

June 1958 50c



CQ



KC4AF

The Radio Amateur's Journal

Why Collins SSB signals **STAY CLEAN**

One of the reasons why single sideband is becoming so popular on the amateur bands is the narrow bandwidth required. It was thought at one time that the generation of a single sideband signal was a difficult technical job. Even though SSB might be difficult it is worth the effort because it reduces QRM. Actually, it is easier and simpler than the generation of an amplitude modulation signal.

The SSB signal can be generated in either of two ways — the filter method or the phasing method. In the phasing method, the sideband balance is dependent upon phase and amplitude control in both the audio and r-f circuits. If this control is exact and can be maintained over the operating life of the equipment, then a clean SSB signal is available for amplification. If phase or amplitude variations exist because of temperature, humidity or aging, then the SSB signal becomes less clean and the undesired sideband begins to appear.

Now look at the balanced modulator and filter circuit used by Collins. This circuit makes a clean SSB signal and it stays that way. These are the reasons the previous statement is true. The balanced modulator generates a double sideband signal and suppresses the carrier by 30 db over a long period of time. The Mechanical Filter,

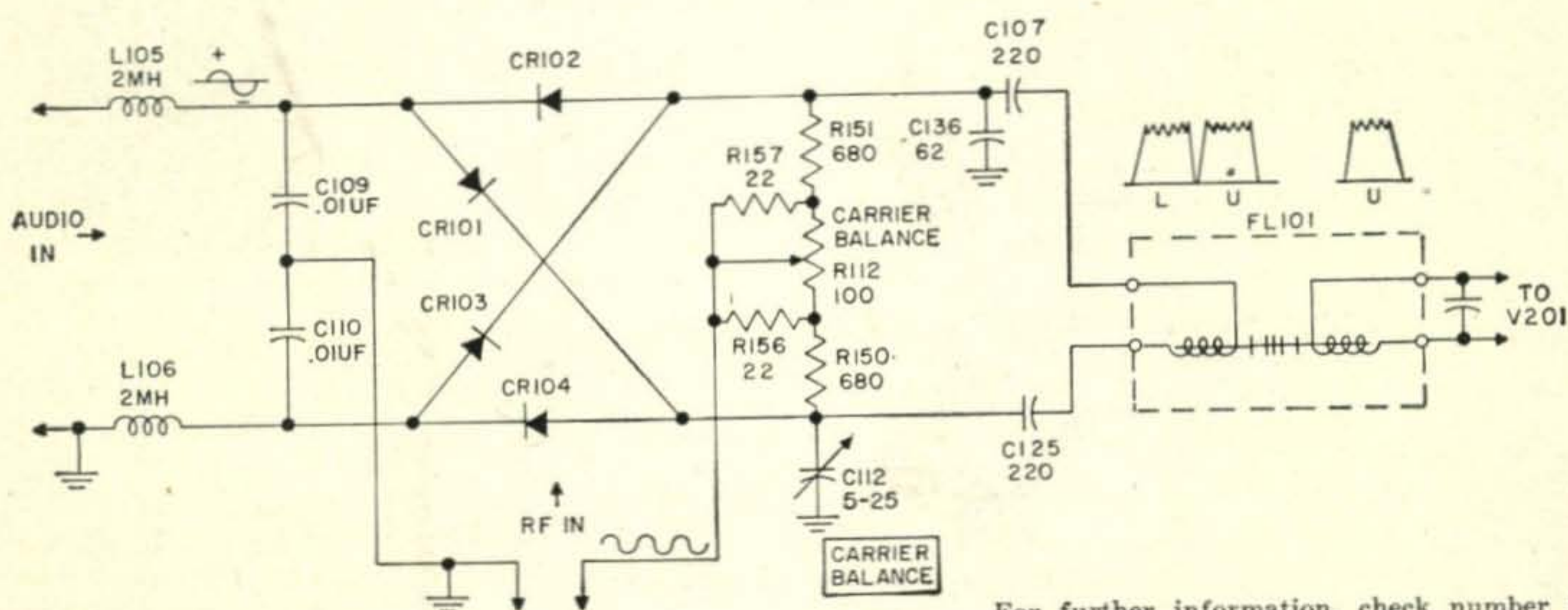
being 3 kc wide, passes only the desired sideband and attenuates the undesired sideband by 50 db. Also, at the carrier frequency, 20 db added attenuation of the carrier means that the carrier is balanced to a low level at the factory and it stays there. Temperature, humidity and aging do not affect the hermetically-sealed Mechanical Filter. It is composed of highly accurate metal discs which stay on frequency and insure a constant passband.

With the Mechanical Filter in a sideband separation circuit, the operator is assured a good voice frequency circuit without audio filters. The passband of the Mechanical Filter automatically attenuates those audio components below 300 cps and above 3 kc.

The filter method of generating a single sideband signal is economical to use and it is the best method of SSB generation. Why not join the ranks of satisfied Collins-equipped hams using these advanced techniques?

E. W. Pappenfus

E. W. Pappenfus
Director, "A" Division Engineering
Collins Radio Company



For further information, check number 1 on page

Collins CREATIVE LEADER IN COMMUNICATION **COLLINS**



There's a PR for every Service!

AMATEUR



40, 80 and 160 Meters, PR Type Z-2

Rugged. Low drift, fundamental oscillators. High activity and power output. Stands up under maximum crystal currents. Stable, long-lasting, permanently sealed; ± 500 cycles.....\$2.95 Net



20 Meters, PR Type Z-3

Third overtone oscillator. Low drift. High activity. Can be keyed in most circuits. Fine for doubling to 10 and 11 meters or "straight through" 20 meter operation; ± 500 cycles.....\$3.95 Net

24 to 27 Mc., PR Type Z-9A



Third overtone; multiplies into either 2-meter or 6-meter band; hermetically sealed; calibrated 24 to 27 mc., ± 3 kc.; .050" pins.

\$4.95 Net

50 to 54 Mc., PR Type Z-9A



Third overtone; for operating directly in 6-meter band; hermetically sealed; calibrated 50 to 54 mc., ± 15 kc.; .050" pins.

\$6.95 Net

SPECIAL TYPES

Commercial Crystals available from 100 Kc. to 70 Mc. Prices on request.

Type Z-1, AIRCRAFT

3023.5 Kc., .005%.....\$3.45 Net

Type Z-1, MARS and CAP

Official assigned transmitter frequencies in the range. Calibrated to .005%. 1600 to 10000 Kc. \$3.45 Net

Type Z-6A

FREQUENCY STANDARD

To determine band-edge. To keep the VFO and receiver properly calibrated.

100 Kc. \$6.95 Net



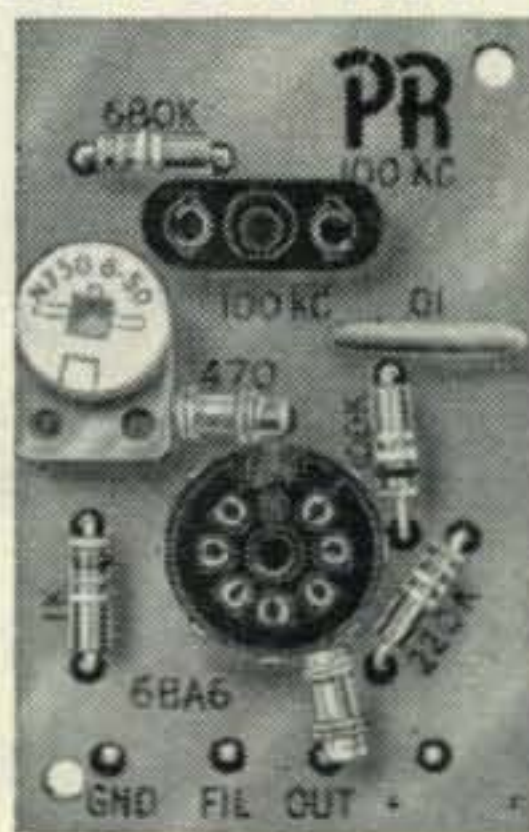
PR PRINTED OSCILLATOR KIT

Has many uses—

- As 100 Kc. Marker
- As 1000 Kc. Marker for Check Points up to 54 Mc.
- As Foundation Circuit for Low Frequency SSB Crystals

Assembled in minutes. Kit contains everything but 6BA6 oscillator tube and crystal.

Each \$4.50 Net



Type 2XP

Suitable for converters, experimental, etc. Same holder dimensions as Type Z-2.

1600 to 12000 Kc. (Fund.) ± 5 Kc. . . . \$3.45 Net

12001 to 25000 Kc. (3d Mode) ± 10 Kc. . . . \$4.45 Net

VHF Type Z-9R, Aircraft



For Lear, Narco and similar equipment operating in the 121 Mc. region, requiring crystals in 30 Mc. range.

Each \$4.95 Net

Type Z-9A RADIO CONTROLLED OBJECTS

27.255 Mc., .04% . . . \$3.95 Net



Type Z-1

TV Marker Crystals

Channels 2 through

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4100 Kc. . . \$2.95 Net

4.5 Mc. Inter-carrier, .01% . . . 2.95 Net

5.0 Mc. Sig. Generator, .01% 2.95 Net

10.7 Mc. FM, IF, .01% . . . 2.95 Net

ALL PR CRYSTALS ARE UNCONDITIONALLY GUARANTEED. ORDER FROM YOUR JOBBER.

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For further information, check number 3 on page 130.

Designed for



Application



**NOS. 80070 & 80170 SERIES
BEZELS FOR
CATHODE RAY TUBES**

Designed for Application. A complete line of both metal and plastic cathode ray tube bezels, including plain, illuminated reticule, and camera mount styles, for use with all types of tubes (regular, flat face, square, etc.) and our complete line of stock and custom built Mu-Metal and Nicoloi shields.

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MFG. CO., INC.**

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MASSACHUSETTS**



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CQ, the Radio Amateurs' Journal is published for active hams by active hams. Not affiliated with any clubs or other political groups, CQ endeavors to be a true and honest reporter for those interested in the hobby. Suggestions for improvement are welcomed.

Authors would do well to send for the CQ Style sheet which will explain our confused system of abbreviations and symbols. The article "Author Author" (October 1952 CQ) tells all about how to write articles for CQ, how much we pay, etc. Reprints of this article are available from CQ if you have been improvident in keeping up your radio library.

CQ CERTIFICATES:

The WPX Award is granted for two-way contact with certain number of amateurs in different prefixes of the world. Full details are contained in the WPX Record Book which is available for 15c from CQ. Application forms are free.

The WAZ Award is granted for contacting all of the amateur zones of the world. Current standings of amateurs working for this award will be found in the DX column. A DX Zone map of the world is available free from CQ. Send stamped envelope.

TECHNICAL INFORMATION:

Please check the 11-year cumulative index which was published in the January 1956 CQ for information about articles in past issues of CQ. The December 1956 and 1957 CQ yearly indexes will bring you up to date. Most back issues are available at 50c from us. Check our "Back Issue" ad for details on those not available. Reprints of the Cumulative Index are available free. For further information see the Ham Clinic column.

DISCLAIMER:

The authors and editors do the best they can to make everything as correct as possible in the articles. If for any reason any of them should happen to goof we hasten to point out that everything is experimental and we guarantee nothing.

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June, 1958
vol. 14 no. 6

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WAYNE W8YRW



FRANK W8WUN



AL K8BLL

All of these licensed radio amateurs make important contributions to the Heath line of fine ham kits. In a sense, they are your personal representatives within the company, because their design ideas and performance preferences reflect not only their own "on-the-air" experiences, but those of the amateur fraternity with which they are in constant contact. With this kind of representation in Benton Harbor, you can continue to rely on high-performance Heathkit amateur radio equipment designed by hams, for hams!

HEATH *hams work to bring you*



CHUCK K8CJI



ROGER MACE (W8MWZ)
SENIOR HAM ENGINEER
HEATH COMPANY

HEATHKIT 50-WATT CW TRANSMITTER KIT

MODEL DX-20

\$35.95



If high efficiency at low cost in a CW transmitter interests you, you should be using a DX-20! It employs a single 6DQ6A tube in the final Amplifier stage for plate power input of 50 watts. The oscillator stage is a 6CL6, and the rectifier is a 5U4GB. Single-knob band-switching is featured to cover 80, 40, 20, 15, 11 and 10 meters, and a pi network output circuit matches antenna impedances between 50 and 1000 ohms to reduce harmonic output. Designed for the novice as well as the advanced class CW operator. The transmitter is actually fun to build, even for a beginner, with complete step-by-step instructions and pictorial diagrams. All the parts are top-quality and well rated for their application. "Potted" transformers, copper-plated chassis, and ceramic switch insulation are typical. Mechanical and electrical construction is such that TVI problems are minimized. If you desire a good clean CW signal, this is the transmitter for you! Shpg. Wt. 19 lbs.

HEATHKIT "APACHE" HAM TRANSMITTER KIT

- Newly Designed VFO—Provision For S.S.B. Adapter
- Modern Styling—Rotating Slide Rule Dial

MODEL
TX-1

\$229⁵⁰

Shipped motor freight unless otherwise specified. \$50.00 deposit required on C.O.D. orders.



Fresh out of the Heath Company laboratories, the brand-new "Apache" model TX-1 Ham Transmitter features modern styling and is designed as a handsome companion to the also-new Heathkit "Mohawk" receiver. The "Apache" is a high quality transmitter operating with 150 watt phone input and 180 watt CW input. In addition to CW and phone operation, the "Apache" features built-in switch selected circuitry providing for single-sideband transmission through the use of a plug-in external single-sideband adapter. These Heathkit adapters will be available in the near future. A compact, stable and completely redesigned VFO provides low drift frequency control necessary for single-sideband transmission. An easy-to-read slide rule type illuminated rotating VFO dial with vernier tuning provides ample bandsread and precise frequency setting. Simple band-switching control allows flip-of-the-wrist selection of the amateur bands on 80, 40, 20, 15 and 10 meters (11 M with crystal control). The "Apache" features adjustable low level speech clipping and a low distortion modulator stage employing two of the new 6CA7/EL-34 tubes in push-pull class AB operation. Time sequence keying is provided for "chirpless" break-in CW operation.

The final amplifier is completely enclosed in a perforated aluminum shielding for greater TVI protection and transmitter stability. Cabinet comes completely preassembled with top hatch for convenient access without taking chassis out of cabinet. Die-cast aluminum knobs and front panel escutcheons add to the attractive styling of the transmitter. Pi network output coupling matches antenna impedances between 50 and 72 ohms. Incorporates all the refinements necessary with many "plus" features for effective and dependable communications. Shpg. Wt. 115 lbs.

...top quality at lowest prices!

HEATHKIT "MOHAWK" HAM RECEIVER KIT

- All Critical Circuits Prewired and Aligned
- Crystal Controlled Oscillators for Drift-Free Reception

MODEL
RX-1

\$274⁹⁵

Shipped motor freight unless otherwise specified. \$50.00 deposit required on C.O.D. orders.



Outstanding results can be expected with the new "Mohawk" receiver which is designed to combine all the necessary functions required in a high quality communications receiver. A perfect companion for the Heathkit "Apache" transmitter, the "Mohawk" features the same wide-band slide rule type vernier tuning and covers all of the amateur bands from 160 through 10 meters on seven bands with an extra band calibrated to cover 6 and 2 meters using a converter. External receiver powered, accommodations are available for these converters which will be available in Heathkits soon. The "Mohawk" is specially designed for single-sideband reception with crystal controlled oscillators for upper and lower sideband selection. A completely preassembled, wired and aligned front end assures ease of assembly. All critical wiring is done for you insuring top performance. This 15-tube receiver features double conversion with IF's at 1682 kc and 50 kc. Five selectivity positions from 5 kc to 500 CPS. A

bridged T-notch filter is employed for maximum heterodyne rejection. Complete accuracy is obtained with the use of a built-in 100 kc crystal calibrator and the set features 10 db signal-to-noise ratio at less than 1 microvolt input. S-meter and many other fine features built-in for top-notch signal reception. Shpg. Wt. 90 lbs.

HEATH COMPANY

A Subsidiary of Daystrom, Inc.

BENTON HARBOR 12,
MICH.

HEATHKIT PHONE & CW TRANSMITTER KIT



MODEL
DX-40

\$64⁹⁵

The DX-40 incorporates the same high quality and stability as the DX-100, but is a lower powered rig for crystal operation, or for use with an external VFO. Plate power input is 75 watts on CW, permitting the novice to utilize maximum power. An efficient, control-carrier modulator for phone operation peaks up to 60-watts, so that the rig has tremendous appeal to the general class operator also. Single-knob switching covers 80, 40, 20, 15, 11 and 10 meters. Pi network output coupling makes for easy antenna loading, and pi network interstage coupling between the buffer and final amplifier improves stability and attenuates harmonics. A line filter is incorporated for power line isolation. The efficient oscillator and buffer circuits provide adequate drive to the 6146 final amplifier from 80 to 10 meters, even with an 80-meter crystal. A drive control adjustment is provided, and the function switch incorporates an extra "tune" position so that the buffer stage can be pretuned before the final is switched on. A switch selects any of three crystals, or a jack for external VFO. High quality D'Arsonval meter for tuning. Shpg. Wt. 26 lbs.

HEATHKIT DX-100 PHONE & CW TRANSMITTER KIT

MODEL
DX-100

\$189⁵⁰

Shipped motor freight unless otherwise specified. \$50.00 deposit required on C.O.D. orders.

You get more for your transmitter dollar when you decide on a DX-100 for your ham shack! Recognized as a leader in its power class, the DX-100 offers such features as a built-in VFO, built-in modulator, TVI suppression, pi network output coupling to match a variety of antenna impedances from 50 to 600 ohms, pi network interstage coupling, and high quality materials throughout. Copper plated 16-gauge steel chassis, ceramic switch contacts, etc., are typical of the kind of parts you get, in assembling this fine rig. The DX-100 covers 160, 80, 40, 20, 15, 11 and 10 meters with a single band-switch, and with VFO or crystal operation on all bands. RF output is in excess of 100 watts on phone and 120 watts on CW, with a pair of 6146 tubes in parallel for the final amplifier, modulated by a pair of 1625 tubes in parallel. VFO tuning dial and panel meter are both illuminated for easy reading, even under subdued lighting conditions. Attractive front panel and



case styling is completely functional, for operating convenience. Designed exclusively for easy step-by-step assembly. No other transmitter in this power class combines high quality and real economy so effectively. Here is a transmitter that you will be proud to own. Time payments are available! Shpg. Wt. 107 lbs.

more fine ham gear from the pioneer



HEATHKIT GRID DIP METER KIT

A Grid Dip Meter is basically an RF Oscillator used to determine the frequency of other Oscillators, or tuned circuits. Numerous other applications such as pretuning, neutralization, locating parasitics, correcting TVI, adjusting antennas, designing new coils, etc. Features continuous frequency coverage from 2 MC to 250 MC, with a complete set of prewound coils, and a 500 ua panel meter. Has sensitivity control and a phone jack for listening to the "Zero-Beat". It will also double as an absorption-type wave meter. Shpg. Wt. 4 lbs.

Low frequency coil kit: two extra plug-in coils extend frequency coverage down to 350 KC. Shpg. Wt. 1 lb. No. 341-A \$3.00

MODEL GD-1B

\$21⁹⁵

HEATH COMPANY

A Subsidiary of Daystrom, Inc.

BENTON HARBOR 12,
MICH.

HEATHKIT ALL-BAND COMMUNICATIONS-TYPE RECEIVER KIT

Ideal for the short wave listener or beginning amateur, this Receiver covers 550 KC through 30 MC in four bands. It provides good sensitivity and selectivity, combined with fine image rejection. Amateur bands are clearly marked on the illuminated dial scale. Features transformer type—power supply—electrical band spread—antenna trimmer—separate RF and AF gain controls—noise limiter—internal 5½" speaker—head phone jack and AGC. Has built-in BFO for CW reception. An accessory power socket is also provided for connecting the Heathkit model QF-1 Q Multiplier. Will supply 250 VDC at 15 ma

Cabinet: Fabric covered cabinet with aluminum panel as shown part 91-15A. Shpg. Wt. 5 lbs. \$4.95

MODEL AR-3
\$29⁹⁵



ALL-BAND RECEIVER

HEATHKIT ELECTRONIC VOICE CONTROL KIT

Here is a new and exciting kit that will add greatly to your enjoyment in the ham shack. Allows you to switch from Receiver to Transmitter merely by talking into your microphone. Lets you operate "break-in" with an ordinary AM transmitter. A terminal strip is provided for Receiver and speaker connections and also for a 117 volt antenna relay. Unit is adjustable to all conditions by sensitivity and gain controls provided. Easy to build with complete instructions provided. Requires no transmitter or Receiver alterations to operate. Shpg. Wt. 5 lbs.

MODEL VX-1
\$23⁹⁵



ELECTRONIC VOICE CONTROL

HEATHKIT "Q" MULTIPLIER KIT

This fine Q Multiplier is a worthwhile addition to any communications, or Broadcast Receiver. It provides additional selectivity for separating signals, or will reject one signal and eliminate a heterodyne. Functions with any AM Receiver having an IF frequency between 450 and 460 KC that is not AC-DC type. Operates from your Receiver power supply, and requires only 6.3 VAC at 300 ma (or 12.6 VAC at 150 ma), and 150 to 250 VDC at 2 ma. Simple to connect with cable and plugs supplied. Effective Q of approximately 4000 for sharp "peak" or "null". A tremendous help on crowded phone or CW bands. Shpg. Wt. 3 lbs.

MODEL QF-1
\$9⁹⁵



"Q" MULTIPLIER

NOTE: \$10.65 WHEN ORDERED WITH AR-3 BECAUSE OF EXCISE TAX.

...in do-it-yourself electronics!

HEATHKIT "AUTOMATIC" CONELRAD ALARM KIT

Designed to give instant warning whenever a monitored station goes off the air, the CA-1 automatically cuts the AC power to your transmitter, and lights a red indicator. Works with any radio receiver; AC-DC—transformer operated—battery powered, so long as the receiver has AVC. A manual "reset" button is provided to reactivate the transmitter. Incorporates a heavy-duty 6-ampere relay, a thyratron tube, and its own built-in power supply. A neon lamp shows that the alarm is working. Simple to install and connect with complete instructions provided for assembly and operation. Shpg. Wt. 4 lbs.

MODEL CA-1
\$13⁹⁵



"AUTOMATIC" CONELRAD ALARM

HEATHKIT VARIABLE FREQUENCY OSCILLATOR KIT

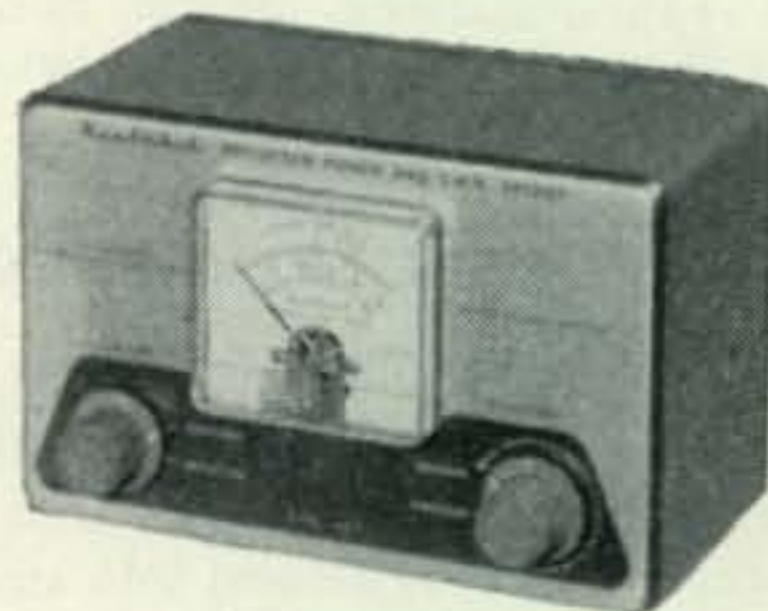
Enjoy the convenience and flexibility of VFO operation by obtaining this fine variable frequency oscillator. It covers 160-80-40-20-15-11 and 10 meters with three basic oscillator frequencies. Better than 10 volt average RF output on fundamentals. Requires 250 volts DC at 15 to 20 ma, and 6.3 VAC at 0.45 a, available on most transmitters. It features voltage regulation for frequency stability, and has illuminated frequency dial. VFO operation allows you to move out from under interference and select the portion of the band you want to use without having to be tied down to only 2 or 3 frequencies through the use of crystals. "Zero in" on the other fellows signal and return his CQ on his own frequency! Shpg. Wt. 7 lbs.

MODEL VF-1

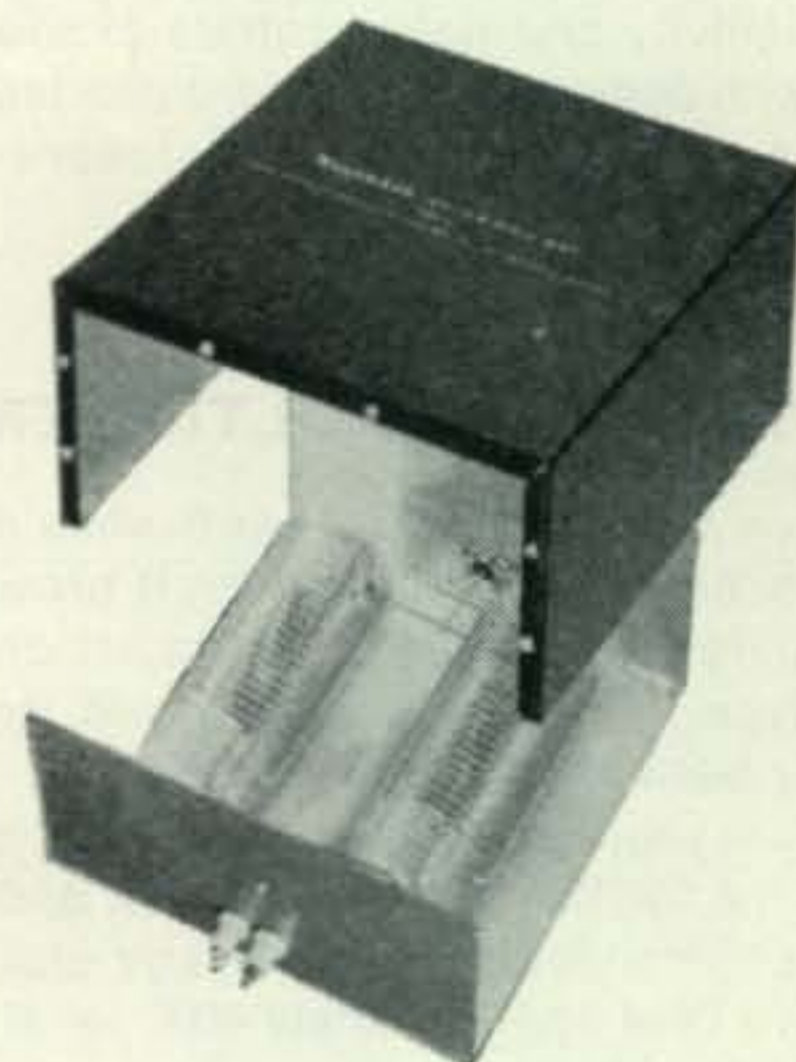
\$19.⁵⁰



VARIABLE FREQUENCY OSCILLATOR



REFLECTED POWER METER



BALUN COIL

HEATHKIT REFLECTED POWER METER KIT

A necessity in every well equipped ham shack, the model AM-2 lets you check the match of the antenna transmission system, by measuring the forward and reflected power or standing wave ratio. Handles up to one kilowatt of energy on all bands from 160 to 2 meters, and may be left in the antenna system feed line at all times. Input and output impedances for 50 or 75 ohm lines. No external power required for operation. Meter indicates percentage forward and reflected power, and standing wave ratio from 1:1 to 6:1. Shpg. Wt. 3 lbs.

MODEL AM-2

\$15.⁹⁵

HEATHKIT BALUN COIL KIT

This convenient transmitter accessory has the capability of matching unbalanced coax lines, used on most modern transmitters, to balanced lines of either 75 or 300 ohms impedance. Design of the bifilar wound Balun Coils will enable transmitters with unbalanced output to operate into balanced transmission line, such as used with dipoles, folded dipoles or any balanced antenna system. Can be used with transmitters and Receivers without adjustment over the frequency range of 80 through 10 meters. Will handle power inputs up to 200 watts. Shpg. Wt. 4 lbs.

MODEL B-1

\$8.⁹⁵

save 1/2 or more . . . with **HEATHKITS**



**FREE
1958
Catalog**

Send for this Free informative catalog listing our entire line of kits, with complete schematics and specifications.

Rush Free 1958 catalog.

HEATH COMPANY

BENTON HARBOR 12, MICH. a subsidiary of Daystrom, Inc.



name _____

address _____

city & state _____

QUAN.	ITEM	MODEL NO.	PRICE

\$ _____ enclosed. Parcel post, include postage—express orders are sent shipping charges collect. All prices quoted are Net F.O.B. Benton Harbor, Mich. and apply to Continental U.S. and Possessions only. All prices and specifications subject to change without notice.

For further information, check number 5 on page 130.



. . . de W2NSD

never say die

That Job at CQ

Quite a few fellows have applied for the position that is open at CQ, but we are holding things open for just a bit longer to make sure that all interested have an opportunity to make a try for it.

Briefly, here is the score. We need a young fellow with an avid interest in ham radio and a varied background in the hobby who will be working largely in the CQ lab at building equipment, running the ham station, and testing new equipment as it comes out. There will be some traveling to hamfests and to visit manufacturers, so a car is important. We hope to have W2NSD on the air daily for skeds and for the use of visiting hams from all over the world by fall.

Salary starts up to \$5000, depending upon experience. Drop a letter to "Slave Department" with your qualifications.

Good Bye 160

While the HQ gang was busy writing editorials denouncing me for suggesting that we may lose some of our frequencies unless we get on the ball, the FCC was busy grinding out legislation taking away half of our 160 meter band. Effective May 10th the frequencies 1875-1925 kc are no longer available for amateur use.

But that wasn't all. A couple days later they served up a real bombshell. In a "Memorandum opinion and order" the FCC orders that effective immediately all amateur bands above 220 mc will be on a shared basis with government services rather than exclusive. They go on further to say that, "In general, the Government operations which must be accommodated will utilize extremely high power. In many instances these operations will also be mobile. Therefore, there will be a very high probability that the Government operations in certain instances will cause harmful interference to other services operating in the same frequency bands. Moreover, because of the vital national defense considerations involved, non-Government services operating in certain bands would have to protect the Government operations from harmful interference."

[More on page 10]

FRESNO DX CONVENTION



Norm Wasson, W6NNV, President of the Southern California DX Club officiated at the California interclub awards presentations.

Gordon Marshall, W6ITA, won the most valuable-player-award, which they call the "DXer" award. Here he is presented the cup by Norm.



"Phasemaster II-A"

IMPROVED AND ADVANCED OPERATING FEATURES

SSB or DSB suppressed carrier or with carrier, PM and CW.

6146 power amplifier delivers 65 PEP watts output, giving sufficient power to drive nearly all types of linear amplifiers INCLUDING grounded grid finals.

Calibrate control allows variable control of signal for zero beating VFO to receiver frequency or TOF (talk on frequency.)

Voltage Regulation of 6146 Screen and 9MC OSC.

Temperature compensating condensers in critical 9MC circuit for improved stability.

FRONT PANEL OPERATING CONTROLS

Emission switch with 5 positions for selecting CW PM — AM or DSB — Sideband 1 — Sideband 2

Indicator Switch —

Position 1. Tuning eye indicates R.F. output.

Position 2. Tuning eye indicates when flattopping occurs.

Valuable aid for tuning up on AM and as a Distortion indicator for SSB.

"Phasemaster II-A" complete **\$329.50**

"Bandhopper" VFO complete **\$139.50**

P-400 Grounded Grid Linear Amplifier **\$269.50**

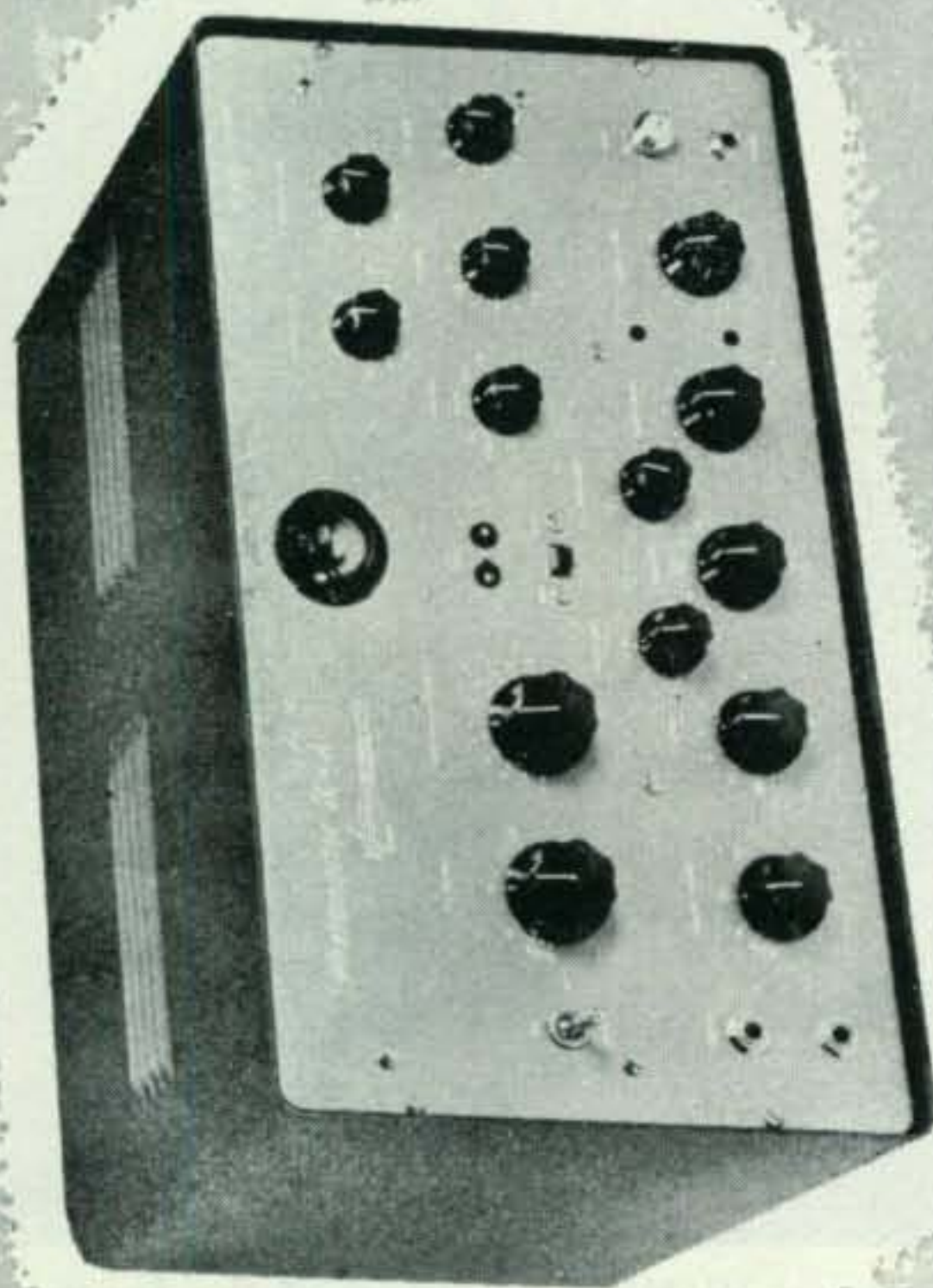
Price and design subject to change without notice.

See Your Dealer or Write Today

Lakeshore INDUSTRIES

MANITOWOC, WISCONSIN

MANUFACTURERS OF PRECISION ELECTRONIC EQUIPMENT



ALL BAND OPERATION

For further information, check number 6 on page 130.

'2NSD [from page 9]



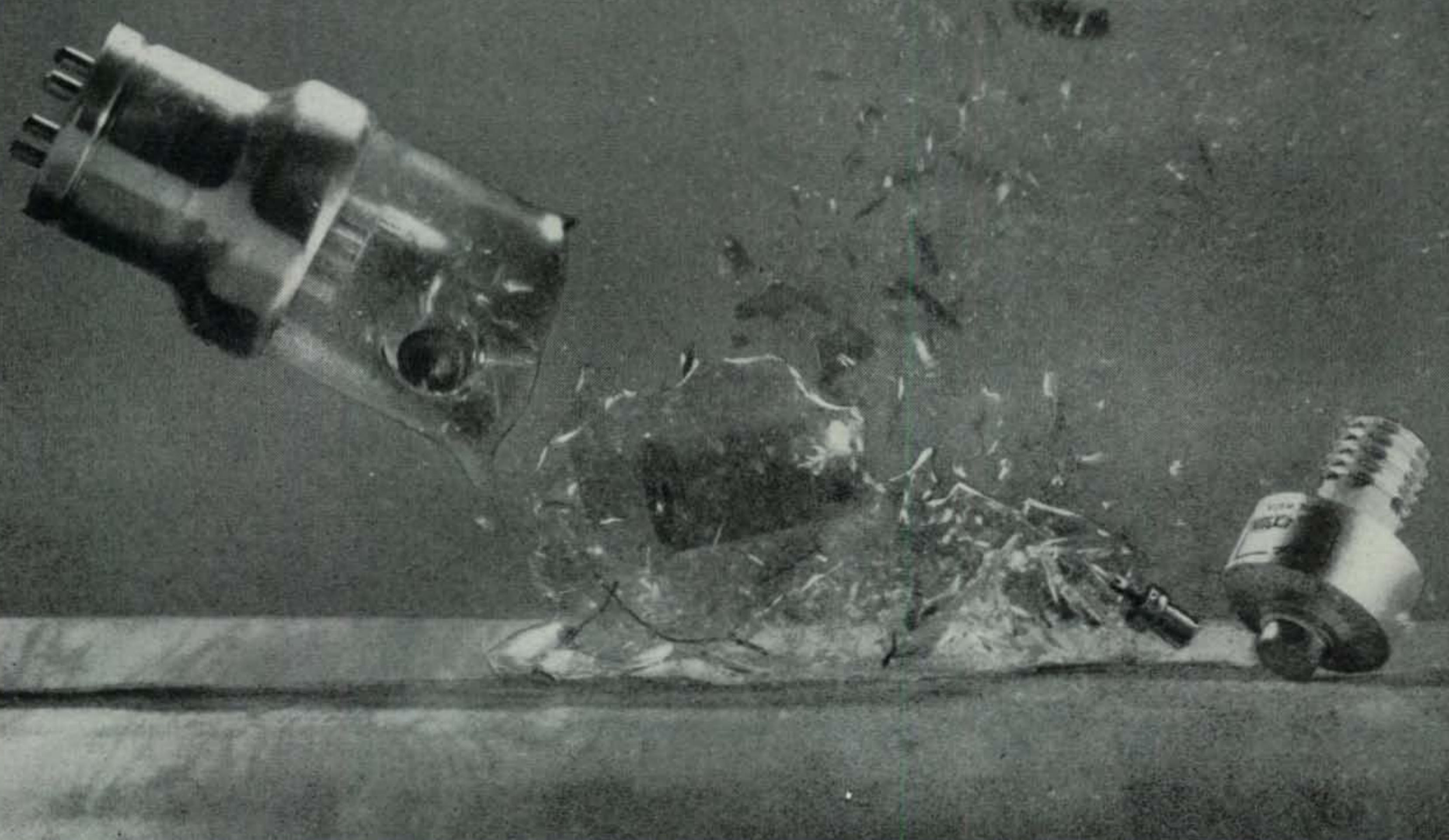
Toastmaster was John Knight, W6YY

Lloyd Colvin, W6KG was awarded CQ's WPX Certificate #1 for being the first to submit proof of contact with 300 different prefixes, as described in the January 1957 CQ.



What does this mean? The language of the edict is pretty clear . . . our VHF bands are going to be filled with megawatt radar and scatter circuits and they don't want any interference from us. It is unfortunate that we were unable to even salvage a few exclusive frequencies in these bands. The present lack of interest in 220 mc stems from the 50 watt

[Continued on page 108]



Surviving Impact is an Eimac Ceramic Tube Extra

Modern Eimac ceramic tubes offer the equipment designer many important extras. Among them is the ability to withstand impact without impairing electrical characteristics. The photograph dramatically shows what happens to a 250 watt glass envelope tube and an Eimac 300 watt ceramic tube when both are dropped from a height of seven feet. The ceramic tube "took it".

Other advantages of Eimac ceramic tubes are: resistance to damage by vibration and temperature; smaller size without sacrificing power; ability to undergo optimum processing techniques that lead to tube reliability and longevity.

The small Eimac ceramic 4CX300A, shown above, will withstand 50G shocks of 11 millisecond duration. It will operate in mobile or fixed station service at full ratings up to 500mc.

In its new line of ceramic tubes, Eimac has the answer for the amateur who needs a tube that will deliver full output under rugged conditions.

EITEL-McCULLOUGH, INC.
S A N B R U N O • C A L I F O R N I A

Eimac First with ceramic tubes that can take it

For further information, check number 7 on page 130.



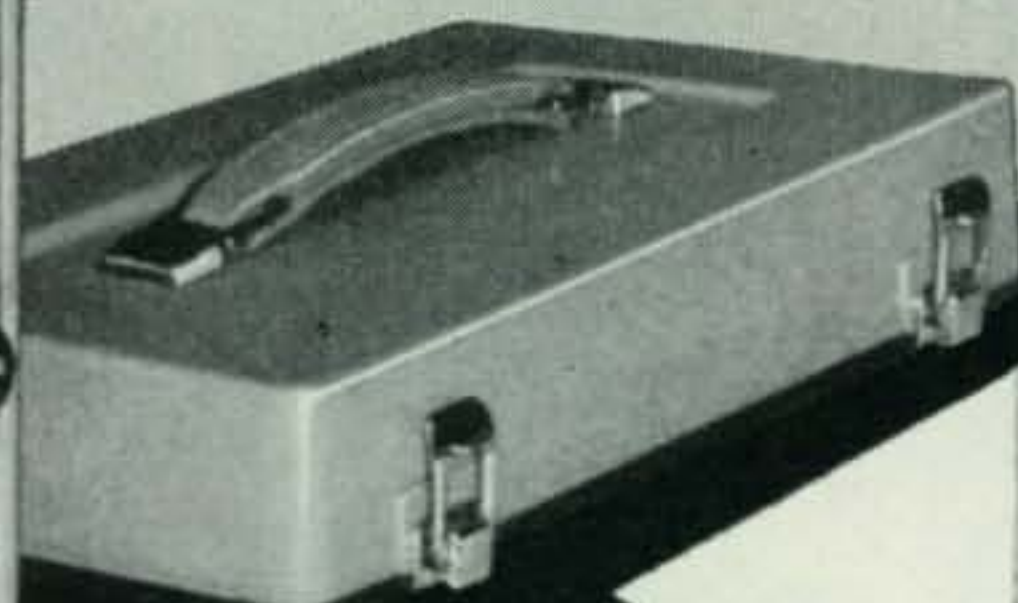
4CX300A MAXIMUM RATINGS TO 500MC

	FM	AM	SSB		FM	AM	SSB
D-C Plate Voltage	2000	1500	2000	Plate Dissipation Watts	300	200	300
D-C Screen Voltage	300	300	400	Screen Dissipation Watts	12	12	12
D-C Grid Voltage	-250	-250	.....	Grid Dissipation Watts	2	2	2
D-C Plate Amperes . . . . .	.250	.200	.250				

New!

hallicrafters

"2 and 6"



SR-34

two and six meter
transmitter/receiver

World's first complete two and six meter radio station... features transistorized, built-in power supply

COMPLETE SPECIFICATIONS

General description: The SR-34 is designed for either AM or CW and combines, for the first time in one compact package, the complete functions of a two *and* six meter radio station. It operates on 115-V. A.C., 6-V. D.C., or 12 V. D.C. and features a highly efficient transistorized power supply for the 6 and 12 volt operation.

Exclusive features: The perfect unit for short-range portable, fixed or mobile communication, the SR-34 meets—and exceeds—F.C.D.A. matching-fund specifications. The crystal sockets and transmitter tuning controls are concealed behind a panel which may be sealed to prevent tampering. Instantaneous selection of desired voltage possible and also "crossbanding" between the two and six meter bands. The specially designed cover has mounting clips for two-band antenna, owner's microphone, and cords.

Both receiver and transmitter may be used for C.W.; key jack and adjustable B.F.O. are provided. Drip-proof case is specially designed for safe outdoor use.

The transmitter is crystal-controlled; up to four crystals may be switch-selected. A fifth position on this switch permits external V.F.O. operation. Band selection also is front-panel controlled.

The receiver is a double conversion superhetero-

dyne, having a quartz crystal controlled second oscillator. This offers outstanding selectivity and high image rejection. Highest stability is obtained through separate oscillator and R.F. sections for each band.

All receiver functions provided—S-meter B.F.O., ANL, etc. Sensitivities average 1 microvolt on both bands. Transistorized power supply eliminates noisy, erratic operation encountered with vibrator-type power supplies.

Front Panel Controls: *Receiver:* Band Selector (49-54 mc., 143.5 to 148.2 mc.); Main Tuning; Sensitivity; Audio Volume; B.F.O. Pitch; Squelch Level; Headphone Jack. *Transmitter:* Function Switch (P.A., Rec., Cal., AM, CW); Power On/Off; Band Switch; Crystal Selector and V.F.O.; Oscillator Tuning; Doubler Tuning; Tripler Tuning; Final Tuning; Final Loading; Meter Switch.

Power output: 6 to 7½ watts on 2 meter, and 7 to 10 watts on 6 meter AM or CW, 100% mod. negative peak clipping. *Rear Apron:* Speech input level control; key jack; P.A. speaker terminals; mic. selector (high Z or carbon); mic. input; A.C. and D.C. fuses; power plug.

Available with convenient terms from your Radio Parts Distributor.

Export Sales: International Operations—Raytheon Manufacturing Co.—Waltham, Massachusetts

The new ideas in communications

are born at . . .



In our 25th year of service

hallicrafters

Chicago 24, Illinois

ASK ONE OF THESE DISTRIBUTORS ABOUT...

hallicrafters "2 and 6"

SR-34

two and six meter
transmitter/receiver



CALIFORNIA:

Berkeley: Electronics Supplies
Burbank:
Hagerty Radio Supply
Valley Electronic Supply Co.
Culver City:
Bill Thompson Radio Supply Division
of General Termionics Corporation
El-Monte: Kimball & Stark
Hemet: Gil Severns Amateur Dist.
Long Beach: Scott Radio Supply
Los Angeles:
Henry Radio
Radio Products Sales
Oakland: Elmar Electronics
Palo Alto: Zack Radio Supply Company
San Diego: Radio Parts Co.
San Francisco:
North California Amateur Supply
San Francisco Radio & Supply Co.
Zack Radio Supply Company

COLORADO:

Denver: Radio Product Sales Co.

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DISTRICT OF COLUMBIA:

Washington, D.C.:
Electronic Wholesalers, Inc.

FLORIDA:

Miami: Electronic Supply
Tampa: Kinkade Radio Supply Inc.

ILLINOIS:

Chicago:
Allied Radio Corp.
Newark Electric Co.
Genoa: Crawford's Hardware
Peoria: Selectronics Supplies Inc.

INDIANA:

Fort Wayne:
Warren Radio Co.
Indianapolis:
Graham Electronic Supply, Inc.

IOWA:

Council Bluffs:
World Radio Laboratories, Inc.
Davenport: TCR Distributors
Des Moines: Bob and Jack's Store for Hams
Fort Dodge: Ken-Els Radio Supply Co.

MARYLAND:

Baltimore: Wholesale Radio Parts Co., Inc.

MASSACHUSETTS:

Boston:
DeMambro Radio Supply Co.
Radio Shack Corp.

MICHIGAN:

Detroit:
Crandall Wholesale Company
M. N. Duffy & Co.
Reno Radio

MINNESOTA:

Minneapolis: Electronic Center, Inc.

MISSOURI:

Butler: Henry Radio Stores
Kansas City: Radiolab Inc.
St. Louis: Walter Ashe Radio Co.

NEW HAMPSHIRE:

Concord: Evans Radio, Inc.

NEW JERSEY:

Camden: General Radio Supply Co.
Mountainside: Federated Purchaser, Inc.
Newark: Hudson Radio

NEW YORK:

Albany:
Fort Orange Radio Distributing Co., Inc.
Amsterdam: Adirondack Radio Supply
Buffalo: Genesee Radio & Parts Co., Inc.
Jamaica: Harrison Radio Corp.
Mineola: Arrow Electronics, Inc.
New York:
Arrow Electronics, Inc.
Harrison Radio Corp.
Harvey Radio Co., Inc.
Hudson Radio
Terminal Radio Corp.
Rochester: Rochester Radio Supply Co., Inc.

NORTH CAROLINA:

Winston-Salem:
Dalton-Hege Radio Supply Co., Inc.

OHIO:

Cleveland:
Pioneer Electronic Supply Co.
Radio Electronics Parts Corp.
Columbus: Universal Service
Dayton: Custom Electronics
Toledo: Selectronic Supplies, Inc.

OREGON:

Portland: United Radio Supply Inc.

PENNSYLVANIA:

Allentown:
A. A. Peters, Inc.
Federated Purchasers, Inc.
Elkins Park: A G Radio Parts Company
Lancaster: George D. Barbey Co., Inc.
McKeesport: Barno Radio Co.
Philadelphia: Radio Electric Service Co.
Pittsburgh: Tydings Co.
Reading: George D. Barbey Co., Inc.
Wilkes-Barre: Shelborne Electronics, Inc.
York: Wholesale Radio Parts Co., Inc.

RHODE ISLAND:

Providence: DeMambro Radio Supply Co.
W. H. Edwards Co., Inc.

SOUTH DAKOTA:

Watertown: Burghardt Radio Supply

TENNESSEE:

Memphis: W & W Distributing Company

TEXAS:

Dallas: Crabtree's Wholesale Radio
Ft. Worth:
Bill Sutton's Wholesale Electronics
Houston:
Busacker Electronic Equipment Co., Inc.
San Antonio: Modern Electronics Company
Victoria: Lavender Radio & TV Supply

VIRGINIA:

Arlington: Key Electronics

WASHINGTON:

Tacoma: C & G Radio Supply Company

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Fond du Lac: Harris Radio Corp.
Madison: Satterfield Electronics
Milwaukee: Amateur Electronic Supply



The new ideas in communications

are born at . . .

In our 25th year of service

hallicrafters

Chicago 24, Illinois

For further information, check number 8 on page 130.

FREE



An FCC License can be Your
Guarantee of Success in Electronics.

Get your FCC Commercial License
— or your money back

The Master Course in Electronics will provide you with the mental tools of the electronics technician and prepare you for a First Class FCC License (Commercial) with a radar endorsement. When you successfully complete the Master Course, if you fail to pass the FCC examination, you will receive a full refund of all tuition payments.

