little money. Stock is clean and fresh, guaranteed quality merchandise.

Application: These capacitors are for use in starting AC capacitor type motors and replacement wherever motor capacitors are used.

ROUND TYPE:

Catalog No.	Mfd.	Volts AC	Size (Dia. x L.)
MSU121	26	110	1⅜x2¾"
MSU122	32	110	1⅜x2¾"



RECTANGULAR TYPE:

Catalog No.	Mfd.	V. AC	Size (W. x L. x H.)
MSG220	32	110	2 x3½x3½"
MSG221	53	110	2 x3½x3½"
MSF224	86	110	1¼x4½x4½"
MSF227	108	110	1¼x4½x4½"
MSF229	124	110	1¼x4½x4½"
MSG230	145	110	2 x3½x3½"
MSG231	161	110	2 x3½x3½"
MSF232	161	110	1¼x4½x4¼"
MSG250	26	220	2 x3½x3½"
MSG251	32	220	2 x3½x3½"
MSF252	32	220	1¼x4½x4½"
MSG253	43	220	2 x3½x3½"

TERMS:
CASH with ORDER or 25% BALANCE C.O.D.
All Items Shipped Collect

813 TUBE SOCKET ..... 50c ea. Heavy tubes.
Square low loss steatite socket. Has gold plated contacts for RK257 or 813 or equiv. 2⅝" square 1⅛" mounting centers.
50c
NEW

INDICATOR LIGHT ASSEMBLY..35c
Panel indicator light assembly. Mounts in 1¾" mounting hole in panels up to ¾" thick. Fits standard base, ¼ Watt neon bulb. Clear eye.
35c
PRICE



CRYSTAL HOLDER BODIES.....
25 for
These crystal holder bodies ideal for 300 Ohm television plugs around your shop. Just solder 300 Ohm lead to pin terminals.
BRAND NEW.....25 for 79c



T-24 MICROPHONE $1.75
Carbon, for use with BC-222 and BC-322 Walkie-Talkies. Comes moisture-proofed packed.
PRICE
$1.75

BC-348 POWER SUPPLY $9.95
To convert the BC-348 receiver for 110 V. AC operation. Constructed especially for E. R. C. by a leading transformer company. Filament supply 24 V. Rectifier tube used: 6X5 (not included).
PRICE $9.95



RECEIVER TUNING HEAD CRV-23253..75c
Used with CRV-46151 Receiver for vernier tuning. Has beveled dial with hairline cursor. Bands are 200-560, 560-1600, 1600-4450, 4450-9050 Kcs. Each band spread over about 280 degrees of dial edge. Has provision for flexible tuning shaft or can be adapted for direct drive on any tuning shaft. Black crackle finish. Size 5"x3"x2" overall.
PRICE, Brand New..75c

6 V. DYNAMOTOR $6.75
Manufactured by Electrical Apparatus Corp., Chicago, for police radio. These units ideal for your mobile operation. Output is 200 Volts at .050 Amps. Input 6 Volts 4.5 Amps. Has filter self-contained in base. Wgt. 13 lbs. Size over all 8"x7"x4½"
PRICE
$6.75



When writing to our advertisers say you saw it in CQ

☐	.....6BQ6-GT	☐	.....5V3-GT
☐	955	☐	.....1X2
☐	.....6AL5	☐	852
☐	.....6AV5-GT	☐	808
☐	.....6SN7-GT	☐	.....Iconoscope
☐	.....6J6	☐	833
☐	800	☐	834
☐	956		

TUBE RECOGNITION BLANK

Listed above are 15 types of radio tubes, the outlines of which are found on the preceding four pages of our advertisement. Insert the correct letter designating the proper outline and forward to us if you wish. Please remember no rewards, no prizes of any kind, no obligation on your part or ours -- just a little fun for all of us.

ATTENTION

HAMS, DEALERS, INDIVIDUALS

Just Anybody

ESSE NEEDS merchandise

Some of the equipment listed below is urgently needed by our company to meet the demands of customers, and we will pay the highest cash prices. Send letter with full description, describing condition and quote price. We will immediately answer, and if we can use your equipment, we will authorize you to send it to us COD.

BC-348 Receivers, AC or DC Models
BC-312 Receivers
BC-221 Frequency Meters
SCR-522 Transmitters and Receivers
Hallicrafters BC-610 Transmitters
Large stocks of Condensers
Large stocks of Resistors
Large stocks of Speakers
BC-224 Receivers
BC-342 Receivers
Police type VHF Transmitters and Receivers for mobile application
Collins ART-13 Transmitters
APS-13's
SCR-269F or G Fairchild or Bendix ADF's
Headphones in quantity lots
Microphones in quantity lots
Field Telephones
Sound-Powered Telephones

Any factory-built Transmitters and Receivers such as Hallicrafters, National, Temco, Collins, RCA, RME, Hammerlund, Millen, Meck, Harvey-Wells, Meissner, Sonar, McMurdo-Silver, Gonset, Stancor, Bud, etc.
Amateur or Commercial Sets
Large stocks of Tubes
Large stocks of Transformers

We are especially interested in any factories, dealers or other outlets, giving us a list of surplus electronic equipment that is for sale in large quantities, so that we may submit our bid.

WE NEED AT ONCE!

COMMUNICATION RECEIVERS
RECEIVING AND TRANSMITTING TUBES

ESSE *Radio Company*



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POTENTIOMETERS

	Ohms	Mfgr.	Type	Dia.	¼" Shaft Lgth.	⅜-32 Bush'g Lgth.	Price
1.	20 Rheostat	CTS	W-W	1½"	5 16"	⅜"	25c
2.	50 Dual	A-B	Carbon	1"	Screwdriver adj.	¼"	25c
3.	60	Mallory	Carbon	1⅝"	⅝"	¼"	25c
4.	100	A-B	Carbon	1"	Screwdriver adj.	¼"	25c
5.	100	CTC	W-W	1½"	Screwdriver adj.	5 16"	25c
6.	100 Dual	A-B	Carbon	1"	Screwdriver adj.	¼"	25c
7.	150	CTS	Carbon	1⅛"	½"	3 16"	25c
8.	250	A-B	Carbon	1"	Screwdriver adj.	¼"	25c
9.	250 Dual	A-B	Carbon	1"	Screwdriver adj.	¼"	25c
10.	1,000	CTS	W-W	1½"	⅝"	7 16"	25c
11.	1,000	CTS	Carbon	⅞"	Screwdriver adj.	¼"	25c
12.	1,500	CTS	W-W	1½"	5 16"	5 16"	25c
13.	2,500	CTS	Carbon	⅞"	Screwdriver adj.	7 16"	25c
14.	3,000	Clarostat	W-W	1½"	3 16"	⅜"	25c
15.	3,000 Dual	CTC	W-W	1½"	½"	5 16"	25c
16.	3,500	CTC	Carbon	1½"	9 16"	⅜"	35c
17.	5,000*	IRC	Carbon	1⅛"	½"	⅜"	35c
18.	10,000	CRL	Carbon	1⅜"	2⅛"	5 16"	25c
19.	25,000 Dual	Clarostat	W-W	1⅝"	5 16"	5 16"	25c
20.	50,000	A-B	Carbon	1"	Screwdriver adj.	⅜"	25c
21.	75,000	IRC	Carbon	1¼"	2" ground flat 1 side	¼"	30c
22.	100,000	CTS	Carbon	1"	7 16"	¼"	25c
23.	100,000	CTS	Carbon	1"	7 16"	¼"	25c
24.	100,000	CTS	Carbon	1"	1"	¼"	25c
25.	100,000	Clarostat	W-W	1⅝"	7 16"	⅜"	35c
26.	500,000	CTS	Carbon	1⅛"	9 16"	⅜"	25c
27.	500,000	CTS	Carbon	1⅛"	9 16"	⅜"	25c
28.	1 Meg.	CTS	Carbon	1⅛"	⅜"	⅜"	25c
29.	2 Meg., ⅞"	CRL	Carbon	1⅛"	9 16"	⅜"	25c
30.	2 Meg.	CRL	Carbon	1"	13 16"	⅜"	25c
31.	2 Meg tapped 40,000*	CTS	Carbon	1"	1"	⅜"	35c
32.	15,000-20,000-200,000 triple	A-B	Carbon	1"	⅞"	⅜"	35c

*With switch.