HERE'S PROOF:

Name and Address	License	Time
John H. Johnson, Boise City, Okla.	1st	20 weeks
Prentice Harrison, Lewes, Del.	1st	27 weeks
J. A. Niedeck, Bethlehem, Pa.	2nd	8 weeks

WE CAN PROVIDE NAMES IN YOUR AREA ON REQUEST

EMPLOYERS MAKE OFFERS LIKE THIS:

Letter from nationally-known Airlines: "Radio Operators and Radio Mechanics are needed for our company. Periodic wage increase with opportunity for advancement. Many company benefits."

OUR TRAINEES GET JOBS LIKE THIS:

"Since enrolling with Cleveland Institute I have received my 1st class license, and am now Chief Engineer of Station WAIN. Thanks to the Institute for making this possible."

Lewis M. Owens, Columbia, Ky.

Successful
Electronics
Training



MAIL COUPON TODAY
AND RECEIVE ALL
2 BOOKLETS

FREE

Accredited by National
Home Study Council



Cleveland Institute of Radio Electronics
Carl E. Smith, Consulting Engineer, President
Desk CQ-41, 4900 Euclid Ave., Cleveland 3, Ohio

Please send Free Booklets prepared to help me get ahead in Electronics. I have had training or experience in Electronics as indicated below:

- | | |
|---|---|
| <input type="checkbox"/> Military | <input type="checkbox"/> Broadcasting |
| <input type="checkbox"/> Radio-TV Servicing | <input type="checkbox"/> Home experimenting |
| <input type="checkbox"/> Manufacturing | <input type="checkbox"/> Telephone Company |
| <input type="checkbox"/> Amateur Radio | <input type="checkbox"/> Others |

In what kind of work are you now engaged?.....

In what branch of Electronics are you interested.....

Name Age.....

Address

City Zone..... State.....



Feenix, Ariz.

Deer Hon Ed:

It are reely trewly that there are no substoot for eggspereyance. How are that saying going: Once bitten, you looking twice before leeping? Or is it: If you not looking where you going, try, try again? At any rates, you knowing what I meening.

Never again will I being so stoopid. Ackchewally anybuddy could seeing the hole thing not for reel, but it looking so good when you first reeding it. On the other hand, everything coming out hunky-dunky, even if only on acct. somebuddy else not looking before he burning his bridges.

It starting when I looking over the male one day. Are not getting much, just for radio catalogs and ate or ten bills, and this letter. It not reely a letter, but more like an ad. It offering honest-to-goodness do it yourself kit to bilding for-toob broadcast reseever. Price of compleet kit are ninety-ate sents, but they insisting that only because no parts are already assembled—bilder having to do everything himself. Howsumever, they also insisting that all material are there to bilding for-toob reseever except for cabinet.

Well, Hon. Ed., how can Scratchi go rong at ninety-ate sents!! So, sending off order. Funny name for company, though. It are the Rob M. Good Kit Company, Inc. I are feeling so good about bargan are sending hole one bux to them and telling them keeping the change.

Bred cast on the waters!! Cupple days later getting letter saying thanks for order and on acct. of extra two sents they sending me cabinet for for-toob reseever as extra bonus for promptness.

Not to many days later my reseever kit are coming in male. Under where address label being are little note saying that wooden box that kit packed in are also cabinet for reseever, and to taking care when opening so not to re-

[Continued on page 16]

Transistor Power Supplies* and Components

* Complete Units

D SERIES (Standard)

Continuous operation at 30 watts. Selective taps at 200, 250 and 300 volts; intermediate voltage at 1/2 selective taps. Both voltages can be drawn simultaneously if total power does not exceed continuous ratings. Positive or negative ground operation. Input and output filtering included except for intermediate tap.

Size: 4 3/8" x 3 1/4" x 1 1/8" Wt.: 10 oz. 6- or 12-V Input: **\$39.95** 24-V Input: **\$61.95**

DA SERIES

Continuous operation at 45 watts. 450 volts and 225 volts simultaneous if total power does not exceed continuous ratings. Intermittent duty to 90 watts, 450 volts at 150 MA; 225 volts at 100 MA (5 min. on, 20 min. off). Positive or negative ground operation. Input (primary voltage) filtering; partial high voltage filtering provided.

Size: 4 3/8" x 3 1/4" x 1 1/8" Wt.: 14 oz. 6- or 12-V Input: **\$57.50** 24-V Input: **\$79.50**



Toroid Transformers for Transistor Power Supply Application

H SERIES

H-6-450-1 Input: 6-VDC. Output: 450-VAC center tapped... 450 and 225 VDC from bridge rectifier... 45 watts.

H-14-450-12 Input: 12/14-VDC. Output: 450-VAC center tapped... 450 and 225-VDC from bridge rectifier... 55 watts.

H-28-450-15 Input: 24/28-VDC. Output: 450-VAC center tapped... 450 and 225-VDC from bridge rectifier... 65 watts.

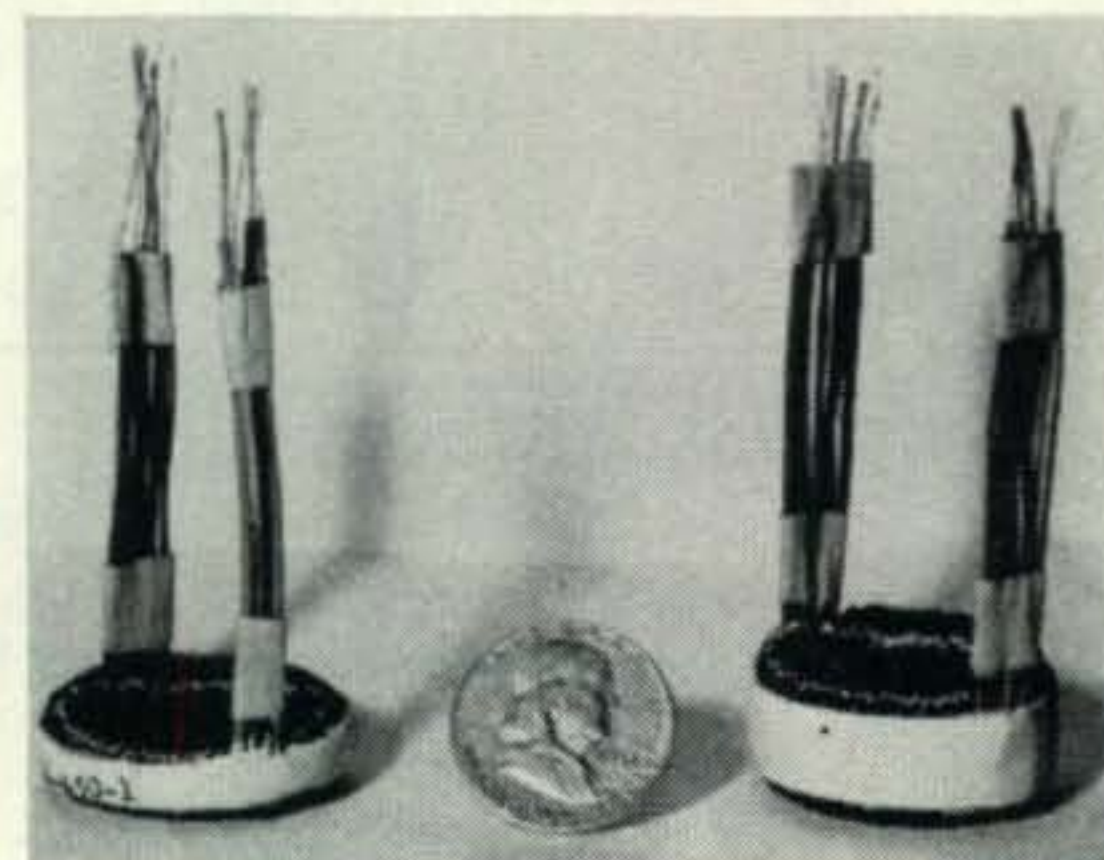
H-6-100-125-150-D Input: 6-VDC. Output: Voltage doubler configuration. Secondary tapped for either 100, 125 or 150-VAC. DC Output: 200, 250 or 300-V at 100 MA.

H-12-100-125-150-D Input: 12/14-VDC. Output: Voltage doubler configuration. Secondary tapped for either 100, 125 or 150-VAC. DC Output: 200, 250 or 300-V at 125 MA.

H-24-100-125-150-D Input: 24/28-VDC. Output: Voltage doubler configuration. Secondary tapped for either 100, 125 or 150-VAC. DC Output: 200, 250 or 300-V at 150 MA.

Without Encapsulation (2 ozs.). 1-10 units: **\$16.00** ea.

With Encapsulation (3 ozs.). 1-10 units: **\$16.50** ea.



HD SERIES - 2000 CPS

HD-14-225-300-2-D Input: 12/14-VDC. Output: Voltage doubler configuration. Secondary tapped for either 225 or 300-VAC. DC Output: 450 or 600-V at 200 MA.

HD-28-225-300-2-D Input: 24/28-VDC. Output: Voltage doubler configuration. Secondary tapped for either 225 or 300-VAC. DC Output: 450 or 600-V at 200 MA.

Without Encapsulation (3 1/2 ozs.). 1-10 units: **\$18.50** ea.

With Encapsulation (4 1/2 ozs.). 1-10 units: **\$21.50** ea.

HDS SERIES - 2000 CPS

HDS-14-225-300-3-D Input: 12/14-VDC. Output: Voltage doubler configuration. Secondary tapped for either 225 or 300-VAC. DC Output: 450 or 600-V at 300 MA.

HDS-28-225-300-3-D Input: 24/28-VDC. Output: Voltage doubler configuration. Secondary tapped for either 225 or 300-VAC. DC Output: 450 or 600-V at 300 MA.

Without Encapsulation (3 1/2 ozs.). 1-10 units: **\$21.50** ea.

With Encapsulation (4 1/2 ozs.). 1-10 units: **\$24.50** ea.

400 CYCLE SERIES

14-115-1.5-400 Input: 12/14-VDC. Output: 115-V at 1.5 amp.

24-115-1.5-400 Input: 24/28-VDC. Output: 115-V at 1.5 amp.

Dim: 3" dia. x 1" thick. Without Encapsulation (12 ozs.).

With Encapsulation (16 ozs.). Per Unit: **\$76.00**.

Matched Pair HD Transistors:

12/14-V operation—**\$11.00** per pr.

24/28-V operation—**\$21.00** per pr.

OEM Prices on Request

All fully performance tested, 100% guaranteed. Manufactured by makers of world-famous SUNAIR H.F. Aviation Transceivers.

SUNAIR ELECTRONICS, INC.

Broward County International Airport
Fort Lauderdale, Florida, U.S.A.

SUNAir
ELECTRONICS, INC.

For further information, check number 11 on page 130.

June, 1958 • CQ • 15

"the best by Test!"

TAPETONE CONVERTERS

2 METER SERIES

Power Gain: 2000 (33db) Noise Figure: 2.8 db; .085 microvolts will produce a 2 to 1 signal to noise ratio when used with a 5KC bandwidth I.F.
Power Requirements: Tube Complement: 417A/5842, 6BQ7A, 6CB6, and 12AT7
a. 6.3V @ 1.3a
b. +150V DC @ 60 ma. regulated.
60 db Image rejection, 80 db I.F. rejection and 80 db down on all other spurious responses.

Model XC-144 I.F. Tuning Range 14 to 18 mc

Model XC-144-C I. F. Tuning Range 26 to 30 mc

Model XC-144-N I.F. Tuning Range 30.5 to 34.5 mc

Model XC-144-CE Special European Converter

RF Input Range: 144-146 mc I.F. Tuning Range 28-30 mc

PRICE \$84.95

XC-144-C4 Special Converter with Dual Crystal Oscillator and toggle switch for Collins 75A4 and similar receivers. I.F. Tuning Range 28-30 mc; Covers Complete 2 Meter Band.

PRICE \$89.95

TC-108 VANGUARD

Noise Figure: 2.1 db
RF Input: 108 mc
I.F. Output: 14.4 mc
All other specifications, the same as XC-144 Series

PRICE \$95.00

6 METER SERIES

with RF Gain Control to Reduce Mixer Overloading

Power Gain: 2000 (33db) Noise Figure: 4 db; .1 microvolt will produce a 2 to 1 signal to noise ratio when used with a 5KC bandwidth I.F.
Power Requirements: Tube Complement: 6BQ7A, 6BQ7A, 6CB6, and 12AT7
a. 6.3V @ 1.2A
b. +150V DC @ 30 ma. regulated

90 db Image rejection, 80 db I.F. rejection and 80 db down on all other spurious responses.

Model XC-50 I.F. Tuning Range 14 to 18 mc

Model XC-51 I.F. Tuning Range 10 to 14 mc

Model XC-50-C I. F. Tuning Range 26 to 30 mc

Model XC-50-N I.F. Tuning Range 30.5 to 34.5 mc

PRICE \$64.95

XC-50-C4 Special Converter with Dual Crystal Oscillator and toggle switch for Collins 75A4 and similar receivers. I.F. Tuning Range 28-30 mc Covers Complete 6 Meter Band.

PRICE \$69.95

TC-40 Special Russian Satellite Converter
Noise Figure: 3.2 db
RF Input: 40 mc
I.F. Output: 14.4 mc
All other specifications, the same as XC-50 Series

PRICE \$75.00

Specifications that are the same on all models:

Input Impedance: 50-75 ohms nominal
Output Impedance: 50 ohms nominal

Dimensions: 9½" x 5" x 2½" shielded base. Maximum seated tube shield height 2¼". Net weight 2½ pounds.

New Regulated Power Supply

Model PSR-150 available price **\$49.95**

Model PSR-150 Kit Form price \$39.95

TAPETONE, INC.

10 ARDLOCK PLACE, WEBSTER, MASS.

For further information, check number 10 on page 130.

SCRATCHI [from page 14]

wining cabinet. Only they not telling how to opening.

Howsumever, I trying. Finely figyuring box are naled shut, but on acct. not finding where are Hon. Nails, finely sawing off end of box. First thing are finding inside are instruckshuns on how to opening box. Are little made at this point so not reeding them.

Inside are finding—and, Hon. Ed., please understanding this are everything, but everything, I finding—one hunk glass about size and shape of egg; one peece of iron quarter-inch thick by to by for inches; one hank of wire about number ateteen; one roll fricksun tape; one glob of cleer plastic; one squeeze toob of enamel; and, instrucksun book which are sixteen pages messy mimeo.

Amazed? Hon. Ed., I are too flabbergasted to flip. Where are the toobs? Where are the toob sockets? Where the I-F cans, the resistors, the condensers . . . in fackly, where are the kit I are paying a fortshun for?

I evidently yelling S-9 on acct. Hon. Brother Itchi coming in shack to seeing if I killing myself, and after I explaneing, he sitting down and reeding instruckshun book. After while he suggesting I do samelike, so I starting to reed instruckshun book.

Hon. Ed., you are not, repeeting not, going to buleeving me. You are having to making your own toobs!! All parts there, they clameing, and they referring you to cupple good books on desineing vacuum toobs.

How about I-F coils, a-c cord, even resistors? Making your own. Plenty of wire included. Of course you having to draw it out to thinner wire, and coating it with enamel, or winding on plastic to making resistors, or covering with frickshun tape to making a-c cord.

What's the plastic for? You using that for bareings for variable condenser, resistor forms, toob sockets—except you having to melt the plastic and mold it to parts you needing. Same-like the hunk of metal—you making condenser plates, chassis, toob sockets and such-like.

Well, I are just getting ready to sitting down and riting reel red-hots letter to Rob M. Good Kit Company, Inc. when telephone ringing. It are another amchoor, a reel smart fellers you not knowing and I wishing I like you, not knowing him ether.

He asking what new, and I telling him I bying kit I can't putting together, and he saying that's on acct. I stoopid, and anyway, Hon. Ed., to making long story end happily, he betting me ten bux he can putting kit together in no more than to weeks.

So, here I am, sadder but richer, and Scratchi are now in market for honest-to-goodness for-toob reseever kit that I can put together. Willing to pay as much as \$9.98 bux. Any ideas?

Respectively yours,
Hashafisti Scratchi

DUAL and TRIPLE CONVERSION! SINGLE SIDEBAND!



New

HAMMARLUND HQ-170

Another great new receiver from Hammarlund—an outstanding SSB amateur receiver offering the best features of the finest SSB converters and hottest amateur receivers—all wrapped up in a single, beautiful superheterodyne receiver.

Telechron Timer \$10.00 extra

- 17-tube superheterodyne
 - Dual and triple conversion
 - 6, 10, 15, 20, 40, 80 and 160-meter amateur bands.
 - 60 db adjustable notch filter
 - Separate vernier tuning
 - Selectable upper, lower or both sidebands.
 - 100 KCS crystal calibrator
 - Fast attack selectable AVC
- and everything else to make it the most tremendous thing that ever happened to amateur SSB reception and at a price that beats them all!

Write For
Complete Details...

only **\$359⁰⁰**



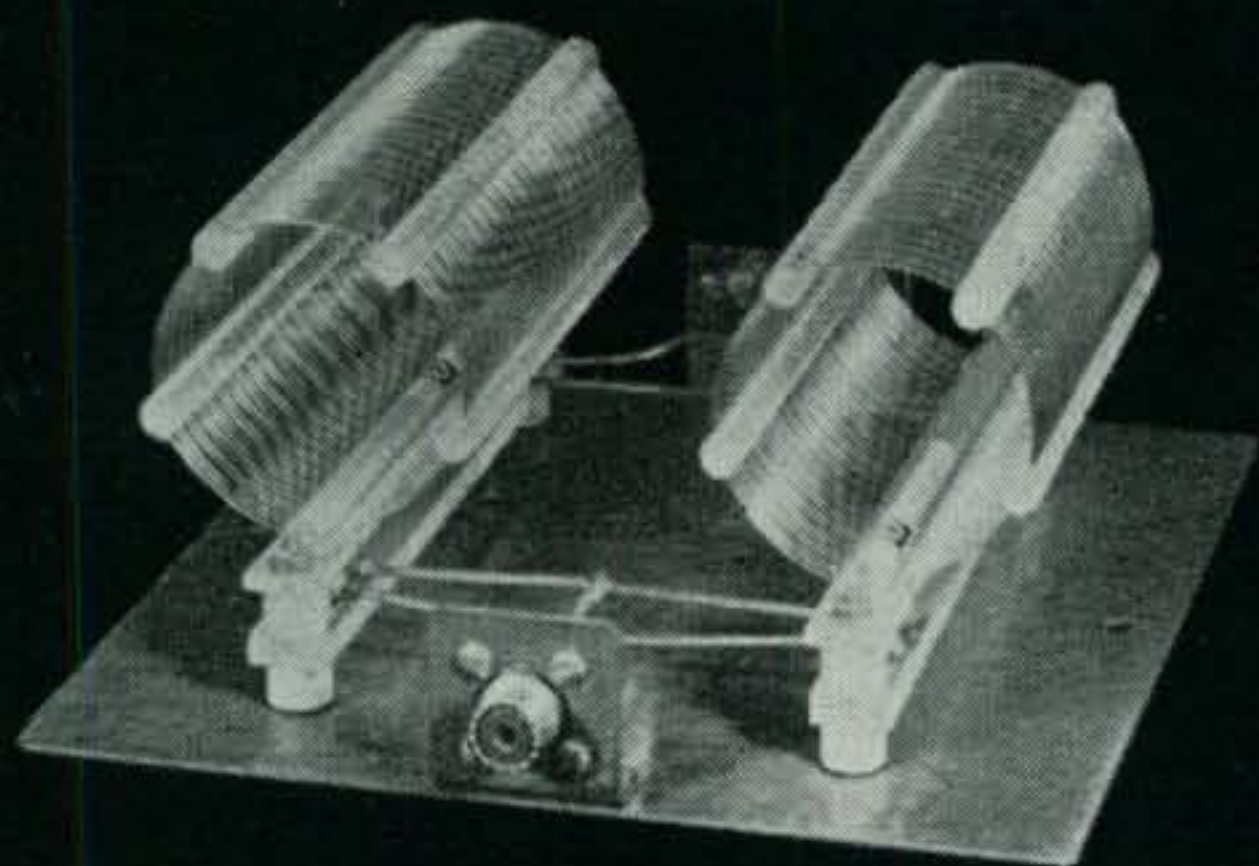
HAMMARLUND

MANUFACTURING COMPANY, INC.
460 West 34th Street, New York 1, N. Y.

In Canada: White Radio, Ltd., 41 West Ave., N. Hamilton, Ont.

For further information, check number 9 on page 130.

air dux BALUN



The air dux[®] Balun is used for impedance matching in both transmitters and receivers without adjustment from 10 through 80 meters.

SPIRAL WRAP[™]



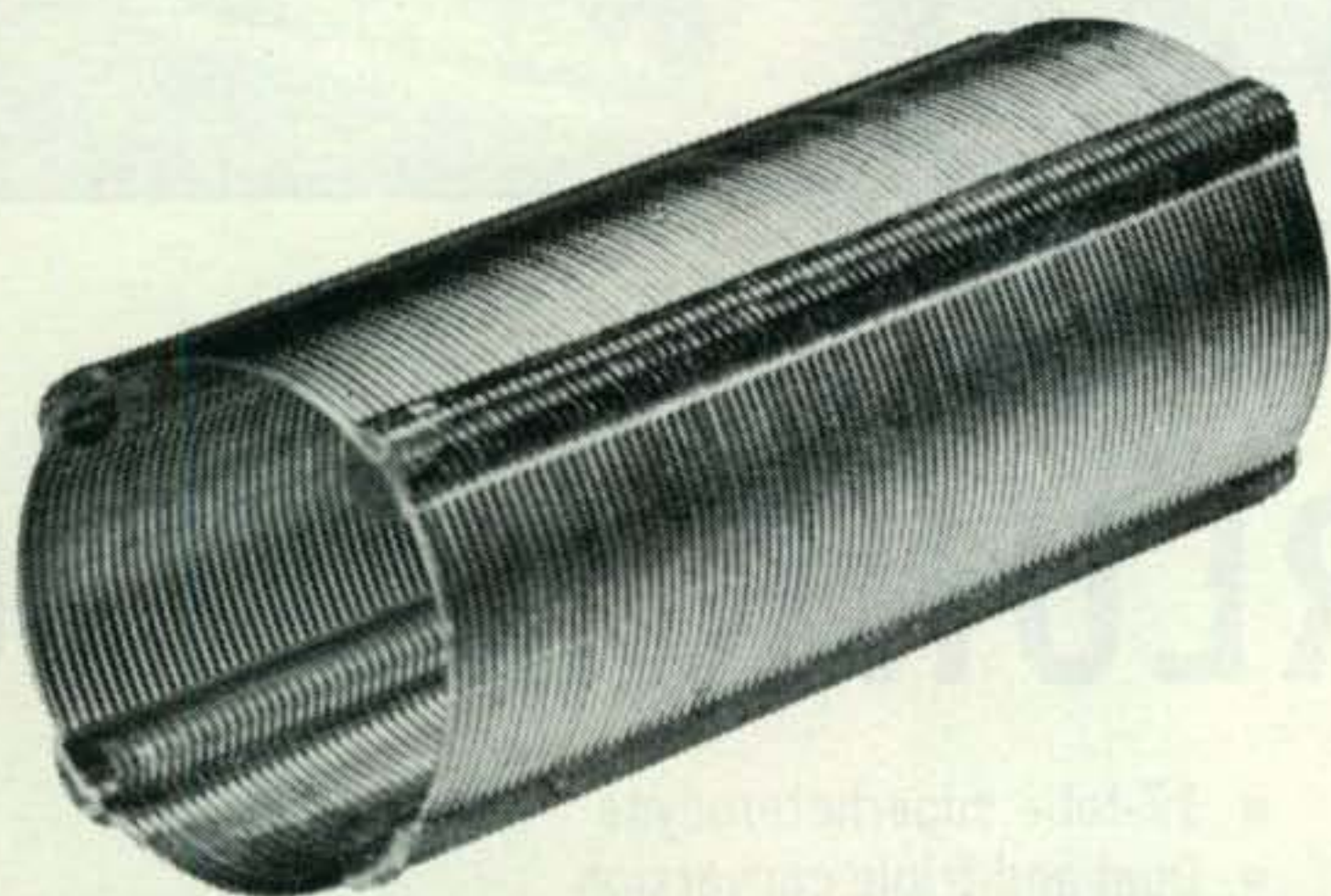
Spirally cut polyethylene tubing for easy cable harnessing and a multitude of other uses. Available in various lengths in $\frac{1}{4}$ " and $\frac{3}{8}$ " O.D. both expandable up to 2". Four different colors for color coding. Spiral Wrap is available in other materials for hi-heat applications. Inexpensive and easy to use.

products by **illumitronic engineering**



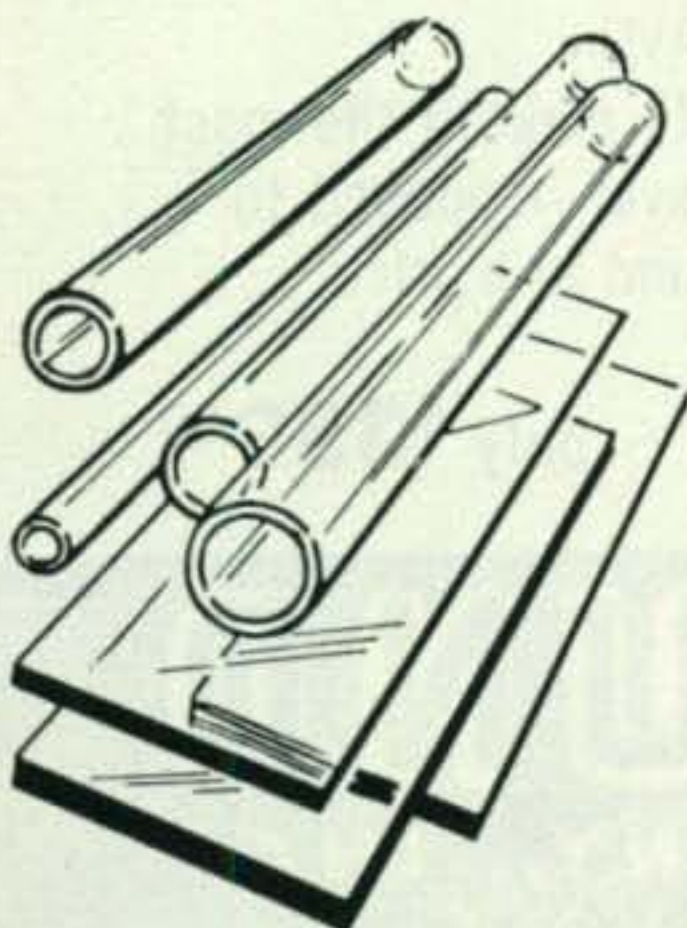
sunnyvale, california

air[®] dux



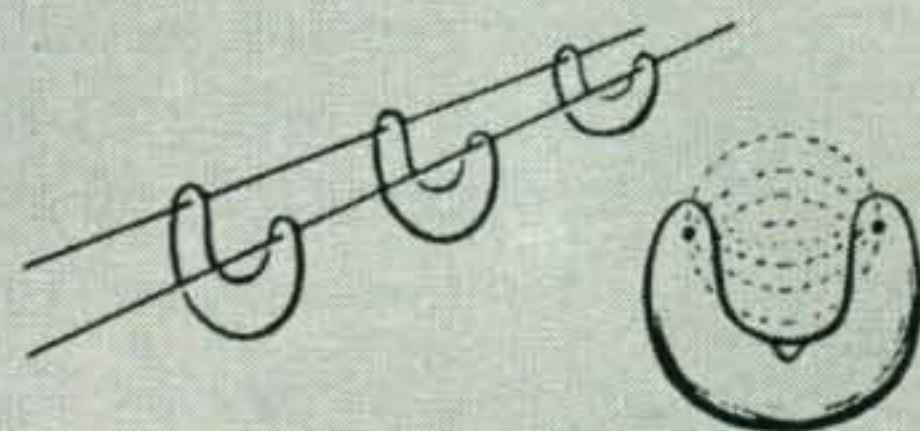
a complete and versatile line of air wound coils for the amateur. For use in pi networks, interstage, oscillator, and LC tank circuits. Manufactured from the finest materials, and crafted with expert workmanship. Available in a wide range of diameters from $\frac{1}{2}$ inch to 3 inches, and lengths from 2 inches to 10 inches.

PLASTICS FOR ELECTRONICS



The widest selection of plastics for electronics use. Sheets, rods, and tubing in acrylic, polystyrene, polyethylene, phenolic, Teflon, Nylon, and Kel-F; all in a large choice of sizes. Easy to cut and fabricate for an endless number of uses.

SILVER U-LINE[®]



$\frac{1}{2}$ " spaced open-wire transmission line. Solid copper wire with pure silver sheath and FORMVAR coated. Exclusive OUT-FIELD spacer cuts losses by keeping dirt and moisture out of maximum field. The ideal LADDER LINE[®] for all RF frequencies. Other types of LADDER LINE[®] are also available... Price 6.3 cents per foot.

For further information, check number 12 on page 130.

THE BROADBAND TWINS



**THE REVOLUTIONARY NEW 100V
EXCITER-TRANSMITTER**

NO TUNING (except VFO), uses famous CE BROADBAND system. PRECISION LINEAR VFO—1KC Calibration. Single Knob Bandswitch 80 thru 10. SSB—DSB—AM—PM—CW and FSK. RF Output adjustable 10 to 100 Watts PEP. Meter reads Watts Input, Amps Output and Carrier Suppression. 2" RF Scope. Speech Level and Load Mismatch Indicators. Audio Filter — Inverse Feedback — 50 db Carrier and Sideband Suppression.

IN PRODUCTION SOON.....PRICE \$595.00



**FAMOUS MODEL 600L
BROADBAND LINEAR**

NO TUNING CONTROLS — CE BROADBAND Couplers in HIGH EFFICIENCY CLASS AB² using single 813. Easily driven to 600 Watts PEP Input 160 thru 10 by a 20A or 100V. Built-In HEAVY DUTY POWER SUPPLY — 45 MFD PAPER Capacitor. Meter reads WATTS INPUT, GRID DRIVE, RF AMPS, and SWR. Completely shielded — TVI suppressed — parasitic free. REMEMBER there is LESS than ONE S UNIT difference between the 600L and a 2 KW PEP job.PRICE \$495.00

MODEL 20A



**THESE MULTIPHASE EXCITERS
PIONEERED AMATEUR SSB**

MODEL 10B — 10 watts PEP. Plug-in coils 160 thru 10 meters. Perfect voice control on SSB—DSB—AM and PM — CW breakin; Carrier and calibrate level controls. 40 DB suppression.

Wired.....\$179.50 Kit.....\$139.50

MODEL 20A — 20 watts PEP. Bandswitched 160 thru 10 meters. SSB—DSB—AM—PM and CW. Magic eye monitors carrier null and peak modulation. Ideal for driving AB₁, AB₂, and most Class B linears.

Wired.....\$279.50 Kit.....\$219.50

MODEL 10B



MODEL GC-1. Gated Compression Amplifier. Connects between receiver and speaker. Automatically brings all received signals to same level—no blasting. Compensates for receiver AVC deficiencies. Compresses a 40 db increase in level to less than 3 db. Magic Eye continuously monitors compression value. Keep peace with your family and neighbors — buy a GC-1.

KIT....\$49.50 Wired....\$59.50

MODEL MM-2. 3" RF analyzer scope for use on SSB—DSB—AM—PM and CW. MONITORS RECEIVED AND TRANSMITTED SIGNALS thru new electronic switching circuits. NO TUNING — BROADBAND response 1MC to 55MC at power levels of 5 watts to 5 KW. SIMPLE CONNECTIONS. Built-in 1KC oscillator for exciter alignment. Plug-in IF adapters available for 450-500 KC, 80 KC and 50 KC.

IF adapter RM-455 or RM-80 or RM-50\$9.95
MM-2 (less adapter) wired.\$129.50
Kit\$99.50



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EQUIPMENT

Central Electronics, Inc.

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MULTIPHASE
THE OVERWHELMING
CHOICE OF HAMS
EVERYWHERE

For further information, check number 13 on page 130.

HEAVY DUTY MOBILE BASE MOUNTS

NEW!

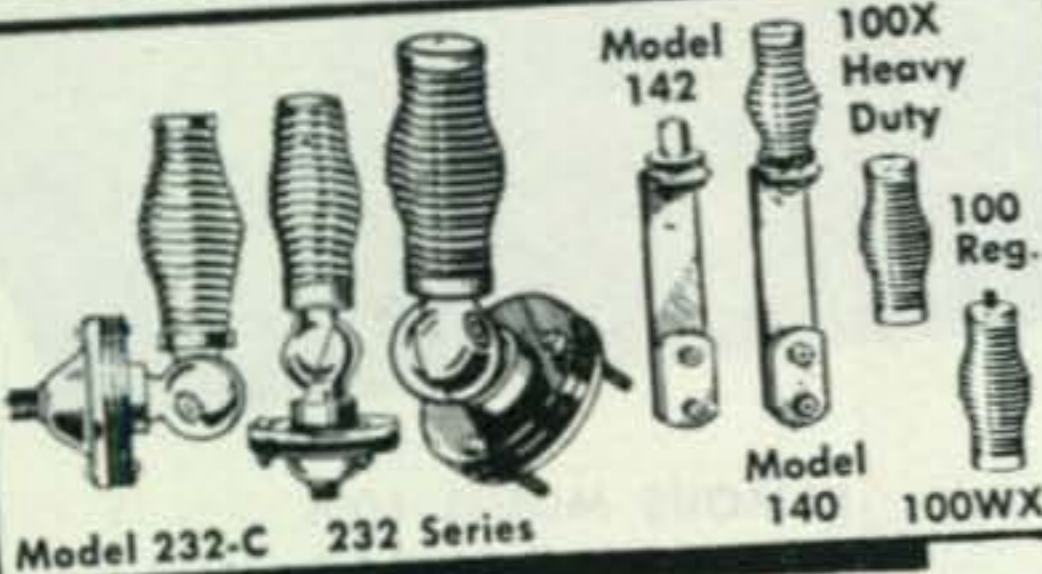


MMW-3AE

MMW-3APS

Engineered for Greater Performance

The last word in modern design for strength and service in universal swivel bases. Easy installation, mounts watertight on any surface. With template. Positive locking, any position. Ebony Finish \$6.95 Polished Finish \$7.95
 Ebony Finish, S. S. Hardware \$8.95
 Polished Finish, S. S. Hardware \$9.25



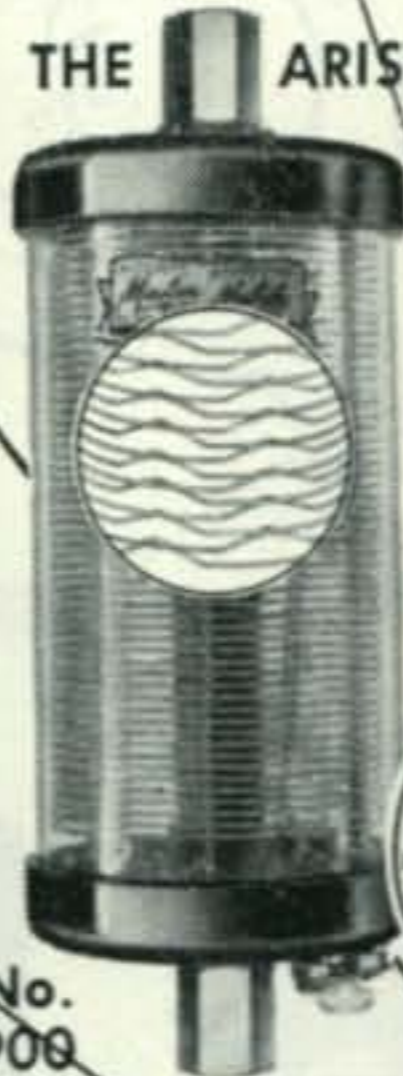
Model 232-C 232 Series

Model 140 100WX

NEW MULTI-BAND ANTENNA COILS

New Plug-In type coils for the Ham, designed to operate with a standard 3' base section and standard 5' whip

THE ARISTOCRAT



No. 900

10-15-20-40-75 METERS

THE VICTORY



No. 999

10-15-20 METERS

- Rigidly tested & engineered—found to have "Q" of 525
- Handles 500 Watts input
- Operates into a 52-ohm cable
- Positive contact—noise-free, trouble-free operation
- Weathersealed
- Factory pre-tuned—no adjustments needed

YOUR CHOICE

Amateur Net

\$14.95

Now! 2 New Coils... just plug in and presto! your coil is ready for operation on the desired band! No switches, no sliding contacts, no loose connections. Built and pre-factory tested in Master Mobile's own laboratories.

Leaders in the Design and Manufacturing of Mobile Communication Equipment & Antennas

NEW! from Master Mobile

NEW HEAVY DUTY MOBILE SPRINGS



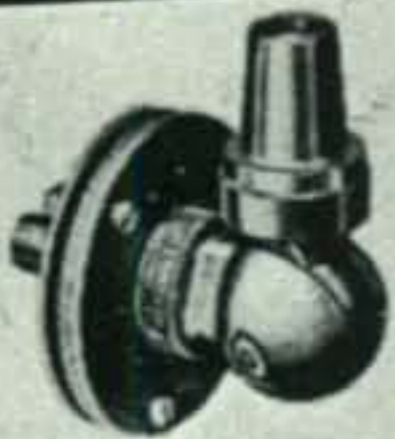
MMW-7

MMW-7SS

PROTECTS YOUR MOBILE ANTENNA

Heavy duty flexible mounting spring mounts on the base and holds the antenna. Special flexible "give" spring prevents sharp impacts and breakage. Lockwashers included.

MMW-7 Cad. plated, black painted ends \$4.50
 MMW-7HC Heavy Cad. plated—Extra Protection \$5.50
 MMW-7SS Deluxe Stain. Steel \$8.95



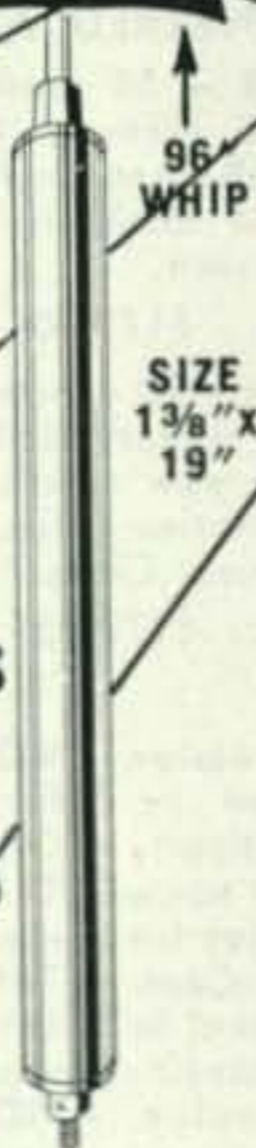
No. 321 BODY MOUNT

Swivel base body mount, less spring. Specially constructed diagonal ball joint for maximum strength. Amateur Net \$7.95

NEW! SLIM-JIM ALL-BAND BASE LOADING ANTENNA COIL

FOR 10 11 12 15 20 40 80 METERS

NO. B-1080



96" WHIP

SIZE 1 3/8" x 19"

Positive action, just slide whip in or out to loading point and lock nut into position. \$17.95

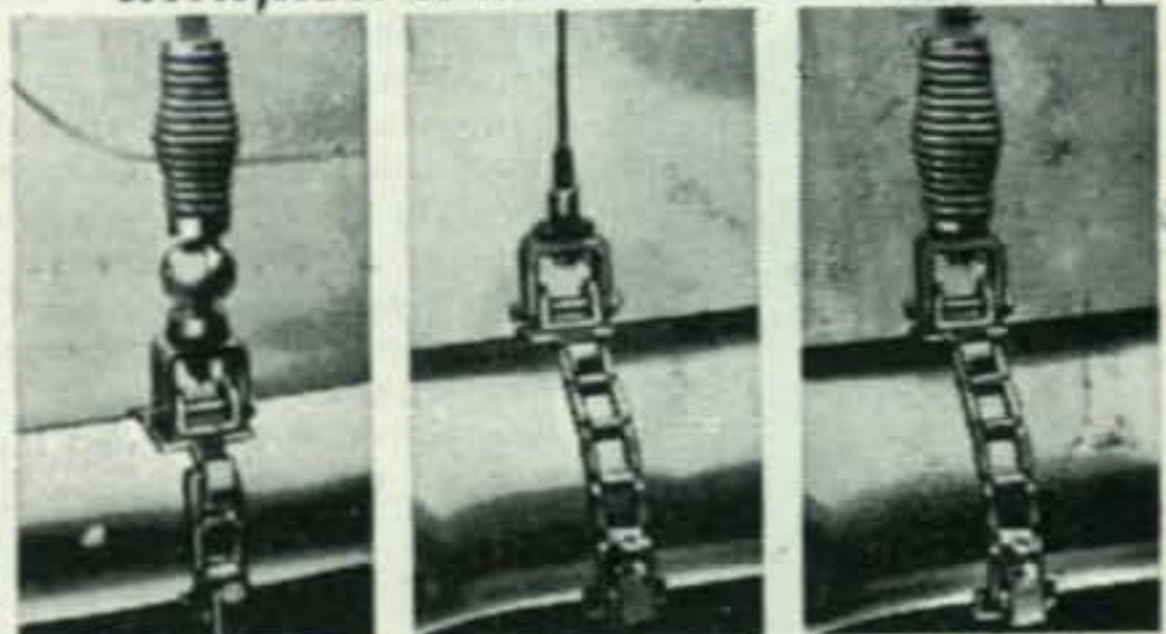


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6 or 12 volt models \$24.95

Automatically tunes the entire band from the drivers seat!

BUMPER MOUNTS WITH NEW X-HEAVY DUTY CHAINS



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No. 445 \$7.95

No. 446 \$13.45

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The Finest in

TRANSMITTERS • RECEIVERS AND MATCHED ACCESSORIES

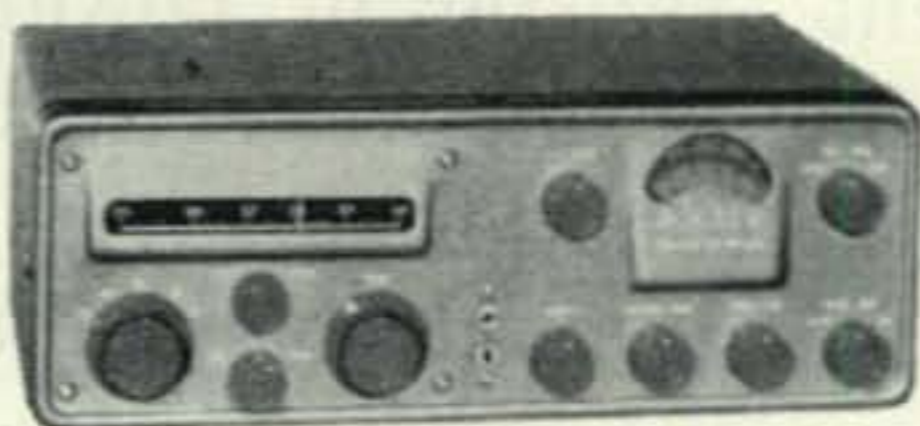


RAP 250S POWER SUPPLY
AC power supply; dual speakers.
\$41.50

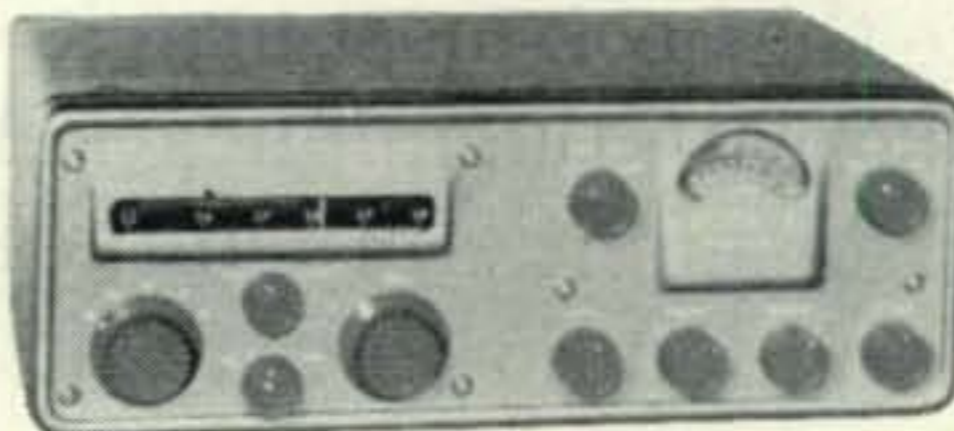


RVP 260 POWER SUPPLY
Vibrator power supply powers MB-6 Receiver and MB-565 Exciter.
\$44.75

RVP 260B POWER SUPPLY
Same as RVP 260 but also provides 75-V. regulated bias for MB-565 modulator.
\$49.95



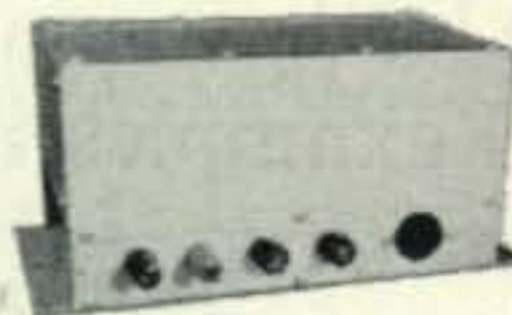
MB-565 TRANSMITTER
Covers 80-40-20-15 and 10-meter bands. 60 watts AM.
\$249.50



MB-6 RECEIVER
13 tubes; 80-40-20-15 and 10-meter bands.
\$239.50



RTS 600S POWER SUPPLY
For 115-volt AC operation of MB-565 and MB-6.
\$107.50



TV 600A POWER SUPPLY
High voltage vibrator, 6 or 12 volt operation.
\$79.50



SH 7 SPEAKER

5" x 7" size; metal case.
\$11.50

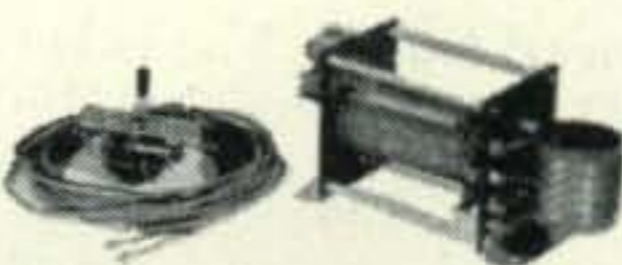
MK-N1 MIKE



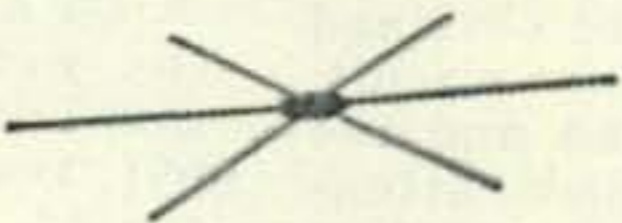
Push-to-talk carbon mike.
\$16.95



FS-1 FIELD STRENGTH METER
\$19.50



MLV 50, 6-12 ANTENNA TUNER
Remote control. Motor driven. 75-80, 40-20-15-10 meter bands.
\$24.95

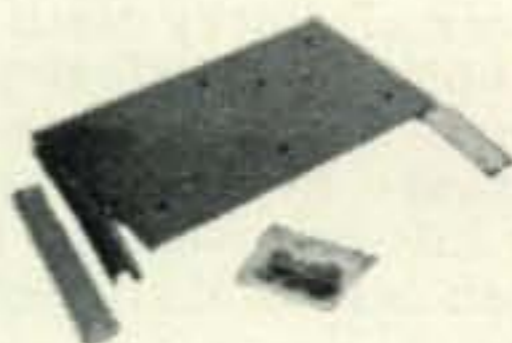


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Tuned circuit "hash" filter. Atten. generator noise, brush sparking.
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CHAPTER 2—*Impedance-Matching Devices.* Various types of impedance-matching transformers and how they are connected. Problems such as reflected impedance are discussed. Special emphasis placed on cathode-follower circuitry with numerous examples showing how optimum performance can be obtained from this important impedance-matching circuit. Various resistance networks are discussed and the more complex lattice-or-bridge types of pads, attenuators between unequal impedances and reactive networks.

CHAPTER 3—*Impedance-Matching at Audio Frequencies.* The relationship of the output tube to the

speaker, multi-match transformers, multiple speaker installations, impedance-matching in modulation systems, and microphones-to-line or-grid relationships.

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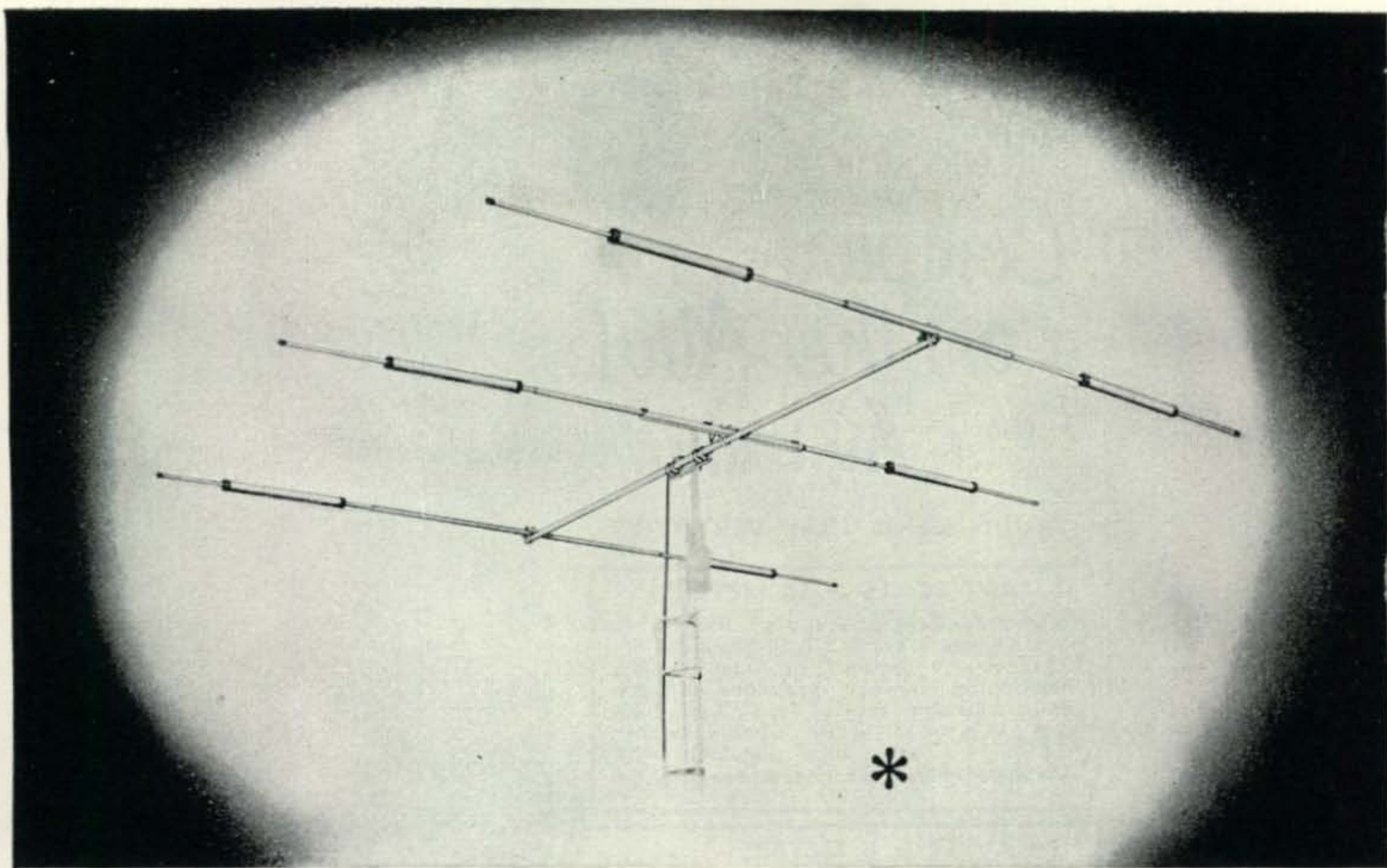
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Model TA-33

Beautifully constructed 3 element beam for operation on 10, 15 or 20 meters. Forward gain is 8db, front-to-back is 25db, and SWR is 1.5/1. Maximum element length is 28 ft. and weighs only 47 lbs. Boom is just 14 ft.