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six meters, VE3YY, VE3AET, W1KHL, W8NQD and W9NJT were active. The effects of this aurora seemed to hang over until the following night on six meters, but no reports of two meter activity have been heard to date. On the 3rd, W3QKI hooked WØZJB for a nice 790-mile contact, apparently via the troposphere. Herb was also active during the aurora session, and his new 826 final with 450 watts input was making plenty of noise!

Sept. 6–9: The big news during this period was the success of W2BAV working into the mid-west. But the good conditions persisted for several days, and apparently drifted eastward. During the opening of the 6th, W8WJC caught WØDSR for state #20. Not to be outdone, his XYL, Marge, W8BFQ, got WØHXY and WØJHS for Minnesota, her 20th, on the 7th! Marge's 20-state total was all run up during 1950. W3QKI found conditions better on the 7th than on the previous night, but no record-breaking opportunities turned up. Several W2 to VE3 QSOs were made on this evening.

On the 8th, the Eastern Massachusetts gang found the slot to Southern Virginia open, and W1BCN and W1IZY were worked by many of the W4s. Over shorter paths, signals were phenomenally strong, and they seemed to reach down into the valleys and between the tall buildings so that even the mobile stations found DX to work.

On the 9th, conditions were much the same, with local-strength signals coming in from stations up to 300 miles away. VE1QY made an appearance, and had contacts with stations from Virginia to Massachusetts. Jerry could have won a popularity contest in New York City that evening!

Sept. 10: This was the date of the South Jersey Radio Association Annual Outing, and the v.h.f. gang turned out in full force. It was also the occasion for a big opening—but not on the v.h.f. bands—the skies opened up and the affair turned out to be almost a wash-out! Ask W2REB about the South Jersey type of "overcast"—then duck!

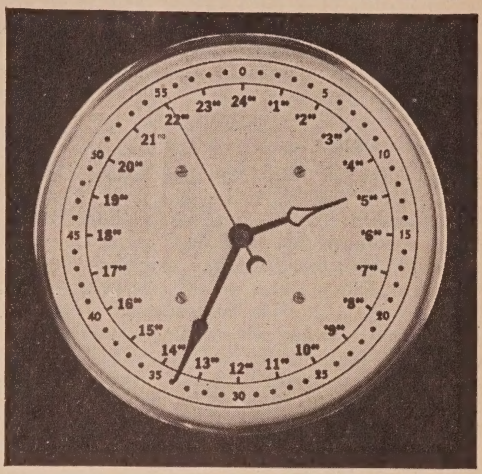
Sept. 14–30: The six-meter band came to life in South America, with the resumption of "sunset" band openings. (The cause of these conditions is still pretty much a mystery.) CE1AH using 100 watts f.m. into a 4-over-4 array reports contacts with numerous LUs and PYs. Steve, HC2OT, found the LUs coming through on the 14th. On the 16th he hooked W5FSC and XE1GE, at approximately 1700 EST. Signals were exceptionally strong.

In the north, scattered aurora effects were noted on the 17th by W8CMS, and on the 19th he worked VE3AET and heard VE3AXT via the northern lights.

On the 23rd, VE1PQ reports hearing W1HDQ on aurora, and on the 24th W1PWW worked W2BCR and W1CGY. W1PWW also reports unusual six-meter conditions on the 30th. He worked W1HDQ and W1CLS and heard VY6R, apparently on aurora. He also reports working WØTKX. Wonder if this was also an aurora-type QSO?

Oct. 2–4: We have already outlined the story of activity on 144 and 420 mc during the opening of

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the 2nd and 3rd. On October 2nd, W2AF, operating mobile from a vantage point in the northeastern corner of West Virginia, fired up on six meters and gave many of the boys their first crack at a W. Va. QSO. Signals to the northeast were exceptionally good, probably due to the excellent tropospheric conditions.

More on Aurora

Dr. C. W. Gartlein, Dept. of Physics, Cornell University, Ithaca, N. Y. would like to enlist the aid of hams to make observations of visible aurora and radio propagation conditions. He is especially interested in obtaining help from observers who live out in the country, where the sky is not illuminated by man-made light. He has information on the project ready for any who would be interested in assisting in this program, and will be glad to furnish standard reporting forms and stamped return envelopes to anyone who feels tha the can "observe" regularly.

Hams Across the Sea

We have a letter from DL3FM, co-holder, with G5BY, of the European 144 mc DX record, in which he complains that good v.h.f. circuit components are practically impossible to obtain in Germany. He especially desires miniature tube sockets for a new converter which he is building. 6J6 and 6AK5 tubes are easy to obtain, but he has not found a source of ceramic (or equivalent) low-loss sockets. He will be glad to arrange some sort of trade with items obtainable only in Germany. Any of you fellows with DX connections able to lend a hand?

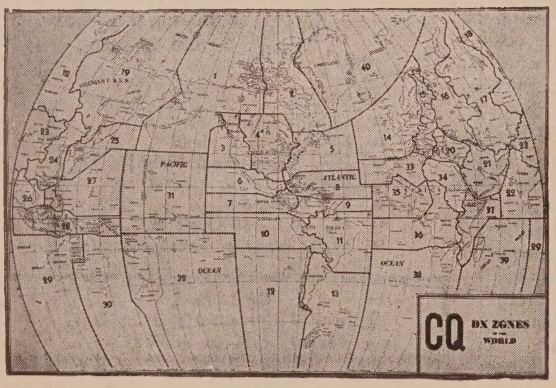
G5BY tells us that v.h.f. conditions have been very poor this summer, weather unsettled, cool and very wet. However, during the period from July 20th to September 12th, Hilton had 7 QSOs on 435 mc with stations more than 100 miles distant. He has received the third harmonic radiations of two-meter stations 100 miles away through his 435 mc converter!

A Few 420-Mc Notes

There is still no clarification of the 420 mc polarization situation. The trend at this time is to follow the prevailing two-meter practice in any particular area. Guess we'd better figure on "flip-flop" antennas for this band, too, cuss it!

W1JW is continuing his nightly tests on 435 mc at 9:30 p.m. EST. Meanwhile, W1PBB is moving to his new QTH in Monroe, Connecticut, where he will be situated 600 feet above sea level. Barney should be able to make a lot of noise on the u.h.f. bands from that hill-top.

The trend around our neck of the woods seems to be toward the use of modulated oscillators at fairly high power levels for the time being. There are relatively few narrow-band receivers in use, and those who have tried to use their communications receivers as i.f. strips have run smack up against the



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413	427	443	477	494	506	518	374	383	391	402
414	429	444	479	495	507	519	375	384	392	403
415	431	445	481	496	508	522	376	386	393	404
416	433	446	483	497	509		377	387	394	405
418	434	447	484	498	511		379	388	395	408
419	435	448	485	503	515		380		396	409
420	436	462	487						397	411
422	437	468	488		each			each	400	
423	438	472	490		**49¢**				each	
424	440	473	491						**79¢**	
425	441	474	492	10 for $4.50				**39¢**		

450	531.944	Frequency Standard 98.356 kc 3-pr. holder each **99¢**
452.777	533.333	
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4190	6173	7806					3735	5850	6425	6806	7573
5030	6206	7840					5305	5873	6440	7306	7640
5485	6208	7873					5677	5875	6450	7340	7673
6006	6773	7906					5700	5900	6473	7373	7706
6040	6840	7925					5706	5906	6475	7406	7806
6073	6873	7973					5740	5925	6506	7440	8173
6075	6906	8240					5750	5940	6540	7473	8340
6100	6973	8273					5760	5973	6573	7506	
6106	7740	8306					5773	5975	6606	7540	
6140	7773						5775	6273	6640		
							5806	6340	6673		
				each	**49c**		5825	6373	6705	each	**99c**
				10 for	$4.50		5840	6406	6740	10 for	$9.00

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6370	6750	7810
6450	7480	7930
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each **$1.29**

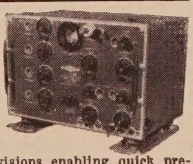
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124	26.65	153	25.95	159	21.00
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230	.171	5.57	100-100	.219	14.11
500	.219	17.22	60- 60	.344	13.41
250	.219	12.85	100-100	.344	15.64
75	.344	8.96	60- 60	.469	14.11
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20x20	150		
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20x20x20	150		
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30x20	150		
20	25	2.20	.88
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problem of receiver oscillator stability. We predict that it will be quite a while before the switch to crystal control on 420 mc is complete.

That's about all the news we have room for, this month. Sorry that we haven't gotten around to answering all the letters we have received during the past month or so, but besides being busy on the regular job, we've been laid up for a couple of weeks with some mysterious malady that the Doc couldn't seem to fix in a hurry! Hope that things get back to normal soon.

—73 Brownie, W2PAU

THE KW-1

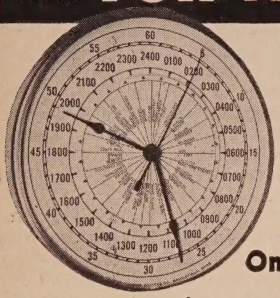
(*from page 33*)

from a source of either 115 or 230 volts 50/60 cycles. The critical filament voltages may be adjusted by an auto transformer to compensate for variations in line voltage. A meter is provided to read the primary voltage of these filament transformers. Overload protection is assured by the use of an overload relay in the 4-250A filament center tap and fuses in the a.c. line and the bias and low voltage supplies. Power for the control circuit is furnished by the bias supply, making operation of the transmitter impossible unless bias voltage is present. The bias supply rectifier is a slow-heating type and acts as a time delay device to prevent operation of the control circuit and application of plate voltage to the 872A mercury vapor rectifiers before they have reached operating temperature. When the control switches are in their proper positions, the transmitter may be placed in operation on c.w. by pressing the key. For phone operation on either AM or narrow-band FM, the transmitter may be put on the air by throwing a switch on the front panel or by means of the push-to-talk switch on the microphone. All important circuits are measured on the six panel meters. A switch is provided on one of these meters so that an occasional check can be made on other circuits.

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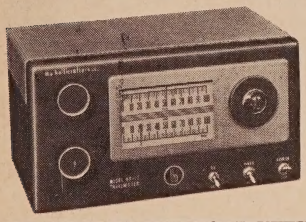
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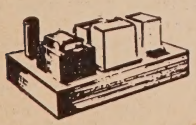
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MOBILE CORNER

(from page 43)

seem to us that this would be desirable. Such a division would be the prelude to a chopped-up band because other types of operation could not be denied a similar allocation. It follows that mobiles would be *confined* to this portion of the band. It is not believed that mobile operators would like this.

What is a mobile? Are some of these "super" mobile stations running 100 watts and more to be given preference over thousands of fixed stations running much less power?

Such an allocation would prevent a fixed control station for a mobile net from operating on the same frequency as the mobiles, unless all the mobiles operated out of this portion of the band, thus defeating the purpose of the allocation.

YL'S FREQUENCY

(from page 44)

ing at the Falls as it would have been *in* them! Then to Hamilton, Ontario, to visit one of the Verde Valley School boys and his family for whom we kept skeds from Arizona last winter via VE3JU. We thoroughly enjoyed our introduction to Canada and the remarkable hospitality of all whom we met. Of course, we had to visit VE3JU's shack, and were able also for a short time to visit VE3BTE, Rose Hallifax, the only YL in Hamilton. Rose is on all bands, with 40 c.w. and 10 phone the favorites. On 40 she runs 120 watts and 60 on 10, receiving on an NC-173. Treasurer of the Hamilton Radio Club, VE3BTE has WAS on 40 and was the first YL to make WAVE (Worked All VE). On the air since '47, Rose started to study for her license when she had one jr. op, decided she was too busy and waited until she had *three* jr. ops before she got her ticket!

Before leaving Hamilton 3JU handled a message for us on the 75 net to W8ATB in Flint, Mich., and lucky for us Esther and John were home and put out the welcome mat. That evening in Flint Esther and John put us on the Buzzards Roost Net on 75 from W8QBO (they use John's call on 75, Esther's on 10), and we got a brief QSO with W8EIR, Kate, in Alpena, Mich. Then they showed us around Flint and took us to call on W8UDA.

Again we were lucky for we had expected Dot to be in New Hampshire for the YL Convention, and while we were sorry she couldn't make it, we were delighted at the opportunity for a personal QSO and to see her handsome lead dog, Prince. He, incidentally, apparently considers Dot's shack strictly for Dot as he didn't even want to let the rest of us in—hi! Dot has been busy as ever with her duties as secretary of the Michigan Council of the Blind, teaching Braille, pounding brass and getting the YLRL nets organized—more news of which you'll find a little farther along.

Back at QBO-ATB we enjoyed movies of their 25th wedding anniversary party in June, for which the hams really turned out in force. A lovely home, John has it most conveniently organized for hamming, with a loudspeaker in almost every room, the basement and garage, and a mike as well in the

kitchen so there's no chance of Esther's burning the cake while in QSO! Although QBO has been a ham for many years, it wasn't until '47 that Esther decided she had the time to study for it, and a year later she got her Class A. Mostly on 75 and 10, the Stuewe's are in the Michigan Emergency Net (they have a 3-kw generator if needed), and also operate mobile.

News gets around fast on the air. When W8ATB mentioned on the 75 net that W7OOH was visiting Flint, Julie, W9LRT, picked it up and immediately passed along an invitation for us to stop by Bourbon, Ind. On the way we passed through Three Rivers, Mich., and, lucky again, found both W8WUT, Avis Miracle, and W8YBL, Margaret Godshalk, at home. That, incidentally, makes quite a ham family. Avis' brother first got his license as W8VIB, then Avis and her OM got their tickets just two days before Pearl Harbor (and missed getting on the air by the hour and a half needed to finish up the rig!) and then after the war Margaret got her call. Look for both these YLs on the 10-meter net this winter.

Passing through South Bend, we wished we'd had time to look up W9JTX, Louise Beringer, but we knew W9LRT was waiting for us, so we pushed on. Louise, by the way, is the new YLRL 9th District Chairman, so send news to her at 2301 North Forestbrook Rd., South Bend 17, Ind.

In Bourbon, after completing what one of the 75 boys termed the "whiskey run" down from Flint, Julie and Charlie, W9LRM, piled us with yummy Indiana ham and all the fixin's. Located on a small farm (no farming, though, for even their garden they deserted to the weeds, and their only livestock consists of one red-headed woodpecker Julie rescued after she found it lying wounded in the road, and half a dozen stray cats who found Julie kind hearted enough to feed them), 9LRM has his station at the house, which Julie uses on 75. Her station, which we visited later, is in, of all things, a brooder house on a chicken farm on the edge of town where 9LRM set up when he first came to work in Bourbon and Julie was still working for a television firm in Chicago. When Julie came she took it over for her 10-meter work. Cozy, with a little stove, walls papered with QSL cards and a windmill tower for her beam, Julie loves to hide away here and "hatch" DX, or rag-chew. A capable technician, too, she was in the process of repairing her own receiver with the comment that her OM was too busy!

Amazingly still on schedule—everyone was so hospitable we could have spent three times as long on the trip—we pulled into Chicago on Sept. 17th to find that W9FZO, Helen McKeral, had invited the local YLs and their OMs over to meet us, with the reservation that "she may not get here." Though we couldn't stay long, for we had an engagement with the parents of another Verde Valley student for whom we'd kept schedules from Arizona via W9FZO, we did get to rag-chew with a lot of the gang. Among them was W9GME, Grace Ryden. Grace has been on the air for a year and a half now, using NBFM, has made WAS on 10 and is now keeping her fingers crossed after taking the Class A exam.

W9HQC, Virginia, and her OM, W9KMJ, also dropped by. Virginia has been on 10 for the last year, and for a month and a half operated as W6HZC in Los Angeles. Also there were W9KXL, Bobby Slagle, and her OM, W5QFT/9. At the Naval Air Station at Corpus Christi, Tex., Bobby wasn't allowed to have a call of her own so she operated her OM's station. Now at Glenview (Ill.) Bobby has her own call but is so busy keeping house

Bargains . .