\$99.75

Model TA-32

Similar to Model TA-33, but has 2 elements operating on 10, 15 and 20 meters. Forward gain is 5.5db, front-to-back is 20db and SWR is 1.5/1. Featuring a short boom of just 7 ft. and max. element length of 28 ft. Weight is 34 lbs. Converts to Model TA-33.

\$69.50

Model V-4-6

This low cost, high performance vertical antenna covers all bands from 10 thru 40 meters. Requires little space and may be mounted on ground or roof-top. Low SWR and band switching is automatic. Loading coil available for 80 M.

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WØGFQ



Leo Says:
**Compare
on the Air!**
the **Hy-gain**

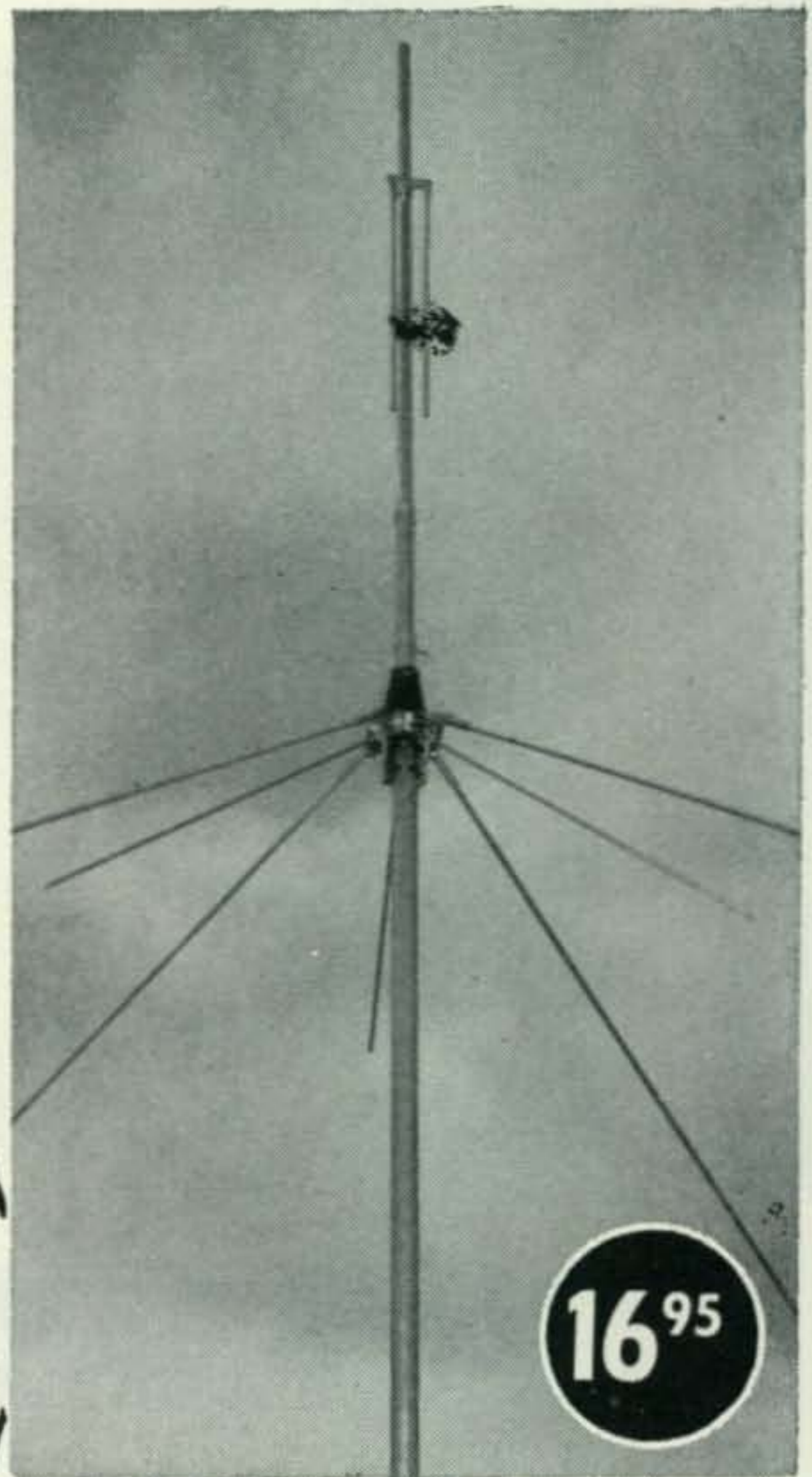
MULTI-BAND TRAP VERTICALS

12-AV (10, 15 & 20 METERS)

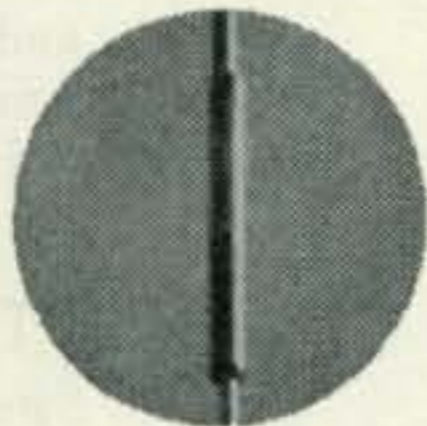
For automatic coverage of the 10, 15 and 20 meter bands. Insu-Traps isolate the various sections of this vertical, developing $\frac{1}{4}$ -wave resonance on each band. 52 ohm coaxial feed. Less than 2:1 SWR on all bands. Overall height: 14 ft. No "guesswork" assembly with step-by-step construction manual.

26-AV (2 & 6 METERS)

The Automatic Vertical for the 2 and 6 meter bands, with the new "sleeve decoupling" principle. Complete with ground plane. Overall height of Vertical and length of ground plane: 5 ft. Less than 2:1 SWR both bands. 52 ohm coax feed. Complete instructions.



16⁹⁵

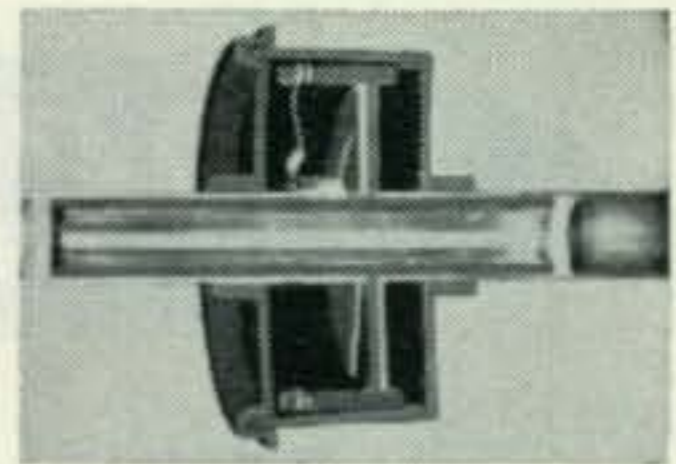


DECOUPLING SLEEVE

Radically new Decoupling Sleeve automatically isolates various sections of the 26-AV, developing $\frac{1}{4}$ -wave resonance on each band. Complete ground plane is also dual resonant for both bands. Totally unaffected by weather; extremely efficient at high frequencies.

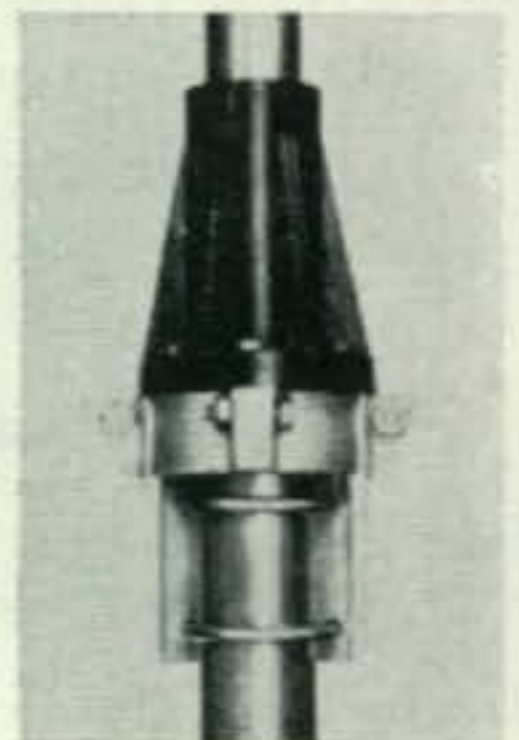
INSU-TRAP

Acting as insulator at resonant frequencies, but allowing radio energies of other frequencies to pass freely. Automatic switch action isolates various sections of the vertical to make them proper length for each band. Mechanically and electrically stable. Entire trap circuit enclosed in carbon activated polyethylene cover and cap. Completely weatherproof, air tight.



BASE

Nylon base assembly makes possible self-support. Cast aluminum mounting bracket and adjustable for various sizes of masts, with weather protected internal coaxial fitting. Electrical connections factory sealed.



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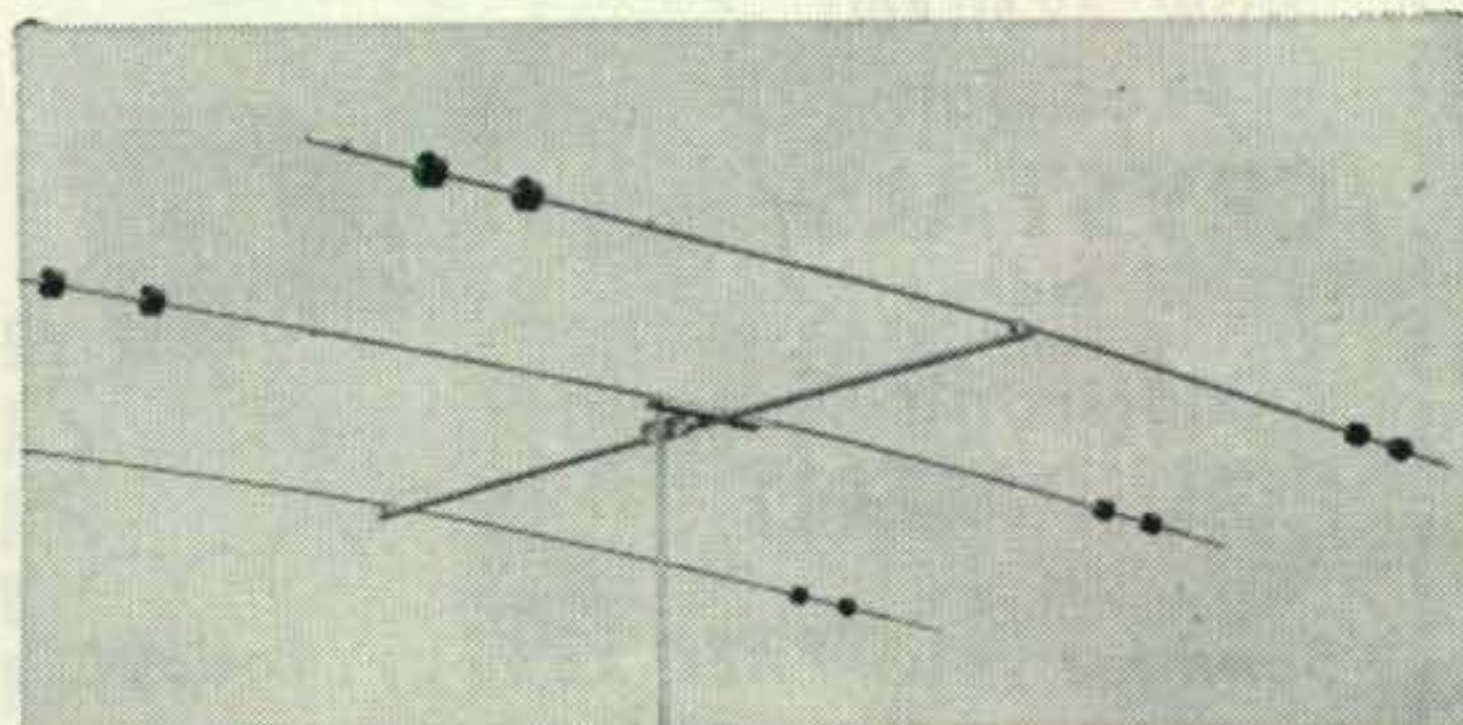
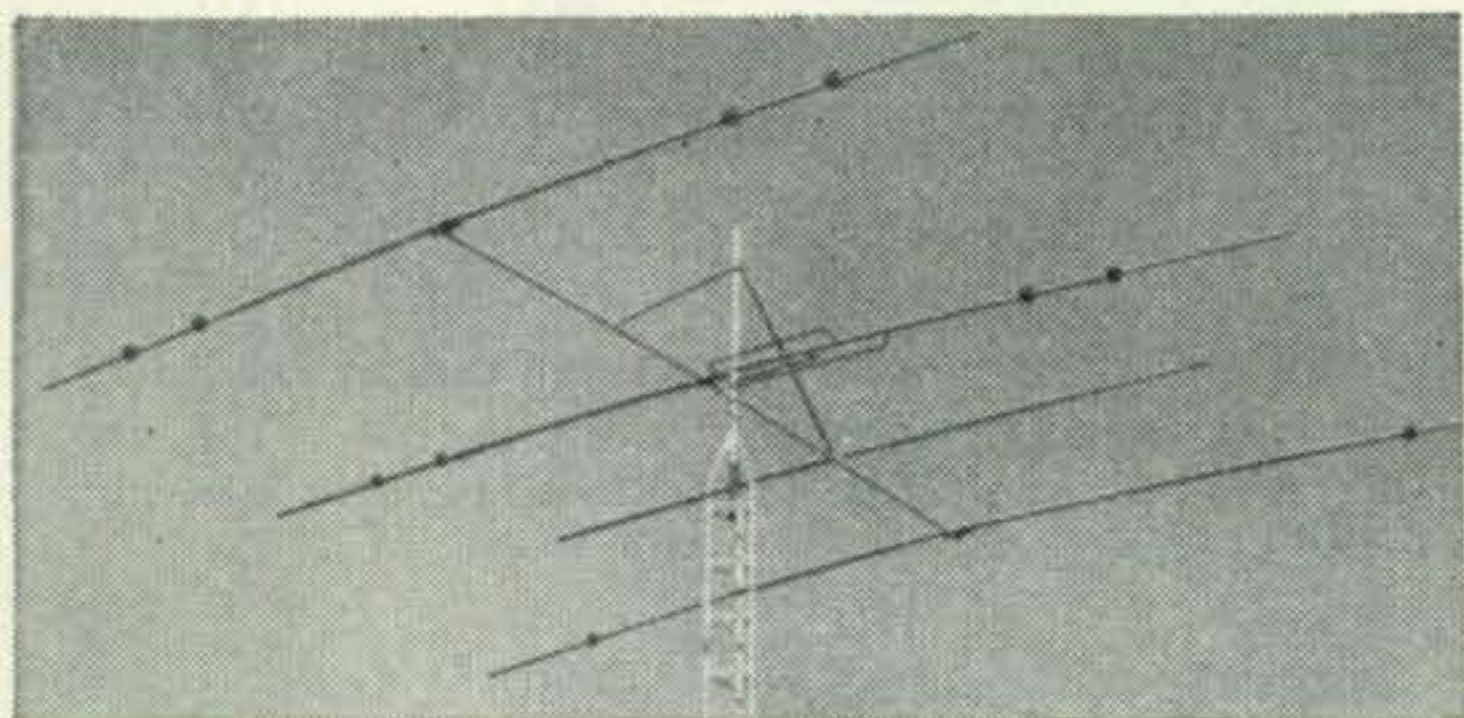
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THESE GREAT SERIES OF

Hy-gain trap tribanders

the FULL-SIZE trap tribanders

the NEW mini-tribanders



the 3-element trap tribander

the 3-element mini-tribander

99⁷⁵

The 3-Element Tribander shown above is now considered as the standard of performance in the field of amateur communications. F/B Ratio: approx. 25 db. Forward gain: 8 db. average.

Extremely lightweight, only 39.8 lbs. Turning radius: 13'10", installable almost anywhere, yet boasting many features of the full-size line. Hy-gain top quality performance guaranteed.

69⁹⁵

the 2-element trap tribander

the 2-element mini-tribander

69⁵⁰

For use in limited space when top quality transmission is desired on 10, 15 & 20M. Single transmission line. F/B Ratio: approx. 18 db. Forward gain: 5.8 db. average.

Practically a featherweight; — only 33.8 lbs., easily one-man installed in the shortest possible time and nearly anywhere. Turning radius: 12'11". Top features at minimum cost.

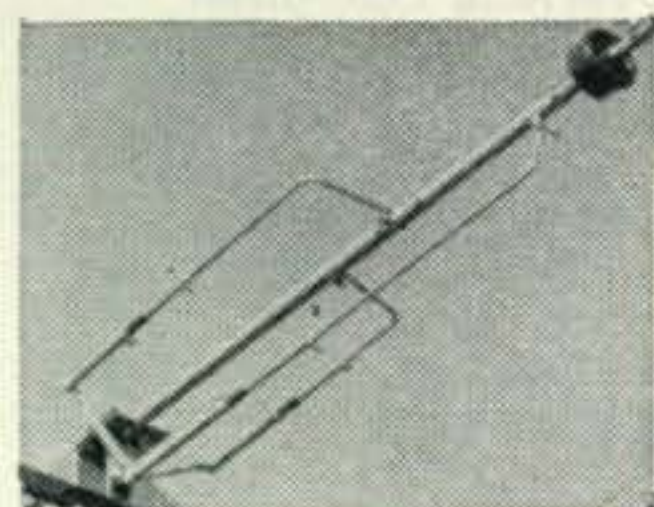
49⁹⁵

the 5-element trap tribander

Here's the smallest practical size consistent with efficient operation, to which the trap tribanders may be reduced. Install in the smallest city lots. Light weight & rotatable by most TV rotators. Factory pre-tuned, with dimensions given for quick, easy assembly in a matter of minutes.

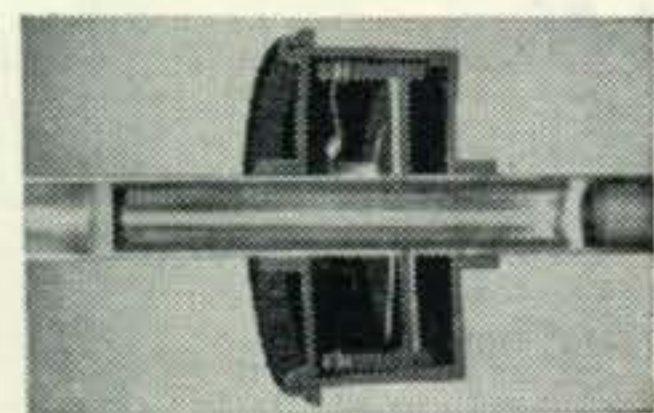
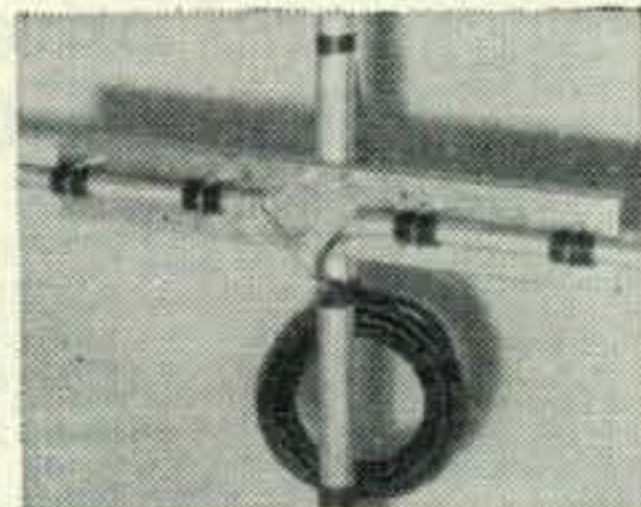
395⁰⁰

The finest, highest gain, rotatable array available. Heavy duty construction. Uses 36', 2x31" rectangular aluminum boom. F/B Ratio: approx. 25 db. Forward gain: 12 db. average.

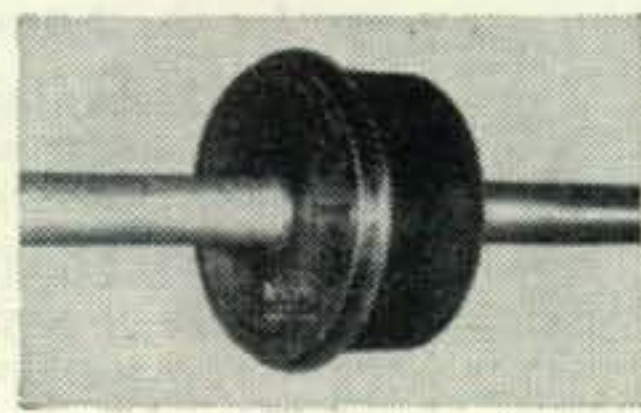


Perfect 1:1 SWR is made possible by the new, pre-calibrated Triaxial Gamma Match System with coaxially formed reactance cancelling capacitor built in. Exceptional band width maintains low SWR over entire band. Coax connector for 52 ohm feed line included. Gamma rod and capacitor section calibrated for exact setting over each band. No external baluns, antenna tuners or matching networks needed.

Split insulated dipole feed with coaxial choke results in SWR of less than 2:1 on all bands. No adjustments needed; simply attach 52 ohm feedline to dipole terminals. Heavy 12 ga. hot dipped galvanized steel channel and polyethylene insulated U-bolts support Hy-gain's driven element. Compare this construction with the flimsy supports using self-tapping metal screws.



The automatic switch action of the Insu-Traps is employed in both series of tribanders. They act as insulators at their resonating frequencies, but allow radio energies of other frequencies to pass, isolating various sections of the antennas. Mechanically and electrically stable, the traps are hermetically sealed at the factory in polyethylene cover and cap, completely weatherproof. Hi-Q coils wound on styron form. Guaranteed for the life of the beam. The Mini-Tribander Traps are specially weight-designed for wind loading efficiency.



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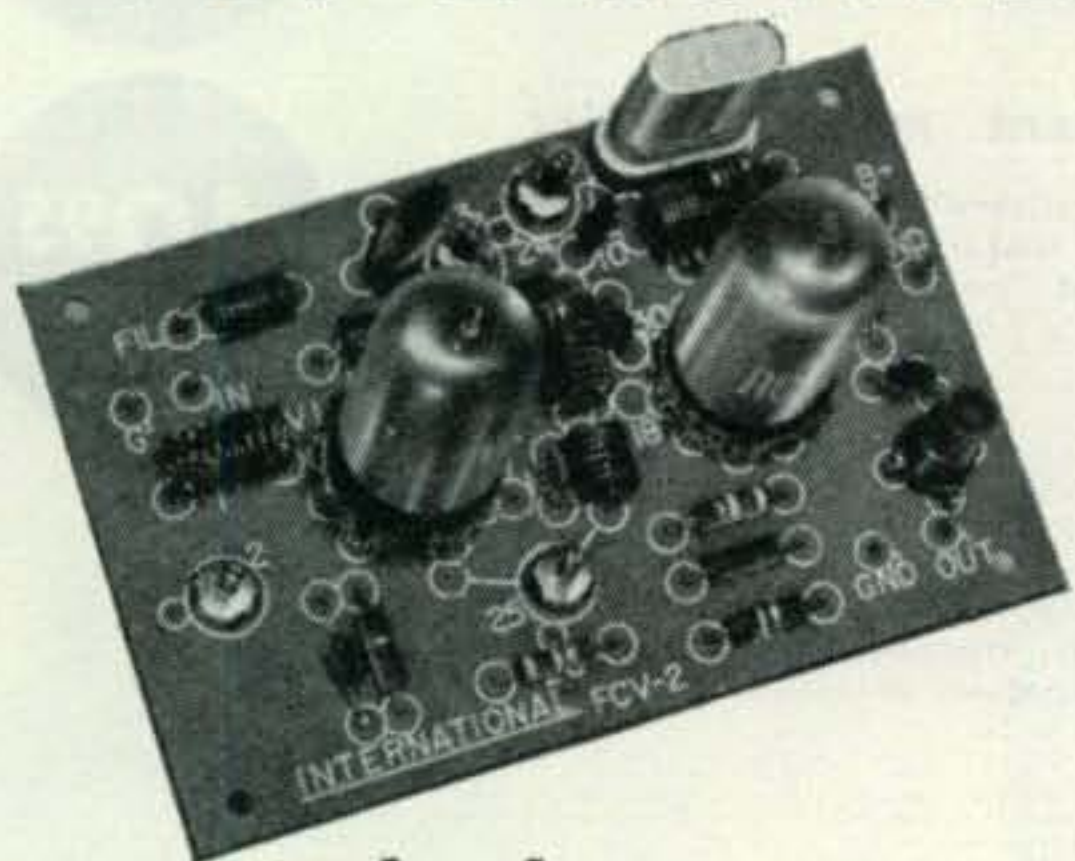
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Used with FO-1L Oscillator
- FO-6 Oscillator and Buffer Assembly
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12 Most Used Frequencies Instantly Available.
200 KC to 60 MC.

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CRYSTALS**



For AMATEURS—
EXPERIMENTERS 1500 KC to 50 MC

Wire mounted, plated crystals for use by amateurs
and experimenters where tolerances of .01% are
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encountered.

CIRCUIT: Designed to operate into a load capac-
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KC and 15 MC. Designed to operate at anti-
resonance on 3rd overtone modes into grid circuit
without additional capacitance load. 5th overtone
crystals designed to operate at series resonance.
(Write for recommended circuits)

Prices

Pin Diameter .093*
Pin Spacing .486

(FA-9 Fits Same Socket as FT-243)

FREQUENCY RANGE	TOLERANCE	PRICE
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1800-1999 KC	.01%	4.00
2000-9999 KC	.01%	3.00
10000-15000 KC	.01%	4.00
Overtone Crystals—3rd Overtone Operation		
15 MC-29.99 MC	.01%	\$ 3.00
30 MC-54 MC	.01%	4.00
Overtone Crystals—5th Overtone Operation		
55 MC-75	.01%	4.50
76 MC-90 MC	.01%	6.50

**PRECISION CRYSTALS
COMMERCIAL USE**

**F-6 SERIES
1500 KC — 50 MC**

NOTE: The FA units will not necessarily
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One Day Service! Specify exact frequency and crystal
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when operated in the specified operating circuit.

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OKLAHOMA CITY, OKLAHOMA

For further information, check number 18 on page 130.



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COMMUNICATOR

Now... a complete high performance 10-meter station ... transmitter, receiver, power supply ... "packaged" for the big result, the big value.

Complete!

Connect antenna, mike and AC power—operate—in a big way.

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The husky 50 watt transmitter uses Type 6146 tube, has pi network output. Multiplier stages are ganged and tracked with highly stable, calibrated VFO. (Crystal control is optional.) VFO spotting switch facilitates "zeroing in" on desired stations. Panel meter is switchable to read amplifier grid or plate currents or modulator plate current.

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The sensitive, selective 10-meter communications receiver utilizes double-conversion, also features adjustable "squelch" for muted standby, an effective noise limiter, "S" meter, panel-mounted loudspeaker. Coverage is 28-29.7 mcs. Dial is full-vision, has planetary vernier drive for easy tuning.

power supply...

Heavy-duty 115 volt AC power supply is built-in.

A single

compact housing...

Everything in a single compact housing ... an area less than one square foot. 13" wide, 7½" high, 12½" deep.

Cabinet and panel are finished in Alpine White, complemented with Gun Metal Blue knobs. Attractive ... functional.

A big value!

A "package" with every modern feature at a selling price that is unusually low.

Net 299.50

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NAVASSA ISLAND

by
WAYNE GREEN, W2NSD

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Ha.

The biggest, best, and most successful DXpedition in the history of amateur radio was just pulled off with absolutely no planning whatever. Or darned little, at best.

It all started back in February at the Fresno DX Convention when Don Chesser, W4KVB, our DX editor, mentioned that he had in mind making an expedition somewhere in the Pacific, not too far from California, in early spring. I immediately put my foot on the running board. Don had three possibilities in mind at that time: Guadalupe Island, Socorro Island, or Clipperton Island. He checked around with the local hams looking for a boat that might be able to make the trip and located a 40-footer owned by Jack Richardson, KN6YNI that seemed likely.

A conference with Bob White, the ARRL decider for countries brought out the decision that Guadalupe, being only about 200 miles off the coast of Mexico, would not be admitted as a separate country. Bob had recently given separate country status to an island 225 miles from

the home country, so apparently the dividing line is somewhere between 200 and 225 miles at the present time. More of us might be in a mood to laugh at the absurdity of these country decisions if it weren't for the worldwide repercussions frequently felt.

Guadalupe being out, the next possibility was Socorro Island, some 400 miles off the Mexican western coast. In a quick planning session held by members of the Ohio Valley Amateur Radio Association who were interested in the trip, it was decided to charter the KN6YNI boat to take the group out from Mazatlan, Mexico to Socorro. The group would drive down from Cincinnati to Mazatlan by car. Socorro had already been made a separate country by ARRL when a previous DXpedition had landed there, so there was no problem from that angle.

A hurried conference on twenty meters between Don and myself worked out the list of equipment we would take. I arranged for a couple of towers, beams, and a few other odds and ends. We decided to take my station wagon plus Don's car and his small trailer for the caravan. I would also throw in skin diving gear, aqualungs, compressor, a small one-kw gas generator, the Central Electronics 600L ampli-

fier, the Drake 1A Sideband Receiver, and the Harvey Wells Z-Match antenna tuner and SWR meter. Oh, yes—better send for a license.

Telegrams went out to LMRE for the necessary license for both Socorro and for mobile operation while in Mexico. These were followed by nervous letters as the days passed and the departure date neared. Just in case we ran into trouble, I also wired Tahiti for permission to operate on Clipperton Island.

On March 7th one of the OVARA gang flew up to New York to pick up my station wagon, chock full of radio and diving equipment. He delivered it to Cincinnati ready for the caravan. I planned to fly down to San Antonio on the 15th and meet the gang there, to continue on to Mazatlan with them.

By the 11th we still had no license, so we decided it would be best if I flew down to Mexico City the next day to try to get the license. Then I could fly up to Mazatlan on Monday morning and jump on the boat, license in hand.

As luck would have it I ran into Ed, XE1ZM on 15 meters that evening. I explained the situation to him and asked him to check with Juan, XE1A and see what the score was. Just one hour before I left for the airport on the 12th I got a call from Ed and he had Juan on the frequency.

"Sorry . . . absolutely no use in your coming down . . . it won't do any good. The Mexican Navy has turned thumbs down on the expedition." We had heard that the Mexican Navy had some sort of temporary base at Socorro so this didn't really come from left field.

I tuned up on twenty and let Don in on the good news. Two days before D-day and no place to go. What a bombshell. Just to cinch things up a bit tighter I called M. Malandain (F9MH) the French Vice Consul to see if he had had any word on our Clipperton application. It had been only a few days so I wasn't surprised to find that nothing was doing there.

That evening I checked with Don and found that we were going to Navassa Island. This was quite a change. A different ocean, even. Our group was to drive to Miami starting the morning of the 14th, charter a boat and sail to Navassa.

Easy?

The FCC in Washington was very cooperative when I called the next day, and with the exception of having to make a special trip to town to get a Form 610 (another two hours shot), the red tape was nothing compared to the Mexican trip. I sent in the application and a letter asking for special call letters for the expedition, plus a plea for urgency.

The routine for the Mexican license was something else entirely. For that I had to make a trip to my doctor (K2BNW) for a booster small-pox shot, round up my birth certificate, and go down to the airlines terminal building for a special Tourist Card. Then I had to get



Jake Schott W8FGX from Cincinnati.



Frank Koval W8RSW also from Cincinnati.



Dale Streiter W8DJN from Lansing.

Official photographer for Expedition.





The heavy stuff was pulled up by winch and davit. Don watches George cranking up a load.

a photostat of my automobile license and ham license. The local photostat company refused to copy these . . . New York law. An office photocopier made a satisfactory duplicate of the documents after much running around and frustration. Finally all this was in an envelope with a check for \$8 and an agreement to abide by the Mexican radio regulations and sent off the LMRE. Whew! But I can't complain, for they do issue licenses to Americans, which is more that we do for the Mexicans.

Friday morning the 14th I grabbed a plane for Miami. Once there I started the rounds looking for a charter boat. After checking over things that afternoon and the next morning it turned out that there was nothing in Miami that could possibly make the trip we had in mind. But there was a boat out at Nassau that might do. Don arrived late that night and after a short consultation I left the next morning for Nassau. After checking the available charter boats there it narrowed down to either the *Empress* or the *Full Swing II*. The cost looked like more than we could possibly handle. I couldn't give the fellows much hope when I made a radio call that evening.

The trip looked like it would take three weeks. One week going down, one week on the island, and one week coming back. I explained that at \$100 a day plus food and fuel expenses we couldn't possibly afford such a luxury and made plans to return to Miami in defeat.

The skipper, Bill Norton, then suggested that perhaps we could move off the boat entirely while were at Navassa and then he wouldn't charge us for the time we were ashore. He said he had some business he could manage during this time over on Haiti so it wouldn't be a total loss to him. This still looked like \$1400 plus food and fuel and still was more than we could handle, so I sat down with Bill and we laid out the trip on a chart. He figured he could make the trip down in four days running steady, and make it back in three, since he would have the currents with him on the return trip. This began to look like we were in business.

Bill explained that even further economies could be made by buying most of the food in Miami and shipping it with our radio equip-

ment to Nassau. Much brighter. I hopped the plane back to Miami, met the group at noon on the 17th and told them what had been worked out. This was the first time we had all met.

We decided to get going fast—hop a boat to Nassau that afternoon, so we could leave the next morning for Navassa and be on the island in time for the DX Contest that weekend. Frank, W8RSW and myself took a taxi up to the supermarket and bought \$150 worth of groceries. That was a ball. "Give us a case of this, a case of that. . . ."

The ship was due to sail at 5 pm, so we had to rush. We got the groceries and had them delivered to the dock. Meanwhile we had also to round up the cars with the radio equipment, check out of the hotel, buy the steamship tickets, and many other details. I had to get in touch with Bill by radiophone to let him know we were coming. It took me until 4:30 to get through to the boat, leaving me camped nervously by a telephone booth most of the afternoon while the other fellows were dashing here and there trying to get customs forms filled out, and so on.

The steamship line had assured Don that we could take our radio equipment aboard as personal baggage if we carried it aboard ourselves, thus saving us the cost of shipping it over as freight. Then the captain of the ship took one look at the mass of equipment spread out all over the dock . . . what a pile! Suddenly no one could speak a word of English—no luck getting them to open the door and take the stuff aboard. As sailing time neared we grew more frantic and there were hams running all over the place wildly waving arms. To no avail.

Glumly we sat on the pile of equipment as the *Asora Star* sailed away. Nuts.

Red, W8EZF, an expert linguist, expressed our feelings to anyone that would listen.

So, muttering to ourselves as we loaded all the stuff back in the car and station wagon, we went looking for other transportation. A couple docks up the line we found a ship leaving the next day for Nassau. This would lose us a precious day and might make us miss the Contest weekend.

Tuesday the 18th dawned bright and hot in Miami. The gear was wrestled aboard the ship and we all flew over to Nassau to be ready to meet it the next morning when it arrived. No passengers allowed on freight ships.

We slept aboard the *Empress* that night and were up early on the 19th to attend to final details and transfer our debris from the dock to the boat. I visited the local market and stocked up on oranges, bananas, grapefruit and cocoanuts for the trip. Don set about running the red tape gauntlet, getting the forms filled out to permit us to unload our stuff on the dock from one ship and then reload it onto another without going through a long, involved customs hassle.

By early afternoon we had all the problems licked and had brought the *Empress* up to the cargo dock for loading. We picked out four boys to help with the loading (at \$1 each) and in no time the 4000 pounds of miscellany was spread from one end of the *Empress* to the other.

The wind had picked up considerably and the skipper deemed it too rough to make the start that by day. Impatient as we were to make Navassa by the weekend we had to agree that the weather was to be respected. With this setback we finally acknowledged to ourselves that we might as well give up any hopes that we had of getting on during the contest. Even running day and night at top speed (8½ knots) wouldn't cover the 540 miles in time to do any good.

Started, At Last

At daybreak Thursday (20th of March) we topped off with fresh water and headed for the channel. The *Full Swing II* accompanied us for the first half hour so that I could take pictures of the boat underway. Once underway we started right in getting a ham shack set up on the *Empress*. An HT-32 and the Drake receiver were set up in the cabin that Frank (W8RSW) and I shared, and a power cord was run out to the small gas generator. This generator, the Bendix one-kw 50-pound unit, ran the rig all the way to Navassa . . . only giving trouble when we tried to cut down on the oil supply.

As soon as we got things running we checked with home and found that I had been issued the call KC4AF for the expedition. Spirits rose. From then on we operated on 15 meters as long as the band was open from early morning until late at night as KC4AF/MM, telling everyone we would be on the island soon, and phone patching to our families.

Our attempts to start the 3½ kw Onan generator met with failure. We cranked and cranked it . . . nothing. There being no instruction book with it we had to sit down and head-scratch a bit to work it out. Plus the panic at the thought of our trying to operate on Navassa for a week with only the one small generator running. It finally came down to the fact that someone had decided not to bring the twelve-volt battery in order to save weight and it was left in Miami in the car. No battery, no ignition . . . simple.

We tried hooking up flashlight batteries to make twelve volts, but somehow this didn't quite do the job. Just as things began to look desperate the skipper got in touch with another boat a few hours ahead who had a couple six-volt batteries that he didn't need and would be willing to lend us for a couple of weeks. Hallelujah! And he only wanted \$40 for the rent on 'em. Well, it's not as if we had a choice.

We pulled into Staniel Cay just at dusk after a fairly smooth day of sailing through the tricky, shallow waters of the Bahamas. After

dinner Red and I made the trip over to the nearby Alpha for the batteries. Quite a job, wrestling those big marine batteries out of the hold of the Alpha into the dinghy, and then on to the deck of the *Empress*, even in the fairly calm water of the anchorage.

Once the batteries were hooked up the Onan started right up and ran smoothly. We didn't need any extra power for anything so we shut it down and covered it over to keep the salt spray from corroding it, the Bendix still putt-putting for the station.

For some reason we never quite understood we stayed at anchor that night and pulled out early the next morning . . . seven more hours lost. The trip from Staniel Cay down along Long Island was uneventful except for the heavier seas involved which sent a couple of the gang to the rail and kept most of the rest of us in bed to keep from being thrown around the deck.

We sailed all that night, with two of us standing watch at a time, two hours per watch. There was a tense moment along about one in the morning when some rocks turned up about 100 yards ahead of the boat and the skipper narrowly missed a shoal.

As we passed Great Inagua Island late the next afternoon (22nd) the seas turned heavier and the wind registered "Strong." That night the boat really thrashed around in mountainous seas with the winds blowing over 80 mph at times.



The Johnson Ranger was taken along as a spare transmitter and turned out to be real handy for ten meter CW and meter operation since we were short on the necessary crystals for the HT-32's.

The boat heaved and crashed through the seas with water pouring down every hatchway and soaking just about everything aboard. Frank and I had the 10-to-12 watch that night and it was all we could do to climb out of the forward cabin, out around the rail and up the ladder to the bridge.

After fifteen minutes of hanging tightly to anything handy to keep from being pitched over the side off the bouncing bridge Frank

turned bright green, mumbled his apologies, and headed below. The skipper and I turned our attention to looking for the lighthouse somewhere ahead which marked the western tip of Haiti.

As the time for the sighting of the light neared and passed we grew more anxious. Every cloud bank looked more and more like land looming up dead ahead. Time after time Bill would jump to the searchlight and shine it into the gloom ahead, to see if we were running up on land or on clouds.



Don Chesser W4KVX operating station inside old cistern. Equipment is 75A3, HT-32, Harvey-Wells Z-Match used for loading long wire on 40 and 80.

The light should have turned up about 1 am. By 1:30 I began to notice a slight shading to the clouds ahead which I tentatively identified as land. Bill vetoed this since our course should have carried us several miles off the nearest possible landfall. It was far too rough to go below and rouse the next watch so I stayed on the bridge watching that "land" grow closer and closer. By 2:30 I became alarmed since the darker blotches hadn't changed shape except to become a lot clearer. Not being noted for tact under strained conditions I kept bringing up the subject to Bill and pointing out the ever-increasing clarity of the mountains ahead. At 2:45, about a half mile off shore, the message got through and he brought the ship around parallel to the beach. Whew!

Once settled down to running west we checked the charts and found that we had been set quite a bit to the east. The fathometer refused to work, but the charts assured us that we had plenty of water, no matter how far we were along the coast of Haiti. The seas were calmer in close to shore and before long Don and Dale (W8DJN) came on watch. I stuck it out until I spotted the lighthouse ahead and then went below for a night's sleep.

Parlez Vous?

About ten I woke to find that the sun was up bright and hot. We were peacefully anchored in a bay just off a small native village. Several fishing boats surrounded us. A row boat was approaching filled with the high brass from town, to inspect our papers.

Soon our deck was swarming with officials. It developed that none of them spoke a word of English . . . and none of our group knew any French . . . (gulp) . . . except me. I, who flunked French time after time in high school, hadn't touched it in the eighteen years since, now became official interpreter. Ah, the ironies of fate. Somehow we bumbled through without getting jailed. I rather believe that the letter Bill had from the Haitian Consulate in Nassau cut more water than my fractured French.

We spent the rest of the 23rd at anchor there at Le Mole St. Nicolas sleeping off the weariness of the previous night and waiting for the seas to calm down for the final run to Navassa. A visit to the town that afternoon for pictures revealed the startling fact that Coca-Cola had not yet penetrated this outpost. We did invest in a few bottles of "Kola" bottled in Port-Au-Prince — a terribly sweet brew of orange, pineapple, and several other fruits. My Polaroid instant camera turned out to be nearly as popular as money in winning favor with the natives.

One of these days Bob Adams, W3SW will (I hope) get a QSL card from W2NSD/MM mailed at St. Nicolas Mole. The post office turned out to be an old school-type desk in a private home. The woman who ran the "office" looked through the papers in the desk for about fifteen minutes trying to find the postage rate for a post card to the United States. Finally, in triumph, she came up with the figure of 65 centimes. This was interpreted as being one dollar by a hopeful chap leaning in one window.

"C'est impossible", said I. Another fellow squatting on the floor ventured that maybe it was fifty cents American. Several waves of the arms later we settled for 25¢. Frame that card, Bob.

Clashes

"The only time I ever made the newspapers was when someone misquoted me at a trial", said Red, defending his daily routine of radioing a press release on the expedition to the Cincinnati papers. "I want some publicity."

We were all in agreement that this was a good idea . . . for a couple of days. The release he worked up after the big storm and our near miss of Haiti was pretty emotional. Jake checked with a couple of others and nixed it as being too dramatic. Red was so furious that he wouldn't send another release for the rest of the trip, so the expedition dropped into obscurity presswise. From then on Red would remind us that we were being "too dramatic" whenever we described any of our adventures over the air to anyone.

. . . Not that this happened very often, for Red pretty well monopolized the rig during the trip down. Come six in the morning, Frank and I would be lifted out of our sacks by the receiver blasting out at about 90 db right in our ears as Red tuned the 15 c-w band. This continued straight through until about mid-

night. After a while we got so we could doze off for minutes at a time with the receiver screeching into our ears. From time to time someone else would slip into the operating chair when Red was off to chow or the "head." We tried an operating schedule too, but possession is nine points of the law and Red had nine points in his favor most of the time.

Early on the 24th (the DX Contest now over) we headed out to sea and Navassa. As we neared the island toward evening all hands were on the bridge looking for the Navassa light. Dale spotted it first . . . eagle-eye Green, next. It was quite dark when we finally arrived and started circling the island looking for Lulu Bay, the landing spot. The seas were running a bit heavy.

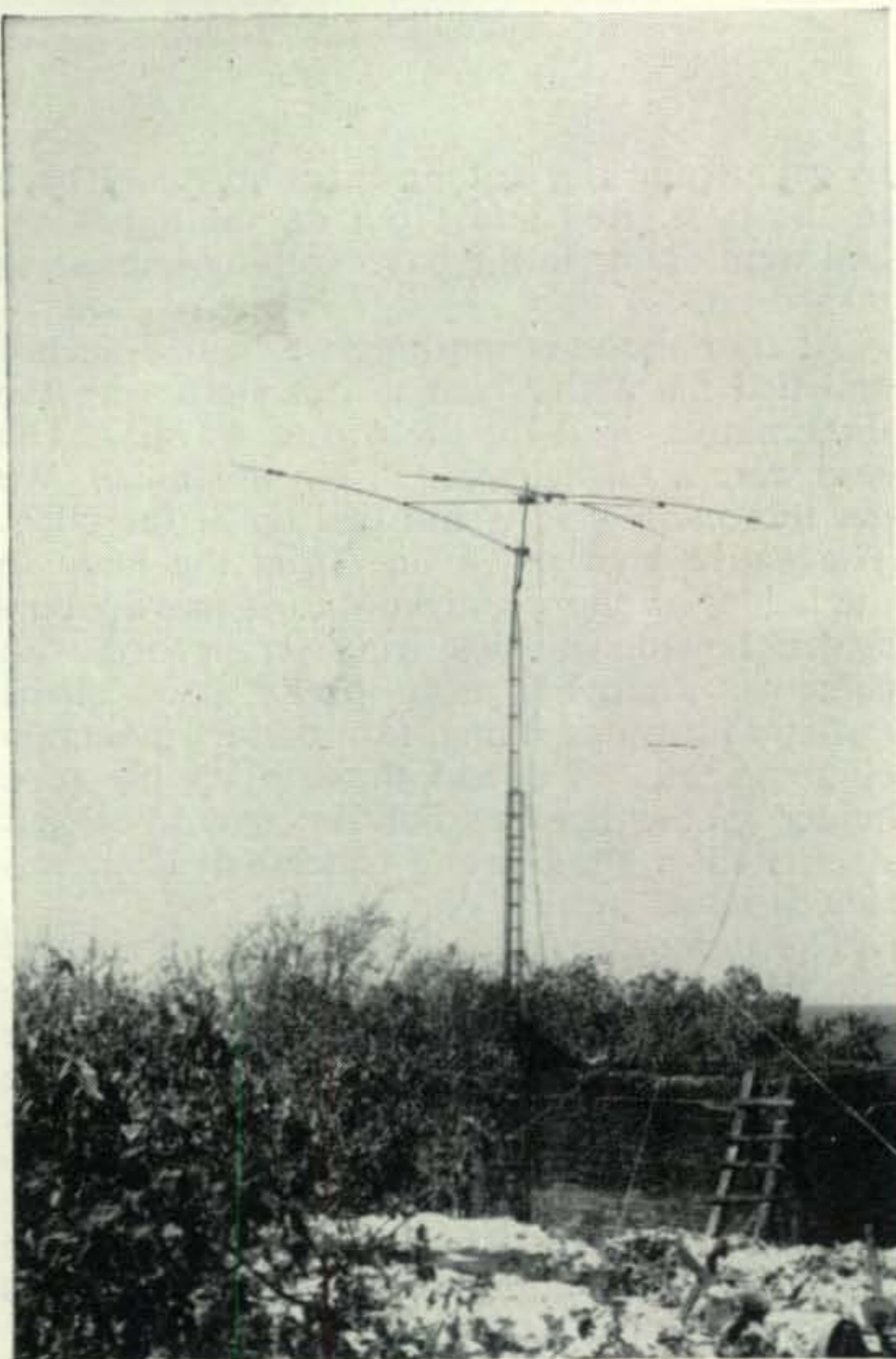
The island was every bit as rugged as we had been warned it would be by the Coast Guard in Miami and the fellows who had made previous expeditions to it. On all sides it presented a sheer cliff face to the sea varying from 100 to 200 feet. Anchoring was almost impossible too since the cliffs continued another 100 feet below the water in a sheer drop. The constant swells of water in the windward passage had undercut the face of the cliff a bit so that a small boat would have to be careful in approaching the cliff face not to get sucked under the edge and then ground to splinters as the water swelled up and spumed out.

Lulu Bay wasn't much of an improvement over the rest of the coastline. It was a small indentation about 200 feet in, where the cliffs dropped down to about 50 feet above the water. In one spot this had been blasted out and a platform about 35 feet up hung out in space with a steel rope ladder suspended from it into the surging seas.

We circled the place for ten hours trying to figure how in the world we could make it ashore. True, there was a small buoy about fifty feet off shore, but it wouldn't be safe to get the Empress into that little bay when the slightest current or wind might shove it up against the rocky cliffs and wreck it. After all this work and expense in getting this far we were completely bewildered to find ourselves so thwarted by this final obstacle. We hashed it over and over and with sinking hearts had to agree that it was just impossible to get ashore. Maybe it would be calmer tomorrow.

Bill headed back toward the nearest point of Haiti. The seas grew very rough and soon it was impossible to sit or stand anywhere on the boat . . . everyone retired to get some sleep or be sick. The rig was silent since we couldn't get out on deck to refill the gas tank of the Bendix. By early afternoon we had wallowed our way across the 35 miles to Haiti and had dropped anchor at Cape Dame Marie. I went through the interpreter routine again.