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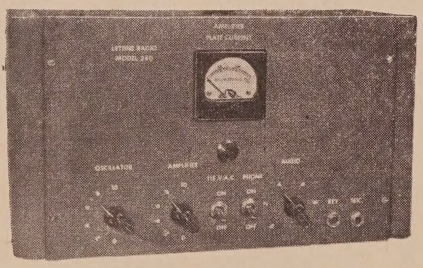
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and working at Sentinel Radio that her time for hamming is limited, but we'll be looking for her, too, on 10. We hoped to see W9BCB, Helene, but she was kept home with a cold.

As for W9FZO, herself, she and her OM, W9FSS, have a large and well filled ham shack with separate stations for each and a rotary on the roof (even with TV-watching neighbors!). With three small youngsters and a big house to take care of, Helen still finds plenty of time for hamming, with lots of DX, and her latest hobby of golf. Mostly on 10, she got her Class A this summer and will be band hopping from now on.

Time and space having run out, we'll have to continue this next month. St. Louis is next, and we're looking forward to seeing all the YLs there.

YLRL Nets

Nets for the coming season have not yet been fully organized, but W8UDA passed on what had been settled so far, and you'll find more details in the next issue of *Harmonics*.

10 meters: Starting October 17, every Tuesday 1 to 3 p.m. EST, 29,080 kc. W9LRT NCS, others to be appointed.

20 meters: Starting as soon after October 15th as it can be arranged there will be a 20-meter c.w. net every Monday evening.

40 meters: Starting October 18, every Wednesday 10 p.m. EST, 7220 kc. W3CUL as NCS, with another West Coast station to be appointed.

75 meters: Starting October 20 every Friday 6 a.m. EST, 3900 kc. (tentatively) W8ATB as NCS but using her OM's call of W8QBO.

80 meters: Starting October 19 every Thursday 10:30 p.m. EST, 3610 kc. NCS to be announced (it may be W1QJY, W7JFB or W8UDA).

75-WATT RIG

(from page 24)

100-kc Standard

There is illustrated, in closeup, the prefabricated 100-kc standard. Reference to the schematic shows the circuit to be quite simple and self-explanatory. This is a *must* around any amateur station, and more so around a VFO. I found it very useful in checking the band ends, also in keeping the VFO properly calibrated.

Modulator

The modulation system is the conventional Class AB_2. The one used was taken from the handbook.

Power Supply

The power supply is also conventional with a few exceptions. In the high-voltage supply, I used two 5R4s, however, one will do. A surplus relay, d.p.d.t., 115-v a.c., was used for SEND/RECEIVE. This relay was also used to control the antenna change-over relay, and the receiver stand-by relay.

(QSY to next page)

Conclusion

In conclusion, this rig has been in operation some months now on all bands, and reports from all over are very favorable. This little rig has provided me with much enjoyment, aside from the fact it is small, compact, flexible and relatively cheap to build. I am sure that all of you who may build this rig will find as I did, a lot of enjoyment from operating it.

HONGKONG JAMBOREE

(from page 27)

W2QHH bloke is?" "Yes," the whole gang chorused, "who is he anyway?" "Why do you want to know?", I asked. "Oh," said Bill, "He is constantly writing us letters asking us to help him QSO Tibet and Nepal or some other outlandish place." "Well, Bill," I said, "he has often QSO'd me at home and writes me too. Frankly, I think he is a spy for the DX Committee." They all laughed politely at my bad gag and Bill said, finally "Look Pat, do us a favor and tell QHH we would be glad to help him but we never hear Tibet or Nepal ourselves, no less work them." This brought up the subject of Hong Kong as a DX QTH and they all held their noses saying that it was the world's worst DX QTH. Mountainous Victoria Island shields the Hong Kong boys to the south and west and the Kowloon gang are cut off by mountains to the north, west and east.

As time passed and more beer and good cheer flowed, I managed to jot down a few more notes about the VS6 gang. They are particularly proud of their radio club which has 100% membership and at least 85% attendance at every meeting. They hope to have a club station going soon so that the visiting DX hounds and /MMs can try their hand at being a "rare catch." There are only two VS6 hams with beams but the others soon hope to have them. Seemingly 80-meter DX activity is nil. 40 meters is full of QRN, but the U.S.A. can be worked between 1000 GMT and 1500 GMT in the wintertime. Twenty is good over the same general time period with local sunrise in each W area the best time for reception in VS6. Ten is erratic with East Coast U.S.A. seldom heard. The hardest DX for VS6 is VP5, VP6 and VP9. As is usual, the best U.S.A. stations are the boys with the beams.

One sad note of the evening was the growing fear that the international situation would soon find VS6 taken off the air and all the gang are hoping things will ease up.

The thing that stands out in my memory about the Hong Kong gang is their unstinting hospitality. A visiting ham to Hong Kong has the red carpet laid out for him in grand style. I hope the boys out there will accept this little article about them as a long overdue bread and butter note. You see, fellows, I've been a bit QRL of late. I married Ann, ZC8PM's QSL manager, and we are on our honeymoon.——88

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ANTENNA SURVEY

(from page 21)

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12-element broadside array with reflectors (24 el.)	1	.1
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2-element vertical broadside	1	.1
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12-element Sterba	1	.1
Stacked 4-element Yagis (5) (20 el.)	1	.1
6 half waves in phase with reflectors (12 el.)	1	.1
12-element Lazy-H	1	.1
10-element horizontal Yagi with some reflectors and directors spaced above and below	1	.1

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BC-645 Xmttr-Rec. New	12.95
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12v DM35	625v-225ma	14.95
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14v—fits command Revr.	250v-.06A	7.95
18v	450v-.06A	1.95
28v DM32	250v-.06A	3.00
28v DY8	590v-100A	3.00
12v BD77	1000v-.35A	9.95
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28v BD73	1000v-.35A	6.95
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19.5v DA 31A	14.5v-.5A 360v-.06A 100v-.01A	3.95 1.95

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STATEMENT OF THE OWNERSHIP, MANAGEMENT AND CIRCULATION REQUIRED BY THE ACT OF CONGRESS OF AUGUST 24, 1912, AS AMENDED BY THE ACTS OF MARCH 3, 1933, AND JULY 2, 1946.

of CQ, The Radio Amateurs' Journal, published monthly at Lancaster, Pa., for October 1, 1950.

State of New York } ss.:
County of New York }

Before me, a Notary Public in and for the State and county aforesaid, personally appeared Sanford R. Cowan, who, having been duly sworn according to law, deposes and says that he is the publisher of CQ. The Radio Amateurs' Journal, and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management, etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, as amended by the Act of March 3, 1933 and July 2, 1946 embodied in Sec. 34.38, Postal Laws and Regulations, to wit:

1. That the names and address of the publisher, editor, managing editor and business manager are: Publisher: Sanford R. Cowan, 1620 Ocean Ave., Brooklyn 30, N. Y.; Editor: Albert E. Hayes, Jr., 8 E. Sampson St., East Rockaway, N. Y.; Managing Editor: None; Business Manager: Sanford R. Cowan, 1620 Ocean Ave., Brooklyn 30, N. Y.

2. That the owners are: Cowan Publishing Corp., 342 Madison Ave., New York 17, N. Y.; Sanford R. Cowan, 1620 Ocean Ave., Brooklyn 30, N. Y.

3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities, are: None.

4. That the two paragraphs next above, giving the names of the owners, stockholders and security holders, if any, contain not only the list of stockholders or security holders as they appear upon the books of the company, but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock, and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him.

(Signed) SANFORD R. COWAN, Publisher.

Sworn to and subscribed before me, this 28th day of September, 1950.

(Seal). HARRY N. REIZES, Notary Public.

State of New York, No. 24-3249550, Qualified in Kings County, Certs. filed with Kings & N. Y. Co. Clk. Off. & Kings Co. Reg. Off. Commission expires March 30, 1951.