Bill and a few of the fellows went ashore to make arrangements with the magistrate for us to hire three natives and a small boat to help



"Smitty" holds up one of the goats shot by Red . . . this one has been skinned and is ready for salting for preservation. The degree of preservation is questionable judging from the smell a couple days later, but the Haitians were satisfied.



us get us and our equipment ashore and back to the boat. Red and I put on the aqualungs and went diving in the bay. Nothing interesting turned up.

At four the next morning we hauled anchor and tied the native boat to our stern with the three natives in it for the trip to Navassa. The seas were a bit calmer . . . but not much. We got there about 9:30 and tied up at the buoy. The native boat ran a line from the buoy to the ladder on shore and we started moving ourselves. I made the first trip over, loaded with cameras. Though I'm in pretty good shape (what with water skiing, skin diving, mountain climbing, etc.) I found the trip up the rope ladder in the blasting hot sun was a corker. Even Red, a good strong Cincinnati Cop, was slowed down by that one.

The system for getting things ashore evolved into this routine. Bill, his crewman George (age 71, and stronger than any of us), and his wife (and our cook) Aggie handled most of the unloading of the equipment from the Empress into the native boat. The captain of the native boat and his helper caught the stuff as it came over the side of the Empress. They then pulled the boat along the line to shore where Red and Frank took turns pulling the lighter stuff up with a hand line. Dale and Jake rigged up the winch and davit that the Coast Guard use twice a year to haul acetylene bottles up for the unattended Navassa light. Don went on a sight-seeing tour of the island and I hopped all over the place taking movies, color slides and black and white snaps to cover the action.

This went on all through the day. The temperature was near a hundred and all of us were as tired as we had ever been. It was brutal. Dale and I made a trip back to the boat to get some water and found that a disaster had overtaken us. The ten gallon can of water that we had brought along had rusted out at the bottom and all we had for water on the island for the six of us for a week was a few rum and gin bottles . . . about three each. As far as we knew there was no water available on the island so we had a real problem ahead . . . particularly in that hot sun.

Money?

In spite of the savage heat Jake was pale when he came up and said, "My God, Bill wants \$2100 for the trip! Where are we going to get anything like that?" I was flabbergasted. Sure, the boat ran \$100 a day . . . but we had only been out six days and it was only supposed to take three days back according to the original calculations, with no charge for our time away from the boat. This should run around \$800 plus food and fuel. I didn't know what to say.

Arriving back at the Empress I cornered Bill and asked him what about this \$2100 deal. "Three weeks at \$100 a day is \$2100 isn't it?" said Bill. "Yes, sure, but we've only been out six days so far and you said it would take three days to get back. That makes nine days

or maybe ten if we get held up a bit on the return. That's more like \$1000 than \$2100," I answered, "and you agreed not charge us for the time we were living on the island and you were away over at Haiti."

"Well, I never agreed to anything like that. Besides, this has been a lot more work than I bargained for. I had to stay up all night two nights . . . had almost all of the work on getting your stuff unloaded here today . . . and got my boat all banged up with your equipment. Just look at the holes those gasoline barrels made in the deck and the mess from your gang spilling oil all over the place runing that generator. That's going to cost me plenty to get fixed." Bill turned to go out on deck again, saying, "I'm not going to run night and day on the return trip like we did on the way down. So, you figure it out. Figure six days down, seven on the island and seven days going back, plus one more for getting unloaded. That makes three weeks and three weeks costs you \$2100."

Further arguments didn't seem to help matters so I went back ashore to see what we could do. Jake had given Bill a bit over \$200 to cover fuel and gasoline for the generator back in Nassau and had about \$200 left in the kitty. I threw in the remains of my bank balance . . . \$500, and Jake took that over to ease the strain.

Everybody was badly shaken when they heard about the bill. This meant that the total cost of the expedition would run over \$3600, breaking it down to over \$600 for each of us. And \$600 is quite a lump to invest. You can get a pretty good receiver for that. The only clear spot in the gloom was that perhaps the club would get some donations from grateful DX'ers which would cut down on the damage. Red said that if he had any idea that the trip would cost that much that he never would have gone along. It sure was a far cry from the \$250 each we had estimated before leaving.

Unloading of the Empress and loading of the island continued with less joviality. Not only were we almost completely exhausted, but we were angry and frustrated. Frank and Jake put everything they had into hauling the heavy items up by winch. Up came the big generator . . . the HT-32's . . . the two 40 foot crankup towers . . . the two beams . . . four 50-gallon barrels of gas . . . miles of heavy line cord . . . case after case of food . . . there appeared to be no end.

By late afternoon we seemed to have everything ashore that we would need. Don had done an excellent job of exploring the vicinity and had figured out where to set up the two stations. As the sun began to set a cool breeze came up and we were able to keep going.

Dale and Frank ran the line cord from the generator up to our camp location. Jake set up a table with an HT-32 and the Drake receiver. Dale put up a quick dipole and it wasn't long before Jake put out the first call from Navassa for KC4AF. Jake continued for an hour or so, then Red took over. The rest of us gave up

then and hit the sack for the night.

Between the hardness of the ground, Frank's snoring, and the incessant CW blasting out of the receiver all night we didn't get very much sleep. By six a.m. we were all up and setting to work to bring the rest of the stuff up from the cliff where we had unloaded it. The generator was too heavy to move so we left it alone. It was easier to run long line cords than to shoulder that big thing around.

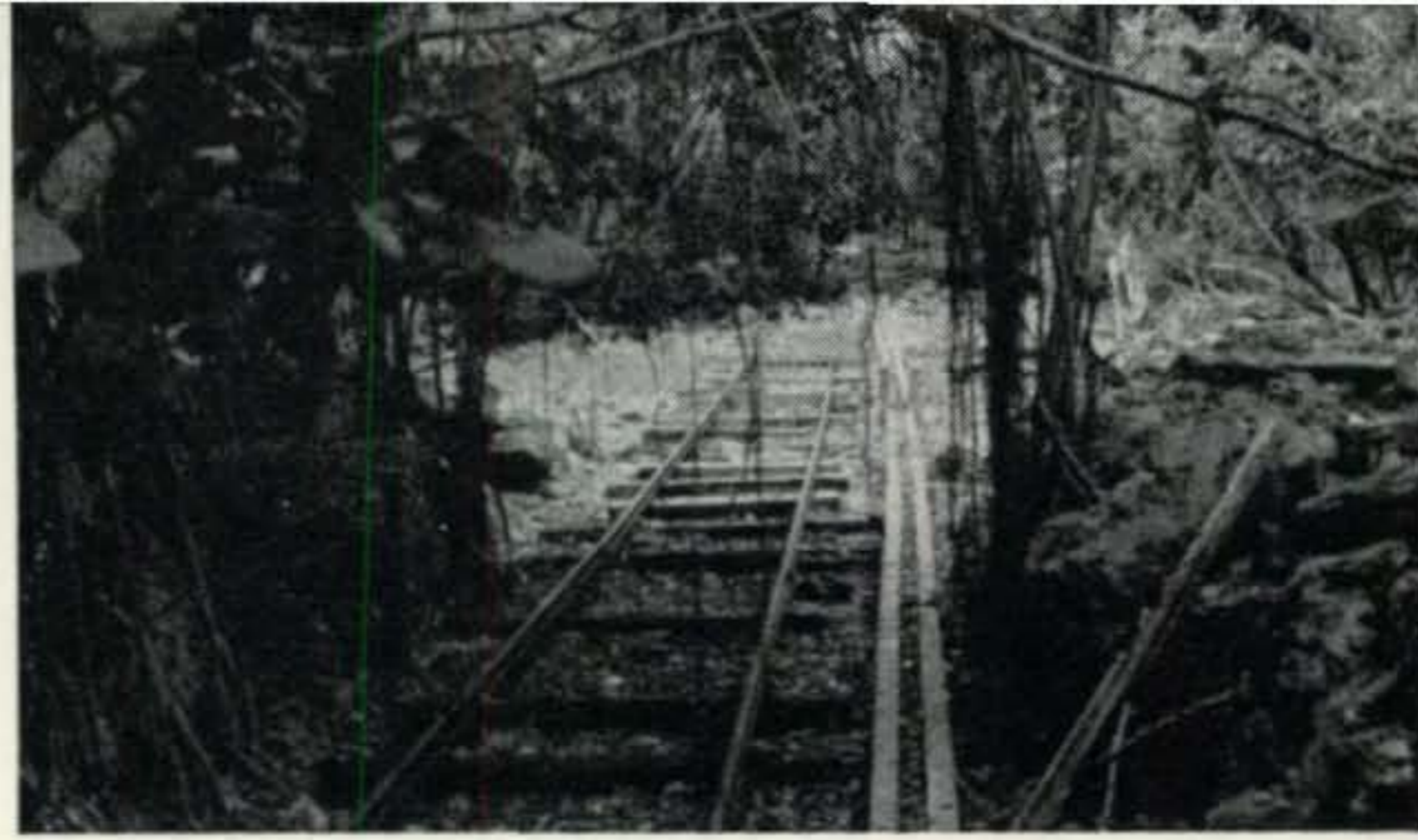
Dale and Jake went to work putting up the antennas for one station while Frank and Don turned to on the other. Three pieces of the Mosley tri-band beam had slipped out of the soggy carton during the trip up the cliff from the boat and now lay on the bottom of Lulu bay. Getting these back seemed to be up to me, the skin-diving department head.

The two large black fish that had been swimming around all the previous day in the bay did not particularly encourage me to plunge into the water. Nor did the comments we got from W2HQL during our trip down when he explained that the bay was alive with sharks which lived in holes in the cliff walls there. He told how, on his trip last year, one of the Coast Guard men had fallen into the bay and had been rescued just in time as sharks converged on him.

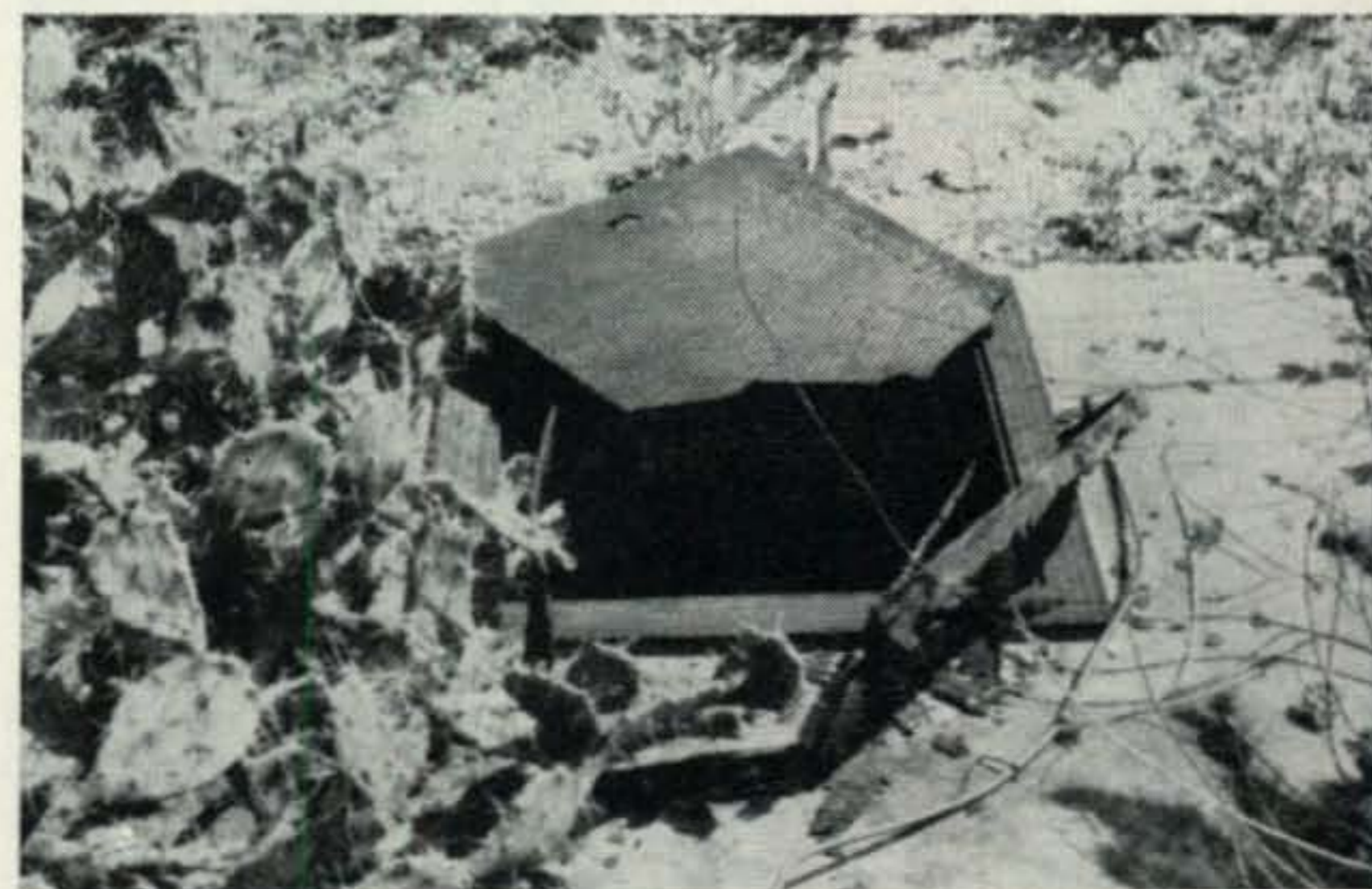
After stalling as long as possible we finally arrived at the point where Frank needed the missing elements to finish putting the beam together. I put on my mask and fins, grabbed a spear gun, and climbed down the long ladder. Reaching the bottom I carefully cleaned out my mask . . . taking as long as possible in the process. Finally there was no way to delay further so I jumped in, looking quickly about as I sank. Good . . . no sharks.

There were the missing elements and a coil of coax, though. One element was only about fifteen feet down so I started with that one. Easy. The next had fallen further down the steep slope and was some 25 feet down. I took a deep breath and went for that one. On the way back up I checked around again for sharks, but only spotted a few game fish around. The third element was way down the slope . . . maybe forty feet down. Well, here goes. Forty feet is a long trip down without an aqualung. I fought my way down, equalizing the pressure in my ears as I went down . . . finally I made it, grabbed the pipe and headed back toward the surface so far above. You go up a lot faster, but it seems to take forever because your system is running out of oxygen.

Once the retrieving was completed I set out after one of the fish with the speargun and shot a beauty of about six pounds. The captain of the Haitian boat was delighted when I gave it to him and he soon had it cleaned and cooking. Still no sharks around. The only big fish visible was a five-foot baracuda which seemed to live just below the ladder. He was very curious and never was far away when I was in the water. Perhaps he was one of the

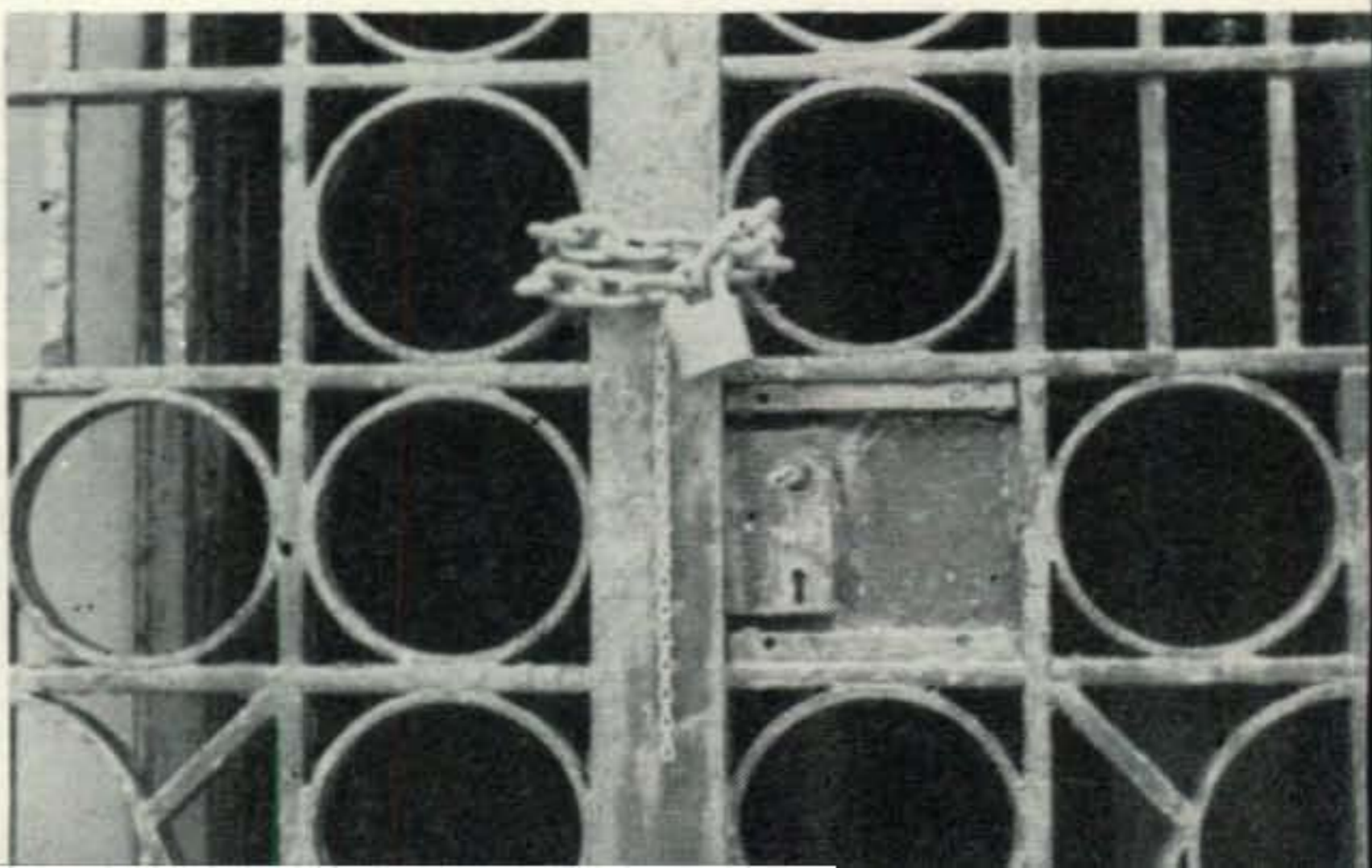


Local lore included, besides the goats, an old broken down railroad track. Seems it used to be used for mining phosphate and then later for carrying fuel to the lighthouse.



Old cistern found half full of water beside lighthouse on top of the island. Saved our lives . . . almost.

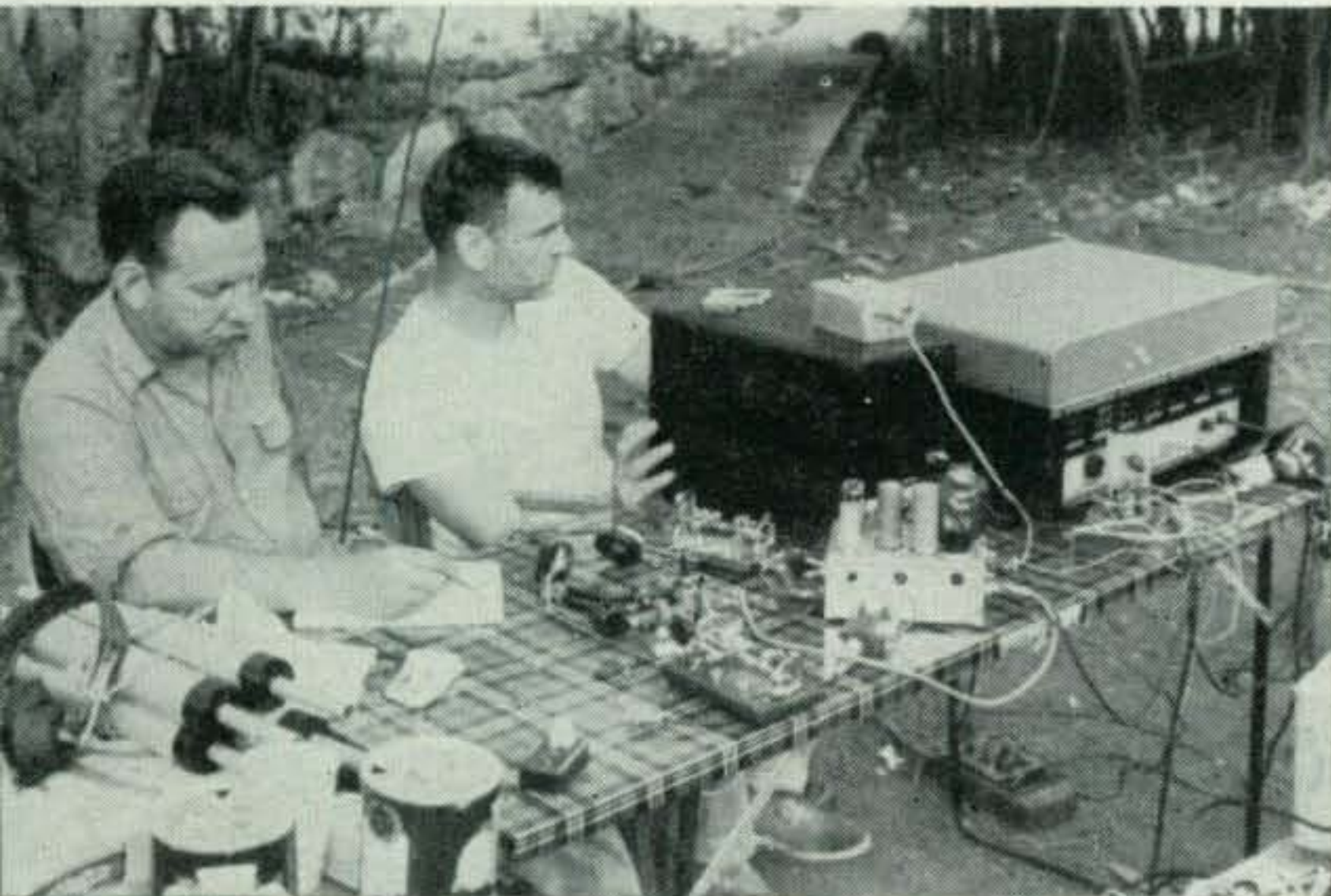
The Miami Coast Guard office led us to believe that we wouldn't have any trouble getting up in the lighthouse, but the door was well locked.



big fish we saw while unloading. Maybe he was the famed "sharks" of Lulu Bay.

As the day wore on the sun grew hotter and work slowed down. The towers were going up slowly. We discovered to our dismay that we had left the box of trap coils for the Hy-Gain Tri-band Beam on the boat which was by now back at anchor at Haiti so we put up doublets for all bands: 10, 15, 20, 40 and 80.

One station was set up in a small, roofless brick shack near the generator. There was no door in this building so we had our Haitian helpers make a ladder to climb up to the top of the wall and another to get down inside. One of the two tents we had purchased in Miami was slung over as a roof to keep the sun off the operators. One of our portable tables and a couple of camp chairs completed the furnishings. An HT-32, the 75A3, the Mosley beam and the Tele-Vue tower were set up there. This station was used primarily for Twenty CW.



Jake operates while Frank keeps the log at the other station installed under a tree. Equipment is Drake receiver and HT-32. Antennas were dipoles hung from a 40 foot Tele-Vue crankup tower.

The other station was left pretty much as it was set up when we landed. It was about two hundred feet from the first one up near a building used by the Coast Guard for their acetylene bottle storage. The Navassa Island light was run automatically, being serviced twice a year. The acetylene bottles in the building were hooked up together and two small pipes ran about a mile up to the lighthouse. The building was too small for anything but storage of our food supply.

When Frank and I ran amuck in the supermarket we had in mind that we were buying for seven people for seven days on the island. We also figured that everyone would be pretty hungry. As it turned out only six of us made the trip and not one of us got very hungry. It was just too hot to work up much interest in eating. For lunch most days we just picked at some fruit and maybe a cracker. The result was that we ended up taking most of the food back on the *Empress* when we left.

No Water

Water was the biggest worry. We hit the island with about three quarts of water for each of us. We discussed rationing of this supply to make it last, but by the end of the second day we had run out and there wasn't anything to ration. It was at this time that Jake and Dale made a trip up to see the lighthouse and discovered an old cistern with several thousand gallons of water under the ruins of the building next to the light. This apparently was where the lighthouse keeper lived when the light was attended many years ago. Rainwater collected from the roof ran into the cistern. The roof had long since fallen in and the water must have been sitting there for years and years. The boys scraped some of the scum off the top and dipped a few bottles full.

When they returned to camp with the samples we decided to boil it before chancing a drink. Don looked at it, gave it a taste, and decided that it was good enough for him without boiling. The rest of us waited a day to see if he dropped dead and drank it raw from then on. The Haitians made two trips a day filling the bottles for us. That cistern sure was a lucky break.

Operating Notes

Some of the heaviest pileups in recorded history took place on 20 CW. Don, Dale and Frank worked steadily for four days to beat down the pile. I spent most of my time on SSB and am happy to report that contrary to my preconceptions good operating and courtesy were the rule, not the exception. In order to get at some of the weaker stations on a channel I would get the call letters of all calling stations and ask them to stand by. Once all were listed I would give them contacts one by one. This was OK for channels where only ten or twelve would call in at once. For heavier concentrations I found that standing by for W1's, then W2's, etc., would clear things fairly fast. The major problem at all times was the QRM of several stations calling us on the same frequency.

Don and I ran into the most amazing and gratifying phone pileup we had ever heard when I called CQ on ten-meter AM on Saturday morning. I sat back to tune the band and there were literally hundreds of stations calling us all at the same time. I tuned from 28.5 on up to 29.7 and there were stations all the way up. For the next five hours I never had to listen for our call. Every time I would hear someone give their call and standby I knew it was for us. Over 400 stations were worked during that time, with the limiting factor again being the QRM fighting, the trying to separate stations so we could get their calls through. After being through a mill like that I appreciate more than ever the ability of good modulation and clear phonetic spelling to make contacts.

Traffic was moderate on the first day on the air, Thursday. Friday things picked up quite

a bit and we had no trouble keeping to our desired one contact per minute schedule. Saturday all hell broke loose and we had huge pileups on all bands operated. Sunday was busy, but not up to the day before. One real high point for Sunday was our eleven-meter sojourn. We had been announcing our removal to eleven meters for a couple of days, scheduling it for one p.m. Sunday. Come the appointed hour we found the band jumping with stations calling us. After cleaning up all the cw QSO's we shifted to AM and worked the same fellows again. Courtesy was again the rule, much to our surprise and delight.

I took the early morning tricks on 40 and 75 phone. The contacts were few and far between, but I stuck it out night after night to make sure that anyone who possibly wanted a new country on those bands would have every chance. Every time I fired up on a band and announced that KC4AF was on the channel the round-table going there would stand by and try to make contacts for me. The politeness was overwhelming and beyond by greatest expectations.

We had landed on Wednesday the 26th and operated around the clock with two stations on the 27-28-29-30th. Bill was scheduled to return at daybreak Tuesday morning (April 1) to pick us up. We were pretty surprised then when one of the Haitians came running up Saturday afternoon with word that a ship was just outside the bay and was putting a small boat over the side. Everyone except the two operators beat feet over to the landing to watch a dozen Coast Guardsmen row in and swarm up the swinging ladder. I was busy on twenty phone at the time, but as I understood it later they were a group out of South Carolina and hadn't heard about our visit to Navassa from the Miami headquarters. They had been passing by the island and spotted our two forty-foot towers and wondered what in the world was going on. We explained about our trip as best we could, but it was pretty hard to come up with any reasonable explanations to non-hams and they eventually decided that even if we were nuts we weren't hurting anything. They made a trip up the hill to the lighthouse, perhaps to see what mischief we had been up to there, and then left us . . . ignoring our casual mentions of *perhaps* leaving us a little fresh water. Several of us made sure that we were overheard wondering if they were going to ask us aboard for dinner. They didn't.

Sunday afternoon a rain squall headed our way and suddenly it was pouring all over us and the equipment. One shack was well covered with the tent so there was no difficulty there. We had another unused tent just lying around which we threw over the second station when the rain began . . . not quite fast enough, for the Drake receiver gave a mighty groan and refused to come up with any more signals.



Frank, normally a straight CW man, gets in some phone operation using the Electro-Voice 664. This mike was chosen for the trip because it could withstand the heat and high salty humidity.

Jake set about drying it off and found that rain drops had splashed into the tube sockets and had shorted a few pins to ground. Fortunately nothing was damaged and once the water was removed the receiver worked fine.

Don and Dale collected rain water from the pockets in the tents, but the water was so tenty flavored that most of us much preferred the dangerous (?) but good-tasting cistern water.

Monday morning, as day broke, I got up after about six hours at the rig on 75, 40 and 20 SSB, fixed some fried eggs and potatoes and had a good breakfast. Frank had just taken over the rig and put it down on 20 CW when a Haitian came up to say that the Empress was back. Bill wasn't due until the next day so we couldn't believe it at first. A short run down the walk and there it was with Bill tying on to the buoy. He hollered to us that the boat had sprung a pretty bad leak up forward and he had to get to Port-Au-Prince as fast as possible to get it fixed so we would have to leave a day early.



Dale servicing the Onan generator. The Onan gave us little trouble outside of its tremendous weight and the need for batteries to run it.

We believed him at the time and put our heads together to decide what to do. The bands had been very poor that morning and we had found contacts few and far between. On 20

[Continued on page 118]

Sure-Fire Voice Break-In

by JAMES L. TONNE, W5SUC

Box 803, State College, New Mexico

The advantages of voice-controlled break-in have been presented in a good number of articles. However, in these designs certain points were frequently overlooked. The chief failures involved time-constants and dependability. Most of the designs took a noticeable time to turn on the transmitter, with resultant syllable clipping. A second fault was in the case of "borderline" operation. In such a case, the incoming audio level may be just barely sufficient for operation, and a form of relay chattering or intermittent operation occurs.

The Old . . .

The object of the voice control unit is to switch from receive to send, and to do it as quickly as possible. The simplest way to accomplish this is probably to apply rectified audio to a relay, with a suitable condenser across it to hold it down between syllables. As might be expected, such a scheme leaves much to be desired. Sensitivity is low, operation is none too dependable, and a sensitive relay is required. So some of the electron boys decided tubes could do the job better, and a few even used all-electronic circuitry. This omitted the relay entirely but required nasty negative supplies and a few more tubes than is generally considered necessary. Eventually, circuitry was developed to let the loudspeaker run so earphones weren't needed.

And so it has been for the past four or five years. No attention has been paid to the rectifier circuits in order to reduce the "turn on" time, and borderline operation still plagues many.

. . . And the New

The circuit to be described is absolutely rock-stable, and is the most dependable voice-control circuit of many tested. There are sev-

eral features that may seem strange; these will be explained.

The charge rate for a given time-constant condenser, and so the associated relay pull-in time, is dependent upon the series rectifier resistance, the effect of any series condenser, and the plate resistor of the following stage. For best results, the series condenser should be several times as large as the condenser in the time-constant network. This point is frequently overlooked. Another which is generally ignored is the size of the plate load for the preceding stage. This resistor should be as small as possible within practical limits. A quick check on the tube curves for a 12AT7 shows that a 33K plate load has better than half the "efficiency" of the more common 220K resistor. This is far higher than one might expect from such a low value, and the substitution will increase the condenser charge rate by a factor of six or seven.

In the past, the rectifier circuit, on both the antitrip versions and otherwise, has sometimes been of a shunt type. That is to say, the rectifier was connected between some point and ground. This arrangement produces a d-c component alright, but it also puts out an equal quantity of ripple. So a filter is required. Such a filter is one of the things that makes for a noticeable time lag in operation. This circuit uses series-connected rectifiers and ripple is almost non-existent. Operation is faster than in the older circuits because no filter is required.

In this circuit, as in the usual anti-trip circuits, a d-c voltage is derived from each of two input channels, one for the transmitter and one for the receiver. These d-c voltages are of the opposite polarity and are added. But here is where the design departs from the usual. Generally, this voltage is applied to the grid of a tube which operates a relay directly. Not so in this version. In the new design, this voltage is applied to the grid of a tube

CQ DX CONTEST—CW SECTION

by FRANK ANZALONE, W1WY

You can't hold down an old pro, pardon me, amateur I mean. Winning contest is nothing new for W4KFC but I am sure Vic Clark has been planning for this one for some time. His 821,763 points beats all existing records for a Single Operator and his 393 multiplier was surpassed only by K2GL, with W7KVU at the key. But John lacked the contacts to give him top honors. Vic used all bands, even managing a multiplier of 5 on 160. Congratulations Vic, I am sure you will receive a great deal of satisfaction in winning the W2IOP trophy which Larry LaKashman is donating to the winner in the All Band CW Section.

The Top Ten looks like a battle of the East Coast giants, with four out of the first five being located east of the Mississippi. W3GRF and W8JIN need no introduction to the contest fraternity. Len and Jim will always be found among the leaders.

KH6IJ broke the domination by virtue of his 1240 contacts which far surpassed all the other single operators. One of these days Katashi is coming up with a good multiplier

W4KFC—After 47 hours of operating, Vic finds time to relax.

to back up his always record breaking number of QSOs.

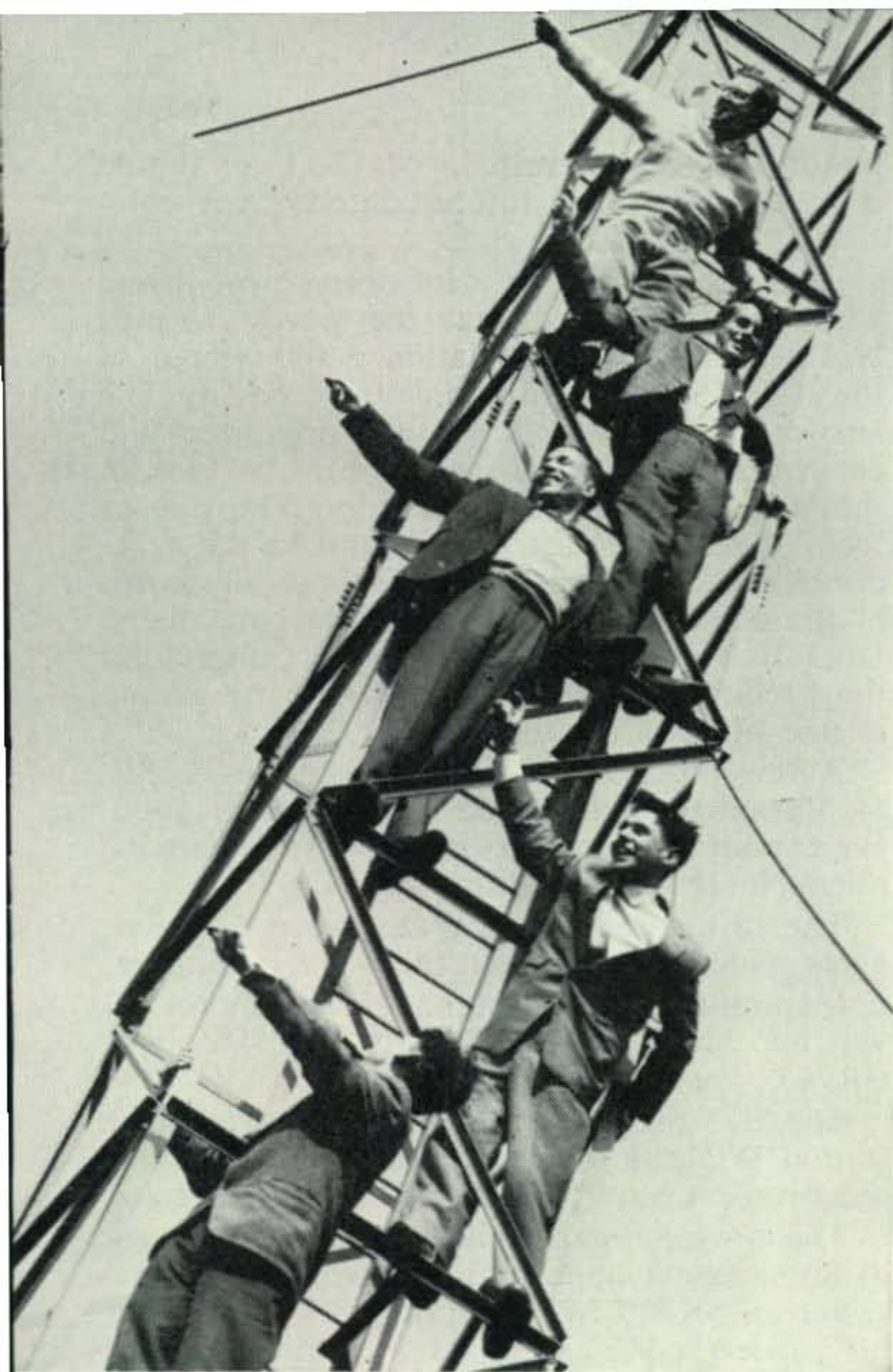
VQ4AQ was the only other single operator to break the 1000 point barrier. That's a lot of brass pounding in one week-end.

Our last year's champion, 4X4BX also made the Top Ten but Sam did not have the multiplier to be in the running.

The rest of the Top Ten is made up of Europeans, PAØRE, DJ1BZ and OK1FF in that order. UA1DZ just missed the "charmed

ON4SZ—That's ON4TX in the operating position with ON4SZ looking on. This pair also did very well in the Phone contest. ON4FL took the picture.





DJ3JZ—"Our signals went thata' way." Sez DJ3JZ, DL9CI, DL1CR, DJ1BP and DL3AO. Reading from top to bottom.

circle." An indication of things to come. We know there was great activity in the USSR, but the boys didn't get their logs thru to us.

In case you didn't know it, SVØWP, another high scorer, is W3JTC who used to do OK from this side of the pond.

Special mention must be made of JA1VX, VK6RU and CE3AG for their fine showing in their respective areas. And also for OH2YV and OH2XK who timed their trip to Aland Island so that they would be there during the contest and give the boys a new country.

In the Multi division, the gang at W6RW finally broke the million point barrier. Seven operators had as many as four transmitters going at the same time, which is an accomplishment in itself. Buzz Reeves, K2GL is donating a new trophy to the top station in the Multi CW division. This should make the boys happy and the Southern California DX Club proud.

CN8IF was only a two man team, as was 5A5TE, so their standing in the multi group is all the more impressive. The group at DJ3JZ greatly improved their last year's effort and show a score worthy of a multi operator station. To the service boys that manned KG6FAE goes the distinction of breaking the record in

number of contacts. In our World Wide Contest that is. Remember, ours only covers a 48 hour period. Did you see the picture in the Preliminary Report in the April issue? Must have been tough going Bill. Hi.

The Single Banders also made scores that might well stand for a long time. Is it possible that these conditions will last another year?

DL4AAP repeated his performance on 28 mc Phone by turning in another record breaking score on 28 mc CW. How do you do it Stew? CX2CO, Rick Jr. is following his OM's footsteps by taking top honors on 21 mc. Reliable Tom, G2LB, leads the pack on 14 mc by a wide margin and was the only Single Bander to hit 100 countries. Nice going Tom. W3BVN repeated his victory on 7 mc by bettering his last year's score in all departments. This in spite of complaints that 40 was below par.

The activity on 80 was confined mostly to the Europeans, with the top group all bunched together with the exception of SP5IA who lead by a comfortable margin. His score however is below last year's high on that band.

The graveyard that is known as 11 meters was only productive to the multiplier seekers. K6OPI however stuck it out long enough for us to award him a certificate for the ridiculous score of 361 points.

What happened to 160? I was down there trying to scare up some activity but only a

SINGLE OPERATOR

All Band

TOP TEN

W4KFC - 821,763

KH6IJ—794,364	VQ4AQ—668,388
W3GRF—776,457	PAØRE—668,289
K2GL—775,575	4X4BX—658,306
W8JIN—741,334	DJ1BZ—587,970
	OK1FF—578,694

MULTI OPERATOR

All Band

TOP FIVE

W6RW - 1,171,088

CN8IF—773,640	5A5TE—712,272
DJ3JZ—754,580	KG6FAE—691,601

SINGLE OPERATOR

HIGH FOR EACH BAND

28 mc—DL4AAP—253,680
27 mc— K6OPI— 361
21 mc— CX2CO—193,719
14 mc— G2LB—213,112
7 mc— W3BVN— 58,138
3.5 mc— SP5IA— 6,936



KG6FAE—The gang that broke all records in number of QSOs.

Front Row: **K4AQL**, **K4OPI** and **WG6ANJ**.
Back Row: **W4WHP** and **W5RYG**.



VE3API—Neat lay-out that was All Band winner for Ontario.

JA1AA—Hisaoshono and his son Yukito. The Globe shows a complete record of countries worked.



handful were interested. Maybe we should drop 11 and 160 in future contests. Any comments?

There is going to be a lot of eyebrow lifting when its discovered that the newly formed North Jersey DX Association is the winner of the CQ Plaque? How did they do it. The answer is very simple. A well organized and concerted effort by all its members. A look at the W2 returns will tell the story. The returns from the second district are double those received last year. Practically all those big scores at the head of the list are N J DX members. Does that answer your question? Congratulations fellows, I'll personally present the plaque at one of your meetings.

A few observations. That mysterious L7SP, St. Valsod Is. that showed up on 40 is no good. We cannot give you credit for a country multiplier. Never heard of him fellows.

The 14 mc and 21 mc WØ winners are teenagers. Guess the OMs out there are folding up.

I am sure there must have been more but we do know that W7QGF, VE5DZ and CR7LU are YL operators.

The Central High Radio Club moved their station WØLNI over to South Dakota to give the overseas boys a crack at that "rare" state.

The novices again failed to take advantage of an excellent opportunity to work some new countries. KN5LMJ had only 13 QSOs but he made WAC. And we remember seeing KN8EEN on ZC5AL's log. (Ed. Note — I'd settle for that one anytime.)

Again we are giving 2nd and 3rd place certificates in sections where the returns justified additional awards. However this year we have made the requirements a bit more stringent.

We have also decided to give the leading Foreign DX Club a separate award. We feel that competing against the USA clubs is a bit rugged. Therefore a certificate is being awarded to the winner in the foreign group, the Japan DX Radio Club.

In this section of the contest we received 933 entries from 90 different countries. Couple this with the returns from the Phone contest and we have a grand total of 109 countries and 1462 logs. This is an increase over last year but still a far cry from the number of stations we know were active. We are particularly disappointed in the lack of response from countries in our own hemisphere. Africa, Asia (excepting Japan) and the prefixes down under didn't do so well either. The bright spots were our own W/Ks and Europe, especially the OHs DL/DJs and SMs.

On my committee this year were the old reliables W2BO, "Mac" McIntire, W2JB, Ben Lazarus and we were ably assisted by W1GYE, Andy Malashuk, W1DHO, Guy Flower and W1MDO, Bob Entwistle.

Thank God thats over, now to catch up on my own country total before planning for next year's headache.

Number groups after call letters denote following: Band, final score, number of QSOs, number of Zones and number of Countries. Letter designates power used. A—Up to 35 watts; B—Up to 150 watts; C—Up to 500 watts and D—Over 500 watts. **Winners are in Bold-Face Type.**

Single Operator

NORTH AMERICA

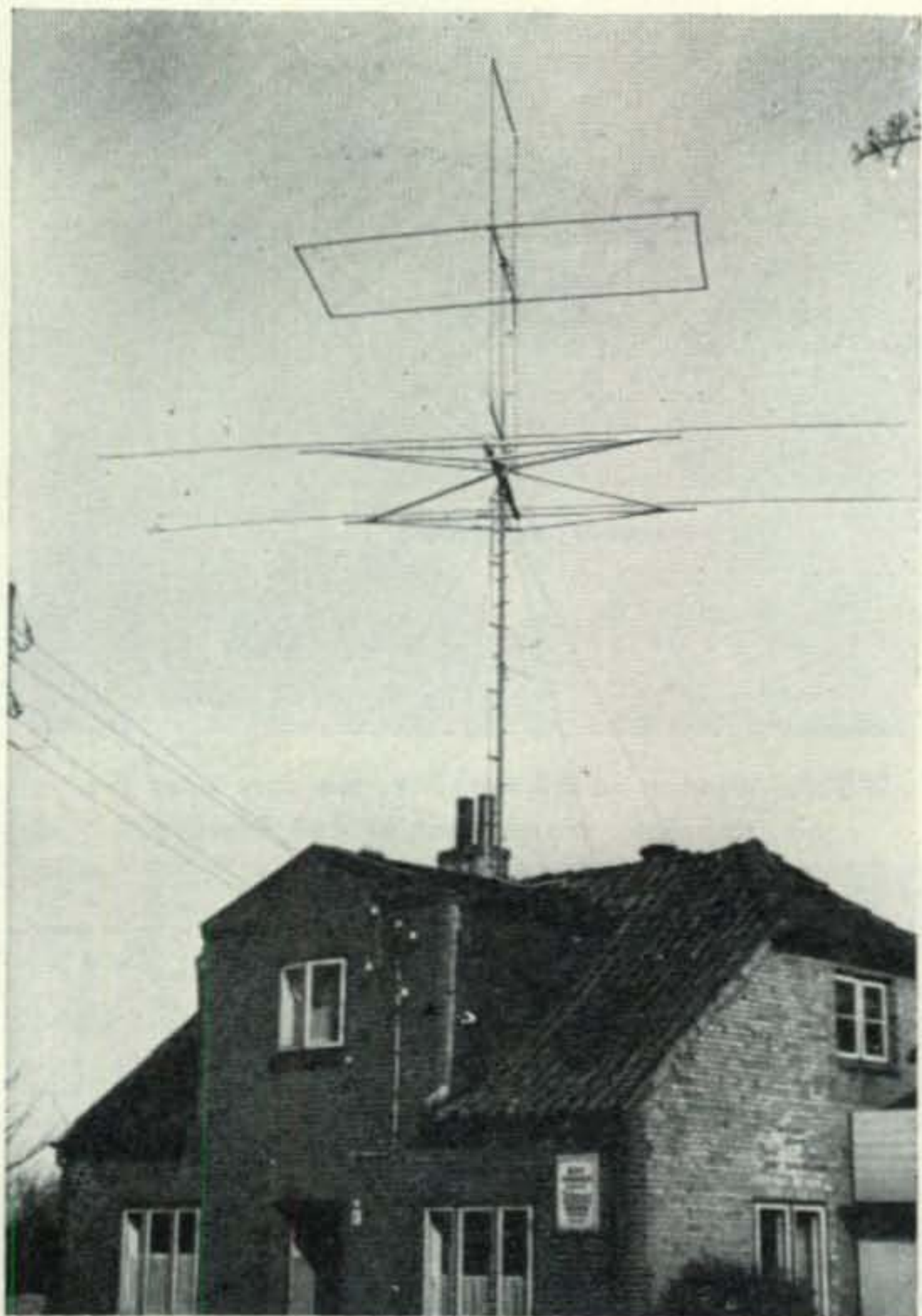
United States

W1BIH AB	501,676	561	105	217	D
W1ODW	228,800	380	71	149	D
W1JYH	105,248	212	52	124	D
W1ZD	97,580	221	55	109	D
W1FZ	93,483	212	45	108	D
W1PLJ	1,679	27	8	15	B
W1NLM 28	27,690	127	25	53	C
W1WY	12,650	85	18	37	A
W1AZY	64,800	226	31	63	D
W1CUX	34,782	196	19	43	D
W1CTW	26,250	120	25	50	D
W1HZ 14	74,125	216	34	91	D
W1DHO	30,338	162	25	52	B
W1OOS	4,437	34	22	29	C
W1ARR 7	9,792	78	17	34	B
W1BPW	1,380	24	7	16	B
K2GL AB	775,575	675	134	271	D
W2BXA	403,516	522	86	195	D
W2AIW	382,080	533	78	162	D
W2AGW	338,558	491	69	167	D
K2GMO	214,056	359	89	147	D
W2EQS	211,560	330	94	164	D
W2BOK	166,361	306	57	134	B
K2BZT	162,268	275	49	109	B
K2OPJ	131,006	359	62	122	C
W2YTH	127,046	300	43	96	C
K2YOR	124,528	251	58	123	D
W2JVU	112,054	260	57	122	D
K2HFX	99,696	277	42	92	D
K2OLS	94,276	227	42	106	D
W2DEC	89,232	196	62	114	C
W2HZY	86,560	194	47	113	D
K2LOC	86,550	199	39	79	D
W2LPE	62,675	201	36	73	C
W2CJM	45,120	130	35	85	C
W2KUW	37,944	125	46	78	D
W2TWC	34,632	110	40	71	C
W2DEW	33,804	116	38	70	C
W2QJM	32,806	123	31	63	—
K2OEA	26,696	98	29	65	B
W2TQC	24,552	102	31	62	C
W2CWK	16,954	66	34	64	C
W2AQT	16,575	86	23	52	B
W2GKE	14,320	75	30	50	B
K2OMT	8,294	53	21	37	B
W2BUI	6,555	36	24	33	B
W2QDY	2,730	26	17	22	B
W2AOY	1,392	21	13	16	B
W2CVW	736	15	13	13	—
W2KGD	527	16	9	10	B
W2LRJ	391	9	7	8	C
W2PTI 28	49,248	209	25	56	C
W2DKS	19,460	96	23	47	B
W2SAW	16,364	80	24	50	C
W2WZ 21	126,360	429	33	75	D
W2PTD 21	75,764	283	28	66	C
W2TQR	56,032	196	33	70	B
W2GJD	55,593	223	29	58	D
W2CYS	49,720	154	34	79	D
W2HTH	43,434	159	29	60	C
W2KFP	40,080	174	24	56	B
K2KUR	27,489	129	23	54	B
W2DJT	24,063	119	25	48	A
K2VFR	17,712	88	25	47	C
K2PFC	10,179	64	21	38	—
W2BJH	8,493	56	21	36	D
W2ZXL	8,012	65	13	29	B
K2MRB	3,315	34	16	23	B
K2PPV	1,058	20	10	13	—
W2BVE	480	10	5	6	B
W2GUM 14	118,125	331	37	88	D
W2SUC	84,410	258	36	79	D
K2DCA	82,650	254	34	80	D
W2JTC	71,205	235	29	72	D
W2ABM	31,872	138	26	57	D
W2QKJ	21,363	100	20	47	C
W2CGJ	19,053	97	22	51	C
W2GVZ	5,248	56	9	23	C
W2JB	2,625	27	11	24	C
K2QHL	2,592	30	10	22	C
W2BYN	814	13	10	12	D
K2IKS	240	8	3	7	A
K2PHF 3.5	760	21	7	12	C
W3GRF AB	776,457	766	113	250	D
W3DBX	208,613	322	73	154	B
W3ZAO	140,230	234	82	139	C
W3MSR	129,580	261	78	131	D
W3KTR	55,578	172	39	79	C
W3CGS	21,294	82	33	58	D
W3KPI	20,088	84	27	54	—
W3JO	2,760	30	22	24	—
W3HEC 28	88,271	310	32	70	D
W3TLN	44,226	188	26	55	—
W3MQC	24,795	145	16	41	D
W3TJI	7,298	63	13	28	B
W3QQL	1,798	22	10	19	B
W3HIB 21	32,718	141	25	57	C
W3ZQ	27,661	134	25	51	D
W3RZL	27,222	127	25	53	B
W3NCF	23,680	112	23	57	C
W3BQA	9,960	65	21	39	B
W3GRO	3,344	32	16	22	D
W3LEZ	2,184	35	15	23	B
W3AYS 14	56,571	190	34	75	D
W3ADZ	46,072	159	34	70	D
W3ELZ	32,712	138	30	57	D
K3CBQ	23,115	121	24	45	D
W3AEL	22,080	127	19	41	D
W3KA	816	17	5	11	B
W3BVN 7	58,138	254	25	57	D
W3CPB	10,692	73	18	36	C
W3IIF	1,122	45	10	12	C
W3EIS 3.5	880	29	8	12	—
W4KFC AB	821,763	755	124	269	D
K4GMT	226,347	398	75	134	D
W4PNK	133,856	277	60	118	D
W4GXB	85,020	192	55	101	D
W4JAT	79,980	191	53	102	C
W4OMW	23,214	90	44	62	C
K4HXF	19,749	81	34	53	D
W4HKJ	11,456	65	22	42	D
W4GF	5,136	41	20	28	C
K4KES	4,992	42	20	28	B
W4IEH	3,735	30	18	27	D
K4ORQ	2,842	40	10	19	—
W4OEL	1,596	26	5	16	B
K4CFB 21	4,130	44	14	21	B
W4NYF	3,888	36	18	30	—
K4HQD	2,418	28	11	20	B
K4APN	77	5	3	4	B
W4LZF 14	78,408	204	39	93	D
W4BQY	55,611	182	33	78	D
W4LYV	34,068	117	33	69	C
W4OM	20,880	87	26	54	D
K4PDV	16,880	80	23	57	B
W4SIB	14,664	69	29	49	D
K4IEB	3,780	37	15	27	B
K4SCW	612	15	5	12	C
W4ZQK	204	7	6	6	B
W5ZD AB	67,728	186	51	85	D
K5GHB	13,175	69	39	46	B
K5DGI	11,715	60	29	42	B
W5CK	8,308	42	28	39	C
W5KC 28	27,144	128	24	54	—
W5QF	14,136	89	17	40	B
W5NOP 14	30,711	121	29	58	D
W5UVR 7	1,372	27	14	14	B
W6ITA AB	451,572	539	104	207	D
W6VSS AB	306,166	427	98	168	D
W6TT	298,596	410	120	178	D
W6UF	151,064	299	68	124	D
W6KG	131,990	286	85	112	D
W6BPD	105,462	229	75	111	D
W6SRF	83,634	206	66	93	D
W6AM	79,432	245	75	92	D
W6BZE	54,352	123	56	76	D
W6YMH	40,250	133	53	72	C
W6AMO	17,370	93	44	46	C
W6BYH	16,995	82	32	47	D
W6IPH	11,285	66	31	40	B
W6RLP	11,060	55	30	49	—
K6LRN	10,320	69	30	30	B
W6FLY	9,027	58	22	37	D
W6KNM	5,904	50	20	28	—
W6ISQ	3,168	33	17	15	B
K6TIZ	3,100	31	24	26	—
K6PHD	2,992	29	21	23	—
K6IYJ	2,415	35	17	18	C
W6PQW 28	30,000	151	24	51	B
W6GWQ	4,407	50	17	22	D
K6ANP	4,256	43	17	21	B
K6OPI 27	361	12	10	9	B
W6FUI 21	44,805	186	29	58	D
K6SXA	37,752	171	32	56	C
W6JWT	35,629	157	25	54	D
W6BUD	30,108	141	27	51	—
W6SIA	17,160	105	22	38	D
W6BSY	15,392	78	28	46	B
W6ID	14,427	84	24	39	D
K6DCE	11,658	71	21	37	D
W6ACW	7,353	50	23	34	D



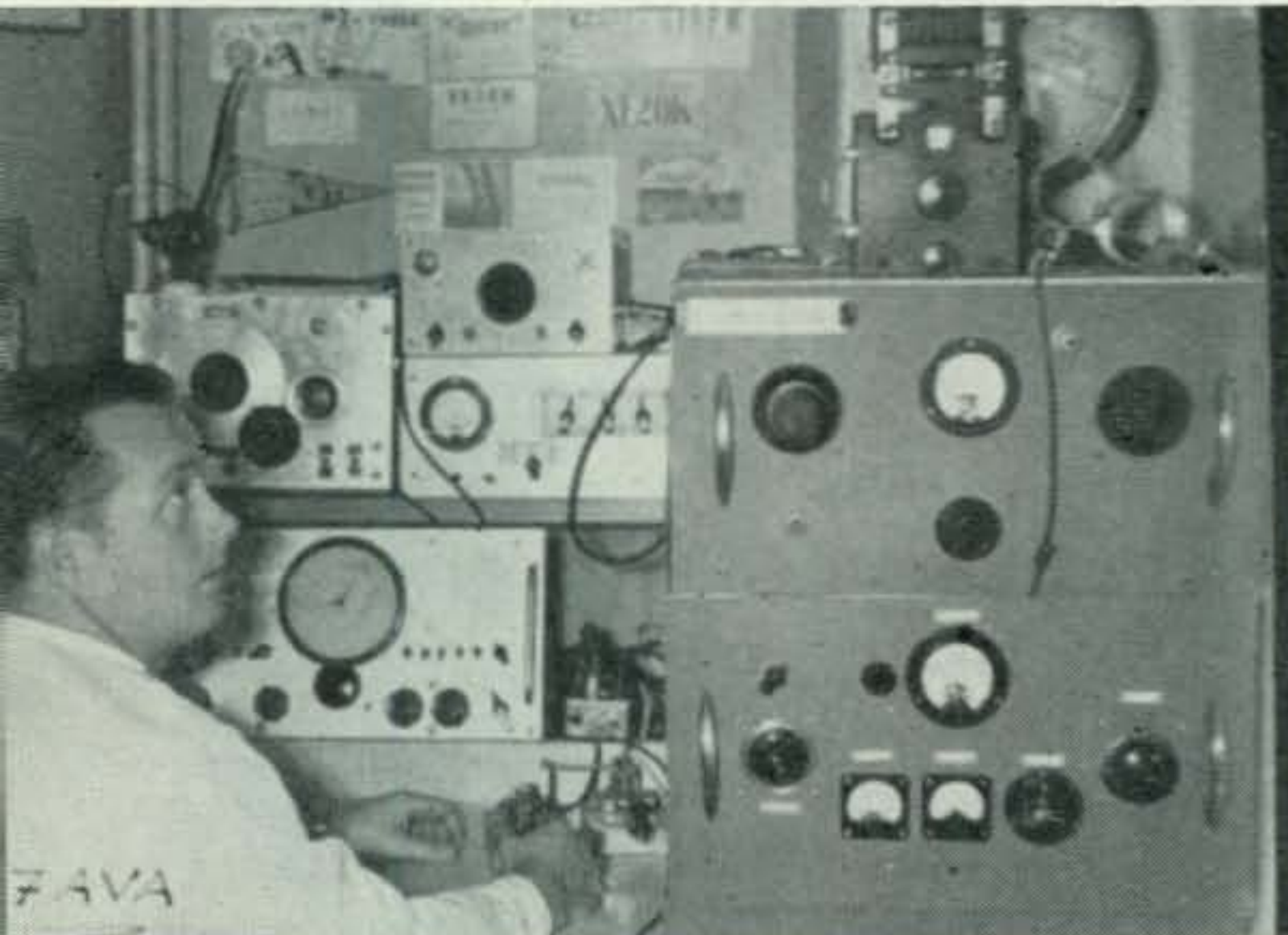
DJ1BZ—Lot celebrating his victory. High Man for Germany.

DJ2LK—Antenna set-up at DJ2LK.





5A5TE—Bob, 5A5TH on left and Jim, 5A5TE. This same pair did OK as 5A5TH in the Phone Contest. No wonder they're happy.



SM7AVA—Winner on 21 mc CW.

OH2YV/O — Nick, OH2XK takes time out for a smoke while John, OH2YV keeps Aland Is. on the air.



SP8CK—Winner on 28 mc. CW. He only uses the mic. to relax. Watch that RF coil Edward.



K6IEC	"	5,750	47	18	28	B
K6OXU	"	720	14	10	10	—
K6JGN	"	150	5	5	5	B
W6GHG	14	118,536	316	39	93	D
W6FOZ	"	103,092	279	39	93	D
W6CUQ	"	71,920	208	36	88	D
W6CYV	"	19,980	83	32	58	D
W6QDE	"	12,540	81	19	38	D
W6OKK	"	11,280	71	34	26	D
W6BIL	"	1,800	27	14	16	D
W6UFX	"	884	13	13	13	—
W6IBD	7	13,716	107	25	29	D
K6CQM	"	2,050	36	12	13	B

W7SFA	AB	311,684	436	97	171	D
W7QGF	"	204,228	311	92	152	D
W7PQE	"	101,136	222	69	103	D
W7GHB	"	36,992	110	54	74	C
W7EMY	"	17,181	85	34	49	C
W7LEV	28	9,792	82	18	30	B
W7AHX	21	33,852	150	29	55	C
W7EJD	"	10,962	65	19	39	D
W7DIS	"	1,488	20	14	17	—
W7VY	14	158,669	411	37	96	D
W7GWD	"	64,200	222	34	66	B
W7KOF	"	6,608	61	24	32	D
W7CAB	"	4,687	40	16	27	C
W7JLU	7	6,574	86	17	21	D

W8JIN	AB	741,334	771	113	228	D
W8OCT	"	376,166	483	92	185	D
W8TUO	"	240,944	297	77	119	C
W8RQ	"	228,906	342	82	161	C
W8EV	"	196,940	333	75	140	D
W8DUS	"	130,139	245	57	124	—
W8KPL	"	46,784	129	49	87	C
W8PWQ	"	16,380	77	39	52	B
W8MCC	"	10,143	51	26	43	B
W8DDK	"	3,256	30	18	26	B
W8WZ	28	90,843	303	32	75	D
K8AEK	"	60,000	216	31	69	B
W8UMR	"	21,680	107	26	47	B
K8BPX	"	12,449	77	20	39	B
W8KX	"	7,056	53	15	33	B
W8IBX	"	6,601	58	12	29	C
W8BMX	"	1,344	23	7	14	—
W8BDO	"	648	15	7	11	A
W8UPN	21	111,834	357	31	83	D
W8KIA	"	96,800	305	32	78	C
W8TTN	"	24,360	108	26	58	C
W8DUY	14	162,370	415	38	97	D
W8HUD	"	42,693	150	32	75	D
W8WBV	"	9,912	62	22	37	B

Alaska

KL7PIV	AB	202,125	648	59	106	D
KL7JDO	"	90,170	555	62	65	D
KL7WAF	"	64,752	757	38	38	D
KL7RZ	"	56,551	399	36	61	B
KL7BWR	"	31,132	243	32	54	D
KL7ALZ	21	35,226	446	21	36	B
KL7CDF	14	77,844	655	28	50	D
KL7GI	"	15,500	183	20	36	B
KL7BTF	"	2,040	80	9	11	B

Bermuda

VP9CY	AB	244,458	968	54	108	B
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Canada

VE1EK	AB	24,396	133	21	55	A
VE1EP	14	36,195	85	37	87	D
V02NA	AB	5,022	178	16	15	C
VE3API	AB	71,190	206	39	87	B
VE3AEJ	"	3,120	28	13	26	C
VE3IR	28	6,096	45	14	34	C
VE3JZ	14	14,560	100	19	37	D
VE5DZ	14	680	35	7	13	—
VE7ZM	21	23,904	126	24	48	C
VE7SB	14	27,413	131	29	50	D
VE80W	AB	60,990	397	45	62	B

Cuba

C07PT	AB	2,196	118	9	9	B
C02HB	21	1,220	116	5	5	B
C08BL	14	17,995	182	19	40	B

Costa Rica

T12CAH	AB	38,440	260	43	47	B
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Greenland

KG1GY	14	2,840	142	8	12	B
OX3DL	"	473	29	5	6	—

Mexico

XE2FA	AB	27,680	436	34	58	—
XE1CM	14	649	55	6	5	—

W8DFQ	"	4,649	31	12	20	C
W8FIT	"	3,784	37	19	24	B
W8FGX	7	32,984	155	24	52	D

W9HUZ

AB	378,510	451	108	202	D	
W9QIY	"	54,332	150	49	85	C
W9JJN	"	32,130	111	48	71	B
W9QNO	"	28,690	104	30	65	D
W9BQM	"	8,520	51	25	35	B
W9YYG	28	37,222	176	22	52	C
W9CUY	"	28,548	139	26	52	C
W9VZP	"	20,664	118	21	42	B
W9MUJ	"	20,460	123	20	40	B
W9NDN	"	19,722	119	18	39	D
W9WWJ	"	13,481	95	24	37	C
W9LIV	"	8,370	68	15	30	C
K9CWD	"	1,452	25	9	13	B
W90HH	21	27,813	186	23	50	—
W9NII	"	22,080	108	26	54	C
W9LJR	"	7,632	52	18	35	B
W9TKR	"	3,150	31	19	23	C
K9ALP	"	304	10	8	8	A
W91U	14	151,536	402	37	95	D
W9VIN	"	101,870	294	36	86	D
W9ERU	"	97,908	284	35	88	D
W9UKG	"	48,852	200	29	63	D
K9CLO	"	47,844	170	35	73	D
W9EU	"	27,040	103	30	62	D
W9OTS	"	18,744	103	20	46	—
W9VL	"	15,936	85	24	40	D
W9SFR	"	15,477	76	26	51	D
W9SDK	"	13,826	82	19	43	C
W9KXK	"	6,000	48	19	31	—
W9BZW	"	600	13	8	12	C
W9PNE	3.5	684	35	9	10	C

W0DAE

AB	151,140	257	79	141	D	
W0IFW	"	87,300	217	51	99	D
W0VBQ	"	77,404	183	51	97	D
W0GUV	"	57,152	146	61	91	C
K0DQI	"	4,492	54	24	33	B
K0ARS	28	7,348	66	15	29	B
W0AUB	"	4,059	36	13	28	B
W0VFE	"	1,320	25	10	12	B
K0ITF	21	32,560	152	28	52	D
K0BIT	"	27,255	128	25	54	C
W0ZKE	14	51,352	191	32	66	C
W0PGI	"	17,664	100	26	43	C
W0SVC	"	11,000	74	20	35	C
W0RAP	"	8,427	66	22	31	D
W0BCI	"	1,382	28	16	18	B
W0TKX	7	2,344	37	16	17	C

Panama

HPILO	14	17,013	237	19	34	B
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Puerto Rico

KP4WLU	14	3,564	51	14	19	B
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St. Pierre Miquelon Is

FP8AP	14	6,300	275	7	14	C
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Virgin Islands

KV4AA	14	8,148	204	10	18	D
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AFRICA

Algeria

FA8RJ	7	34,162	208	16	42	D
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Amsterdam Is.

FB8ZZ	AB	4,160	54	13	13	C
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Angola

CR6AI	AB	293,538	582	56	118	C
CR6FC	14	10,944	108	14	24	B
CR6CS	"	10,710	113	13	22	B

Belgium Congo

OQ5GU	AB	339,780	598	65	145	B
OQ5CP	21	41,769	225	23	40	A

Canary Is.

EA8BK	AB	7,470	84	11	19	—
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Ghana

ZD4CM	14	6,225	139	7	8	B
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Kenya

VQ4AQ	AB	668,388	1044	70	149	—
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Kerguelen Is.

FB8XX	14	2,160	28	9	18	C
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Morocco, French

CNSJX	AB	1,150	18	10	13	B
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Morocco, Spanish

EA9AP	AB	62,484	259	26	56	B
EA9BM	14	5,508	108	7	10	B

Mozambique				
CR7LU AB	7,000	65	16	24 B
Rhodesia, No.				
VQ2AS				
AB	175,279	436	49	90—
Rhodesia, So.				
ZE1JN AB	46,508	210	28	49 B
ZE3JO	42,066	181	31	51 B
Ruanda—Urundi				
OQ0VN 14	28,656	144	26	46 B
South Africa				
ZS5U AB	40,918	176	40	42—
ZS1O	3,255	38	18	13 B
Tanganyika				
VQ3GC				
AB	76,320	248	31	75 B
VQ3SS	28	13,406	166	7 20 B

ASIA

Bahrain Is.				
MP4BCG				
21	5,208	61	10	21 B
Burma				
XZ2TH 14	45,360	230	24	46 B
Ceylon				
4S7WP 14	28,792	170	22	37 A
Israel				
4X4BX				
AB	658,306	889	67	186 C
4X4FS	484,120	840	55	141—
4X4CK	323,380	565	53	132—

Japan				
JA1VX AB	416,584	813	64	109 D
JA7AD	138,086	420	47	66 B
JA1BFJ	49,932	160	51	63 A
JA2BL	15,768	75	34	38 A
JA3AA	11,658	73	29	29 C
JA1ACA	7,890	61	26	22 B
JA3CS	5,258	81	12	10 B
JA8FO	1,584	44	7	5 B
JA1QI	252	12	4	3 C
JA3AB	75,392	412	23	39 C
JA1CO	56,108	370	18	34 C
JA1EC	3,250	47	13	12 B
JA1ACB	83,880	396	24	48 C
JASAQ	29,610	162	23	40 B
JA9BE	24,075	186	19	26 B
JALAS	22,389	152	22	29 B
JA3BB	20,064	142	20	28 C
JA3AM	18,081	133	20	29 A
JA2JW	11,094	90	20	23 B
JA1AFF	4,316	60	13	13 B
JA3GX	3,168	35	16	16 A
JA1BQR	615	15	8	7 A
JA1AA	161,798	568	34	64 C
JASAA	108,416	416	31	52 C
JA2DN	27,898	139	30	44 C
JA1CC	17,800	156	18	22 C
JA5AA	16,167	107	23	28 B
JA1KF	12,040	110	19	21 C
JA2WB	9,635	93	18	23 B
JA1AB	574	16	8	6 B
JAINI	3,475	53	13	12 B
KA8KW 14	24,168	223	19	19 B
KA2MP 21	3,875	46	15	16 B

Lebanon				
OD5LX AB	130,559	310	43	100 B
OD5BZ 14	65,331	351	19	44 B

Mongolia				
JT1AA 14	6,842	108	11	11 B

Ryukyu Is.				
KR6BW				
AB	7,436	50	23	29—
KR6BF 21	44,744	237	27	41 B
KR6RY 14	32,704	193	29	44 C
KR6AK 7	9,800	106	17	18 C

Syria				
YKIAT AB	24,583	137	17	44—
USSR—Georgia				
UF6FB AB	6,302	49	15	31 B

EUROPE

Aland Island				
OH2YV/0				
AB	92,358	387	37	89 B
OH2XK/0				
40,984	262	33	76	B
OH0NC 28	288	24	3	9 B
Austria				
OE3VP AB	107,793	342	51	126 B
OE1TA	90,206	409	30	76—
OE6RP	54,405	211	47	108 A

OE5SD	30,324	190	23	53 B
OE6BN	15,622	144	21	52—
OE1RZ 14	64,024	245	33	73—
OE8SH	23,386	137	23	99—
Belgium				
ON4UF AB	24,779	125	34	37 B
ON4EG	6,570	85	13	29—
ON4LX	2,548	38	13	15—

Channel Islands				
GC3HFE				
AB	14,749	143	18	31 B
GC2FZC	8,738	103	15	19 B

Corsica				
F9QV/FC				
AB	173,340	580	45	90 B

Czechoslovakia				
OKIFF AB	578,694	895	77	181 B
OKIXQ				
AB	225,817	412	65	174 B
OK1KTI	121,125	572	30	65 B
OK1JX	81,836	277	46	118 B
OK1AEH				
42,180	202	35	76	B
OK3EE	41,151	179	35	94 B
OK1KCB				
33,725	196	25	70	B
OK1KDR				
27,360	209	24	66	B
OK2KTB				
21,888	109	20	52	B
OK1EB	18,492	201	28	64—
OK1AJB				
12,510	114	12	33	B
OK1KCF				
11,500	112	18	28	B
OK2KAU				
10,150	73	20	30	B
OK1ZW	9,169	121	19	34 B
OK2JL	8,236	156	13	43 B
OK1MP	7,619	110	11	43 B
OK1CX	2,720	36	15	25 B
OK2KEH				
1,530	90	8	22—	
OK1LM 21	144,627	585	28	69—
OK1MB	116,737	457	35	72—
OK2KBE				
14	27,999	258	18	43 A
OK2KLI	18,358	154	19	48 B
OK1LK	6,816	95	15	33 B
OK1VU	2,263	52	8	23 B
OK1JH	2,096	50	8	19 A
OK1UY	400	25	4	12—
OK2KBH				
330	22	5	10	A
OK1KJC 7	10,191	179	9	34 B
OK3EA	2,970	101	5	22 B
OK2NR/1				
525	36	3	12	A
OK20P 3.5	3,200	99	5	27 A
OK1ZA	2,813	105	5	24—
OK2LN	1,610	72	4	19 A
OK2BEK				
544	24	3	13	A

Denmark				
OZ7BG AB	377,000	553	85	205 C
OZ4FF	142,680	490	49	125 B
OZ6RL	8,586	68	13	27 B
OZ3SN	2,910	49	11	19—
OZ6HS	240	32	5	10 B
OZ7G 28	7,308	71	14	28 B
OZ4RT 21	1,802	39	8	26—
OZ3UD 14	4,901	109	7	22—
OZ9KC	3,536	82	9	25 B
OZ7BW	1,836	49	8	10—

England				
G3FPQ AB	429,975	714	72	173 B
G3FXB AB	386,334	660	69	165 B
G2DC	311,344	548	62	170 B
G3HCL	272,108	603	62	174 B
G3KKP	260,414	612	54	124 B
G3EYN	174,720	394	50	142 B
G2HPF	109,495	354	49	150 B
G3JVJ	105,792	292	48	126 B
G3KAY	91,848	311	53	127—
G3AJB	74,391	282	40	97 B
G3HBR	63,036	277	25	77 B
G6RC	51,483	183	43	80 B
G8DI	39,485	215	26	83—
G2AOL	38,226	165	45	93 B
G2TA	10,638	99	19	35—
G3KSH	4,032	59	12	36—
G3GUP	1,116	44	12	22—
G3IGX	836	20	8	11—
G3BHT 28	35,441	249	18	43 B
G2BVN	20,723	155	18	35 B
G3HTW	396	33	2	2 B
G3DOG 21	78,280	347	31	64 B
G3JSV	7,097	96	10	27 B
G2LB 14	213,112	701	36	100—
G4CP	145,464	631	38	85 B
G5RP 7	14,014	181	10	39 B
G3ESF	7,056	98	9	33 B

Finland				
OH1NK				
AB	202,312	459	63	146 B
OH4NT				
AB	154,721	389	66	151 B
OH7OU	54,990	187	44	97 B
OH2ZH	40,248	145	42	112 B
OH3UN	33,920	180	35	71 B
OH2GF	33,654	154	40	102 B

OH3RS	32,940	161	28	80 B
OH2HG	22,018	110	35	66 B
OH3UO	13,392	120	18	36 B
OH3TG	11,475	101	24	61 B
OH2LA	9,840	76	23	37 B
OH3TH	9,317	80	22	55 A
OH2KQ	6,900	50	27	42 B
OH3RA	5,066	43	23	34 B
OH3TI	2,704	34	18	34 A
OH2RD	1,900	45	11	27 B
OH1RX	1,860	39	11	20 B
OH2AA	1,584	36	11	22 B
OH2GG	608	35	6	13—
OH2RW	488	15	9	10 B
OH6RC	50	6	4	6—
OH3RU 28	13,912	168	13	34 B
OH5OU	13,426	178	14	34 B
OH2GC	4,798	97	8	21 B
OH3RA	2,419	30	14	27 B
OH6RC	2,380	44	13	25 B
OH5RH 21	45,815	357	17	38 B
OH5NJ	14,807	93	23	44—
OH3TY	7,685	69	17	36 A
OH3TE	6,642	70	13	28—
OH3TT	5,916	66	15	36 A
OH9QL	5,418	77	11	31 A
OH5OT	4,500	85	8	28 A
OH8QA	3,496	48	12	26 B
OH2LO	1,288	31	8	20 A
OH1SY 14	62,118	236	31	71 B
OH7NW 14	16,224	133	19	33 B
OH5OV	14,570	161	12	35 B
OH1TM	10,948	85	20	47 A
OH2IK	10,800	98	19	41 B
OH3NJ	10,608	107	14	38—
OH9OB	9,300	100	14	36 B
OH5RO	7,009	75	14	29 B
OH6QZ	6,630	65	14	37 A
OH5OA	5,133	73	12	17 B
OH1TA	4,730	73	11	32 B
OH2JF	3,458	61	10	28 B
OH1SN	3,444	38	15	26 B
OH2IZ	2,624	65	8	24 A
OH2VZ	1,196	28	7	16—
OH5PG	684	28	5	14 A
OH7NF 7	11,856	194	13	35 C
OH2ZR	5,840	137	7	33 B
OH2KE	4,218	122	8	29 B
OH8ND	2,052	74	5	22 B
OH3NY	1,971	63	6	21—
OH2HK	800	23	8	17 B
OH5OZ	442	24	5	12 B
OH8PZ	210	12	5	9 A
OH2MA 3.5	3,828	133	4	25 B

France				
F3AT AB	165,620	481	50	119—
F8TM	127,359	344	52	107 B
F8TQ	91,680	269	35	85—
F9BB	40,392	216	20	48 B
F9DW	9,455	71	22	38 B
F8DF 28	418	14	6	5—
F9RS 14	4,108	53	14	38 B

Germany				
DJ1BZ AB	587,970	821	87	195 C
DL7AA AB	471,828	632	95	192 C
DL7CW AB	345,040	635	66	161 C
DL7DF	204,978	366	78	176 B
DL3LU	178,126	352	72	149 C
DM2ABL				
135,648	408	49	108	C
DJ3KR	94,880	302	46	114 B
DL7EN	92,916	255	56	118 B
DL3ZI	88,290	256	52	110 B
DL7GQ	84,799	284	46	97—
DL7BC	78,570	209	61	133 B
DJ2KU	70,848			

Norway

Table listing radio call signs and frequencies for Norway, including LAIK AB, LA7X, LA2IG, etc.

Poland

Table listing radio call signs and frequencies for Poland, including SP3PL AB, SP2AP, SP5AA, etc.

Table listing radio call signs and frequencies for Poland, including SP2CX, SP5RP, SP9EU, etc.

Roumania

Table listing radio call signs and frequencies for Roumania, including YO3RF AB, YO2BA, YO7EF, etc.

Scotland

Table listing radio call signs and frequencies for Scotland, including GM3GUJ, GM3EOJ.

Sicily

Table listing radio call signs and frequencies for Sicily, including ITITAI AB, ITAGA.

Spain

Table listing radio call signs and frequencies for Spain, including EA4GA AB, EA1AB, EA3GF, etc.

Sweden

Table listing radio call signs and frequencies for Sweden, including SM5AQQ, SM61D, SM5ANY, etc.

Table listing radio call signs and frequencies for various regions including SM5KV, SM4KL, SM5AJU, etc.

Switzerland

Table listing radio call signs and frequencies for Switzerland, including HB9QR AB, HB0NL, HB9MO, etc.

U.S.S.R.

Table listing radio call signs and frequencies for U.S.S.R., including UAIDZ AB.

European

Table listing radio call signs and frequencies for European, including UAIDZ AB.

Ukraine

Table listing radio call signs and frequencies for Ukraine, including UB5TV, UB5CI.

Moldavia

Table listing radio call signs and frequencies for Moldavia, including U05AA.

Lithuania

Table listing radio call signs and frequencies for Lithuania, including UP2AT.

Estonia

Table listing radio call signs and frequencies for Estonia, including UR2BU AB.

Wales

Table listing radio call signs and frequencies for Wales, including GW3HJR, GW3LFM.

Yugoslavia

Table listing radio call signs and frequencies for Yugoslavia, including YU4UE.

OCEANIA

Australia

Table listing radio call signs and frequencies for Australia, including VKIALR, VK2GW, VK2PV, etc.

Borneo, British North

Table listing radio call signs and frequencies for Borneo, British North, including ZC5AL AB.

Hawaii

Table listing radio call signs and frequencies for Hawaii, including KH6IJ AB, KH6AYG, KH6CEX, etc.

New Zealand

Table listing radio call signs and frequencies for New Zealand, including ZLIMQ AB, ZL2AHT, ZL4BO, etc.

Papua Territory

Table listing radio call signs and frequencies for Papua Territory, including VK9XK.

Philippine Is.

Table listing radio call signs and frequencies for Philippine Is., including DU7SV AB.

SOUTH AMERICA

Argentina

Table listing radio call signs and frequencies for Argentina, including LU5AQ AB, LU8BAJ, LU7AS, LU2DMS.

Brazil

Table listing radio call signs and frequencies for Brazil, including PY2KD AB, PY7AN, PY7AFK, etc.

Chile

Table listing radio call signs and frequencies for Chile, including CE3AG AB.

Netherlands, W. I.

Table listing radio call signs and frequencies for Netherlands, W. I., including PJ2AV.

Peru

Table listing radio call signs and frequencies for Peru, including OA4FA AB, OA4BP.

Uruguay

Table listing radio call signs and frequencies for Uruguay, including CX2CO, CX2AM, CX9AJ, CX6CB.

Venezuela

Table listing radio call signs and frequencies for Venezuela, including YV5BJ AB, YV5FL.

MULTI-OPERATOR

NORTH AMERICA

United States

Table listing radio call signs and frequencies for United States, including WIWAI AB, WIAF, W2HTI, etc.

Alaska

Table listing radio call signs and frequencies for Alaska, including KL7PJ.

Grand Turk Is.

Table listing radio call signs and frequencies for Grand Turk Is., including VP5FH AB.

Africa

Table listing radio call signs and frequencies for Africa, including 5A5TE AB.

Libya

Table listing radio call signs and frequencies for Libya, including 5A5TE AB.

Morocco

Table listing radio call signs and frequencies for Morocco, including CN8IF AB.

South Africa

Table listing radio call signs and frequencies for South Africa, including ZS5DE.

Asia

Singapore

Table listing radio call signs and frequencies for Singapore, including VS1HU.

Ryukyu Is.

Table listing radio call signs and frequencies for Ryukyu Is., including KR6QW.

EUROPE

Belgium

Table listing radio call signs and frequencies for Belgium, including ON4SZ, ON4CK.

Bulgaria

Table listing radio call signs and frequencies for Bulgaria, including LZ1KPZ.

Czechoslovakia

Table listing radio call signs and frequencies for Czechoslovakia, including OK1AWJ.

OK1AWJ

Table listing radio call signs and frequencies for OK1AWJ, including OK1KCI.

OK1KCI

Table listing radio call signs and frequencies for OK1KCI, including OK1KKH.

OK1KKH

Table listing radio call signs and frequencies for OK1KKH, including OK1KKJ.

OK1KKJ

Table listing radio call signs and frequencies for OK1KKJ, including OK2KZO.

OK2KZO

Table listing radio call signs and frequencies for OK2KZO, including G3IZW.

England

Table listing radio call signs and frequencies for England, including G3IZW, G3FUR, G2BOZ, G3JUL.

Germany

Table listing radio call signs and frequencies for Germany, including DJ3JZ, DL1IN, DM3KBL.

DJ3JZ

Table listing radio call signs and frequencies for DJ3JZ, including DL1IN, DM3KBL.

DL1IN

Table listing radio call signs and frequencies for DL1IN, including DM3KBL.

Hungary

Table listing radio call signs and frequencies for Hungary, including HA5KBP, HA1KSA, HA1KVM.

HA5KBP

Table listing radio call signs and frequencies for HA5KBP, including HA1KSA, HA1KVM.

HA1KSA

Table listing radio call signs and frequencies for HA1KSA, including HA1KVM.

HA1KVM

Table listing radio call signs and frequencies for HA1KVM, including I1ALU.

Italy

Table listing radio call signs and frequencies for Italy, including I1ALU.

Poland

Table listing radio call signs and frequencies for Poland, including SP6KBE, SPIKAA, SP9KAD, SPIKBT, SP9KBH.

SP6KBE

Table listing radio call signs and frequencies for SP6KBE, including SPIKAA, SP9KAD, SPIKBT, SP9KBH.

SPIKAA

Table listing radio call signs and frequencies for SPIKAA, including SP9KAD, SPIKBT, SP9KBH.

SP9KAD

Table listing radio call signs and frequencies for SP9KAD, including SPIKBT, SP9KBH.

SPIKBT

Table listing radio call signs and frequencies for SPIKBT, including SP9KBH.

SP9KBH

Table listing radio call signs and frequencies for SP9KBH, including Roumania.

Roumania

Table listing radio call signs and frequencies for Roumania, including YO2KAB, YO2KBB.

YO2KAB

Table listing radio call signs and frequencies for YO2KAB, including YO2KBB.

YO2KBB

Table listing radio call signs and frequencies for YO2KBB, including Sweden.

Sweden

Table listing radio call signs and frequencies for Sweden, including SM7WT.

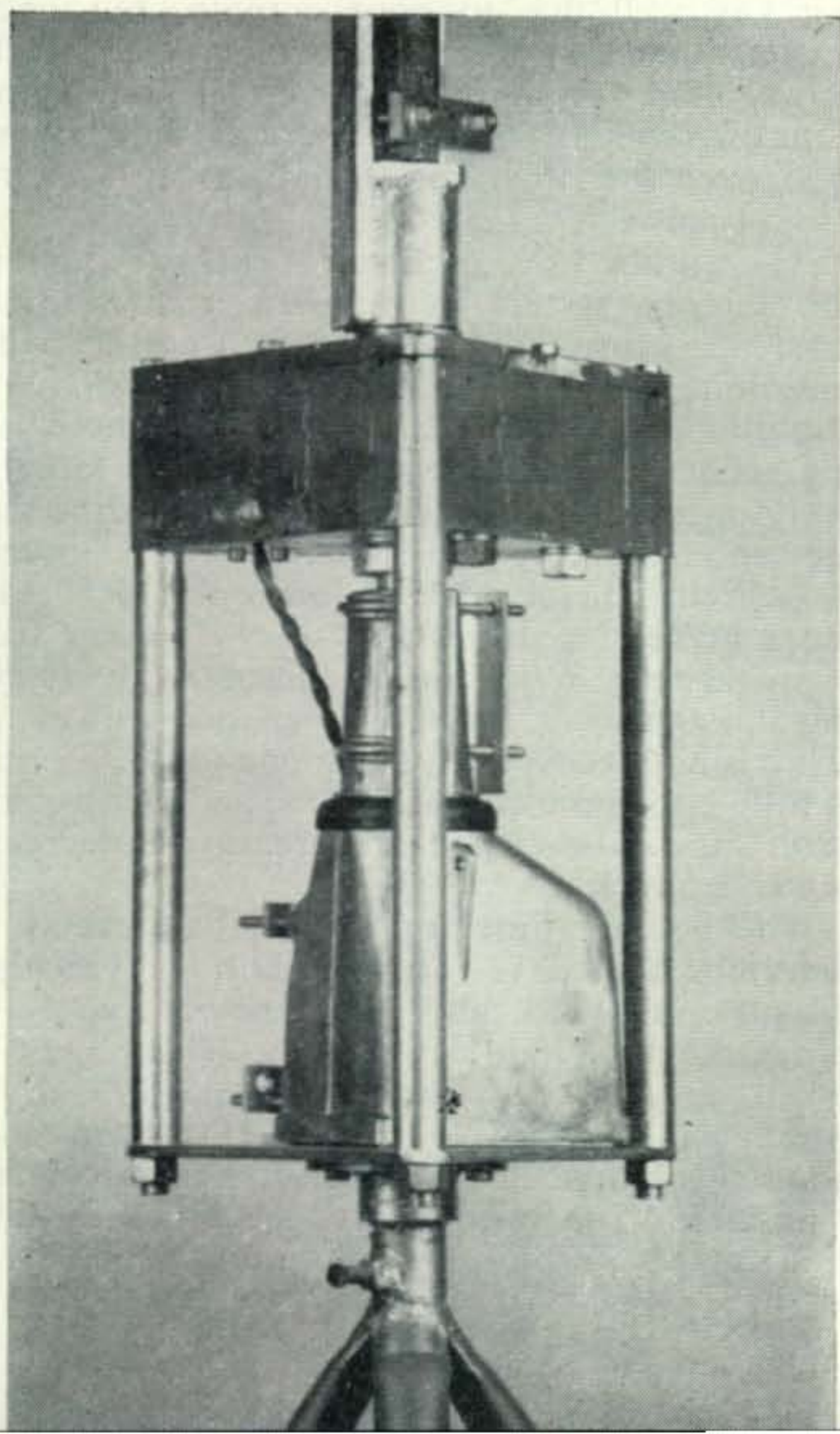
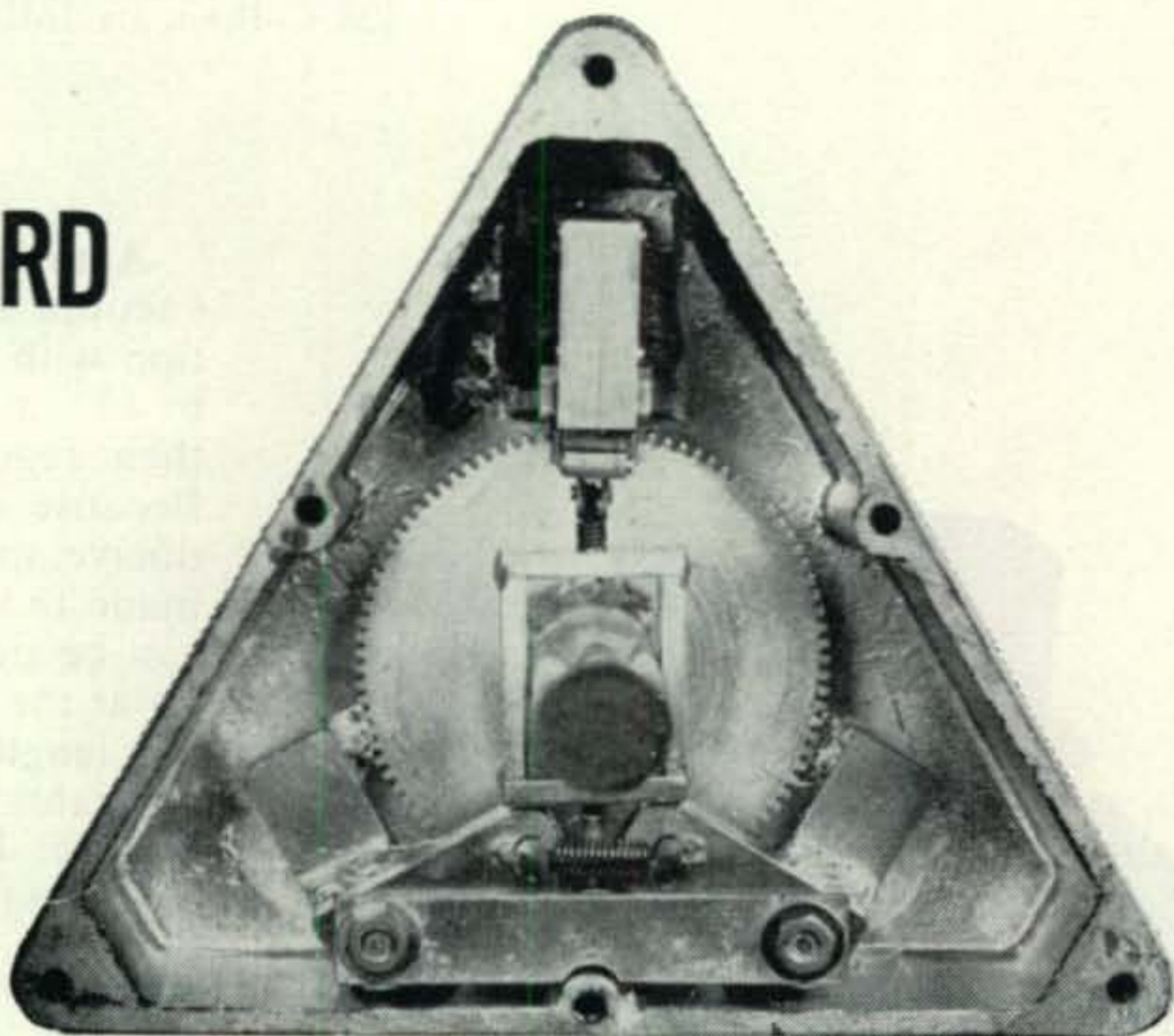
Switzerland

Table listing radio call signs and frequencies for Switzerland, including HB9WE.

[Continued on page 106]

New
Amateur
Equipment:

LIFE ROTOR GUARD



During factory tests, Life's Rotor Guard withstood 6000 pounds of torque load without brake failure. Enough to insure adequate protection under the most adverse weather conditions—when locked.

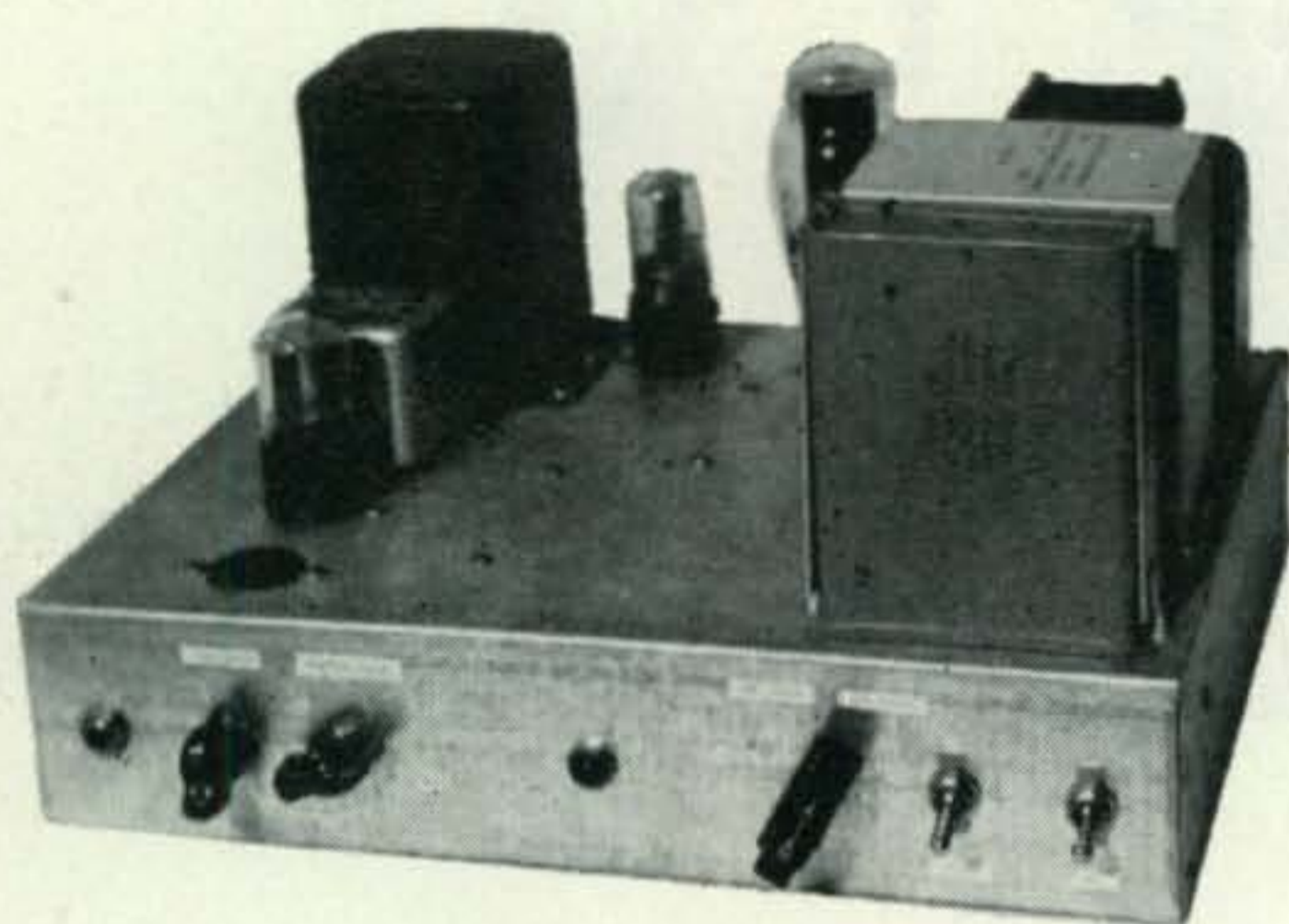
The brake housing is cast of special high tensile strength aluminum. Heavy duty Oilite flange bearings are used which will withstand over 2000 pounds of weight or downthrust. The 92 tooth—20 pitch gear is high strength alloy steel. Mating fixed gear teeth are sections of an 80 tooth—20 pitch gear electric welded to their respective arms. These gears are held in mesh by a single spring released by a 110 V solenoid when the rotator is turned on.

The unit is available either as a complete unit to be mounted above a tower or on a pole, or the brake unit alone can be had for inside tower mounting in towers with 9½" inside measurement or larger. The price of both units complete with relay control, less rotor is \$69.50 for above tower mounting and \$54.50 for inside tower mounting. For more information, circle AA on page 130.

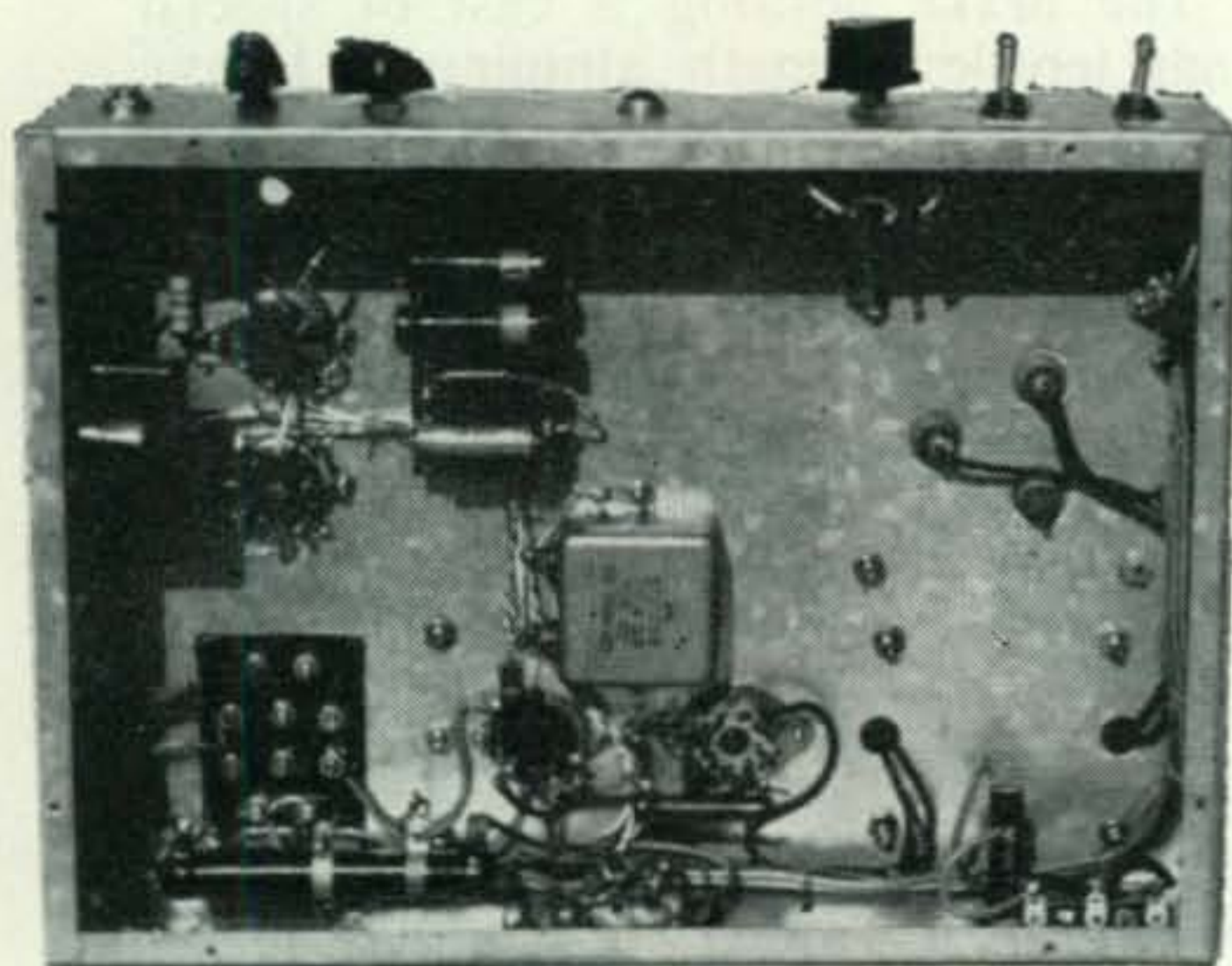
semi-sequential v.t. keying with one power supply

by ED MARRINER, W6BLZ

528 Colima, La Jolla, Calif.



Semi-sequential v.t. keyer and power supply for exciter.



Bottom view—Semi-sequential v.t. keyer.

Amateurs have written asking how the *6AS7 vacuum tube keyer could be used in conjunction with oscillator keying. Also if it is possible to obtain the negative voltage necessary from their regular low voltage supplies for a keyer. Because oscillator keying in itself is not conducive to good keying, a compromise can be made to obtain semi-break in keying. A circuit can be designed where by the oscillator comes on at the first dot. It can be adjusted to stay on any length of time. It is generally set to stop the oscillator between words to obtain the break-in feature. Using this method the final amplifier following the oscillator, thinks for all practical purposes the oscillator is on all of the time.

*6AS7 Vacuum tube keyer, E. H. Marriner W6BLZ May 1949 CQ.

Other advantages of this semi-break in system are: surplus crystals can be used which may not key well due to poor activity, but once started function well. One set of relay contacts can be used to mute the receiver for monitoring your own signal. This feature is a decided advantage over the other sequential keying systems using tubes.

The author uses an Electronic TR switch in the antenna system in place of a mechanical relay, therefore only one relay is necessary with this unit. However another 10,000 ohm relay could be put in parallel or series with the existing relay. Perhaps one of the contacts on the relay in the present unit could be used to operate another relay which has more contacts if desired. Thereby letting the operator break more power circuits if necessary or use a mechanical relay. With this circuit no relay is keying at high speeds, therefore an expensive keying relay is not necessary for bug operation. Keying is fully electronic and positive. The keying characteristic can be shaped by increasing or decreasing C-1 and R-1.

The holding time for the oscillator relay is determined by R-13. The special novelty of this circuit is that no other extra power supply is necessary to obtain v.t. keying. The power is taken directly from the exciter power supply which is loaded down with R-3, R-4, R-5 to give good regulation. The resistor R-3 and R-4 are tapped and run over to a two position switch.