ANTENNASCOPE

(*from page 28*)

nor is it limited to high resistance measurements. In some situations it may be more convenient than the employment of a half-wave line for normal antenna readings, but, as stated, the impedance of the line, used for the quarter wave, must be known, and it must fall within the geometric mean between the impedances concerned; whereas, the half-wave line does not require any particular value of line impedance, nor need its impedance be known.

In regards to the construction of the Antennascope, mention was made of the necessity of insulating the potentiometer shaft from the instrument case. It will be found best to mount the potentiometer on an insulated bracket, and then to connect the shaft through an insulated coupling to the control knob on the front of the case. This will eliminate hand capacitance effects which may otherwise produce difficulty in obtaining good nulls.

If the particular brand of potentiometer, given in the original parts list, is unobtainable, substitution may be made with most of the small carbon or composition types, for use at frequencies below 30 mc.

30-ELEMENT BEAM

(*from page 15*)

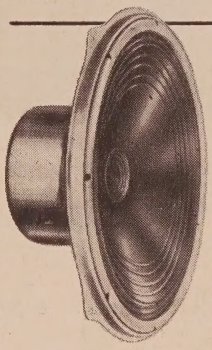
quarter wave open transformer is recommended with any of these antennas, to be connected at the points marked XX. This will allow any impedance line to match into any of the above arrays. If coax is going to be used the use of a re-entrant transformer or bazooka would be necessary to keep the system balanced.

At W2NLY two of the fifteen-element jobs are stacked one wavelength above one another ending up with a drive impedance of approximately 30 ohms.

The beam width at half power is 18°, vertically polarized, and 22° with horizontal polarization. The power gain can be calculated by comparing the "cross-sectional area" of the directivity pattern of the array, measured at the half-power points, with the area of a reference sphere, which would be the "field pattern" of a truly omni-directional (or "isotropic") radiator. This comparison has been made, and the power gain over an isotropic radiator is calculated as 21.2 db. Since a dipole has some gain over a completely omni-directional source, 1.9 db to be exact, the net gain of the 30-element array is 19.3 db over a dipole.

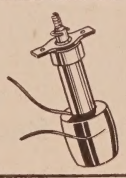
These figures do not include power lost in minor lobes. The formula assumes no minor lobes, a con-

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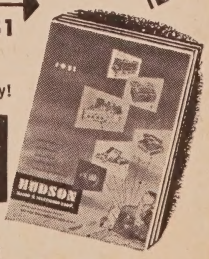


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output voltage and amperage rating of dynamotor. Special units are available—prices and delivery dates quoted at time of inquiry.

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Code No.	D-C Volts	Amps. Out.	Wt. Lbs.	Net Each
S-295A		2	1.25	$6.95
S-458A	14, 13.3	4.5	1.75	7.25
S-167A	12.6, 12	10	3.75	10.95
S-292A		40	12	29.95
S-296A		1.8	1.25	5.75
S-344A		5	5.75	11.50
S-172A	28, 27	10	6	16.50
S-291A	25, 24	20	12	29.95
S-297A		40	23	52.25

Select proper rectifier and transformer from table for your specific application. After proper selection has been made proceed as follows: Connect secondary terminals of transformer to yellow lugs of rectifier selected, connect black lugs to NEGATIVE input terminal of dynamotor, connect red lugs to POSITIVE input terminals of dynamotor. No changes in switching circuit of dynamotor are necessary if cables are included or cable are to be used with unit. Provide "on and off" switch in primary of supply transformer. Rectifier output can be connected to any dynamotor giving good regulation.

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RPS No.	Sec. V.	Sec. Am.	Extra Sec. Taps	Wt. Lbs.	Net Each
8883	17	3	18.6, 17.5, 16	3.5	$3.75
8884	15.5	5.2	16.6, 16.2, 15	5.5	4.25
8885	19.2	12	21.4, 20.4, 18.8	12	6.15
8886	17.2	46	19, 18.2, 16.5	35	19.65
8888	33	2	36, 35, 31	5	4.15
8889	32	6	36.7, 35, 31	12	6.75
8892	32	12	36, 34, 31	25	11.65
8890	32	33	36, 34, 31	32	19.25
8891	32	46	36, 34, 30	78	51.25

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dition extremely rare in practice. However, if the minor lobes are down sufficiently in amplitude (the order of 15 db) they can be neglected for all practical purposes, and the figure approaches closely the measured gain in practice.

If this array is adjusted for maximum gain, neglecting front/back ratio, a further increase of 1.2 db is possible. However, the drive impedance for this condition drops to about 22 ohms with a decrease in front-to-back ratio of about 4 db.

On-the-air performance exceeds the results obtained with the ground measurements with 3.5 to 5 S units gain over a half-wave dipole on long haul contacts.

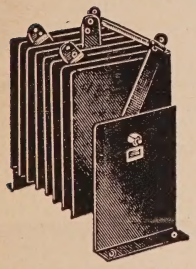
The only feasible explanation for this superior performance over greater distances, is the lower angle of radiation. When vertical polarization is used, maximum power is radiated and received within 11° of the horizon; with 9° when horizontal polarization is used, (discounting reflections and ground effects). When tropospheric bending or temperature inversion exists, this concentration of power at a low angle may result in higher gain figures over a dipole than local measurements produce. The usable power radiated from a dipole (assuming it high enough to be free from ground effects) is only a small percentage (or slice) of the vertical pattern, possibly within 20° or less of the horizon (the rest being lost due to scatter effects) depending on the distance between the stations involved and how much bending actually exists.

The thirty element array at W2NLY is supported nine feet above a forty-one foot tower, it can be changed from vertical to horizontal polarization by a slight pull on a single steel wire which comes down through the center of the drive shaft. Releasing the wire allows it to return to vertical. Its weight is 35 lbs. The main booms are of one and one-half inch 24ST aluminum tubing .045″ wall thickness. The Yagi supports are made from 1″×2″ rectangular tubing cut diagonally $\frac{3}{8}$″×1$\frac{5}{8}$″. This yields two supports out of one 65″ length. The H frame is made from two pieces of 2$\frac{1}{2}$″ by 2″ by $\frac{1}{8}$″ angle (24ST) 82″ long, tapered down from 2$\frac{1}{2}$″ in the center, to $\frac{1}{8}$″ at the ends, with holes drilled as shown to reduce weight and wind resistance. The main support is one piece of channel aluminum 1$\frac{1}{2}$″×1$\frac{1}{2}$″×$\frac{1}{4}$″ wall, tapered down from 1$\frac{1}{2}$″, 1″ off center of $\frac{1}{4}$″ at end. The H frame is held together with 3$\frac{5}{16}$″×$\frac{1}{2}$″ stainless steel screws and nuts at each end. The booms are held to the H frame with 8 1$\frac{1}{2}$″×$\frac{1}{2}$″ aluminum aircraft U clamps. The Yagi supports are held to the booms the same way. Half-inch holes are drilled 16″ apart through the Yagi channel supports to accommodate the elements with holes drilled through channel and elements for #8 cadmium plated machine screws. All the phasing sections are made from .147 aluminum clothesline spaced 2$\frac{1}{2}$″. The insulators are made from the poly-inner conductor of RG-8/U coax with holes drilled for force fit. All connections are covered with two coats of liquid poly.

The transformer consists of two half-wavelength sections of $\frac{1}{2}$″ aluminum tubing spaced 2″ apart,

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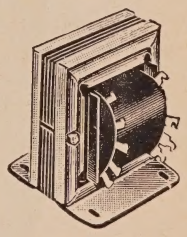
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Select proper rectifier and transformer from table for your specific application. After proper selection has been made proceed as follows: Connect secondary terminals of transformer to yellow lugs of rectifier selected, connect black lugs to NEGATIVE input terminal of dynamotor, connect red lugs to POSITIVE input terminals of dynamotor. No changes in switching circuit of dynamotor are necessary if cables are included or cable are to be used with unit. Provide "on and off" switch in primary of supply transformer. Rectifier output can be connected to any dynamotor giving good regulation.