This is used during fundamental crystal operation, whereby lower plate voltage can be applied to the oscillator. When the crystal oscillator circuit is multiplying the plate voltage on it can be increased to 375 volts by turning the switch, giving more excitation to the 807 stage.

Circuit Operation

The operation of the circuit follows along by closing the key. Next the grid of the 6AS7 rises to the cathode potential. Therefore with no bias the keyer tube internal resistance is low, about 150 ohms. The tube then completes the cathode circuit of the 807, keying it. The 470K and .004 mfd condenser provides the shaping of the keyed pulse on the make and break. There is no danger of shock due to the high value of series resistance R-7 and R-14. The key and 6AS7 tube are placed on the transmitter chassis and is not shown in the photograph. This was done to keep the cathode return to the 807 short. This enables us to ground R-1 near as possible to the 6AS7 which keeps any r-f pick up to a minimum. This r-f might prevent the 6AS7 from conducting as heavily as it should. The grid resistor of the 807 should be returned to its cathode.

You will notice the keyer tube has a separate filament transformer. Also that it is tied to the cathode of the first half of the tube. The 6SN7 was used in place of a miniature tube for a good reason. The cathode to filament breakdown is -200 volts. By using a separate filament transformer and tying the center tap to the cathode prevents the chance of the filament to cathode shorting. The filament is now near a safe limit

of the potential cathode to filament ratings.

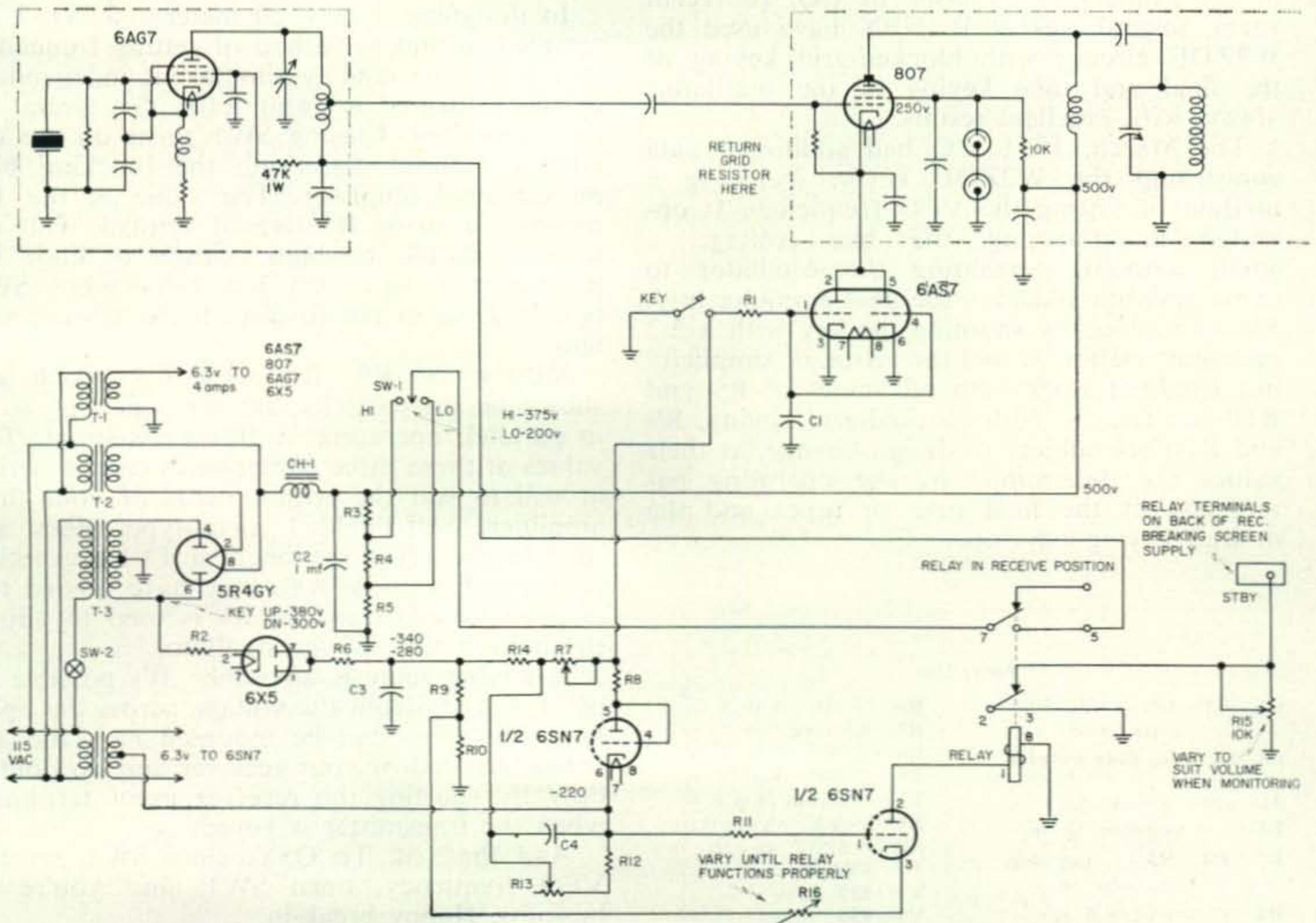
When the key is open the voltage on the grid of the second half of the 6SN7 is negative and the relay is open. When the key is closed the grid is positive. The triode section draws current and closes the relay.

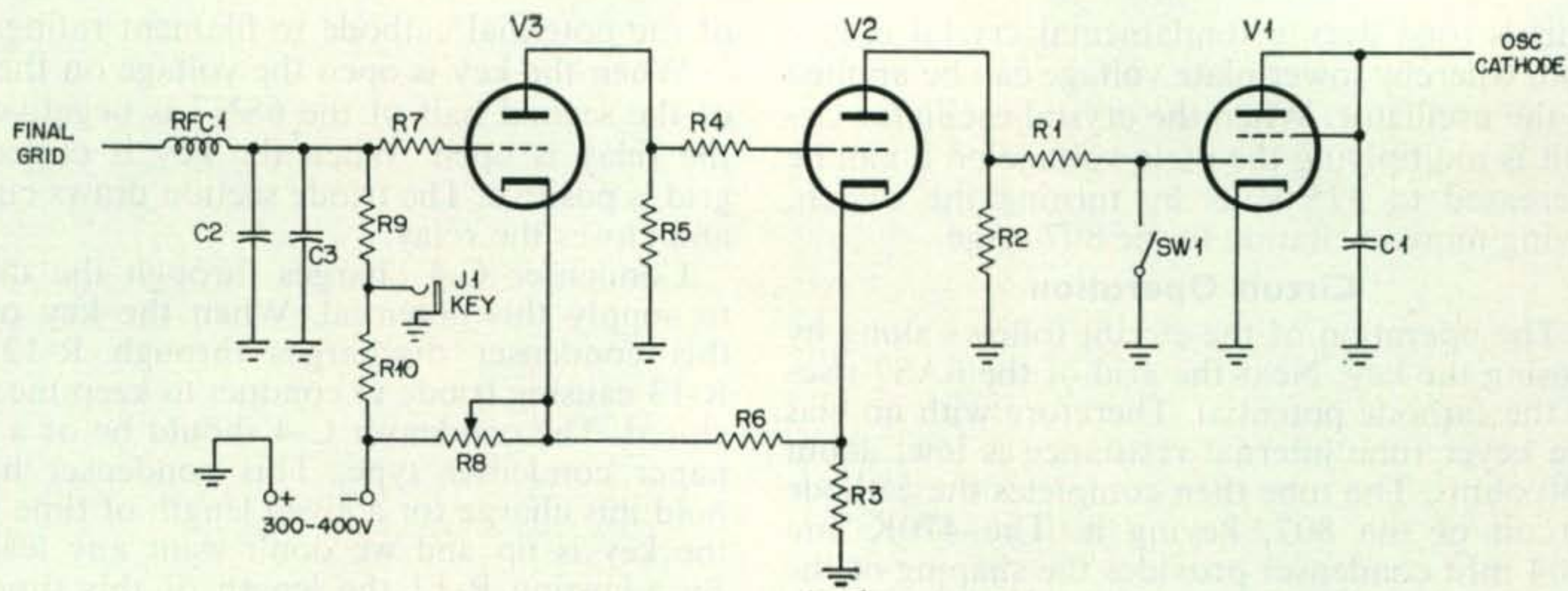
Condenser C-4 charges through the divider to supply this potential. When the key opens, this condenser discharges through R-12 and R-13 causing triode to conduct to keep the relay closed. The condenser C-4 should be of a good paper condenser type. This condenser has to hold this charge for a given length of time when the key is up and we don't want any leakage. By adjusting R-13 the length of this time can

[Continued on page 109]

PARTS LIST

- | | |
|--|---|
| T-1—Filament transformer
5 volts at 2 amps., 6.3
volts at 4 amps | R-12—1 megohm ½ watt |
| T-2—575-0-575 at 175 ma.
Transformer. Thordarson
21P89 | R-13—5 megohms potentiometer |
| T-3—6.3 volts at 1 amp fila-
ment transformer | R-14—20K potentiometer.
Replace with fixed 2 watt
when proper value found.
(see text.) |
| R-1—470K ½ watt | R-15—10K potentiometer |
| R-2—3000 ohms 10 watt | C-1—.002 to .004 mfd (high-
er C more lag.) |
| R-3, R-4, R-5—25,000 ohms
100 watt resistor tapped
for proper voltages as
shown | C-2—10 mfd 600 volts |
| R-6—2.2 k 2 watt | C-3—2 mfd 600 volts |
| R-7—1 meg. potentiometer
with R-14 100 k 1 watt in
series | C-4—.06 400 volts |
| R-8—500 ohms 1 watt | Relay—10,000 ohm double
pole through Leach Type
227 plug in unit |
| R-9—2.2K 2 watt | SW-1—Double-pole double-
throw switch |
| R-10—25K 10 watt | SW-2—ac switch double-pole
double-throw |
| R-11—1 megohm ½ watt | Chassis 10 x 14 x 3 inches |





VARIATION ON A KEYSER

One of the finer things in the life of a c-w man can be a differential keyer for his transmitter such as the unit described by W2ZDE in the January, 1951 issue of CQ. In recent years, several rigs at W4NBX have used the W2ZDE circuit, with blocked-grid keying of the final and tube keying of the oscillator; always with excellent results.

The March, 1951, CQ had additional data concerning the W2ZDE keyer, including a method of setting the VFO frequency. It operated by lowering the bias voltage a small amount, permitting the oscillator to come on while blocking the final amplifier grid. This was done by shunting the key with a 2.2 megohm resistor. It had the virtue of simplicity but wouldn't work with all values of R9 and R10 (see fig. 1). With blocked-grid keying, R9 and R10 are subject to design change, as their values are determined by the operating parameters of the final tube or tubes and the desired keying envelope.

by HOWARD SHEETS, W4NBX

1436 Gabriel Drive, Norfolk 2, Va.

In designing a new 20 meter c-w rig, I attempted to find a method of setting frequency that would be equally simple but independent of the values of R9 and R10. The circuit of fig. 1 resulted. Closing SW1 turns on the oscillator without disturbing the blocking bias on the final amplifier. The value of the 1.5 megohm resistor R1, is not critical. The resistance should be high enough to limit V2 plate current to a very low value when SW1 is closed, so as not to disturb the biasing system.

Values for R9, R10 and C3 which are shown on the parts list are for a pair of 807's in parallel, operating at 100 watts input. The values of these three components can be varied at will to suit the requirements of your final amplifier. Self-shielded metal-type tubes are used in the keyer section as a TVI preventive measure. For those who may have missed the original W2ZDE article, R8 is used to adjust the hold-in time of the oscillator.

A keying relay is advisable. It's possible to get a wee nip from the voltage across the open key. The relay can be mounted near the antenna terminal of your receiver and do double duty by shorting the receiver input terminals when the transmitter is keyed.

And that's it. To QSY, close SW1, set the VFO frequency, open SW1, and you're in business. Happy break-in. ■

Parts List

C1, C2—.001 mfd. 600v mica cond.	R6—15,000 ohm 2 w
C3—0.1 mfd. 600v tubular cond.	R7—6.8 megohm 1/2 w
J1—open circuit jack	R8—25,000 ohm 4 w
R1—1.5 megohm 1/2 w	R9—10,000 ohm 10 w
R2, R4, R5—1 megohm 1/2 w	R10—100,000 ohm 2 w
R3—40,000 ohm 5 w	RFC1—2.5 mh choke
	SW1—SPST switch
	V1—6V6 tube
	V2—6J5 tube
	V3—6J5 tube

SQUELCH FOR 92¢

by HERMAN LUKOFF, W3HTF

909 Glenview St., Philadelphia 11, Pa.

Nearly all squelch circuits developed to date require the addition of a fair number of components and extensive cutting into the second detector or following stages. Here is a circuit using two components that may be added to any receiver with the minimum amount of time and effort. Rewiring of existing circuitry isn't necessary which means the squelch circuit may be readily disconnected, a matter of concern for those who worry about the resale value of their receiver.

The discovery of the circuit was a rather interesting accident. One day while using my mobile receiver I realized that it was acting better than I had ever heard it before. As days passed the receiver's performance became superb. It seemed as though the signal to noise ratio had increased tremendously. As I tuned across the 10 meter band signals would pop up "out of the blue". Between stations there was dead silence—none of the usual 10 meter hash. I only hoped that the condition and whatever was causing it would stay that way, but as is the case with all unnatural conditions, it did not. Soon the squelching action became aggravated and only the stronger stations broke through. It finally got to the point where corrective action had to be taken.

I carefully removed the receiver from the car and placed it on the shop work-bench for study. The squelch action was traced to a leakage path in the second detector. A duo-mica capacitor bypassing the bottoms ends of the last IF transformer had developed silver migration and set up a leakage path of many megohms from B+ to the detector output. After replacing the capacitors the receiver reverted to its usual mode of hashy operation on 10 meters.

This experience gave me something to think about and before long I was duplicating the same squelch action in a perfectly normal receiver. Operation may be explained in the following manner.

R2C2, the RF filter, may or may not be present and is unimportant to the discussion. R1 is the diode load resistor which produces output directly or is split and becomes part of a noise clipper circuit. One added component, R3 is connected to the detector output and is fed from a source of variable DC voltage—the other added component R4. R3 is a high impedance current source which acts to force the diode into continuous conduction without the presence of signal. When weak signals or

background noise is received the current induced in the I-F transformer secondary subtracts from the R3 bias current but it is insufficient to overcome this current, consequently the detector output stays clamped at ground. When a stronger signal is received the signal current overcomes the bias current and normal detector action takes place. Since the bias current is derived from a potentiometer, it can be set at any arbitrary value to permit a predetermined level of signal to pass. In actual practice the arm of R4 is turned up to the point where all background noise is eliminated. At this point signals have the pleasing effect of popping up.

To clarify the operation a bit further, consider the analogous circuit of Fig. 2. With no signal present 200 microamperes of bias current flows through the diode and the output voltage is close to zero volts. If any signal up to a 200 ua zero to peak signal is applied, the output remains at zero volts because the diode is always in conduction essentially shorting the

[Continued on page 96]

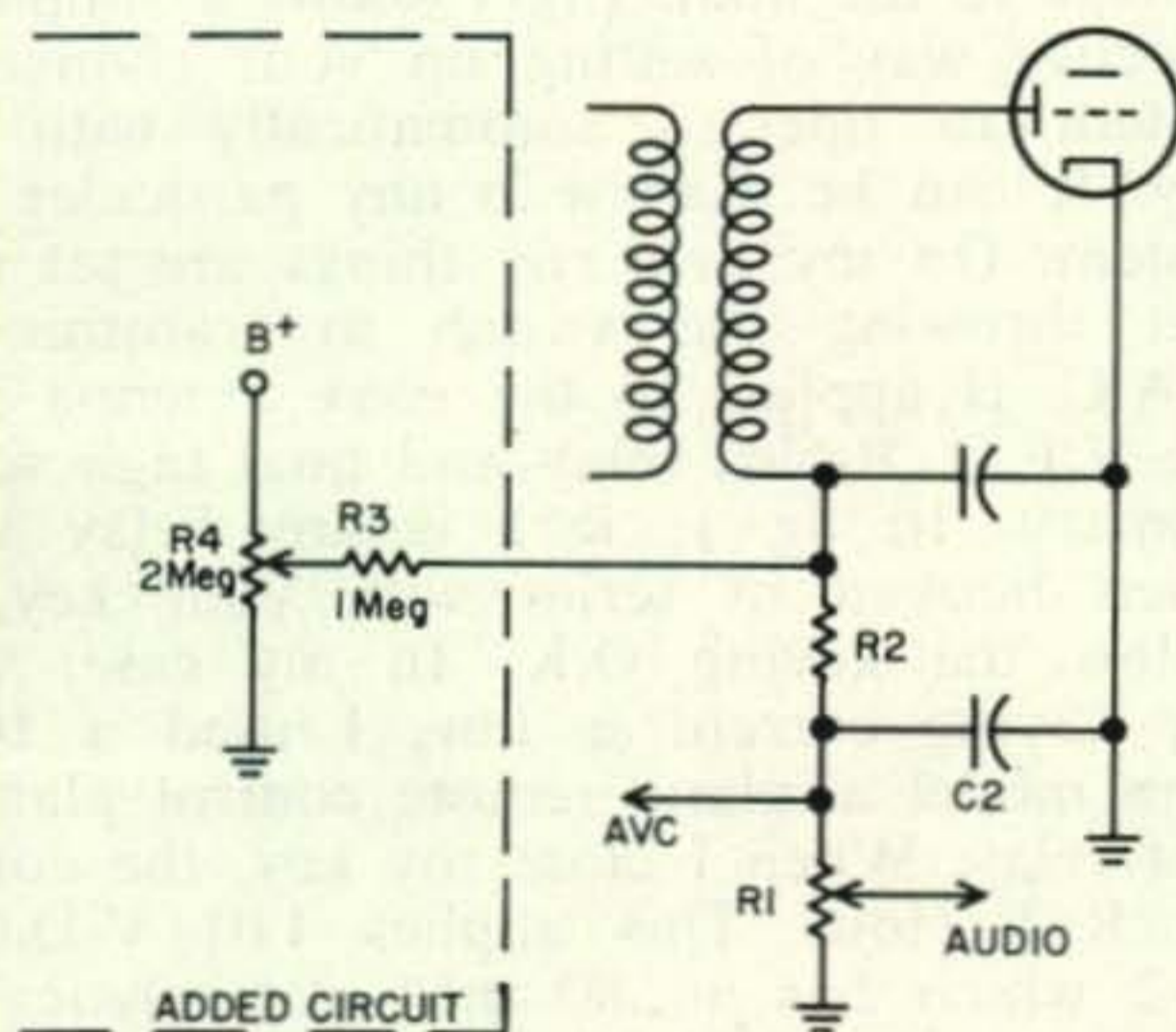


Fig. 1—Usual standard diode second detector circuit.

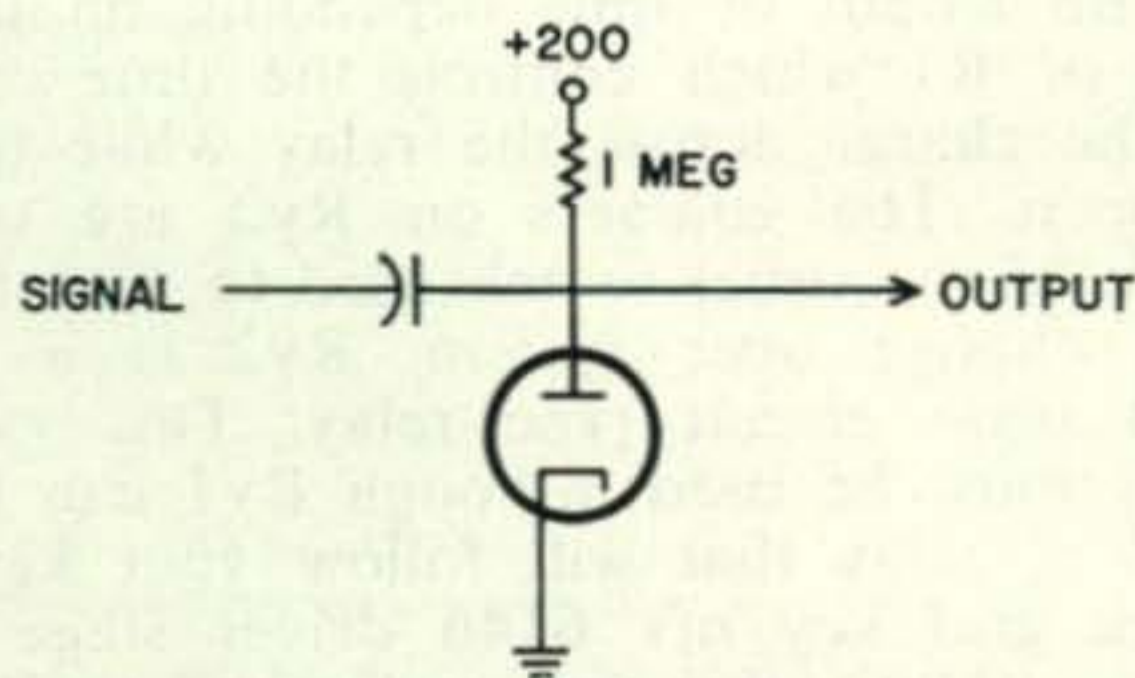
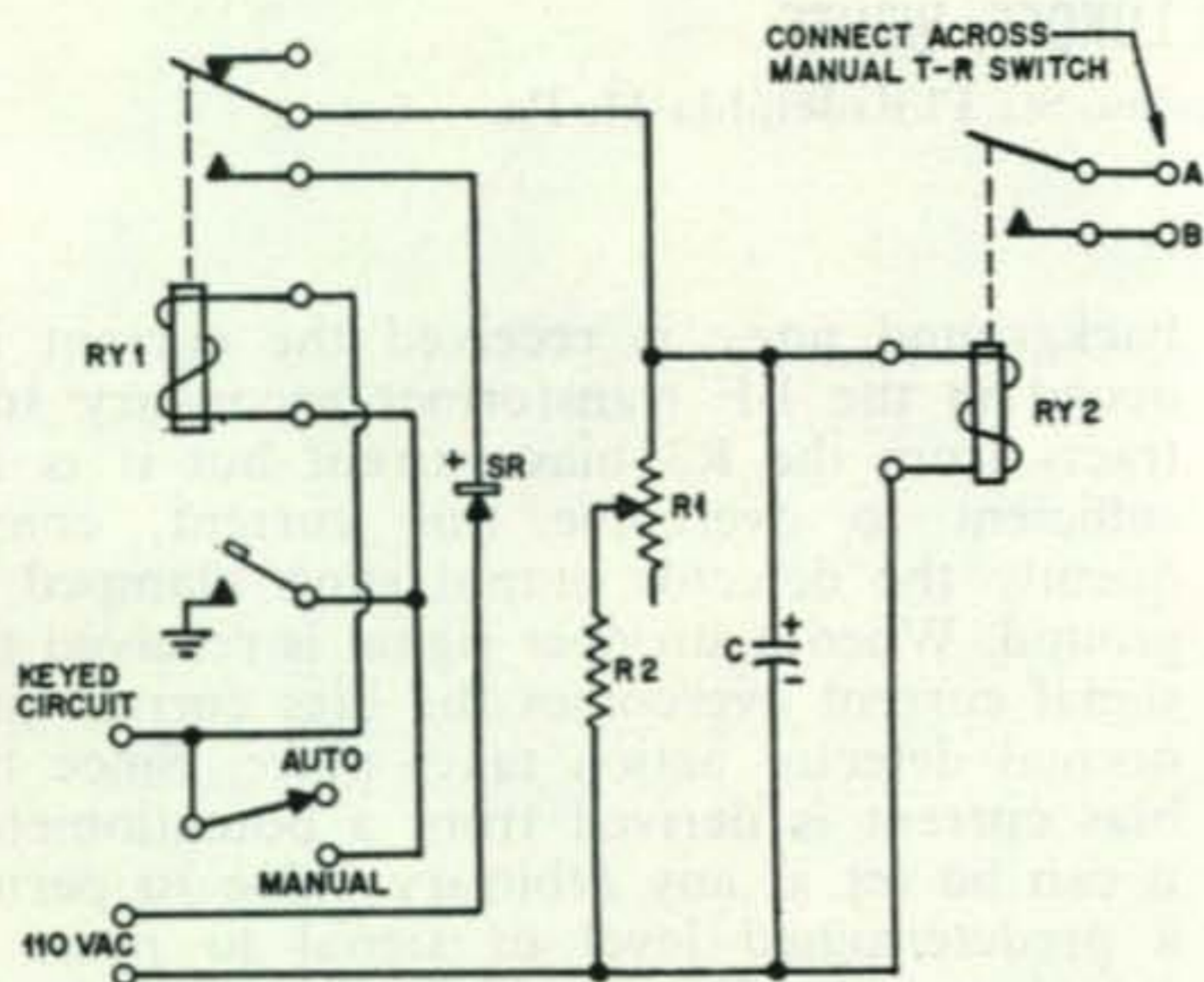


Fig. 2

VOICE CONTROL FOR CW

by FRANK S. COLLIGAN, W3RYX

6322 32nd St. NW, Washington 15, D. C.



- RY 1—ANY RELAY THAT WILL FOLLOW THE KEYING PROPERLY
- RY 2—10,000 Ω PLATE CIRCUIT TYPE RELAY
- R1 — 50 K, 2W POT
- R2 — 1500 Ω
- C — 80 mFD DUAL 40-40 150 VDC BOTH SECTIONS IN PARALLEL
- SR — 100MA SELENIUM RECTIFIER

[Fig. 1]

Here is a little gadget for those of you who like good clean break-in with the same antenna. For many years I used the conventional system of a manual t-r switch to change my antenna and turn on the VFO and high voltage to the final. Fig 1 shows a simple and effective way of setting up your change-over system to operate automatically with your key. It can be used with any particular relay system. On my own rig, things are set up so that throwing the switch to transmit, 110 V.A.C. is applied to the coax antenna relay, the V.F.O. B-plus relay and final high voltage primary. In fig 1, Ry1 is any relay which when hooked in series with your key, will follow the keying O.K. In my case, where my keying current is low, I used a 10,000 ohm model airplane remote control plate circuit relay. When I close my key, the contacts on Ry1 close. This applies 110 V.D.C. to Ry2 which has an 80 mfd electrolytic capacitor across it. The latter of course charges up and as you lift up on the key, it remains charged and thus holds Ry2 closed for a certain length of time depending on the setting of R1 which controls the time constant of the charge across the relay while the key is open. The contacts on Ry2 are used in place of the usual switch used to actuate your T-R change over system. Ry2 is a 10,000 ohm plate circuit type relay. This value of relay must be used although Ry1 can be any kind of relay that will follow your keying. I block grid key my 6146 driver stage and I use a 10,000 ohm relay identical to Ry2 because I am keying a low value of current.

The net result of this system is that your change over system will actuate the instant the key is closed. As you send along, the capacitor will hold the change over system in the transmit position. When you stop sending, altogether, the capacitor will discharge, Ry2 will open and then your change over relays will switch over to the receive position. The amount of delay time is controlled by the pot. R1. As you reduce its value, the time delay becomes shorter. Since most of us usually send at a pretty consistent speed, you can set it and forget it most of the time. You won't have to readjust it if you go from a medium speed to a high speed but it may have to be re-set if you suddenly go from a given speed to a lower one. This is to prevent the antenna relay from jumping back to receive in between words and sentences. Contacts A and B on Ry2 merely connect across your present manual change over switch. In the event that you want to use manual change over, all you need is a switch to short out Ry1.

For those of you who already have a voice control system on phone actuated by audio sampled from your speech amplifier, your relay contacts in your audio system need only close your keying circuit.

This simple C.W. "voice control" has proved to be very useful especially for fast breaking in contests as it's one less switch to bother with and one more hand free for the VFO, receiver or log. For those of you on cw who, like myself, insist on monitoring the signal back through the receiver, my own change over relays consist of a relay to change the antenna over, another one to turn on the VFO, one to turn on the final high voltage and lastly, a gain control relay in the receiver. When transmitting the gain control relay switches the receiver r-f gain control line in the receiver from the front panel pot. and hooks it to another pot. right next to the main one, the latter being already set to a predetermined low level. Thus when transmitting, the r-f gain automatically cuts down and you don't have to grab for it every time you start to send. All this requires is a SPDT 110 V a-c relay built into the receiver along with a pot. of the same value as the one used for the r-f gain control in your particular receiver. I fed my 110 V a.c. actuating voltage through a two terminal Jones plug and socket mounted on the back of my receiver. Pulling out this plug to take the receiver elsewhere to work on it etc. merely returns it to normal operation as originally set up in the factory. ■

Certificate Seekers Directory—Part IV

by H. S. BRADLEY, W2QHH
Hamilton, N. Y.

The ever-increasing stream of amateur awards continues and there arises the question as to whether they all merit listing or not. This is purely a matter of personal opinion and what is of interest to one ham, may not be to another in a different area. Our concern will be limited primarily to awards of interest to the dx-minded amateur, excluding for the most part; those available solely for the SWL, since these can better be handled thru publications specifically for devotees of that art.

Once again we turn to the news in the certificate field which has appeared since Part III of the "Directory" was issued in "CQ" for August 1956. Much of this information has appeared in these pages especially in the dx section, but if, like myself, you dislike cutting up

your magazine, you will find that it will readily bear repeating in the following organized form. Awards issued from dx spots will be first treated, these to be followed by their counterparts from various sections of the USA.

Australia—The Western Australia section of the W.I.A., Box N 1002, Perth, W. A. now issues an award known as "Z29A" for contact, since January 1, 1952 with 25 stations located in zone 29.2 sh/6d or 8 IRC's should accompany each application.

Belgium—WXBAS (Worked 10 Bruges Amateur Stations) should be applied for via D. Hilft, Box 38, Bruges, Belgium. A list of the required ten must include calls, date, time and frequency.

Bermuda—WABA (Worked All Bermuda Award) is granted for proof of contact with each of the 9 Parishes comprising the islands. Confirmations should be sent to VP9DC, Mr. Al Jones, Radio Society of Bermuda, Box 275, Hamilton, Bermuda, together with 10 reply coupons. The respective Parishes are: Devonshire, Hamilton, Paget, Pembroke, St. Georges, Sandys, Smith's, Southampton and Warwick.

Chile—The revamping of the old call-area set up in Chile which took place in 1956 has necessitated a change in the requirements for "WACE". South American amateurs must work at least 8 of the 10 present Chilean areas on two different bands, for a total of 16 QSLs. Amateurs outside South America need but a single card from each of these 8 areas. Certification of cards by a radio club affiliate of the IARU may be submitted in place of actual cards. The old rules which asked for a card from each of the 7 former Chilean districts (CEØ might be substituted for any one of the above if lacking) will still remain valid for WACE qualification, provided that all contacts were made prior to July 1, 1956 on which date the new rules became effective. CE3AG handles this award for the Radio Club of Chile.

Cuba—Meager information reports an award for working 20 CM/CO7 stations. It is suggested that CM7HQ may provide more complete details.

New Zealand's WAD is for vhf-ers. Below is the WAY award for "Worked all Yokosuka".



Denmark—The rules for "OZ-CCA" (The OZ Cross-Country Award) as previously enumerated in these pages appear to have been amended in respect to those amateurs outside Europe. Basis for scoring on their part are the areas OZ1 thru OZ9, OY1-OY9 and OX3, operated by Danish nationals. Three stations in each area may be contacted on each band at 1 point per contact on each dx band and 2 points each for 144mc qsos comprising a total of at least 50 points. The rules for Scandinavian and other European amateurs are detailed and complicated, each being based on a different geographical set-up and divided into two types of awards. Said rules are likely treated in complete detail in European publications so we shall concern ourselves primarily with those only for the non-European dx man. At any rate, a personal set of rules may be had for the sending of 2 IRC's to the Traffic Department of the E.D.R., Postbox 335, Aalborg, Denmark, to which address QSLs and accompanying lists for certificate applications should also be remitted. Contacts must be after August 1, 1947 and the fee is covered by 5 reply coupons.

England—A new "British Double Century Award" is offered by the TOPS CW Club (GW8WJ Secretary) to any amateur in the world who proves contact with 200 United Kingdom counties (as in WABC) totalled from operation on 3 bands (no more, no less). Choice of bands is left to the applicant's discretion and he may count QSOs with the same station on each of the 3 selected bands. Log copy (plus a fee of 5 sh. for non-TOPS members) covering contacts after January 1, 1957 should be sent to GW8WJ. The QSLs themselves may later be requested by the club. Possible fee for TOPS members had, at latest notice not been determined.

TOPS Century Certificate—The above mentioned club also offers a second diploma for contact with at least 100 other club members scattered throughout the world, after 1/1/1954 and during any given 3-year period, of ones own choice. No fee is involved and log extract will serve for application. It is suggested that membership numbers should, where possible, be exchanged during these contacts.

WLA—Two sets of rules for "Worked Liverpool Award" have come to hand, thanks to G3JHZ and G8DI via KN2TUU. Since they bear differing requirement totals it is hoped that those enumerated herewith are the revised set. Amateurs outside the immediate area covered by the Liverpool club may apply with confirmations as follows:

- Grade I—Stations outside Europe—5 Liverpool contacts
- Grade II—Europeans outside the British Isles and Eire—10 Liverpool contacts
- Grade III—Stations in British Isles and Eire other than in Grade 4—15 Liverpool contacts
(The 3 foregoing on any band or bands)
- Grade IV—Stations in Lancashire and Cheshire counties—20 Liverpool contacts, on 160 metres only

Contacts must have been effected after January 1, 1956 and application should be made

with 6 IRC's (U.K. 2/—) to cover registered return of cards, etc. to: G3BHT, Hove To, Sandy Lane, Hightown, Nr. Liverpool, England. The following list of hams active from Liverpool area may be found useful in one's search for the above:

G2AD	G8RI	G3BHT	G3GRP	G3IZT	G3KKU
G2OA	G2ARV	G3BWR	G3GST	G3JBJ	G3KOR
G4BM	G2BBI	G3CSL	G3GUX	G3JDT	G3KRX
G4GH	G2BCG	G3CSW	G3HAA	G3JIR	G3KSE
G4QC	G2DAT	G3DOK	G3HAG	G3JMH	G3KVB
G4QD	G2DVA	G3DVI	G3HDL	G3JMQ	G3KVE
G6KS	G2DWB	G3ELL	G3HII	G3JPJ	G3LCO
G6TT	G3AEF	G3EMO	G3HVR	G3JTC	G3LEU
G6YQ	G3AHD	G3ETH	G3IFW	G3JUA	G3LIS
G8DI	G3AIL	G3EWU	G3IQO	G3JUB	G3LIU
G8JU	G3AIM	G3EWZ	G3IVT	G3KBT	
G8OB	G3AVL	G3FMA	G3IWJ	G3KFC	

France—DPF is issued by the R.E.F. for proof of contact with at least 16 of the existing 17 French provincial areas, all since 1/1/1951. Cards go via F8TM, Lucien Aubry, 7 rue Marceau, Palaiseau (S&O), France. The provinces and the abbreviations used to designate each, are listed below:

Alpes—AP	Corsica—FC	Normandie—
Alsace-Lorraine	Franche-Comte	NM
—AL	—FT	Poitu—PT
Auvergne—AV	Gascogne—GC	Provence—PV
Bourgogne—BG	Ile de France—IF	Touraine—TR
Bretagne—BT	Languedoc—LG	Ville de Paris—
Champagne—CP	Nord—ND	VP

DUF—Applications for this previously-treated award should be sent to F9IL, Edmond Dubois, Aubencheul-Au-Bac par Aubigny-su-Bac (Nord), France. No fee is required for either of these French awards and 5 IRC's will cover return service on each on each 20 cards, via registered mail. A silver medal for those attaining DUF-4 is available at a cost of some 23 IRC's. Following is the list of French subdivisions utilized for DUF purposes, and code-letter designations for each where the call-sign prefix may cover more than one such area:

Adelie Land—FB/TA	Dahomey—FF/DH
Amsterdam-St. Paul—	Fr. Guinea—FF/GN
FB/SA	
Comoro—FB/CM	Haute Volta—FF/HV
Crozet—FB/CZ	Ivory Coast—FF/CI
Glorieuses—FB/GS	Mauretania—FF/MA
Kerguelen—FB/KG	Niger—FF/NG
Madagascar—FB/MD	Sahara—FF/SH
Nossi-Be—FB/NB	Senegal—FF/SG
St. Marie—FB/SM	Soudan—FF/SD
New Caledonia, I. of Pines	Toubouai, Austral I.—
—FK/NC	FO/AT
Loyaute, Fuon, Chester-	Tuamotou, Gambier—
field—FK/LT	FO/TG
Clipperton—FO/CL	Gabon—FQ/GB
Marquesas—FO/MQ	Moyen Congo—FQ/MC
Rapa—FO/RP	Oubangi-Chari—FQ/OC
Society—FO/SO	Tchad—FQ/TC

Germany—Via the TOPS bulletin comes the announcement of a new "DLD" award for working 100, 150 or 200 of the approximately 280 "Doks" or districts in Germany. Non-European applicants may use any bands while those in Europe are limited to 40 and 80 metre operation for this award. All contacts must date from 1/1/1956 and confirmations of same, with 10 reply coupons should go to the DARC, Box

99, Munich 27, Germany.

WADM (Worked All DM) involves contacts with the 15 districts of East Germany. Contacts on 3.5, 7, 14, 21 and 28mc count one point each and a bonus of 4 or 5 points respectively may be claimed if the same station is worked on each of 4 or 5 different bands. Four grades of WADM (cw only or fone only) are available as follows from G.S.T., Neuenhagen/Berlin, Langenbeckstr. 36-39, East Germany:

Part 4-10 districts and 20 points (14 points for non-Europeans)

Part 3-13 districts and 40 points (28 points for non-Europeans)

Part 2-15 districts and 100 points

Part 1-15 districts and 150 points

The 15 DM areas, indicated by the last letter in the call-sign are listed herewith:

A—Rostock	F—Cottbus	L—Dresden
B—Schwerin	G—Magdeburg	M—Leipzig
C—Neubrandenburg	H—Halle	N—Karl Marx Stadt
D—Potsdam	I—Erfurt	O—Berlin
E—Frankfurt/O	J—Gera	
	K—Suhl	

WAE — Among changes in the newly composed rules for the 3 grades of this award is a deletion of Pelagic Islands from the "country" list applicable for same and the addition of Bear Island, plus the insertion of Aaland Island (OHØ) as an alternate for 9S4, making a total of 60 countries recognized in the European theatre. Resumption of contact with amateurs of the USSR having been established, substitute countries for the various "U" countries no longer apply. Totals for the respective classes remain as before: WAE-111, 40 countries and 100 points; WAE-11, 50 countries and 150 points; WAE-1, 55 countries and 175 points. Likewise, contacts on 1.7, 3.5, 7, 14, 21 and 28mc count one per band and on any VHF band, 2 points per country. Non-European hams may claim 2 points for each of their 80 and 160 metre contacts. Where previously one might select but four bands for compilation of his totals, the same 4 for each country concerned, it is now allowable to select any four desired bands for each individual country, not necessarily the same 4 as for other countries worked. Contact with the same European station on 5 different bands earns a 5 point total for that country. Only cw to cw and fone to fone qsos and those with fixed stations or land mobiles apply for WAE and but one change of QTH of over 50km (30 miles) within the same country may be made. Contacts with stations less than 20km distant are not credited. Recipients of WAE-1 prior to December 1, 1958 will receive a special WAE-honorary-membership in the DARC with a non-expiring subscription to the official club publication "DL-QTC", plus a silver medal. Class 111 requires 12 IRC's, Class 11, 8 and Class 1, 20. DX amateurs are especially requested to mail their QSLs via 3rd class or business-letter post to avoid incurring unnecessary customs charges on the part of the DARC. Special blanks are provided for applicants and are available from DL7AA, DARC DX Bureau, Berlin-Rudow, Fuchsienweg 51, Germany, to whom also, QSLs should be submitted for WAE.

WXHS—Issued by the "OV Hagener Sendeamateure" for contacting the hams of Hagen. Non-Europeans must work 3 Hagen stations, Europeans outside of DJ-DL land must work 5 and DJ-DL operators must contact 10. A contact with the same Hagen amateur on 3 recognized bands earns an added point. Log extracts with details on all contacts as to time, date, band, call-sign, etc. should be submitted with 2 reply coupons to DL1MS, Hermann Zimmerhocker, Hagen/Westf., Lutzowstr. 58, Germany, as qualification for WXHS. Included in the membership of the Hagen group are: DL1MK, 1ML, 1MN, 1MP, 1MQ, 1MR, 1MS, 1MT, 1NS, 1RS, 3IM, 6BB, 6BI, 9NU, DJ2FV. Thanks to KP4KD for relaying the foregoing data.

Guatemala—"DCA" (Diploma Centro America) is now issued by the Club de Radio Aficionados de Guatemala, Box 115, Guatemala City, Guatemala for contacts (fone only, and in Spanish!) with each of the Central American republics or 6 stations in Guatemala between 0000 and 2400 CST on the 15th of September, the anniversary date of the independence of these republics. Logs covering contacts should be submitted to the club prior to November 15th and those earning the certificate may add endorsement stickers for a repeat on future independence anniversaries. Many thanks once again to KP4KD for his courtesy in translating the rules which appeared in "Español".

Hawaii—KH6AU of the Hilo Amateur Radio Club's Awards committee, Box 1659, Hilo, Hawaii adds some details regarding their award(s) previously mentioned in the "Directory". Contacts must be made after September 1, 1953 and the 5-QSO and 15-QSO awards, while actually different, bear the same general appearance. The 15-QSO award, while primarily for other KH6's, is also available for fortunate and ambitious dx men in other parts of the world.

Honolulu "Disaster Net" Mobile Award — According to K6EXQ, contact with 5 club member mobiles is the basis for this one. She also relays the information that QSLs are not required for the various Hawaiian certificates, but log excerpts complete in all detail should be sent with any application. Further inquiry may be made from KH6CH on the above.

Japan—The JARL, Box 377, Tokyo, Japan is reported to have enlarged upon its issue of awards for that area. The first, **WAJA**, is granted for contact with at least 46 Japanese prefectures (states), while **JCC** (Japanese Century Cities) is earned by qso with 100 different "J" cities since July 30, 1952. Ten IRC's are required for this award. Information as to exact total of the 3rd is not yet available, but it is said to be based upon one's working (postwar), at least 30 of the following Asian countries: Sikkim, Tibet, Bhutan, Pakistan, China, Formosa, Manchuria, Goa, Macau, Iran, VietNam, French India, Korea, Siam, Saudi Arabia, Japan, Jordan, Ryukus, Bahrain, Kuwait, Qatar, Trucial, Oman, Lebanon, Turkey, TannuTuva, Asian

USSR (UA9/Ø), Azerbaijan, Georgia, Armenia, Turkoman, Uzbek, Tadzhik, Kazakh, Kirghiz, Singapore, Malaya, Hong Kong, Aden, Maldives, Sultanate of Oman, India, Laccadives, Laos, Burma, Afghanistan, Iraq, Syria, Cyprus, Palestine, Ceylon, Israel, Yemen, Nepal, Wrangel, Mongolia, Cambodia, Andaman and Nicobar Is. Ten coupons are also required.

"88-JA8" granted by the Hokkaido branch of JARL, c/o JA8AC, North 3rd Ave., East 3rd St., Sapporo, Hokkaido, Japan for working 88 stations in the JA8 section after July 31, 1952. The same station worked on a different band counts as a different contact, but the award is hardly one to which East Coast dx-ers will aspire! However, "88-JA8/2" based on half the above totals may present an easier task of achievement. Lists of contacts for either should be accompanied by 10 IRC's as application.

"WAY" (Worked All Yokosuka) is now being issued to those proving qso with at least 3 of the KA's active from this naval base. Active members include: KA2AA, AD, LA, MP, NY, RM, RR. Address Navy Mike and Key Club, Box 73, Navy 3923, FPO, San Francisco, Calif., USA.

WTFKAS (Worked 25 KA Stations)—From KA2CA, the Secretary of the FEARL comes announcement of this new certificate based upon working 25 different KA stations. A letter from a recognized radio league, club, or etc., confirming such contacts with suffice, but ample postage for return of one's QSLs should be included if the cards are submitted. Apply to Awards Manager, FEARL (M), P.O. Box 111, APO 500, c/o Postmaster, San Francisco, Calif., USA.

WJDXRC—Latest information regarding this already-reported award states that applications should be addressed directly to JAICJ, Hiroji Ikeda, 33 Oimatsu, Bunkyo, Tokyo, Japan, together with 5 IRC's upon completion of contact with at least 5 of the Japan DX Radio Club's membership. Some new calls not appearing on the original list include: JA1AA, AF, AG, EF, 2SM, 3AA, 43G, 6HK, 60I, 9AB, ØAA.

Thru kindness of K2MQO we have at hand a copy of the novel **"Honeybucket Hollow Gabfest Society"** diploma given to those who have undergone the many trials and tribulations (plainly enumerated on the award) of operating from KA2YA. Since this is not available to outside amateurs its interest will be necessarily limited in scope.

Labrador—"WAG" (Worked All Goose) is now offered by the Goose Bay Amateur Radio Club for contacts with VO2 stations since April 1, 1957. W/K and VE/VO stations must work 5 while amateurs elsewhere in the world need but 4 to qualify. Submit your list with 3 coupons to VO2AB, O. S. Harvey, c/o Dept. of Transport, Goose Airport, Labrador, Canada.

Mozambique—The Beira Branch of the Liga dos Radio-Emissores do Mozambique, in honor of the 50th anniversary of the town of Beira will recognize amateur achievement in effecting

contact with Beira hams during the month of August 1957. Stations in CR6, CR7, FB8, OQ5, VQ2, VQ3, VQ4, VQ5, ZE and ZS lands must contact 4 Beira stations and others need work but 2. Bands to be utilized are 10, 15, 20 and 40 metres only. CR7BN, CP, CY, DI, DQ, DS, IT and LU are Beira stations valid for the award. One's QSLs destined for any such CR7's contacted should be sent via CR7BN, P.O. Box 875, Beira, Mozambique, Portuguese East Africa, to reach that destination not later than October 31. Two IRC's should also be enclosed, to cover return of the cards from the CR7 stations. The award, if earned, will be signed by the mayor of Beira.

"W-CR7-A" Thanks to CR7IZ and ZS4MG, information relative to two other **LREM** awards is at hand. As with the Beira award, stations in the near-by countries enumerated, must work 25 CR7 stations and stations elsewhere in the world 15, all after January 12, 1949. QSLs should be remitted with a list of the contacts, and if any cards are lacking, the LREM secretary will endeavor to obtain such needed for completion of the award. Application with 5 coupons should go to Caixa Postal 812, Lourenço Marques, Mozambique. The second award, known as "CR25" requires 25 cards from CR4, CR5, CR6, CR7 and CR9 stations and these should be submitted to the LREM address listed above.

Netherlands—Word via W6 land gives an address for **PACC** application differing from that which was last available. Cards should be submitted direct to the Communications Manager of the VRZA, Pete M. Huybregsen, Linnaeusparkweg 131, huis, Amsterdam, Netherlands. May the W6 who gave us the above info pardon our inadvertent loss of his call-sign!

New Guinea—"W-VK9-A" is reported offered by the Rabaul Amateur Radio Club for working 4 stations in the Territory of New Guinea, 4 in Papua and one on the Island of Norfolk, all dating since January 1, 1956.

New Zealand—Contact with 15 members of the Palmerston North Radio Club is said to earn a special certification. Other details may be obtained upon inquiry of one's contacts in that area.

WAD—An award, limited to v.h.f. bands, is being offered by the NZART for contact with an amateur in each of the 4 radio districts of the Dominion of New Zealand. Address for applicants is contained in the ensuing paragraph.

WAZL—First issued as a localized ZL award, Worked All ZL has now been offered to all amateurs of the world by the NZART, Box 489, Wellington, New Zealand. 35 of the existing 51 NZART branches must be contacted, after December 8, 1945, and all must be made from locations no two of which are more than 25 miles apart. Minimum tone report of T8 is required and lists showing complete contact data, in addition to the QSLs and sufficient postage for their return, must be included. The

Branch areas do not apply to political divisions of the country, Auckland for instance having 4 separate branches. WØIUB who kindly relayed all info to us, suggests that interested amateurs might well purchase an excellent map of New Zealand, available from the N.Z. Embassy in the USA at a cost of \$1.00 as an invaluable aid in locating the various branches. Said branches and the official number assigned to each are listed below (all ZL stations are familiar with their branch number and may be queried during contact relative to same):

01 Ashburton	18 Hutt Valley	35 South Otago
02 Auckland	19 Inglewood	36 South Westland
03 Western	20 Manawatu	37 Southland
Suburbs	21 Manukau	38 Taumaranui
04 Cambridge	22 Marlborough	39 Tauranga
05 Christchurch	23 Marton	40 Te Awamutu
06 Dannevirke	24 Motueka	41 Thames Valley
07 Dunedin West	25 Napier	42 Titahi Bay
08 East Southland	26 Nelson	43 Waihi
09 Egmont	27 New Plymouth	44 Waikato East
10 Franklin	28 Northland	45 Waimarino
11 Gisborne	29 North Shore	46 Wairarapa
12 Hamilton	30 Otago	47 Waitara
13 Hastings	31 Pahiatua	48 Wanganui
14 Hawera	32 Rahotu Coastal	49 Westland
15 Hawke's Bay	33 Rotorua	50 Wellington
Central	34 South Canter-	51 Whakatane
16 Horowhenua	bury	
17 Huntly		

Paraguay — "Diploma Paraguay" may be earned by making 5 ZP contacts, all after the date of May 15, 1952. Confirmations and 3 reply coupons must be remitted to the Radio Club of Paraguay, Casilla de Correio 512, Asuncion, Paraguay.

Philippines—The Philippine Amateur Radio Association, 2046 Taft Ave., Pasay City, P. I. now offers an award for effecting contact with 15 DU stations. Log extracts apparently serve as basis for applications.

Poland—The Warsaw Radio Club, P.O. Box 122, Warsaw, 10, Poland now makes available two certificates, the first known as "**AC 15 Z**" (All countries zone 15) for working 26 districts from the following countries: OH 3 districts; ZA-1; UR2-1; I1-1; UQ2-1; I1/T-1; UP2-1; M1-1; SP-4; IT-1; OK-1; IS-1; OE-2; FC-1; HA-1; YU-3; ZB1-1. Contacts after December 31, 1954 may have been made on any bands, and either on fone or cw. The second award, "**W 21 M**" (Worked 21 Meridian of Warsaw) may be obtained by showing confirmed contact with 16 of the following: LA/P, LA, OH, OHØ, SM, UP2, UQ2, SP5, OK, HA, YO, YU, ZA, SV, 5A, FQ8, OQ5, CR6, ZS, ZS3, ZS9. Starting date for contacts is the same as for the foregoing, and a fee of 3 IRC's is assessed for each award. Thanks to GM3HQJ and W2SAW for these details.