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S-291A	25, 24	20	12	29.95
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8889	32	6	36.7, 35, 31	12	6.75
8892	32	12	36, 34, 31	25	11.65
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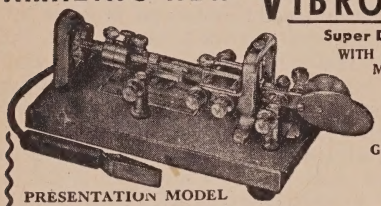
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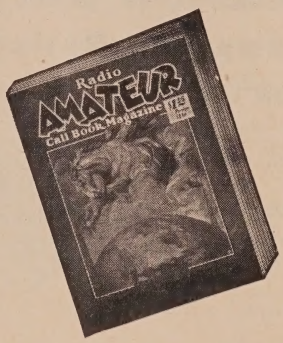


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with an adjustable shorting bar. Two pieces of $\frac{3}{4}$" square aluminum stock $\frac{1}{4}$" wide were drilled for a slip fit over the $\frac{1}{2}$" tubing. Holes were drilled and tapped in both sides of each connector for 10–32 screws. One hole is for a set screw, other is to fasten feed line connection.

Three sets of guy wires broken up with strain insulators were installed between ant. frame and pipe flange to make the array more rigid. However, a second X support, would make these guys unnecessary.

The array is spring loaded with two heavy duty screen door springs in the vertical position. A slight pull on the steel wire turns it over 90° for horizontal polarization.

The array is matched into a 460-ohm open-wire line with a resulting s.w.r. of 1.2/1 at 146 mc, 1.35/1 at 144 mc, and 1.8/1 at 148 mc. Coax would have been used to feed this array, but over 100 ft. transmission line was needed. This large a length of coax would result in a considerable loss (over 3db) over open wire line. However, if only a short run is involved coax would be suitable.

SCRATCHI

(*from page 4*)

back and asking what happen. I getting on at 40 per and giving quick explanation, only when standing by find several guys calling me on the net frequency. Net control coming on and telling these guys to getting off frequency, but before he finishing, couple more guys are on calling me.

I are not understanding my sudden popularity. Why should all these guys be calling me—Hon. Ed. how could I be so dumb in this dream? Net frequency now sounding like bombing target, with VFOs swishing in from all angles, and the net control in the middle of it, getting apoplexy from trying to get stations off the frequency. Finally net control are ordering me off the frequency and telling me to get out of the net and stay out. Hokendoke!! are he mad.

Scratchi are much hurt by all this so I tune off the frequency and up about five kc are hearing W1ATE, an old friend, calling me. I hooking up with him and first thing he doing are asking for QSL card. I gong back and asking him how come now he wants a card, after having worked me eleventeen times before and not wanting one. He telling me I'm hot DX now, being new country for him. Me, hot DX, me, new country—the light are suddenly dawning. That is why all the band are trying to have QSO with Scratchi. Sacremento! how are I having any more nice QSOs, how will I handling traffic with my friends? I turn off receiver and close my eyes, and all I hear is VFOs zeroing in on my frequency and calling KB1AA. . . KB1AA. . .KB1AA. . . .and at this point I waking up in cold sweat.

So there is my nightmare, Hon. Ed. Each night it the same. Are you thinking there are some deep significance to this? Also, I wondering, can I learning to read code while reading a magazine?

Respectively yours,
Hashafisti Scratchi

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Model 600 TVI-free Transmitter. VFO or crystal controlled band switching. Rated at 35 watts input either CW or phone. Oscillator keying for break-in operation. Covers 160, 80, 40, 20, 15, 11 and 10 meter bands. Separately tuned power amplifier plate circuit. Output circuit 50 ohms impedance. Uses 6AG7 oscillator, 6AG7 buffer-doubler and 807 final amplifier which is mounted in under chassis compartment providing double shielding against spurious and harmonic radiation. Internal power supply uses 5U4G rectifier and VR-150 voltage regulator. Size: 15 x 11 x 9". For 115 volts, 60 cycles AC. Terminals provided for external modulator. With tubes and instructions.

29-21119C--Shpg. Wt. 35 lbs..... **119.95**

LYSCO MINIATURE VFO



Lysco Model 381R Miniature VFO for fixed or mobile operation. Easy-to-read illuminated dial calibrated for 80, 40, 20, and 10 meters with output on 80 or 40 meters. Good stability--series tuned "Colpitts" oscillator. Low impedance 15' coax cable with remote tuned circuit on 80 or 40 meters. Tubes: (3) 6AK5's. Operates on 6.3 volts AC/DC, 1.35 amps, 200 volts DC max. 30 ma. Size: 3 x 4 x 5". Complete with tubes.

29-21121C--Shpg. Wt. 4 lbs..... **27.95**

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HARVEY WELLS 50-WATT PHONE & CW XMTR



Bandmaster Senior. Streamlined version of popular TBS-50. Features radically new crystal oscillator vfo switching circuit. No plug-in coils. Covers 8 bands from 80 to 2 meters at the flick of a switch. Optional crystal control or vfo input. 100% break-in operation. No oscillator or multiplier tuning necessary except to resonate the antenna. For fixed or mobile operation from AC, vibrapack or dynamotor. Use as exciter when increasing output. Tubes: 6AQ5 crystal oscillator, 6AQ5 buffer-multiplier, 807 final amplifier; (2) 6L6 class B modulators. Controls include band switch, excitation, antenna loading, amplifier tuning, power-on, carrier-on, meter switch, and phone-CW switch. Size: 8 x 12 x 8". With tubes. Less power supply.

30-21038C--Shpg. Wt. 20 lbs..... **111.50**

30-21039C--Power Supply for 110 V AC, 50-60 cyc..... 39.50

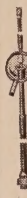
GONSET TRI-BAND CONVERTER



Gonset's NEW "Band Spread Mobile Tri-Band Converter" covers all amateur mobile phone bands. Has complete band spread on 10-11, 20, 75 meter phone bands. 28-29.7 mc--8 in. linear dial. 14-4 mc--2-1/4 inch linear dial. 3800-4000 kc--6 in. linear dial. Planetary Gear Drive. Tubes: 6CB6, 6C4, 6AV6, 6BH6. 5 1/4x5 1/4x3 1/2.

29-21113C--Shpg. Wt. 5 lbs..... **42.50**

SNAP-OUT WHIP ANTENNA

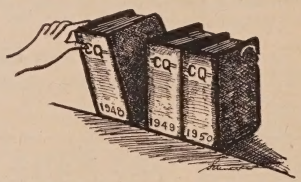


Eight tapered sections, 125" fully extended and only 17" collapsed. Powerful spring housed in the base holds brass tubing sections firmly in place with the aid of a braided wire cable extending through the entire length of the antenna. Base has 5/16" long threaded mounting rod.

99-9538C..... **1.39**

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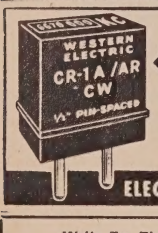
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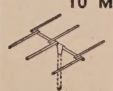
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SPECIAL
Volt-Ohm-Milliameter 0-1 MA. 4" Fan Type. Diagram Incl. Makes 1000 ohm per volt unit. Meter Only $2.95

MONITORING POST

(*from page 42*)

Random Notes

Again, as in every year since the end of the war, W2FBA cops the c.w. DX contest top spot in western N. Y. . . . FM8AB and F3NB can be heard almost every evening keeping their daily sked on the low end of 7 mc. says VE1BK. . . . Those who QSOd W9KCR/9 were helping him to pass away the time pleasantly while he vacationed in the deer country of Wisconsin; he's back home in Chi again. . . . W2UZX will no longer be heard on 3.5 mc, for he's transferred his talents to the Navy, having enlisted recently.

W2UKL urges the boys using rotaries to build their beam drive units "birdproof". A family of blackbirds moved into his gear box housing, forcing UKL to stand by while Mr. and Mrs. Blackbird reared their family. Future gear boxes will be beyond the point of being rainproof, and also will be birdproof. . . . VE3GG, on the air for 35 years, reports a four-way QSO with three other youngsters whose total ages add to 266 years; their ages are 65, 66, 67, and 68. . . . W2YXX and W2YJL are new members of the Schenectady ARA, the latter running a half kw on 20.