Scotland—Offered by the Aberdeen Amateur Radio Society, **WAGM** (Worked All Scotland) may be earned by contact with one GM2, 15 GM3, 1 GM4, 1 GM5, 1 GM6 and a GM8. Fone or cw contacts may be mixed and any band (no cross-band) may be utilized, all to have been made since October 1, 1946. The 20 confirmations, accompanied by 10 reply coupons should be sent via A. G. Anderson,

GM3BCL, "Helford", Pitfoedels, Aberdeen, Scotland.

Sicily — WASP (Worked All Sicilian Provinces) may be obtained by proof of contact with at least 5 of the 9 Sicilian provinces namely: Agrigento, Caltanissetta, Catania, Enna, Messina, Palermo, Ragusa, Siricusa and Trapani. Contacts since July 1, 1952, on any recognized amateur band, either fone or cw, are credited toward WASP. QSLs, along with 4 reply coupons should be addressed to IT1TAI, Domenico Marino, P.O. Box 300, Palermo, Sicily.

Spain — Reports have been received on an award which appears to have as a special purpose, the encouragement of communication between Spain and various Spanish and Portuguese-speaking nations in Latin America. Known as **CIA** (Comunicacion de Ibero-America), the diploma may be attained by proving contact since May 1, 1949, with the following prefixes: CE, CM/CO, CP, CX, HC, HI, HK, HP, HR, KP4, LU, OA, PY, TG, TI, XE, YN, YS, YV, ZP. It is not certain whether CIA is sponsored by the U.R.E. in Madrid nor whether it is available only to Spanish and Portuguese amateurs. Further inquiry from members of this group is suggested.

Sweden — Some added notes in regards to "**WAV**" may be found helpful in one's search for this certificate. In compiling the required score, it is permitted that one point be counted for each band on which a station is worked. Thus non-European amateurs might earn the award by contacting the same Vasteras station on each of two different bands, since they need but a 2-point total. As previously announced, amateurs in LA, OH, OZ and SM need 20 points and other Europeans need 10. QSLs and 4 IRC's go via SM5WI. A list of Vasteras stations is given herewith: SM5AE, AR, EY, HQ, KR, KX, MR, OQ, OW, PS, SC, SP, TI, WI, WV, XI, AAE, ABQ, AFI, AHR, AIW, AJA, AJP, AKS, ALH, ALM, ALS, ALT, AQB, AQN, ASR, AUP, AVS, AWJ, AXE, AXR, AXU, AYC, BBA, BGY, BHL, BIL, BJK, BMQ, BMR, BMS, BMW, BOJ, BQM, BQO, BRJ, BSJ, BTX, BXS, BXZ, CQE, SL5BH, BJ, CQ. In addition, stations operating portable in Vasteras may also be counted.

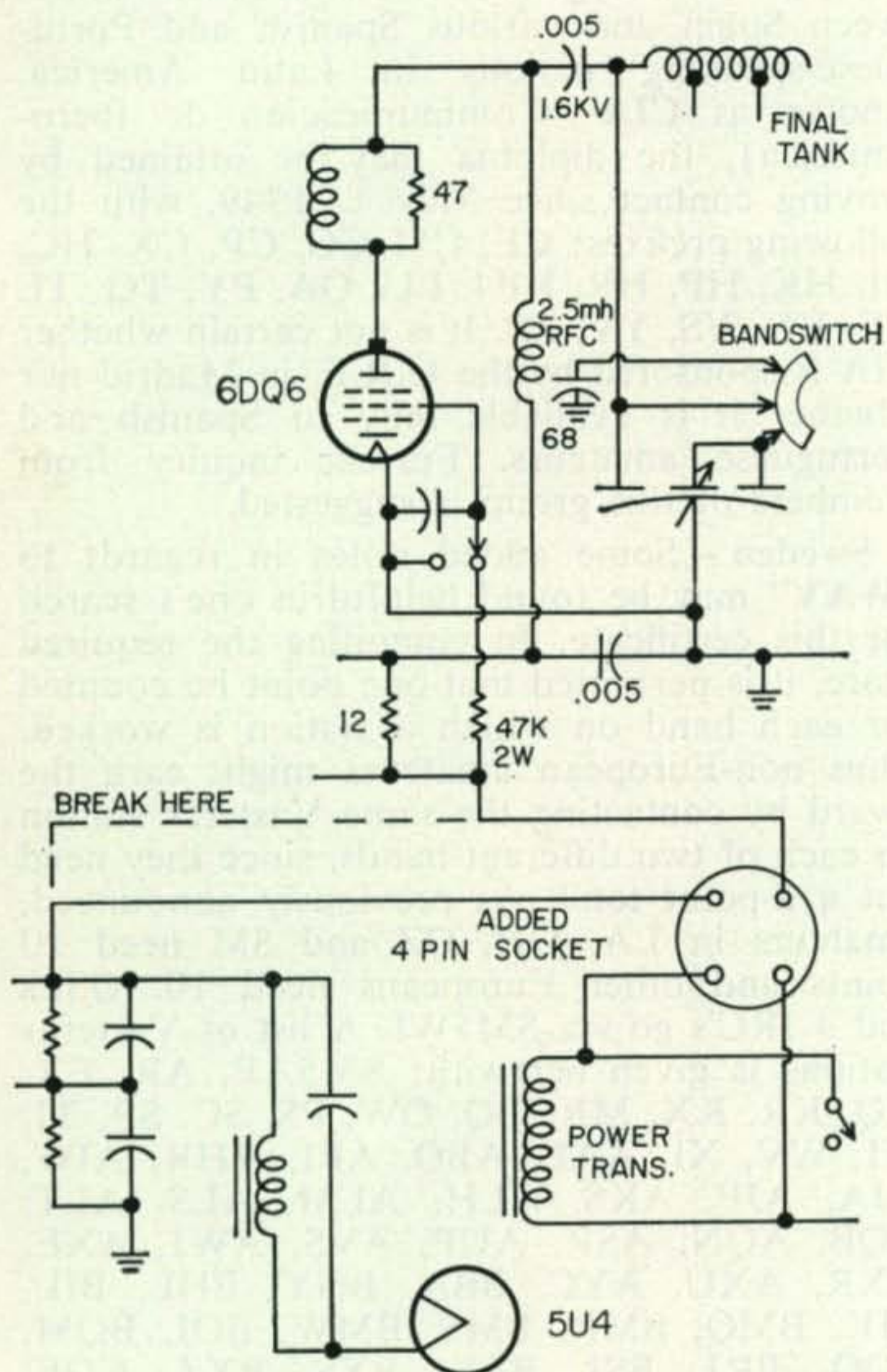
WASM-11—A general Swedish award is offered for proven contacts with the 24 Swedish Lan (counties or provinces), plus Stockholm City. Amateurs in Denmark, Norway, Finland and Sweden must work 2 stations, on different bands, in each Lan while others need only one in each. QSLs, with a list and 5 IRC's should be submitted to SM6ID for approval. The 25 required areas comprising Sweden are: Stockholm City, Stockholm Lan, Uppsala, Sodermanland, Ostergotland, Jonkoping, Kronoberg, Kalmar, Gotland, Blekinge, Kristianstad, Malmohus, Halland, Goteburg och Bohus, Alvsborg, Skaraborg, Varmland, Orebro, Vastmanland, Kopparberg, Gavleborg, Vasternorr-

[Continued on page 110]



Novice

by **DONALD L. STONER, W6TNS**
P.O. Box 137, Ontario, Calif.



Novice rig function every bit as good as the more expensive phone/cw rigs.

Construction

The modulator was constructed on a 10 x 13 x 2 inch chassis. The audio circuits were placed on the left side, and the power supply was mounted on the right side. No particular layout details are included for it is not fussy, and you might want to adapt something that you have on hand. The only precaution is to keep the components around the 6AN8 tube tight down to the chassis and wire them with short leads.

The circuitry includes plenty of filtering to prevent audio regeneration or "motorboating" as it is commonly called. Low cost television replacement tubes are used in all circuits. The 6DQ6's are horizontal sweep output tubes and can easily handle the 35 watts necessary to modulate a "Novice kilowatt".

The 6AN8 is used as a speech amplifier and driver. Transformer T1 produces push-pull audio to drive the modulator tubes (two 6DQ6's). A variable impedance modulation transformer will match any tube(s) that you are likely to find in the final amplifier stage of a Novice transmitter. The power supply delivers about 375 volts to the 6DQ6 plates and 150 volts to the screens and to the 6AN8. Note that the VR-150 regulator is wired in such a manner that the power will go off if the tube is removed. This prevents possible damage to the 6DQ6's if the screen voltage rises over 150 volts. A double pole, double throw toggle is used as a receive transmit switch. When placed in the transmit position, it grounds the power transformer center tap (allowing current to flow) and grounds the key jack in the transmitter (allowing rf to be generated).

All necessary parts are shown on the schematic. The parts list includes only those "non-standard" parts that are not likely to be found in your junk box.

Modify Your Transmitter

To use the universal modulator, it is necessary to modify your transmitter slightly. First,

This month I am including a project that you have all been asking for. It's about time too. Many issues have gone by the press since the last construction project.

I know all my Novice friends strive for the General Class ticket and many of them make the grade. So what could be more appropriate than a "universal modulator" to amplitude modulate a Novice cw transmitter?

When the General ticket comes you have several choices. You can purchase a new transmitter that has provision for phone operation or you may elect to purchase a simple screen modulator to get you by until you can afford a new rig. It is also possible to construct a modulator that will really pack a punch in your signals. It will make your 75 watt (or less)

mount a four pin socket on the rear apron of the chassis (any kind of socket will do as long as it is well insulated). Next, locate the primary of the power transformer used in your cw transmitter. It will probably be two black wires, but not necessarily. Connect a wire from each primary lead to two of the pins on the socket. This will be the 117 volt power line that connects to pins one and two of the modulator terminal strip (TS-1). Next, locate the plate feed wire that goes between B plus and the final amplifier plate. For pi-network transmitters, a good point to break the plate lead is at the bottom end of the rf choke. Disconnect this wire. For link coupled transmitters, disconnect the B plus lead at the bottom end of the final tank coil. Connections to a pi-network rig (using the Heath DX-20 as an example) are shown here. Run a wire from the plate rf choke (or bottom end of the tank for a link coupled rig) to the third pin of the transmitter connector. To the fourth pin, connect the wire that you previously removed from the rf choke.

Essentially what we have done, is to break the wire that feeds B plus to the plate of the final amplifier. Then, the secondary of T2 (the modulation transformer) can be inserted in series with this lead to modulate the final.

The audio voltage appearing across the secondary of T2 either aids or opposes the B plus voltage in the transmitter thereby raising and lowering the final plate voltage. If you figure it out by ohms law, we are increasing or decreasing the power input to the final amplifier. As you can see, this will vary the amplitude of the rf output and we have amplitude modulation!

To complete the conversion, make a six wire cable to connect the modulator to the transmitter. Two wires connect to the 117 volt terminals (1 & 2), two wires connect to 3 & 4 and have a phone plug on the transmitter end. The remaining two wires connect between terminals 5 & 8 of terminal strip one (TS1), and the remaining two connections on the four pin socket on the transmitter (modulator connections).

PARTS LIST

- | | |
|---|---|
| C1a, b—Dual 20 mf/450 volt "twist prong" electrolytic (Cornell Dubilier BO400) | R1—250 ohm, 10 watt wire wound (Ohmite "Brown Devil" or equivalent) |
| C2, C3, C4—25 mf/25 volt "pig tail" electrolytic (Cornell Dubilier BBR 25-25) | R2—3,000 ohm, 10 watt wire wound (Ohmite "Brown Devil" or equivalent) |
| C5—.01 mf/1600 volt automobile radio "buffer" capacitor | SW1—DPDT toggle switch (transmit—receive) |
| C6a, b, c—Triple 20 mf/450 volt "twist Prong" electrolytic (Cornell Dubilier CO270) | T1—Plate to p.p. grid 3:1 ratio interstage (Stancor A-4723) |
| CH1—Filter choke, 7 henries/140 ma. (Stancor C-1421) | T2—"Poly-Pedance" Modulation transformer (Stancor A3892) |
| Fuse—1 amp. slo-blo (Buss MDL-1) | T3—Power transformer 360-0-360 @ 120 ma, 5 volts @ 3 amp., 6 volts @ 3.5 amp. (Stancor PC-8410) |
| J1—Mike jack to suit microphone used. | TS1—8 lug screw terminal strip (Cinch Jones 8-140) |



John Lee, WN6YKS, Los Gatos, Calif. would like to start a net on 7155 but he forgot to send his QTH along. I hope it is in the call book by the time this is printed. John also operates 80 and 15 meters.



Wayne Peterson, KN6ZSJ, 1232 F. St., Reedley, California has noticed that most of the stations pictured in the Novice column are "spic and span". He wonders what they look like most of the time? Wayne's WAS total is 39 but would like to sked Del. Vt., S.C., N. & S. Dakota. He will sked for any reason.

Chuck Woodman, KNØKXR, 630 Saint Patrick St., Rapid City, represents the state of South Dakota. In three months of operation, Chuck has worked all states plus 4X4, KG1 ZS4, WH6, JA1, KL7, and VE1-3 with the gear shown. He QSL's 100%, will sked anyone needing S. D. and will answer any letters.



You may find yourself confused at which terminal of the "Poly-Pedance" transformer to connect pin 8 of TS1. The modulation transformer is used to match the impedance of the 6DQ6's to your final amplifier. Since your final tube could be one of many different types it is necessary to provide several different transformer taps. The correct tap is the one that produces the highest percentage of modulation and can be found by experimenting with the tap connection. It is possible to calculate the impedance of the final amplifier by dividing the plate current (in amps) into the plate voltage. As an example, the Heath DX-20 has 700 volts on the final plate, and for cw operation it is loaded to 100 ma (.1 amp). The loading should be reduced to 70 ma. for phone operation because the final is on continuously (not keyed). Therefore, 700 divided by .07 equals 10,000 ohms plate impedance. Pin 8 of TS-1 would be connected to the 10,000 ohm tap on the "Poly-Pedance" modulation transformer.

Lots of good luck on phone fellows, see you on 20, 15, 11 and 10 meters.

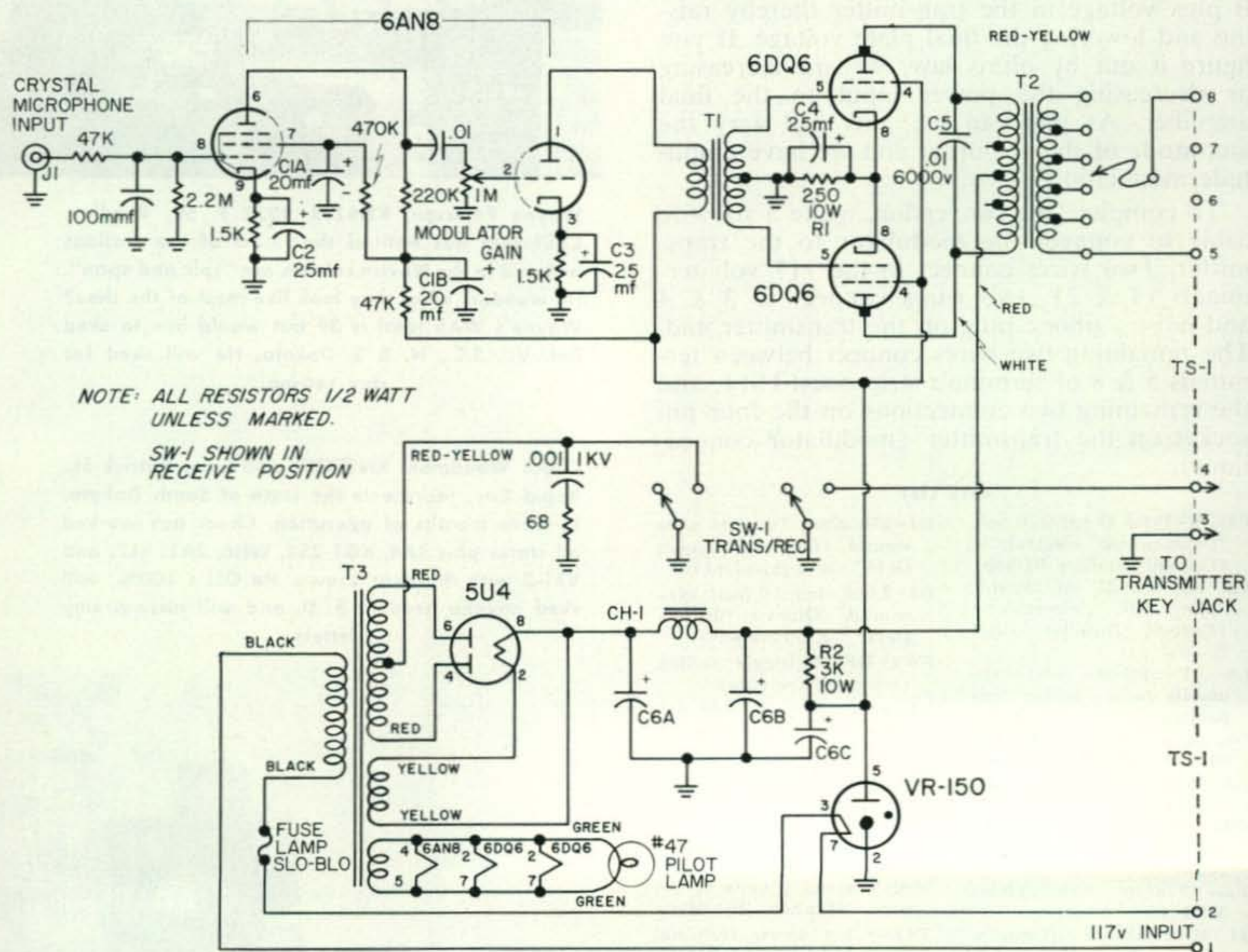
Who's DX?

Our friend S/Sgt. Bud W. Lafferty, 1983RD AACs SQ—Box 253, APO 23—New York writes telling of his delay in getting his KG1

license (KG1CK). Bud is rolling now from Greenland and has worked the following stations on his frequencies of 21.12: KN1DAT, KN4SFO, KN5KMW, KN4RID, KN8GUW, EVI, EIO, KN9KJP, KNØKEE and KN2MPU (possible error on this call). Bud continues to say that his QSL's have not arrived as yet, so be patient fellows. If you're interested in working Greenland, Bud will make schedules.

Ever faithful Tima Popovic, YU1RS-357, Banat Novo Selo, Yugoslavia sends a long list of Novices heard in his country. January 28, 1700—2145 GMT: KN3AHF, AUT, BQB, BTS, BWD, BZK, CRE, CRK, CRM, KN4QCD, QEL, QHP, QIL, RJJ, RNG, RWA, RWI, SAC, SCS, SWJ, SWL, TDX, TFL, KN6CAN, KN8EYS, GBU, GHI, HBG, HJM, HUY, IBR, KN9ICE, JQW, JTI, JWU, KBN, KNØJFI, LNT, LRH. February 2, 1900—2000 GMT: KN1DCL, DDU, KN2HPT, ISZ, YZU, ZPO, KN3BGI, BOQ, CFY, KN4OKZ, QMM, SLA, TKQ/4, KN8EET, GBR, ILG, IUZ, JKO, KN9JDK, JZE, KLS. February 3, 1900—2020 GMT: KN1BNG, BYV, DIX, DWF/1, EJA, GBE, KN2BLL, DNX, HJH, WN2NIB, KN3AHN, BTM, CPE, WP4ALV, KN4FAE, MYZ, OUZ, PPX, KN8ETA, GGH, GUV, HFB, HZO,

The "CQ Tested" Universal Modulator. This circuit is an improved version of the circuit shown on page 260 of the 1957 ARRL Handbook. For more information, see this article.



KNØMTG. February 5, 1940—2000 GMT:
 KN2JJB, KN9JTZ. February 6, at 1916 GMT:
 KN1DRA. February 9, 1720 to 2000 GMT:
 KN1AZJ, BKN, BTP, BUR, DUA, DXA,
 DZC, GCD, KN2BLE, CMF, WN2FJC, HFU,
 KN2LMB, WN2RFS, KN2RKW/2, WN2SSX,
 KN2ZDZ, KN3AHB, AHF, ALN, CRL, CSR,
 DDF, KN4OKZ, PUZ, PYM, QIA, RJW,
 SSX, SXR, SZW, KN8GUW, HLL, HUF,
 KN9IGP, IUH, IWS, KZD, KNØOBF. Feb-
 ruary 15, 1850—2040 GMT: KN1AIQ, COF,
 CZX, DIW, DQC, KN2GSK, IMK, JXI,
 WN2KZR, OPE, RZJ, KN2ZNO, KN3AZH,
 CFR, WP4ANE, KN4PPC, QPF, RDU, RSU,
 SWJ, TPV, KN5KEW, MPM, KN7AHK,
 KN8GVU, HRY, HVG, HWH, KN9JDK,
 JFB, JSZ. "That's all for now. 73 and the very
 best, Tima."

Also included this month is a list of calls from our far east correspondent, Shinji Hasegawa, JA3-1050, #1815-15 Higashi, Maikocho, Tarumi-ku, Kobe, Japan. They were written up so neatly, and included signal strengths that I decided to "box it" rather than include it in the text. Look for it, your call may be on it. Many thanks Shinji, for the neat report.

Don't forget, fellows, when, writing to our overseas correspondents, to include International Reply Coupons. Shinji is trying to earn his "Heard All States" award so I am sure that he will be happy to listen for you.

Report from Shinji Hasegawa, JA-1050, Kobe, Japan.

STN	DATE	TIME	WKG/CLG	RST	RMRKS
KN5KKW	6. Mar.	02:56Z	W/KN6HXY	569	QRM
KN5KYR	5. Mar.	04:19Z	CQ	569	QSB
KN5MIW	11. Mar.	02:18Z	W/WN6DHU	579	QSB "BOB"
KN5MMD	5. Mar.	04:45Z	CQ ORE	569	QSB
KN5MYS	12. Mar.	02:57Z	W/KN50WT	589	QSB
KN6BFX	5. Mar.	04:13Z	CLGKN3AHK	579	QSB
KN6DBX	5. Mar.	04:14Z	CQ Z	589	QSB
KN6DJB	4. Mar.	05:09Z	W/WH6CIZ	589	QSB
KN6GUC	12. Mar.	02:55Z	CQ	569	QSB
KN6HFP	5. Mar.	04:17Z	CQ	589	QSB
KN6HXY	6. Mar.	02:56Z	W/KN5KKW	589	QSB
KN6IDØ	12. Mar.	02:44Z	CQ	569	QSB
KN6JAZ	6. Mar.	02:23Z	CQ	589	QSB
KN6JCR	6. Mar.	02:06Z	W/W1FRX	579	QSB
KN6JMM	12. Mar.	03:31Z	CQ	589	QSB
KN6KVR	6. Mar.	02:12Z	W/KN7BYZ	579	QSB
KN6LWO	12. Mar.	02:45Z	CLDKN5PCT	579	QSB
KN6ZLP	12. Mar.	02:49Z	W/VE5DB	589	QSB
KN6ZLX	12. Mar.	02:56Z	CQ	579	QSB
KN6ZRA	6. Mar.	02:20Z	CQ	579	QRM
WN6DHU	11. Mar.	02:18Z	W/KN5MIW	579	QSB
WN6EDE	4. Mar.	04:55Z	CQ DX	589	QSB
WN6GGØ	5. Mar.	04:24Z	W/K5KDV	579	QSB
WN6KKN	12. Mar.	03:18Z	CQ	599	QSB
WN6LZZ	4. Mar.	05:02Z	W/WH6CIZ	579	QSB
WN6QQW	12. Mar.	03:45Z	W/KN8GUW	579	QSB
WN6VVK	12. Mar.	03:41Z	W/KN9LAV	579	QSB
KN7AIT	6. Mar.	02:47Z	W/W7FCV	579	QSB
KN7APT	6. Mar.	02:34Z	W/WH6CRN	559	QRM
KN7AYD	5. Mar.	05:22Z	W/WH6CRN	559	QSB
KN7BBU	12. Mar.	03:43Z	CQ	569	QSB
KN7BKX/6	12. Mar.	02:58Z	W/KN5PKF	579	QSB
KN7BXS	11. Mar.	02:27Z	W/KN9KBR	569	QSB
KN7BYZ	6. Mar.	02:12Z	W/KN6KVR	559	QSB
KN7CIP	12. Mar.	02:46Z	CLDKA2ZZ	589	QSB
KN7COC	5. Mar.	04:58Z	W/W71KK	579	QSB "DICK"
WN7JIG	11. Mar.	02:28Z	CQ DX	579	QSB
WH6CIZ	4. Mar.	05:02Z	W/WN6LZZ	589	QSB
WH6CKK	1. Mar.	08:51Z	W/HL2AJ	579	QSB
WH6CRN	5. Mar.	05:22Z	W/KN7AYD	579	QSB

Plus KN6KMI, KN6YME, KN6ZYV, WN6WHY, KN7APJ, WH6CQG, WL7CDY and WL7CNE.

Television Interference

If you are having trouble with TVI (who isn't?) I suggest that you try to obtain a copy of *Television Interference—Its Causes and Cures* by Phil Rand and published by The Nelson Publishing Company. It is absolutely the most complete treatment of this "black



Ronnie Woods, Box 122, Rt. #3, Boise, Idaho operates station WN7IYJ on 3.721, 7.17 and 21.153 mc. He returns 75 watts to a 75' "long wire" and a folded dipole for 40. Write Ronnie if you want to work this "rare" state.

plague" of ham radio that I have ever seen. Every type of interference is discussed and methods of elimination are presented. Asking price is \$1.75. It is available at your local radio store or from The Radio Bookshop.

Net News

Tex Birnholz, K2VAB, 634 High Street, Newark 2, New Jersey is starting the Eastern States Novice Net. Meetings will be every Saturday at 1100 EST on 7160 kc (plus or minus 5 kc). Code speed to be used is 10 WPM and Tex has outlets, for traffic, in the General Class frequencies.

Tom Geiger, W2KVA, 47 Grandview Avenue, Dobbs Ferry, N. Y. would like to start a Westchester Novice Net. Any interested parties should contact Tom.

Help Wanted

Arkansas Marilyn Grisham, c/o Coleman Motel, Box 326, West Memphis, Ark. Phone RE-53601 would like to become a radio amateur. She has no radio experience but would like some help.

California Mike Talvola, 943 Bingen Avenue, Eureka, Calif. Phone HI-31187 has been listening to hams for 2 years now and wants to get on the other end.

Melvin Peters, 2218 S. Hobart Blvd., Los Angeles 18, is just getting started and needs lots of help with his license.

Jeff Hurst, Phelan Hall, University of San Francisco. Phone BAL-2423, Room 307, would like to meet a ham to help him with the code.



Howard Perkins, KN8EUX, 19153 Genesee Rd., Euclid 17, Ohio operates on 7156-7185 and 21.174 mc. Howard made WAS in eight months plus WP4, VE3, 4, and 5. He will sked anyone and QSL's 100%.

Connecticut Joseph J. McBride, 586 Mill Hill Terrace, Southport, Conn. is 13 years old and needs help with the code and theory. Phone CL-93889.

Delaware George Gray, 1909 Beechwood Dr., Westwood Manor, Wilmington 3, Del. would like help with the theory for the Technician license. He also needs more code speed. His phone is SY 88521.

New York Jerry Tosse, 14 Church St., Cold Spring on Hudson, N. Y. would like help with the code and theory.

North Carolina Jim Roberts, 500 West Vance St., Wilson, N. C. would like to skip the Novice and go on to the General Ticket. He needs help with the code and theory. Phone number is 71714.

North Dakota Roland H. Harmel, Rugby, N. D. would like to become a ham but needs help with the code and theory.

Oklahoma Walter J. A. Misbach, 1436 N. W. First Street, Oklahoma City, Okla. needs help with the code and theory to become a ham radio operator.

Pennsylvania Miss Rona Roydes, 108 East Seventh Street, Oil City, Pa. is 16 and had been listening to ham for three years on her S-38C. Now she would like to become a ham, but needs help with the code and theory.

Crag Weidenhammer, 254 W. Douglass St., Reading, Pa. needs help with the code and theory.

Although not eligible for an FCC Novice License, Mr. Magella Drolet, 97 Proulx Avenue, Quebec 8, Canada would like to become a

VE ham. Anyone up in Quebec that can help OM Drolet?

Letters to the Editor

Richard Schultz, KØIWG, Box 361, Lehigh, Iowa wrote a very nice letter describing modifications to a Globe Chief for 6 meter operation. Dick's simple modifications use only two coils and a DPDT toggle switch. Drop him a line for more information.

Larry L. Langrehr, KN9LKO, 1431 East Avenue, Berwyn, Ill. writes about his transmitter trouble. Larry uses a DX-20 and a AR-3 receiver but can't seem to load any more than 10 watts, or so. If anyone around Larry has a solution, how about helping him out?

Carl Haywood, Box 314, Claypool, Ariz. just passed his Novice exam with "flying colors" and is going to get on the air with either a DX-20 or a Globe Chief 90. His receiver is an S-38E and plans on a "Q" Multiplier. See May 57 Novice column for information on adding the QM, Carl.

Shirley A. Sharan, KN3BVL/2, 41-29 38 St., Long Island City, N. Y. writes a very enthusiastic letter. She has been a Novice since Sept. 57, loves to rag-chew and QSL's 100%. Shirley invites anyone in the New York area to try to drum some General Class theory into her "noggin".

Jeff (?), K4RHW, QTH (?) is 15 years old and finally passed his General exam while using a Millen transmitter running 40 watts to a 40 meter vertical. He uses a war surplus BC-312 and filter for receiving. His "grand total" as a Novice is 27 states and three countries. Jeff wants to express his thanks for Harold, K4IQV for the help he provided.

Paul Reinhart, KN2JXF (15), Box 81, Pavilion, New York would like information on putting his DX-20 on six meters. He has been on 80 and 40 for three weeks and worked 11 states so far. Paul receives with a Heath AR-3 and a "Q" Multiplier.

Robert Cloutier, WH6?, 45-052 Kahanahou Place, Kaneohe, Oahu, T.H. is looking for contacts with 1st and 2nd call areas. He has been on 6 months and worked 8 c.a., 15 states, and 221 contacts. Look for Bob on 7197 and 7171 at 10 pm, EST. He will be operating his home brew 6L6 (20 watts) and a Hallicrafter SX 28.

Roger, KN6DQR, Santa Cruz, California wants to know how come he can use 40 meter rocks in his AT-1 (on 40 meters) when the manual says that you should not do it? Like the manual says, Roger, you are not supposed to use 40 meter rocks when operating on that band, but instead, double from 3.5— mc. There is a very good chance that you are spraying out a bully signal on 20 meters.

Sanford Hutson, Box 27, Stuttgart, Arkansas is an "almost Novice". He advises us that he will be glad to sked anyone needing Ark. for WAS. Sanford will be using his DX-20 and war surplus receiver, listen for him.

Dave Blanchard, KN1CAU, 180 Pine St., Florence, Mass. would like to make skeds for Wyoming and Nevada so that he can complete his WAS. Dave is on 15, running a DX-35 to a 3 element beam and SX-99 receiver. He has worked 16 foreign countries but still needs Africa for WAC.

Ron Lewis, KNØKIW, 5957 Dowling Avenue, Berkeley 21, Mo. has been a Novice for 10 months now and worked two states on two meters. Ron says that he is going to get his Technician license soon. Better "get with it", those last two months go very fast and it can get awful lonesome on six meters!

Stuart Clark, 1064 Seward Way, Stockton, Calif. should have his license by the time he reads this. He is busy constructing a home brew 6AGV and 807 rig that will run 75 watts. This will be used in conjunction with his HQ-110 and three element beam. Stu wishes to thank all those in Stockton that have helped him.

Cliff KN8JIC, 532 Columbia Road, Bay Village, Ohio, has been on the air 22 days now, and has worked 22 states so far. He pumps it out with a DX-40 and drags them in with an HQ-100 (his electrical ears!). Cliff will be happy to sked anyone needing Ohio. KN8JIC sounds like a very smart fellow, he says "*I also have a Technician license but plan to stay away from the phone end of the business until I get my code speed up and pass the General Exam.*"

Robert Pendrys, 101 Bush Street, Buffalo 7, N. Y. (18), WN2CQQ has been heard in SM6 and YU land. With a DX-35 and SX-100 Bob has worked 40 states, KG4, VØ1, KP5, VE5 and F8. His antennas include a long wire and a doublet, 19 feet up.

Freddy White, KN4QXS, 6415 Patterson Avenue, Richmond 26, Va. exhales with a DX-35 into a 126 foot dipole on 80 and a folded dipole on 15. His inhaled is an S-85 and "Q" Multiplier. With this combination 40 states have been worked plus KG1 and VP4. Freddy will sked for WAS.

Dave Karklin, WN2TKZ, 524 Queen Anne Rd., Teaneck, N. J. writes a very nice letter. He has been a Novice for six months using a homebrew rig (a Novice kilowatt) and a HQ-100 receiver. Dave's DX includes DXCC-45, WAS 47 (needs Nevada), WAC-5, WAZ-20 and 750 QSO's! Aw what say Nevada, give Dave WAS.

Paul Connolly, KN2KWI (13) runs a 75A4 and a Globe Scout but is having trouble with 40 meters and hasn't made any contacts yet. Can anyone help Paul out?

John Clarke, Jr., (14) KN2EPB/4, 11740 SW 186th St., Miami 57, Fla. has been on the air for three weeks from his new QTH and worked KV4 and SM6 with a DX-20 and an S-85 receiver. He will sked anyone needing Fla. for WAS.

That seems to be it for this month fellows.
73 es CUL. Don, W6TNS

Needle In A Haystack

by HELEN SIGNORELLI, K6KUP

14221 Riverside Drive,
Sherman Oaks, Calif.

For the past two years a gang of us have been getting together every other Saturday night for a two meter transmitter hunt.

The only boundary is the rim of the San Fernando Valley, which is shaped like a large platter surrounded by tall mountains. The winner gets to hide the transmitter the following week. Cars range in number from two to fifteen. Everyone very eager to find the hidden transmitter. The array of home brew and commercial antennas are a sight to behold. Our special Sky Sweeper has a sign which reads "Sorry, No TV."

While our hunts are all unique, I would like to tell you about one that especially impressed me.

This particular Saturday night was just a bit spoiled with a little of California's liquid sunshine, so we thought we would have a short hunt, something close to home. Then we could adjourn to our favorite hamburger joint to discuss the evenings fun.

Location for this hunt was selected with care. A large super market was chosen for the hidden transmitter. All wrapped up in large paper bags were the two meter gonset and the six volt battery. The bags were then placed in a large shopping cart. The shopping cart itself was of wire and was used as the antenna. An XYL who no one knew was selected to push the cart around the busy market and buy groceries to further hide the two large bags. (Grocery bill for that night cost me eight dollars.) The gang then hid out in the market balcony to watch with delight the seekers.

Soon the fun was on. Into the market came transmitter hunters with walkie talkies and beams looking for the hidden transmitter. Each time they came close to the XYL with the transmitter she would push the metal cart next to a metal strip on the refrigerator and ground the transmitter. Well it was a huge success; the boys would pass her up and continue hunting but to no avail. Up in the balcony we could hardly contain our laughter. The manager, not knowing what was going on, was nervously pacing the floor. This could have gone for hours but we decided to let the manager in on our little spree.

So come nine o'clock, time to close the market and we had to give up. Needless to say we retained our position for hiding again next time. ■



by **DONALD L. STONER, W6TNS**

P.O. Box 137, Ontario, Calif.

semiconductors



The transistorized power supply article in the March 58 issue of *CQ* was so well received that I decided to devote another column to these units, using commercially available transformers.

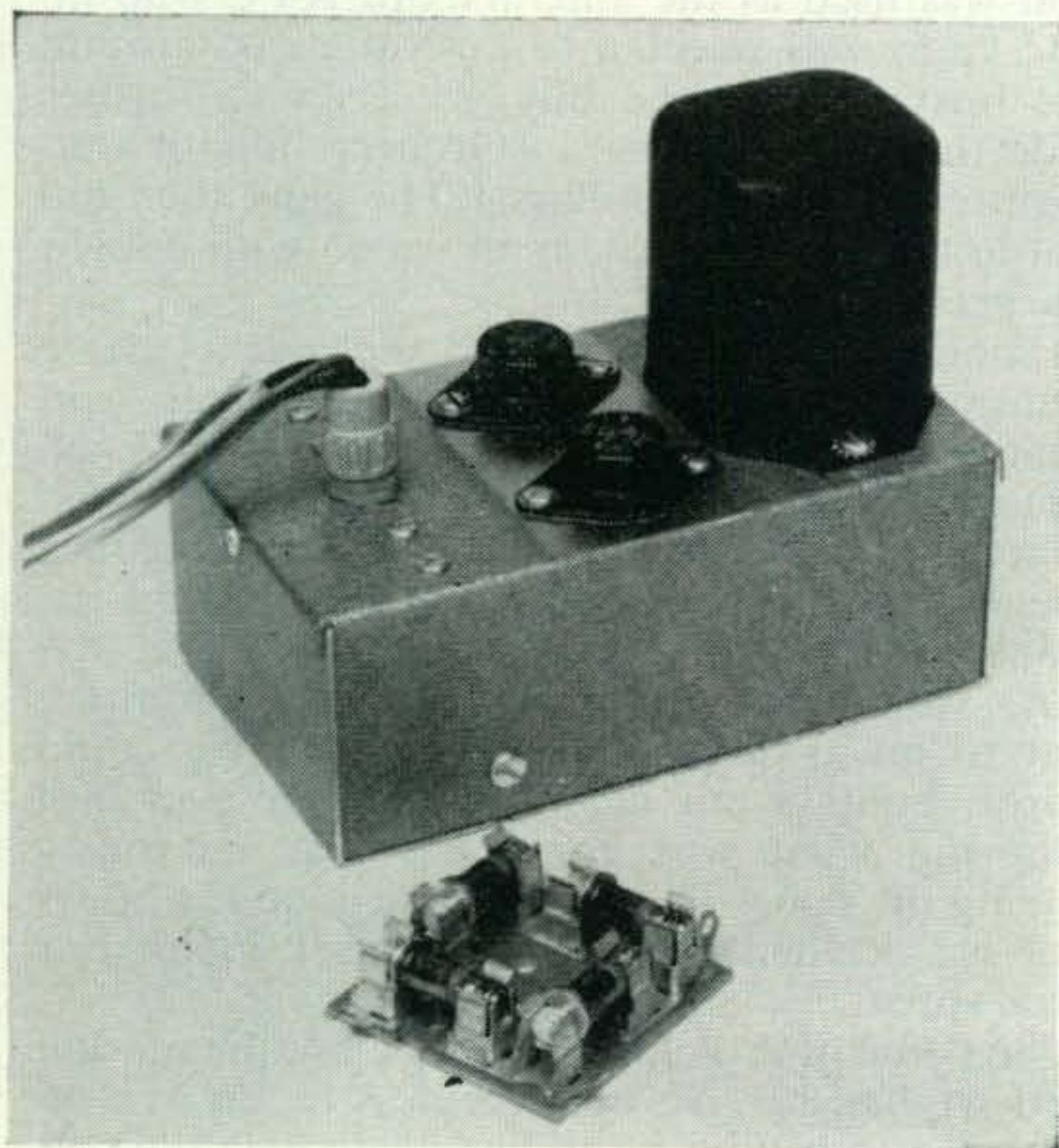
I might mention that the photo, in that article, showing "rise time" was turned upside down, making fall time out of it. Also the dimensions for the Arnold "Deltamax" core were incorrectly written. However, the area listed for that core was correct and the solutions to the formulas are still correct.

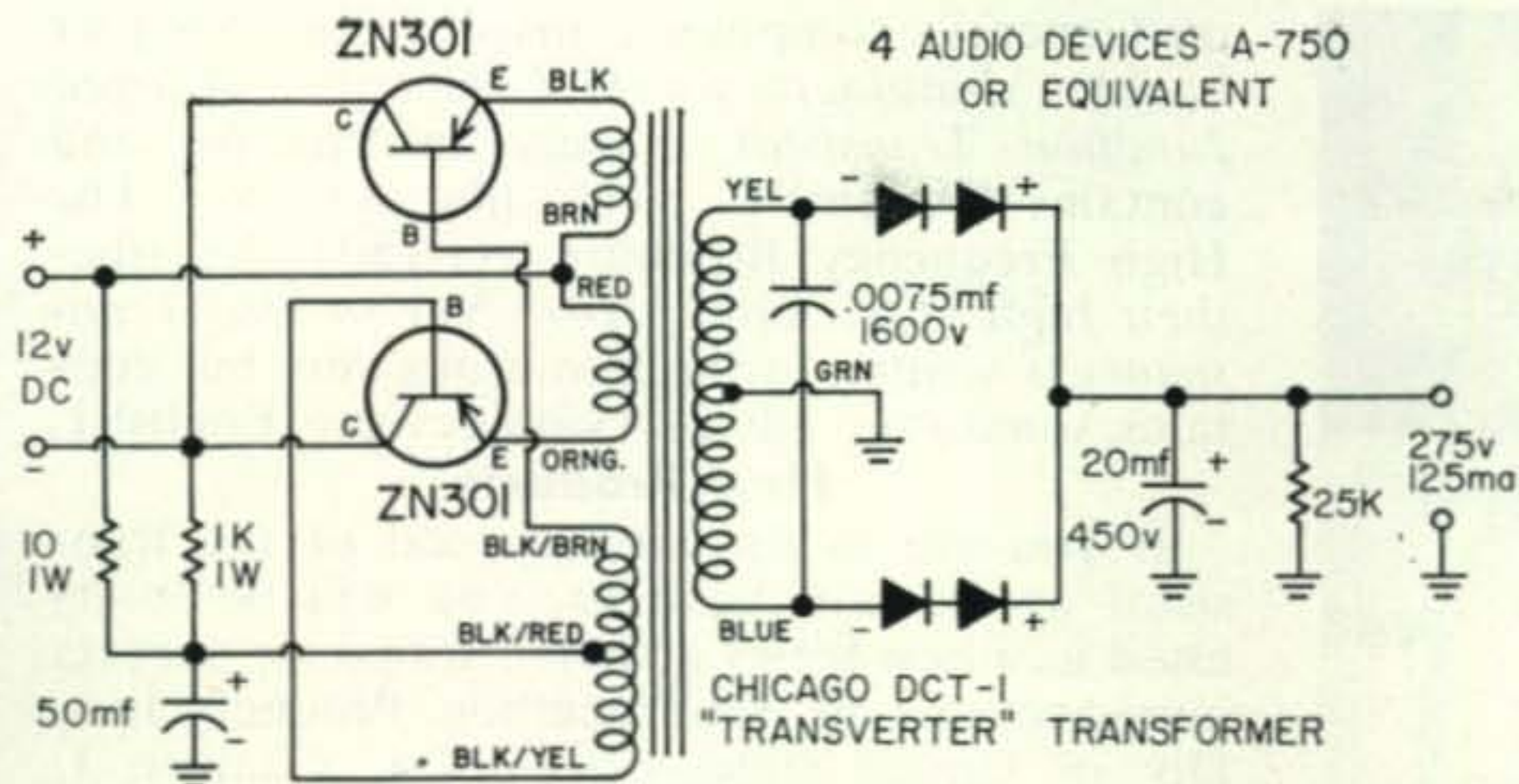
The Chicago Standard Transformer Corporation (Chicago Division) is marketing two very small and low cost transistor power supply transformers. They are potted in drawn steel cans for easy mounting. The DCT-1 will deliver 275 volts at 125 milliamperes continuous duty when used with a pair of RCA 2N301's. A slightly larger transformer, the DCT-2, can deliver 500 volts at 200 ma., and 250 volts at 75-100 ma. on an ICAS basis. For continuous duty, the ratings are reduced to 150 ma. and 50 ma. respectively. If you want to use the DCT-2 strictly for high voltage, the 500 volt output will deliver 225 ma. if used by itself. By the time you read this, Stancor/Chicago distributors should have the DCT-1 and 2 as standard stock items.

To test the new transformers, two supplies were constructed. The DCT-1 was installed in place of the toroid used in the original article. The only other change was the inclusion of a set of *Audio Devices A750* silicon rectifiers. These new rectifiers have just appeared on the market and are available to experimenters at a cost much lower than competitive units. See new product section for more information.

Above left—General Electric is experimenting with glass transistor housings. This case has the same dimensions as the JETEC TO-9 standard.

Left—Revised 30 watt transistorized power supply using the new Chicago Standard Transformer Model DCT-1. The rectifiers used are shown in the foreground. They are the Audio Devices A750, mounted in a bridge rectifier clip.





30 watt transistorized power supply.

A second supply using the DCT-2 and a pair of Delco 2N278's was constructed as a power supply for a future project. The 500 volt output was loaded with a 2500 ohm, 100 watt resistor and the supply ran for 8 hours solid with no trouble (the resistor got plenty warm!). The 2N278's are currently used in Delco radios and are available from United Motor Distributors.

As a matter of interest, a new RCA high power, low cost, transistor will be commercially available soon. I have tested this transistor with the DCT-2 and it performs beautifully. More about this in a subsequent issue.

Transistor Tester

An excellent piece of test equipment for the experimenters workshop is the Lafayette Transistor-Diode Checker Kit, Model KT-86A. It can be used to test PNP and NPN transistors, germanium and silicon rectifiers, selenium and copper oxide diodes. The most important application of this instrument is the testing of leakage and current gain for all types of junction and point contact transistors. The experimenter can determine whether the transistor under test is good or bad and the current gain. It will check shorts, opens, and even thermal instability. The kit includes a list of current transistor types and typical current gain figures for each. The meter and circuitry are accurate enough to permit matching pairs for push pull

or complimentary circuits. Another feature of this tester is a jack that allows you to listen to the internal noise generated by the transistor. With this test, you can select the best transistor for use in a first audio stage.

I was particularly impressed with the diode test jack. It is always a nuisance to me to drag out the VTVM and warm it up just to test a diode. With the KT-86A you simply plug the diode into the jacks, turn the meter on and switch from NPN to PNP. The ratio of the two meter readings indicates merit of the diode.

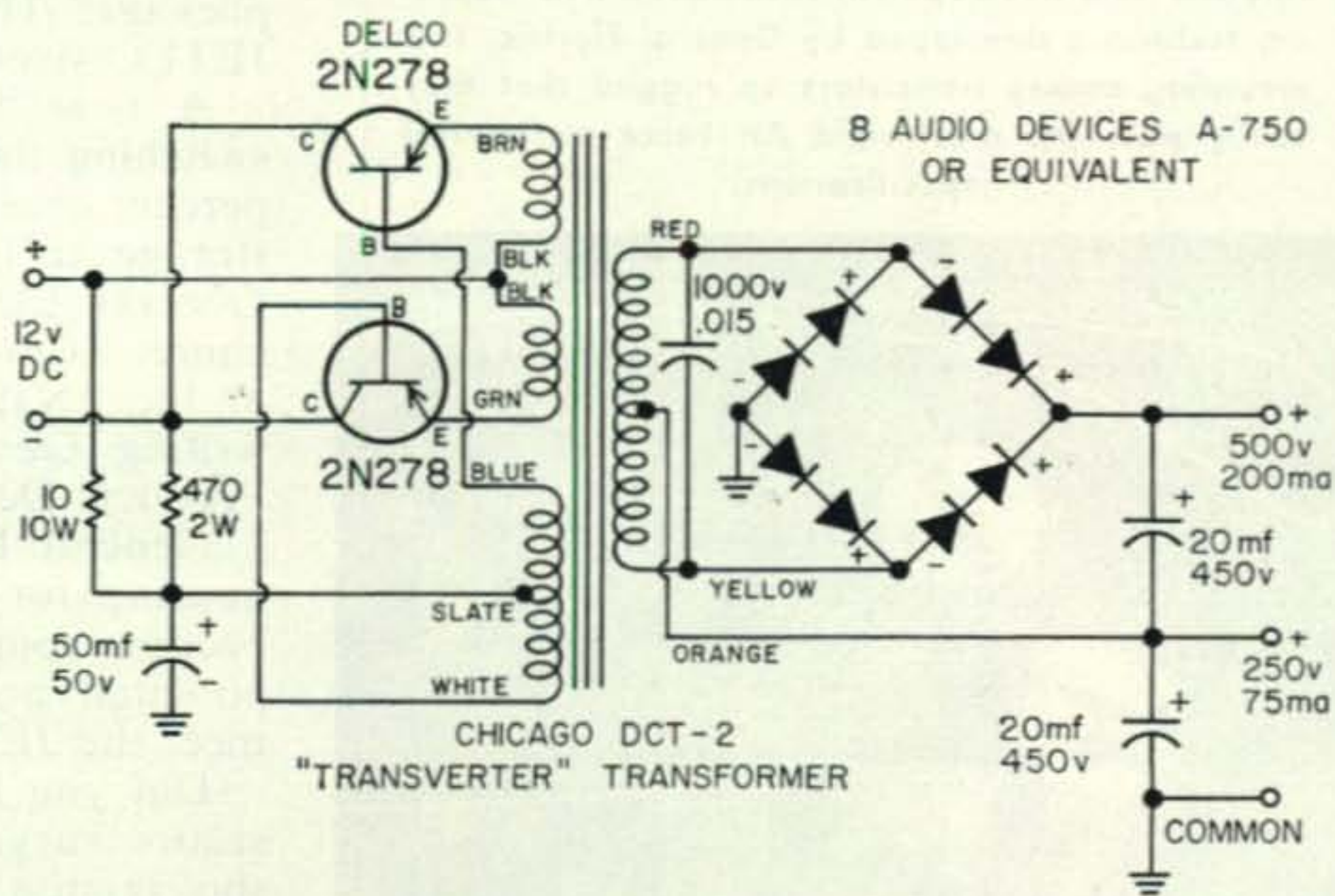
The Lafayette KT-86A Transistor-Diode tester kit is packaged in a sturdy bakelite case measuring 6 1/4" x 3 3/4" x 2". It may be obtained from Lafayette Radio, 165-08 Liberty Avenue, Jamaica 33, N. Y. for \$7.95 plus postage.