In Hobbs, N. M., there are just an even dozen ham stations, operating both phone and c.w., all active, and willing to help any on the bands to get that state on their list of states worked. More than half a page of space in the local newspaper gives the dope on these Hobbs hobbyists, featuring W5BIH and W5KCR in photos of their layouts, and the ten-meter beam of W5ISW. This Hobbs gang covers all bands with fixed stations, and KCR also sports a mobile rig. . . . Gary is the name of the junior op who has come to stay with WØHZR and his xyl—congratulations.

The Minneapolis Radio Club

The Minneapolis RC reports big doings for the new season with a great many more members to be added to its roster of 120. At the June meeting of the club WØEPJ and WØITQ asked the membership for help in organizing a radio class for polio victims at the Sister Elizabeth Kenny Institute, and were rewarded by the assistance of six of the local boys. One of the students became so interested he was very reluctant to go home when discharged. The club tries to arrange for a continuance of the studies with a ham in the former patient's home town when he is discharged.

W3CUL puts the stamp of approval on the announcement of the traffic net in this column in September in which a great many stations with many traffic outlets have been moving traffic smoothly. Service from the East Coast to Guam, Korea and Japan daily, with many messages being delivered the same day. Messages of happiness, as well as others, are given prompt attention with rarely any delay in deliveries. . . . Detailed instructions for building an emergency-mobile modulator and antenna tuner by W2FZW appears in the summer issue of G. E. "Ham News". The loop antenna, also mentioned, is reported to be highly efficient.

RECEIVER

(*from page 20*)

With white decals to mark the controls, the finished receiver is quite attractive looking. The *XYL* here says, "It's cute".

COIL TABLE

All coils wound with #24 enamel covered wire on Amphenol ¾" diameter plug-in forms.

80 METERS

40 turns close-wound; cathode tap 4 turns from ground.

40 METERS

18 turns spaced 1 inch; cathode tap 1½ turns from ground.

20 METERS

9 turns spaced ¾ inch; cathode tap 1 turn from ground.

10 METERS

4 turns spaced ¾ inch; cathode tap 1 turn from ground.

TRIPLE CONVERSION

(*from page 26*)

cuit of the BC-348 was not changed and is ready instantly for normal operation.

The 6C4s and an 80-ohm resistor were connected in series across the 24-volt filament supply, for I had not changed the filament wiring of the BC-453. In fact I have it and the BC-456 (6–9 mc) receiver in a double rack with a switching arrangement so as to use the BC-456 for a keying monitor on forty and eighty meters.

The tuning is simple if you have a local station near 915 k.c. as I have.

The dial of the BC-453 was set at 465 kc and the r.f. and oscillator trimmers of the converter are tuned to the local station. The i.f. signal of the BC-348 was then injected into the converter and all the trimmers tuned for highest level. A signal generator set at 915 kc can be used in lieu of a broadcast station.

I had expected little or no gain from the unit and was interested only in selectivity, but was truly amazed at both the additional gain and reduced QRM. To those who have the BC-348 and want performance rivaling the higher priced communication receivers, and don't have the time nor knowledge to build the more complicated gear, this simple gadget may be the answer.

MERIT TRANSFORMERS

NEW!!! I K W PLATE!!! FULLY POTTED!!!



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Get this "hot" new design for that "Gallon" XMTR with 115 or 230 volt line. Delivers 2500 or 2000 V. DC out of filter at a conservative 500 mils. EXCLUSIVE!!! Small plate transformer for low power XMTR or exciter stages. Delivers 400 V. DC at 150 M.A. at low cost.

FILTER SMOOTHING CHOKES

Type No.	Net Price	Inductance Henries	Current Rating M.A.	D.C. Res. Ohms	Volts Insul.	Mtg.
C-4084	$19.20	8	500	75	7500	H

Dimensions—H 6⅜", W 6 5/16", D 5 3/16"

FILTER INPUT OR SWINGING CHOKES

C-4091	$19 20	3-14	500	75	7500	H

Dimensions—H 6⅜", W 6 5/16", D 5 3/16"

UNIVERSAL MODULATION TRANSFORMER

Tapped Series-Parallel Coils Provide a Wide Range of Modulations

Type No.	Net Price	Pri. Impedance	Pri. M.A. Per Side	Sec. Impedance	Watts	Max. Sec. M.A.	Mtg.
A-4008	$54.00	2000-20000	325	2000-20000	500	325/650*	H

Dimensions—H 8¾", W 7½", D 7 *Series-Parallel

PLATE TRANSFORMERS

For Amateur or Intermittent Commercial Service Pri. for 115* or 230 V. 60 Cy. DC Voltage Ratings are Approx. Values Obtained at Output of 2 Section Choke Input Filter.

Type No.	Net Price	Sec. Rms. Volts	Sec. DC Volts
P-4063	$66.00	3000-3000	2500
		2500-2500	2000

Sec. DC M.A.: 550, 150. Mtg.: H, D.
Dimensions—H 11¼", W 7½", D 7"

P-3175	$5 40	550-550	400

Dimensions—H 3 9/16", W 3", D 3⅞"
* 115 V. Pri. only.



D

See Merit Catalog No. 4911 for other items.
Ask your dealer or write

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4429 N. Clark St., Chicago 40, Ill.

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Gift subscription to CQ (See Page 64)
CQ Binder for year 1950 or 1951 issues $2.00
Bound Volume of CQ, 1950, when available $7.95
WAZ World Map $1.00

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Advertising in this section must pertain to amateur radio activities. Rates: 25c per word per insertion for commercial advertisements. 5c per word for non-commercial advertisements by bona fide amateurs. Remittance in full must accompany copy. Phone orders not accepted. No agency or term or cash discounts allowed. No display or special typographical ad setups allowed. "CQ" does not guarantee any product or service advertised in the Classified Section. Closing date for ads is the 25th of the 2nd month preceding publication date.

FOR SALE Three phone transmitters complete, 30 watt amplifier four 6L6s, complete 100 watt modulator, several spare plate and modulation transformers, chokes and filament transformers. S40 and SX28A receiver also 10-20 converter. Write for list. W5HXC, Box 109, Blackwell, Oklahoma.

BARGAINS: New and reconditioned Collins, Hallicrafters, National, Hammarlund, RME, Millen, Meissner, Gonset, others. Reconditioned S38 $29.00, S40A $59.00, NC-57 $59.00, NC173 $139.00, NC183 $199.00, HRO $99.00, RME-84 $59.00, HF-10-20 $59.00, RME-45 $89.00, HQ129X $129.00, BC221 $49.00, SX42, SX43, SX25, SX28, SX28A, SX62, S39, NC100, NC240D, HR07, HFS, VHF152A, HT18, HT9, BC610, 32V, 75A1, others. Terms. Shipped on trial. We have what you want and can save you money. Write for free list. Henry Radio, Butler, Missouri.

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

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

10-METER 3-ELEMENT BEAMS—$19.50. Send card for free information. Riverside Tool Co., Box 87, Riverside, Illinois.

QSLs! TAPRINT, Sumrall, Mississippi.

QSLs. SWLs. Made the way you want them. Samples? W9BHV QSL Factory, 855 Burlington Ave., Frankfort, Ind.

WANTED: APR-4 receiver and tuning units. State condition and price. W2DB, 274 Boulevard, Scarsdale, N. Y.

BARGAINS—NEW AND USED TRANSMITTERS—RECEIVERS—PARTS: Globe King $299.00; HT9 $225.00; Temco 75GA $250.00; Collins 75A1 $295.00; new 150 watt phone $199.00; SX42 $189.00; NC173, HQ129X $139.00; Sonar SRT75 $129.00; SX43 $129.00; ART 13 $119.00; RME45 $99.00; SX25 $89.00; HT6 $85.00; Meck T-60 $85.00; RME69 $69.50; VHF-152A $69.00; NC-100 $59.00; Globe Trotter $57.50; New Bud VFO $39.50; New Meissner Signal Calibrators $29.95; S-38 $29.95; 3-30 or 10-11 converters $25.00; S41G $22.50; and many others. Large stock trade-ins. Free trial. Terms financed by Leo, WØGFQ. Write for catalog and best deal to World Radio Labs., Council Bluffs, Iowa.

WANTED: one Handy Talkie BC-611E, Freq. 3885 kc, New. W6CAS, 1715 W. St., Sacramento, Calif.

WANTED: BC-312, BC-342 and BC-348 receivers, good used or new surplus. SCR-284 complete, original packing. Advise, stating price, condition, any modification made. G. & M. Equipment Co., Inc, 7315 Varna Ave., No. Hollywood, Calif.

FOR SALE—to highest offer—1 BC-654A transceiver. A1. Wilson Bartles, WØVDD, Shenandoah, Iowa.

QSLs? SWLs? "Made-to-order cards!" Samples 3¢. Sackers, W8DED, Holland, Michigan.

SUBSCRIPTIONS, renewals (all magazines). CQ $3.00, QST $4.00. Sackers, W8DED, Holland, Mich.

WANTED: surplus butterfly tuners, following ranges: 74 to 320 mc, 104 to 350 mc, 300 to 1000 mc, 135 to 485 mc. WØDNW, 210 West Second, North Platte, Nebr.

FOR SALE OR TRADE: Complete ham station. 225 watt xmtr NBFM/CW, 4-65A final, HT-18 VFO control, 22" x 14" x 29" aluminum cabinet. Mon-Key and xtal mike. SX-43 receiver with matching speaker and DB-20. Deliver 100 miles. Want $325.00 or 75A-1 with speaker. W5RIQ, Box #705, Barksdale Air Force Base, La.

QSLs—SWLs by W1HJI. Samples, Box 32B, Manchester, N. H.

DO YOU WANT one of the finest mobile rigs in the world? For the price of the new car, $2750, you can own, if not too late, beautiful two-tone 1949 Nash Ambassador, many accessories, lifeguard tubes, special tires, two 150 watt ART-13s and ARR-7 receiver, works 10 thru 75 meters. Winner two national contests, 62 countries worked. Car perfect shape and under 30,000 miles. I intend to duplicate in Cadillac. Priced at trade-in value, plus equipment. Cash or trade on new Cadillac. Why not enjoy yourself, it's later! WØNFA.

MILLEN Model 90711 VFO like new, $40.00. Gon-Set 10/11 meter converter, excellent condition, $20.00. C. Rohrer, W9EKL, 314 W. Lakewood, Peoria, Ill.

F. M. TRANSMITTER, BC-604D with generator and tubes. Receiver, BC-603D with tubes, both $27.50. Box of 80 crystals, $7.50. Light plant, 6.3 KW. Universal, 110 volts D.C., $195.00. G. M. Watkins, 1056 Murfreesboro Rd., Nashville, Tenn.

FOR SALE: BC-348-Q Receiver, $50. Also several meters, tubes, etc. Write for list. W8GSZ, 405 Forest Ave., Ann Arbor, Mich.

10 AND 20 meter beams, $19.25, up. Aluminum tubing, etc. Willard Radcliff, Fostoria, Ohio.

SELECTIVE buying includes National receivers for top quality and long lasting performance at Evans Radio in Concord, N. H.

SELL: RA-34 rectifier, TCS-12 with power supply, cables: BC-654 with PE-103A; I-222-A signal generator; TCS 110 v. D.C. and TCS 12 v. D.C. power supply. T. Howard, 46 Mt. Vernon St., Boston 8, Mass.

SELLING: VHF-152-A; plate dipper meter; Meissner 8C FM tuner; Log Log duplex trig sliderule; L. C. Smith #5 typewriter; 3 inch modulation scope; plate dipper. W9DPL, 2924 Station St., Indianapolis 18.

SELLING OUT ham shack. Send for list of bargains. Send $2 for package of parts worth over $10. Money refunded if not satisfied. WØQFZ, 2705 So. 7th, Council Bluffs, Iowa.

FOR SALE: 24-28 volt generator, 25 amps, never used by me. $20. Orion Mack, Route #1, Twin Falls, Idaho.

ART-13 Collins Autotune transmitter with tubes and crystal, $100. G. Copland, Box 116, Gunnison, Colo.

FOR SALE: BC221AK, $65.00, like new. VHF-152A, best offer. W6CIE, 317 Occidental Ave., Burlingame, Calif.

WANTED: AN/APR-4 Receivers and Tuning Uints; ARC-1, ARC-3, R-89B/ARN-5A, TS-174/U (and other "TS-" equipment), ARR-5, ARR-7, RBL-3, BC-348, ART-13, Radar and other Surplus; General Radio, Boonton, Ferris, other top-quality equipment wanted, particularly for 100-6,000 Mc. region; also 707B, 703A tubes, other special-purpose types, maggies, klystrons. Cash or trade. Describe, price in first letter. Littell, Farhills Box 26, Dayton 9, Ohio.

WANTED: Model 50 or 51 GE wire recorder and playback. WØNFA.

NOW AVAILABLE—Revised, colorful DX ZONE MAP of the WORLD, 4 colors, 34" x 28", heavy paper suitable for framing. Send $1.00 cash, check or money order, and the map will be sent postpaid anywhere in the U. S., and possessions—CQ, 342 Madison Ave., New York 17, N. Y.

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Broad Band Ten Meter Converters .... $16 Postpaid

These RF24 three tube units really perform. Peps up your set immeasurably—especially such models as the BC-348, BC-342, etc. Actually covers 20-30 MC—output 7.5 MC—measures 5 x 7 x 10½. Spare tubes, coax fittings and instructions furnished. Needs no alteration to perform. Requires 200-250 V 18 MA—6.3 V at 2 amp. Used but guaranteed to work.

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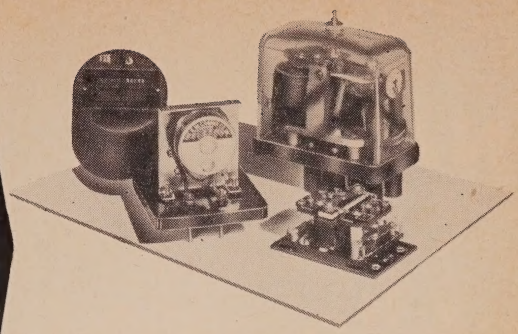
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R-527	6/12 VDC.	50/50	In Series	2Z7668 For Scr-274N	.95
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R-651	24 VDC.	100	Solenoid Valve	.....	2.50
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R-230	5/8 VDC.	2	2A, 1C	Guardian Ratchet Relay	2.15
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R-620	6/12 VDC.	35	2C, 1A	Guardian BK-16	1.05
R-629	9/14 VDC.	40	1C/10 Amps.	Guardian BK-17A	1.25
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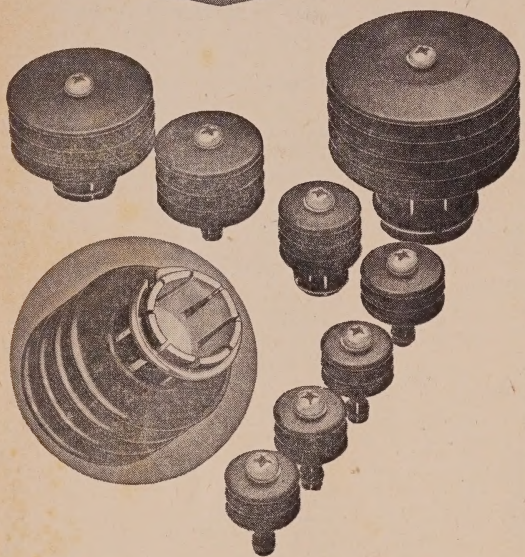
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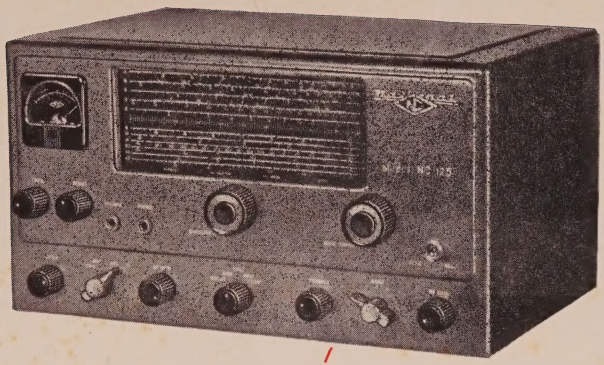
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