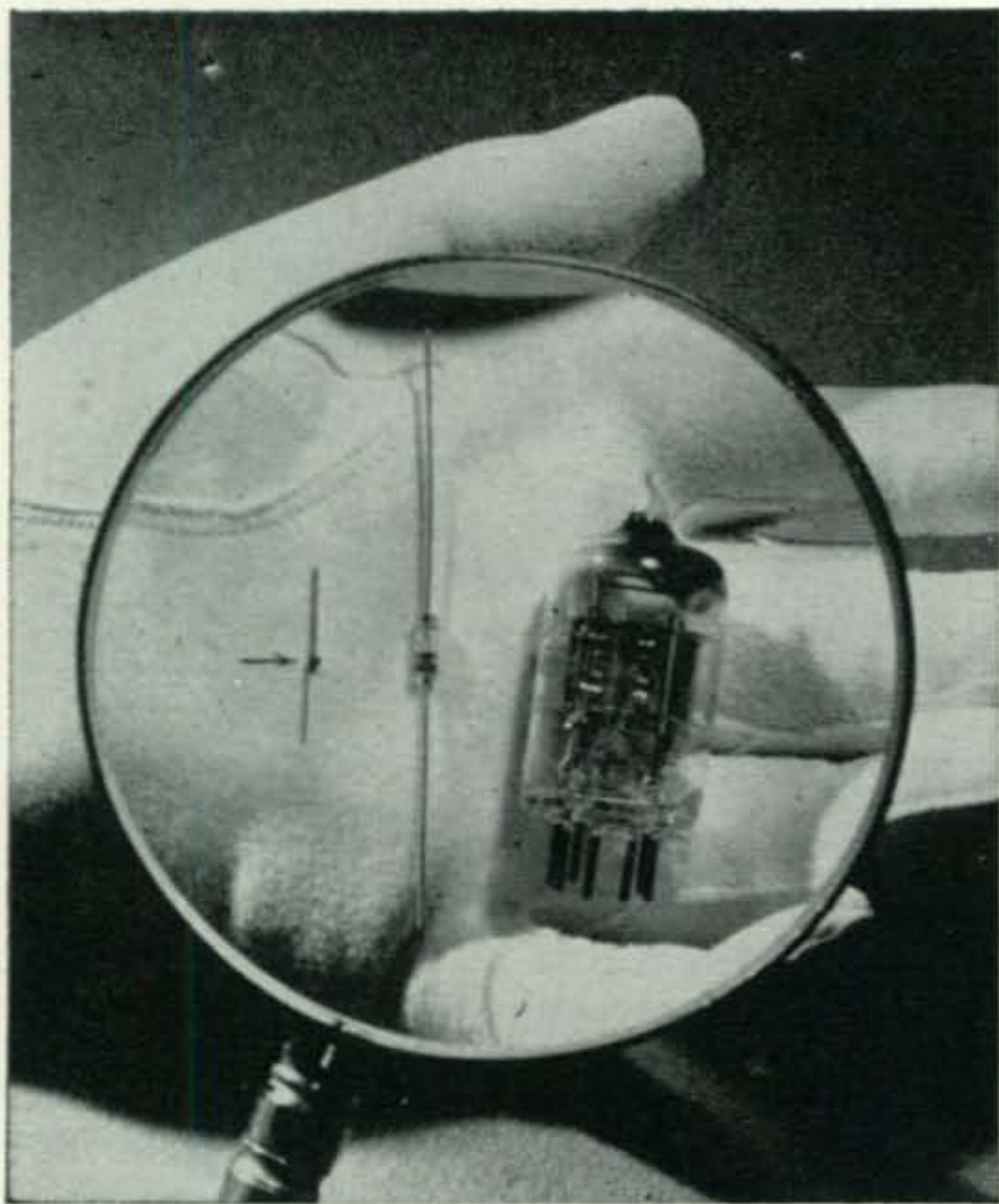
New Literature

Tung-Sol Electric, Semiconductor Division, 95 Eighth Avenue, Newark 4, New Jersey is mailing a brochure of literature on their transistor types. Also included in this folder is a type summary and cross reference, several charts showing maximum power ratings for germanium transistors, a list of standard transistor symbols, and a conversion chart for forward current transfer ratio.

CBS-Hytron, Danvers, Massachusetts has two very interesting bulletins written by Mr. Bud Tomer. Bulletin E-278 is titled *Transistor*

120 watt transistorized power supply.





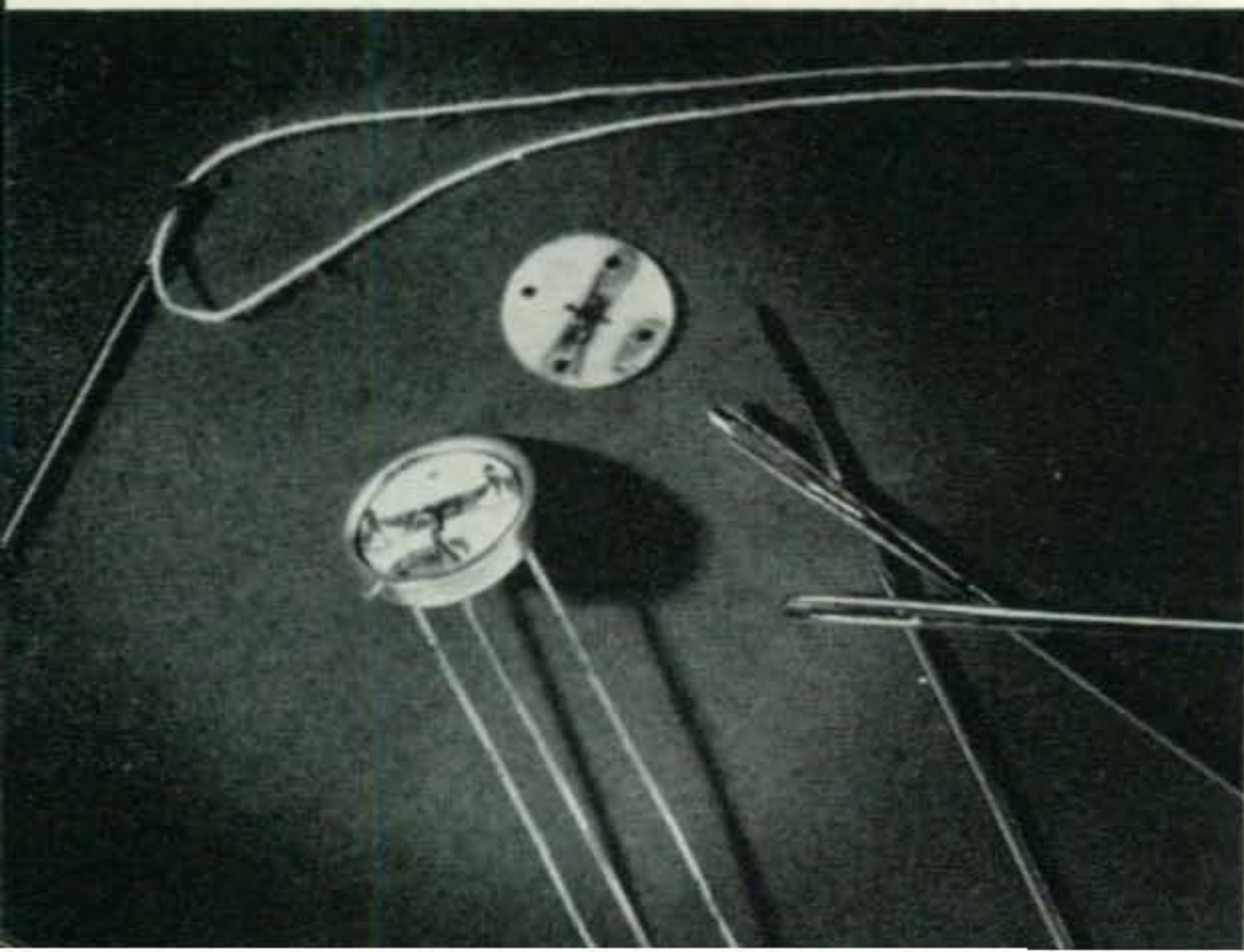
Introducing the "world's smallest diode rectifier". Pacific Semiconductor, Inc., has announced development of the "Tiny Tim" diode for use in compact equipment. Its size is smaller than a common household pin!

Power Supplies and includes a very complete theory section, plus several typical circuits, including a regulated unit. Bulletin E-279 is a construction article on *How to Build a Transistorized 40 watt Supply*.

Microwave Associates Inc., Burlington, Massachusetts are now in the silicon power rectifier business and have a booklet on the manufacture and application of these devices. Write for *Silicon Power Rectifiers*.

General Transistor Corporation, 91-27 138th Place, Jamaica 35, New York have several new transistor brochures. The Computer Brochure (G-140) provides complete engineering data

Another new development is the fixed-bed mounting technique developed by General Electric. This mounting makes transistors so rugged that they easily pass the most rigid Air Force mechanical specifications.



on General's computer transistor line. Another booklet *Manufacturing the Germanium Alloyed Junction Transistor* is very informative and contains extremely clear photographs. The High Frequency Brochure (G-150) describes their high alpha units. *How Not to Use Transistors* is written in the humorous vein but contains some sage advice (with reverse English).

New Products

If you are in the military end of the transistor application business, you will be interested in a new series of teflon transistor sockets manufactured by Fluorocarbon Products Inc., Div. of United States Gasket Co., Camden 1, N. J.

Pacific Semiconductors, Inc., 10451 Jefferson Blvd., Culver City, Calif. have announced development of the "world's smallest semiconductor diode". Shown in the accompanying photograph, this "tiny tim" diode is capable of carrying currents as high as 0.3 amperes.

On March 11, 1958, Radio Corporation of America, Semiconductor Division, Somerville, New Jersey announced a price reduction of 33% on their VHF "drift" transistor, the 2N384. These units perform extremely well in 220 mc ham gear and with the price now substantially below \$10, they should find wide usage in "ham shacks".

Also of interest to readers is the announcement by RCA of their completely transistorized closed circuit television camera and television receiver. These units were displayed at the IRE Convention in New York.

The Semiconductor Division of RCA has announced eight new transistor types for computer service, including one NPN type. The 2N578 through 2N585 are designed for switching applications in compact military and industrial electronic computers.

Philco research engineers have recently developed an experimental transistor capable of producing one watt output at 70 mc with an efficiency of 80%! The new transistor, is of the Micro Alloy Diffused-base (MADT) type.

The semiconductor industry appears to be standardizing on the JETEC #TO-9 transistor package. This unit formerly was called the JETEC size-group 30 case.

A new line of four PNP medium speed switching transistors having less than a twenty percent change in h_{FE} and I_{CO} after 4,000 hours storage at 100°C has been announced by the General Electric Company. A six page brochure, ECG-293 containing ratings and curves of the 2N394 through 2N397 is available by writing General Electric Co., Semiconductor Products Dept., Section RWS, Syracuse, N. Y.

General Electric has unveiled a new glass housing for transistors which eventually may become common in the industry because of its potential production cost savings. The cases meet the JETEC TO-9 outline dimension.

Did you know that GE demonstrated transistors, rugged enough to still work after being shot from a 12 gauge shotgun into a telephone

book, at the recent IRE show?

Corning Glass Works, Corning, N. Y. is also displaying their new two piece glass transistor case. The base and envelope are hermetically sealed at 1000°C while the temperature near the semiconductor, less than ¼ inch away, is kept below 150°C. Sealing is done in approximately 10 seconds.

Audio Devices, Inc., Rectifier Division, 620 East Dyer Road, Santa Ana, Calif. is marketing an interesting line of silicon rectifiers. The A-750 (JETEC #1N1449) was used in the power supplies described in this column, earlier. It is rated at 400 volts peak inverse, 500 ma. and is intended as a radio and TV replacement type. The cost to experimenters is much lower than any other silicon rectifier. The jobber net price is \$1.57. Each end of the rectifier has ¼-20 threads, which allows it to be clipped into a standard fuse holder or mounted to the chassis for a heat sink. Also available, as accessories, are clips for mounting in full wave voltage doubler and bridge rectifier applications, a threaded coupling for stacking rectifiers to 20 kilovolts, and a one inch aluminum washer for extending the current rating to 750 ma. Audio Devices rectifiers are available in Southern California from Electronic Supply Corp., 2085 East Foothill Blvd., Pasadena, California. For the name of your nearest distributor and for engineering and service bulletins number one and two, write directly to Audio Devices.

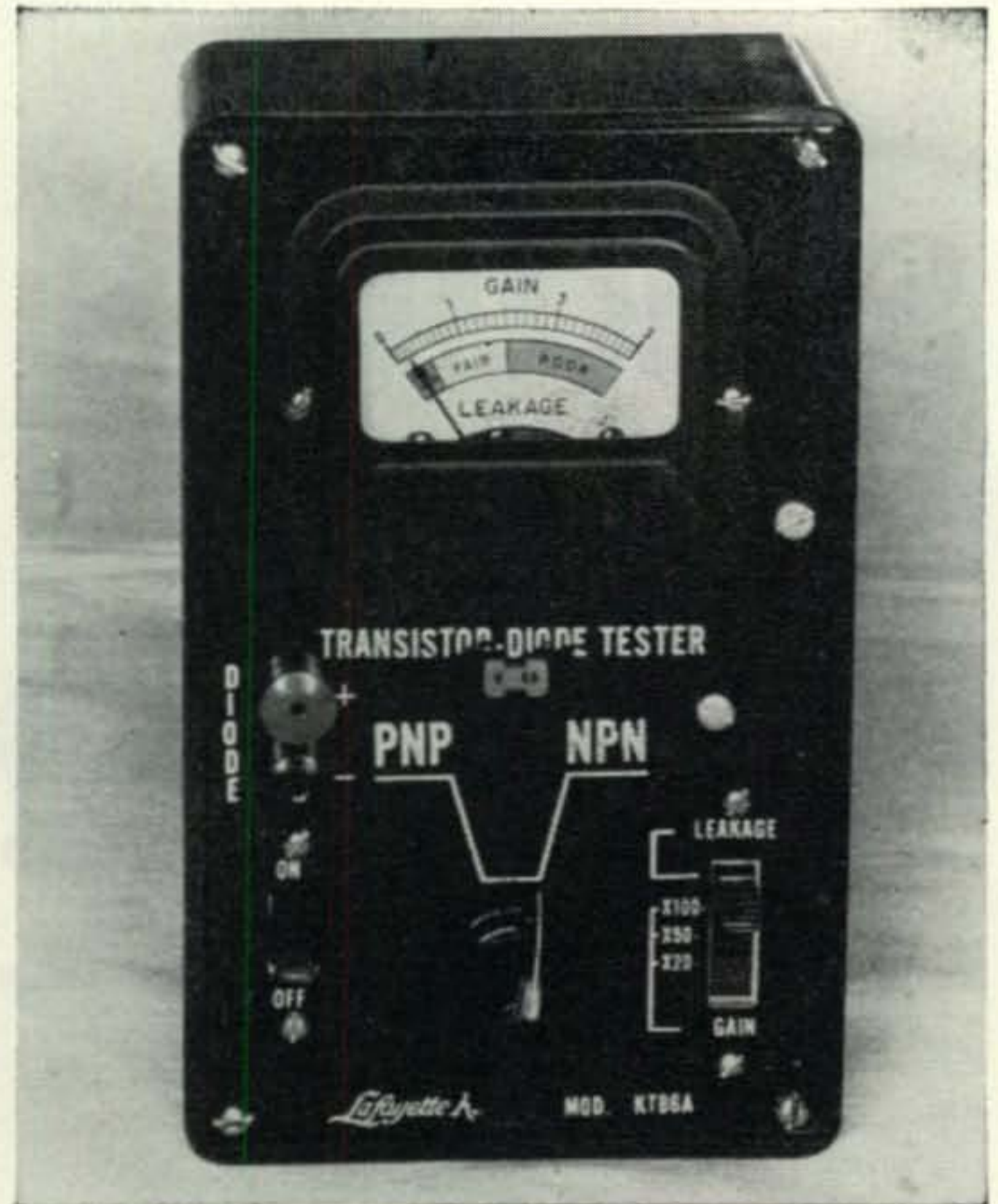
International Electronic Research Corporation, 145 West Magnolia Blvd., Burbank, Calif. has developed several heat dissipators for power transistors. Their model TXD-100-000-137 is intended for the Delco 2N174 and the TXD-075-000-137 fits the RCA 2N301. These devices clip onto the transistor and resemble a tube shield. The case temperature is reduced by roughly 25% with these dissipators.

Industro Transistor Corp., 35-10 36th Avenue, Long Island City 6, N. Y. is a new transistor manufacturer and is already marketing a wide variety of high quality, low cost transistors. They are specializing in computer, general purpose, audio and rf types. Also included in the line are kits of transistors for use as foundations in three, four, five, six, seven, and eight stage superheterodyne radios. An interesting project is planned for these transistors in the near future. Write Industro for their *Specifications and Interchangeability Guide*.

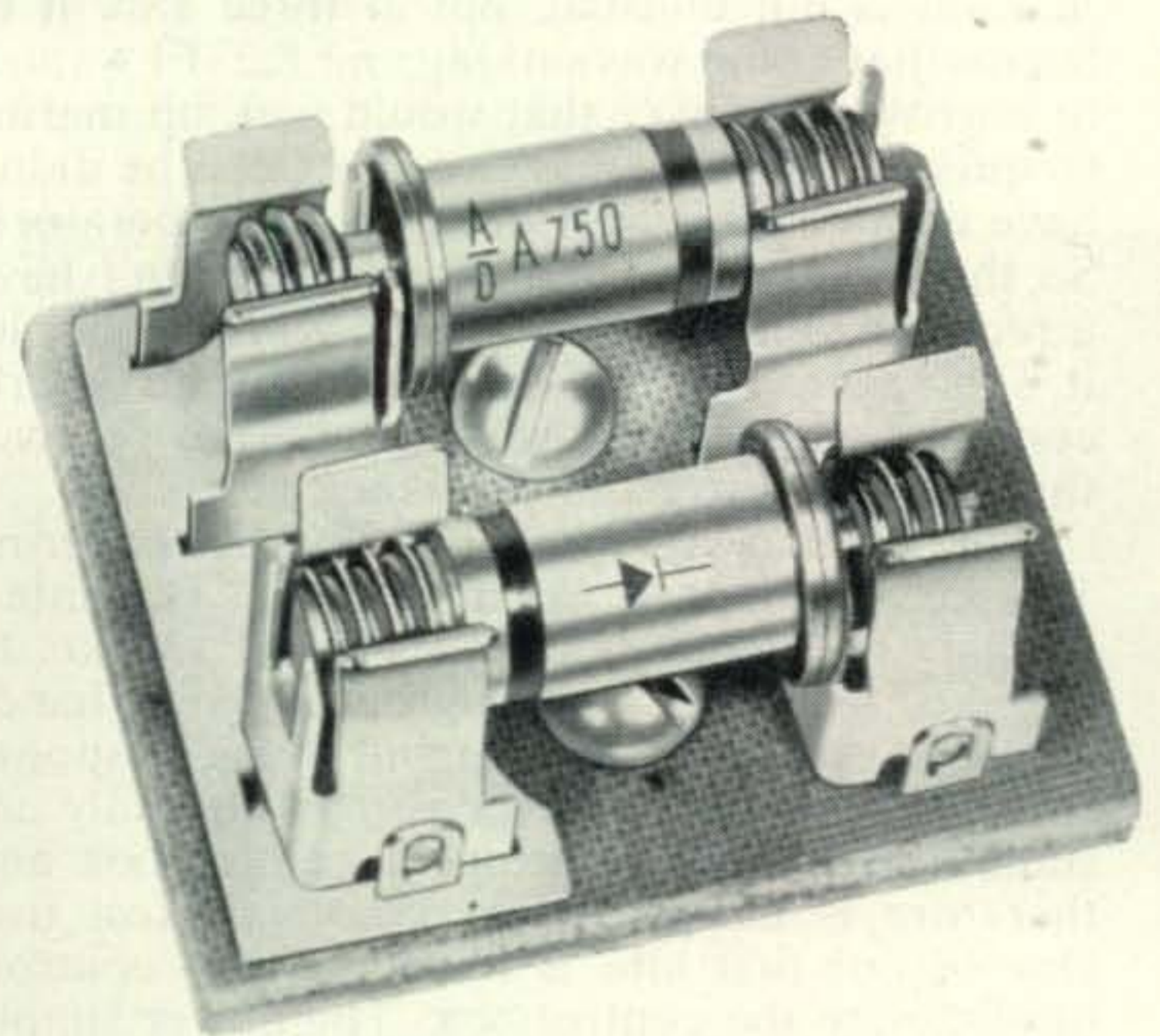
Sun-Air Electronics, Inc., Broward County International Airport, Ft. Lauderdale, Florida sell toroid transistor power supply transformers, completed transistorized power supplies and transistors for use in these supplies.

73, Don, W6TNS

Right—Audio Devices A750 low cost silicon rectifier, mounted in a full wave voltage doubler clip. The rectifiers cannot be inserted backwards in the polarized holder. Note the threaded ends for chassis mounting.



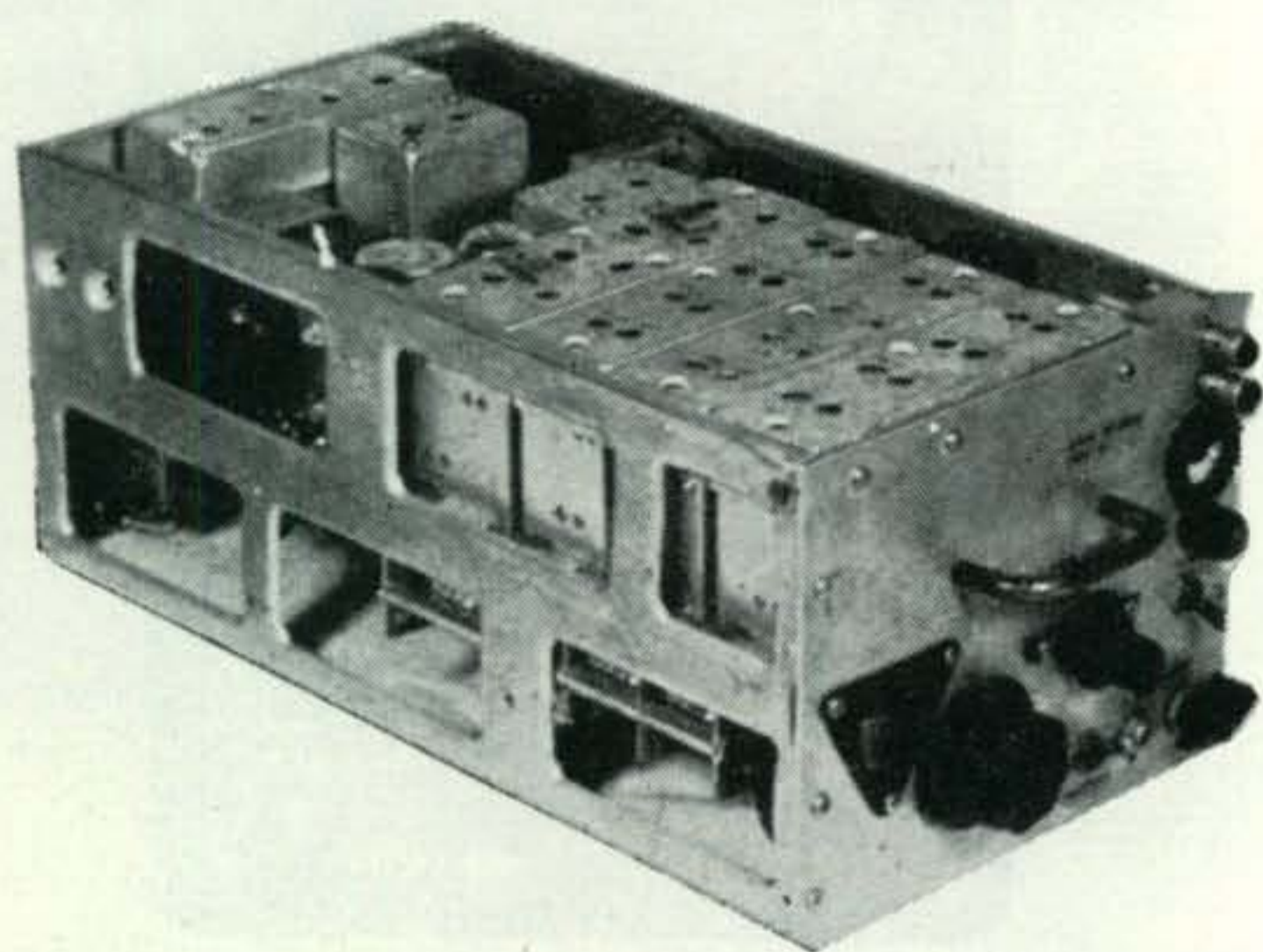
Lafayette's tester for checking NPN or PNP transistors and crystal diodes.



Transistorized power supply incorporating the Chicago DCT-2 transformer. The 2N278's are insulated from the chassis by mica washers.



SURPLUS



About two years ago I got a phone call. This in itself is not unusual, but at three a.m. it is. Seems that a ship was sinking and K2SFI wanted to borrow a receiver that would pick up marine frequencies, so he could listen in (as if he didn't have enough of it as a marine radio operator). So the *Andrea Doria* sank and he didn't have a receiver to monitor the traffic with . . . but let it sink again and he can listen to his hearts content because he now has the ARB receiver that we are converting this month.

The ARB is a four band superhet covering 195 kc. to 9050 kc. continuously. The intermediate frequency is changed from 135 kc. to 915 kc. when the two high frequency bands are used so as to improve the image response of the receiver. The receiver is normally installed some distance from its control box and therefore is designed for remote control use. One of our first jobs is to modify the controls to eliminate the control box. The power supply is a dynamotor operating from 24 volts, and this too must be replaced. Provisions are made for the use of a direction finder loop and while normal ham activities will find little use for this

feature some ARB's may find themselves aboard small boats and aircraft. Use your discretion as to whether to eliminate this feature. If not desired you may eliminate the loop relay located near the antenna terminals, and make use of it elsewhere in the shack.

The ARB we received cost twenty bucks and had a dented front panel. As a result, some mechanical work was needed to straighten out the case, frame and chassis, even though it wasn't badly bent. A new front panel was made from 1/16" aluminum and the buff finish was obtained by means of a scratch wheel. Steel wool would have done the job just as well. The right angle gear box was removed and all leads to the power plugs marked for future use. Power plug J-103 can be removed completely since its only purpose is to supply power for additional accessories. J-102 and the leads from it to the dynamotor should be removed as well. The small motor is supposed to be used to change the bands from a remote position and it too should be removed, together with its leads.

The dial magnifier should be salvaged for use on the new front panel because of the small size of the dial. Keeping the front panel would be a good idea as it can be used as a template for the location of holes and the magnifier cut-out. A shaft extension may be needed on some models of the ARB but we found that a knob could be used directly on the gear shaft. The tension and back-lash can be adjusted by proper positioning of this shaft. Toggle switches were used to switch the various features of the receiver that are relay controlled such as the selectivity. These relays were rewired so that they get their power from the total B-plus current, and are shorted by a switch when it was necessary to change their action. The bandswitching was originally accomplished by means of a remotely controlled motor whose power was cut off as it reached the band desired. Manual bandswitching control was also available but this

TABLE I — R-F ALIGNMENT DATA

I-F (KC)	Band	Freq. Range (kc)	Align. Freq. (kc)	Adjustment				Image Freq. (kc)
				Ant.	R-F	Det.	R-F Osc.	
135	A	195-560	560 200 250	C107 T101*	C111 T105*	C119 L101*	C131 L105	830
135	B	560-1600	1600 560	C108 T102*	C112 T106*	C120 L102*	C132 L106	1870
915	C	1600-4500	4500 1600	C109 T103*	C113 T107*	C121 L103*	C133 L107	6330
915	D	4500-9050	9000 4500	C110 T104*	C114 T108*	C122 L104*	C134 L108	7170

*These core adjustments are quite stable, and should not be varied unless it is certain that they are out of alignment.

knob could only be turned in one direction. The manual knob feature and the knob retained since this knob "feels" right only when turning in the proper direction. The motor could easily find itself into other projects around the shack. The audio stage was mounted on a small sub-chassis in place of the motor. The output of the receiver as it stands is sufficient to operate ear-phones, but the circuit of figure 1 should be used if the speaker is desired. The original circuit makes use of a 12A6 which is very similar to a 6V6 in power output. Unfortunately there is not enough signal at the grid of the 12A6 to produce enough output and the original transformer does not have an output impedance necessary to match a speaker. The transformer T-115 should be removed and in its place a 5000 ohm to voice coil transformer substituted.

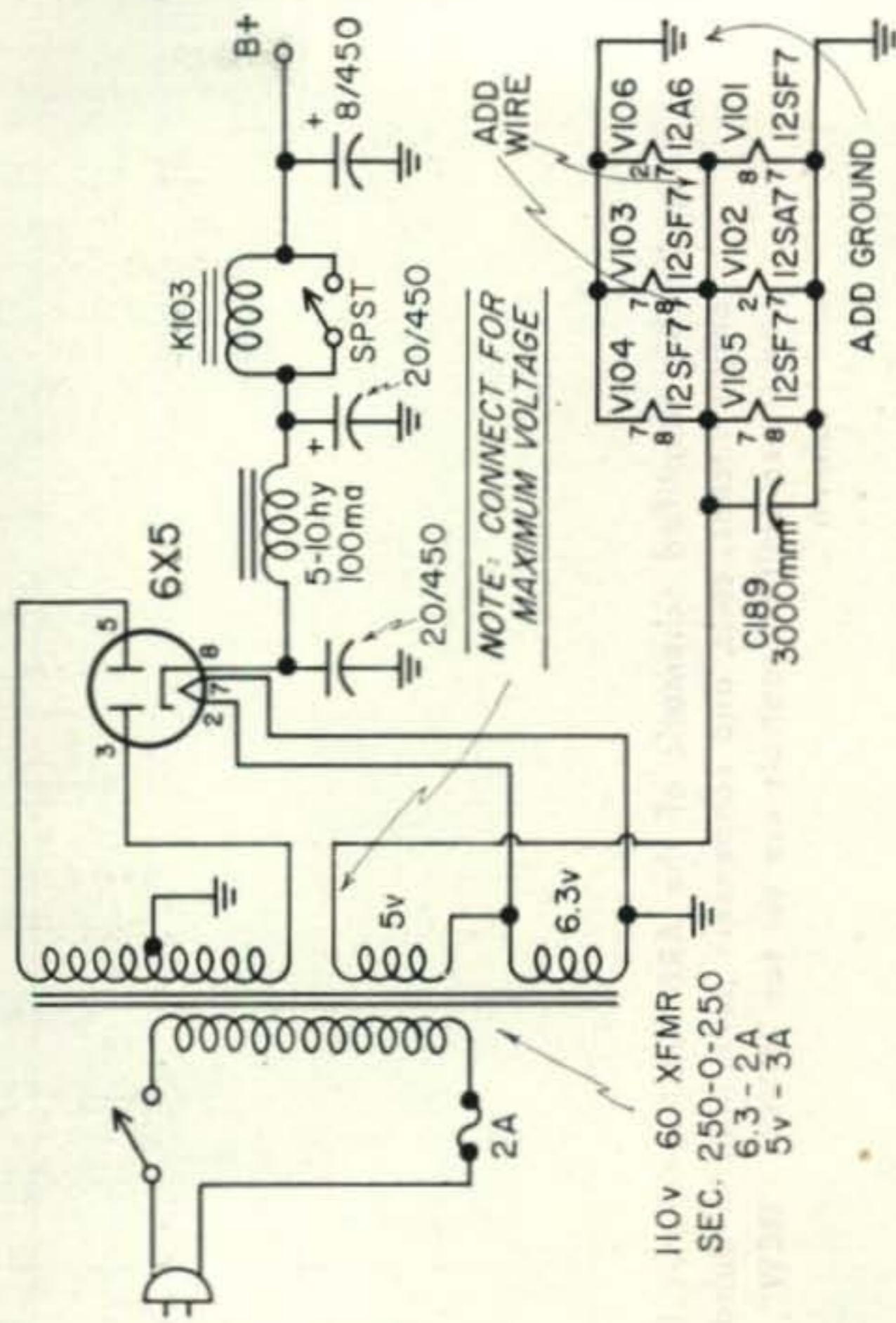
Fig. 2 shows the original circuit diagram which is simplified for ease in interpreting. The original full schematic was so complicated due to the bandswitching and IF switching that it was decided to take a short cut. Just remember that the primary and secondary of all RF transformers are switched as you change bands, and that the primary and secondary of the IF transformers are switched when you go from bands 1 and 2 to 3 and 4.

The wiring of the front panel and all controls that go to it is not too difficult. Actually we have to duplicate the control box wiring. A small rotary switch is used for S-202 to accommodate all of the positions needed. The exception to this is the AVC-MVC contacts, which should be on a separate switch. S-201 is not used at all . . . unless the direction finder loop is used with the receiver. The bandswitch wiring is deleted as is the HI-LOW impedance switch earphone circuitry unless the original audio circuitry is retained.

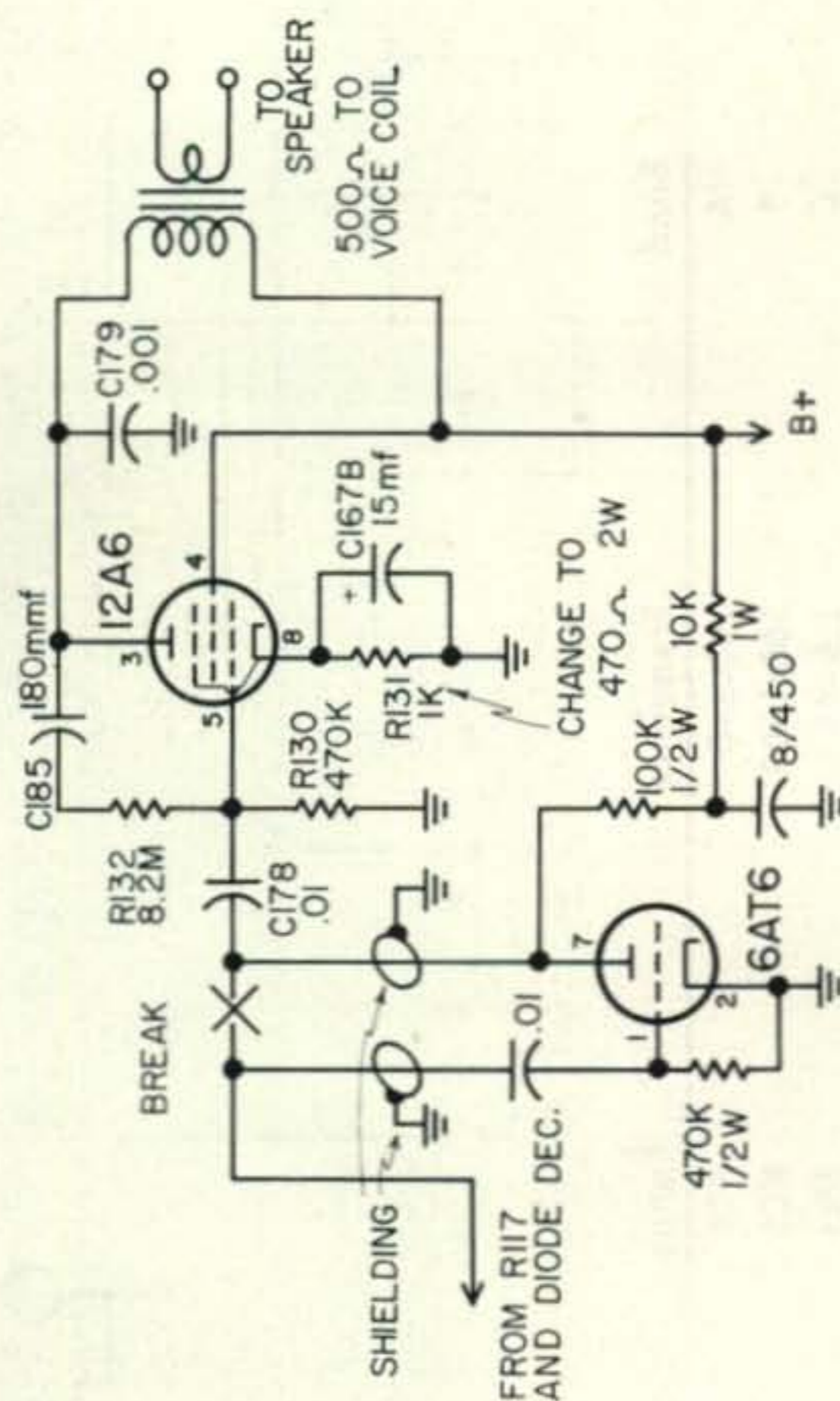
Fig. 3 shows the power supply used with the receiver. In order to keep from having to buy 6 volt tubes it was decided to resort to an old trick and use a standard receiver power transformer. The 6X5 rectifier is more than adequate to handle the current, so that the 5 volt winding usually used for a rectifier is connected in series with the six volt winding to provide about 11 to 12 volts. The original "hot" side of the filament line is grounded and the "center-tap" of the tubes is connected to the filament power source, as shown. The original B-plus filter could have been used, but the size was a little too big for the job accomplished to another filter choke and condensers were substituted. All told the power supply cost about seven dollars, which makes the cost of the receiver about \$27.00, which is not a bad investment if you hate to get up in the middle of the night.

Surplus News

Quite a bit of mail asks about changing filaments to six and twelve volts. The various transformer manufacturers all make a twelve and twenty-four volt filament transformer for this application. See your local parts dealer and



[Fig. 3]



[Fig. 1]

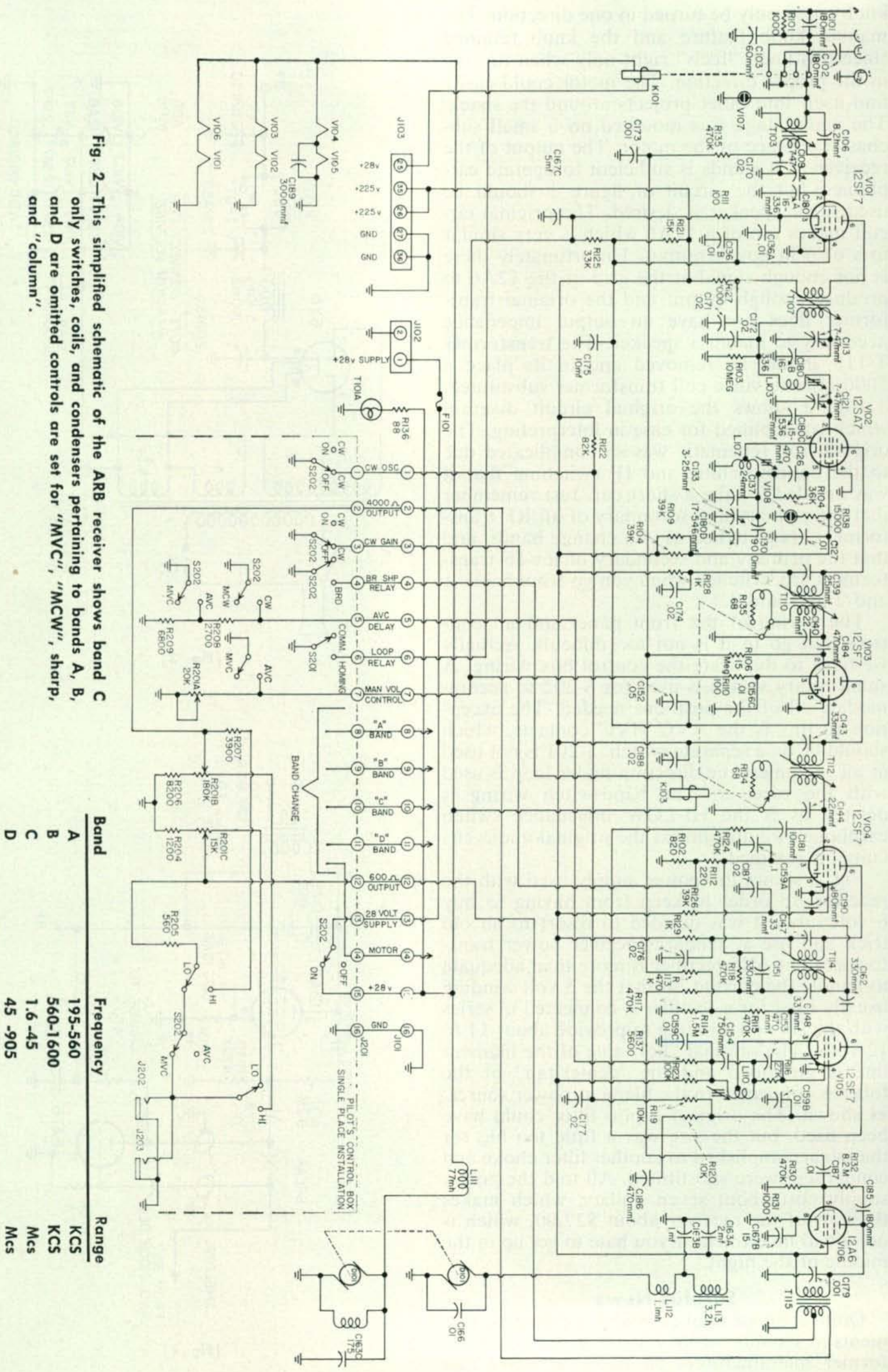


Fig. 2—This simplified schematic of the ARB receiver shows band C only switches, coils, and condensers pertaining to bands A, B, and D are omitted controls are set for "MVC", "MCW", sharp, and "column".

[Continued on page 112]

by **BYRON H. KRETZMAN, W2JTP**
16 Ridge Drive, High Hills, Huntington Station, N. Y.

RTTY

The **Big News** this month is the story on the historic gathering of the clan in New York City during the IRE show in March. A quiet pre-dinner luncheon of *active*, largely east-coast, RTTYers was held and it was obvious to all that the time had come to not only talk of many things, but to *do* something about them.

Formulated at that luncheon were the following **Resolutions**, later presented at the dinner and meeting promoted by Clay Cool, W2EBZ. Neither Cool nor John Williams, W2BFD, were able to be present at that dinner or the meeting, so Boyd Phelps, WØBP, was asked to take over, but BeeP declined the toastmaster job, and W1OUG presided at the meeting.

RESOLVED, March 24, 1958

- 1—The following active east coast amateur teleprinter operators have resolved in the best interest of the art, to consolidate and form means to organize a truly representative group to act in naming agents to disburse available machines into hands of the growing field of amateur radio operators.
- 2—It is further resolved that in the best general national interest, this group desires that a national affiliation with other active RTTY organizations be effected.
- 3—Resolved—It is the feeling of this group, that there is a need for a national RTTY Federation or affiliation of regional clubs or societies, that a committee be appointed to contact all known RTTY organizations and collect feelings, formulate plans and details as to representation, etc., and otherwise further the formulation of a united or national Federation.

NOTES:

The group has appointed Boyd Phelps, WØBP, to contact groups in his area. Frank White, W3PYW, is to contact Merrill Swan, W6AEE, (RTTY, Inc.).

This group is to report as to the feasibility of this plan in writing to Elston Swanson, W2PEE, and to Phillip Catona, W2JAV, who will circulate this information for further action.

At the meeting following the dinner, the above **Resolutions** were read by Phil Catona, W2JAV, and a request was made for signatures. The following is a list of those indicating

Amateur Radioteletype Channels

National, FSK 3620, 7140, 27,200, 29,160, 52,600 kc.
National, AFSK 27.2, 147.96, 144.138 mc.

Area Nets:

California	147.85	Mc.	AFSK on AM
Chicago, Ill.	147.70	Mc.	AFSK on FM
Detroit, Mich.	147.30	Mc.	AFSK on FM
Washington, D.C.	147.96	Mc.	AFSK on AM
	147.495	Mc.	AFSK on AM
New York City	147.96	Mc.	AFSK on AM
Livingston, N.J.	146.30	Mc.	AFSK on AM
Buffalo/Niagara	147.50	Mc.	AFK on AM
Boston, Mass.	147.96	Mc.	AFSK on AM
Seattle, Wash.	147.00	Mc.	AFSK on AM
Spokane, Wash.	147.15	Mc.	AFSK on AM
Minneapolis, Minn.	144.90	Mc.	AFSK on AM

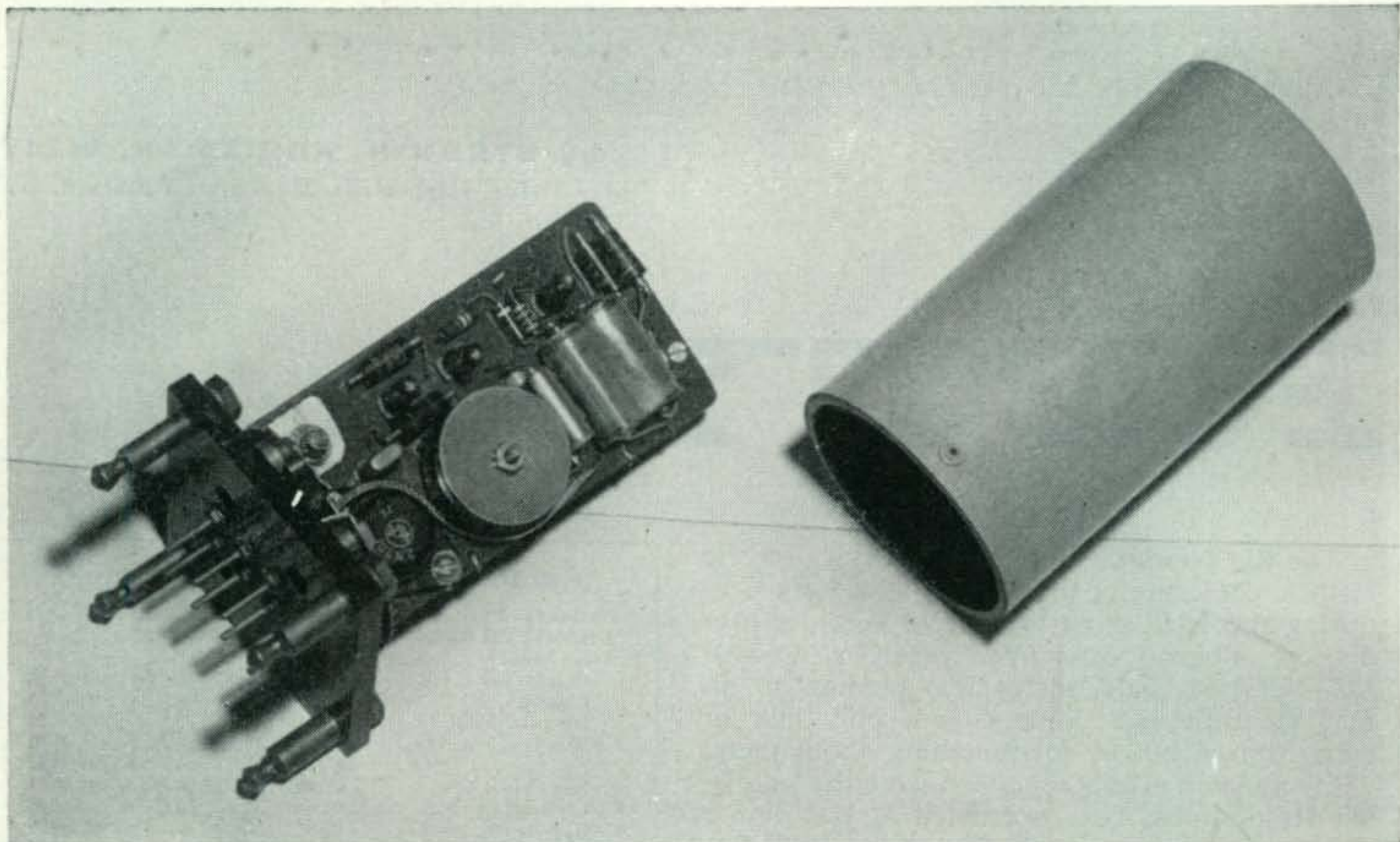
Jack Pitts, W6CQK, Redwood City, California.
Dual Diversity Receiving and Operating Position.

Receiving rack contains, from top to bottom:

- Speakers
- Diversity AFSK Converter
- Patch Panel
- FSK Converter, i-f type, 85-kc
- Monitor 'Scope Tuning Indicator (WØHZR)
- Receiver #1—HQ-129X
- Transmitter Remote Control Panel
- Receiver #2—HQ-129X
- Writing shelf
- Conelrad receiver
- Tuning Fork Tone Standard
- Perforator Power Supply

On the table, next to the Model 26, a Model 14 typing reperforator, and a Model 14 perforator. On the shelf, a Model 14 TD, and a newly-built Bias & Distortion Measuring Set, which will check signals received off the air.





W2JAV's Little Masterpiece TU, an RTTY Converter Built into a Polar Relay Case.

their agreement:

Don Field, W2UAE	Frank White,
Harry Rapaport,	W3PYW
W3PLG	Paul Boivin, Jr.,
Gordon Stanys,	W1ZXA
W1OUG	John Touse, W3FU
George Vivian,	Walter Grosselfinger,
K2HHH	W2ATQ
Jack Berman,	Thomas Howard,
W1BGW	W1AFN
Raymond DeVos,	Al Hughes, W1FGL
W2TAM	Louis MacDonald,
William Kunzler,	W1IYU
W2AVI	Boyd Phelps, WØBP
Roy Weise,	Elston Swanson,
W2TKO	W2PEE
Donald Scher,	Phillip Catona,
W2KDW	W2JAV
Robert Straub,	Fred Albertson,
W2PBG	W3FMC
Felic. Esteban,	Byron Kretzman,
W2ZKV	W2JTP

The above list is being circulated for additional signatures, and copies of the Resolutions with this list along with other details are being placed in the hands of responsible people in the various Telephone Companies of the Bell System for their reconsideration of the problem.

What does all the above mean? It means unity of all legally incorporated RTTY societies and regional clubs, banded together to assure the honest procurement and fair disbursement of machines. It means that the newcomer to RTTY will be able to check a published list of approved societies and clubs to make sure that he isn't sending his well-soiled

cash to a phoney "national" society. It *doesn't* mean that a "league" in competition to the ARRL is being set up. Our dealings with the FCC in matters RTTY are still through normal channels of the ARRL.

Transistorized TU

This tidy tidbit of teleprinter technology for the month of June (we didn't dare run it in the April issue) was conceived as a gag by Phil Catona, W2JAV, for his friend Ed Clammer, W2BDI. The idea was to build a working TU into a *WE* polar relay case to show Ed how much space he was wasting in the shack. As the TU developed, it soon became apparent that here was something more than just a novelty. It really performed, and Phil demonstrated exactly how well at the Chicago RTTY Meeting at the ARRL Convention last September.

Constructed on a thin piece of bakelite just big enough to fit inside of the polar relay case, it contains everything required except the battery power supply, which is only a little 'ole 7½-volt "C" battery. Sockets are used for all of the little transistors, but the 2N301 is bolted to the bakelite "chassis." No heat sink is used.

Fig. 1 is the schematic diagram of Phil's Little Masterpiece TU. The input transformer, not visible in the photo, is a miniature 500-ohm to 20,000-ohm surplus job, but several small satisfactory substitutes are available in the *Argonne* line from *Lafayette Radio* in New York City. A pair of 1N69 diodes connected back-to-back with two penlight or model cells as bias set the limiting level. (1N54's or 1N34's hand-picked for low forward and high back resistance should work, too.)

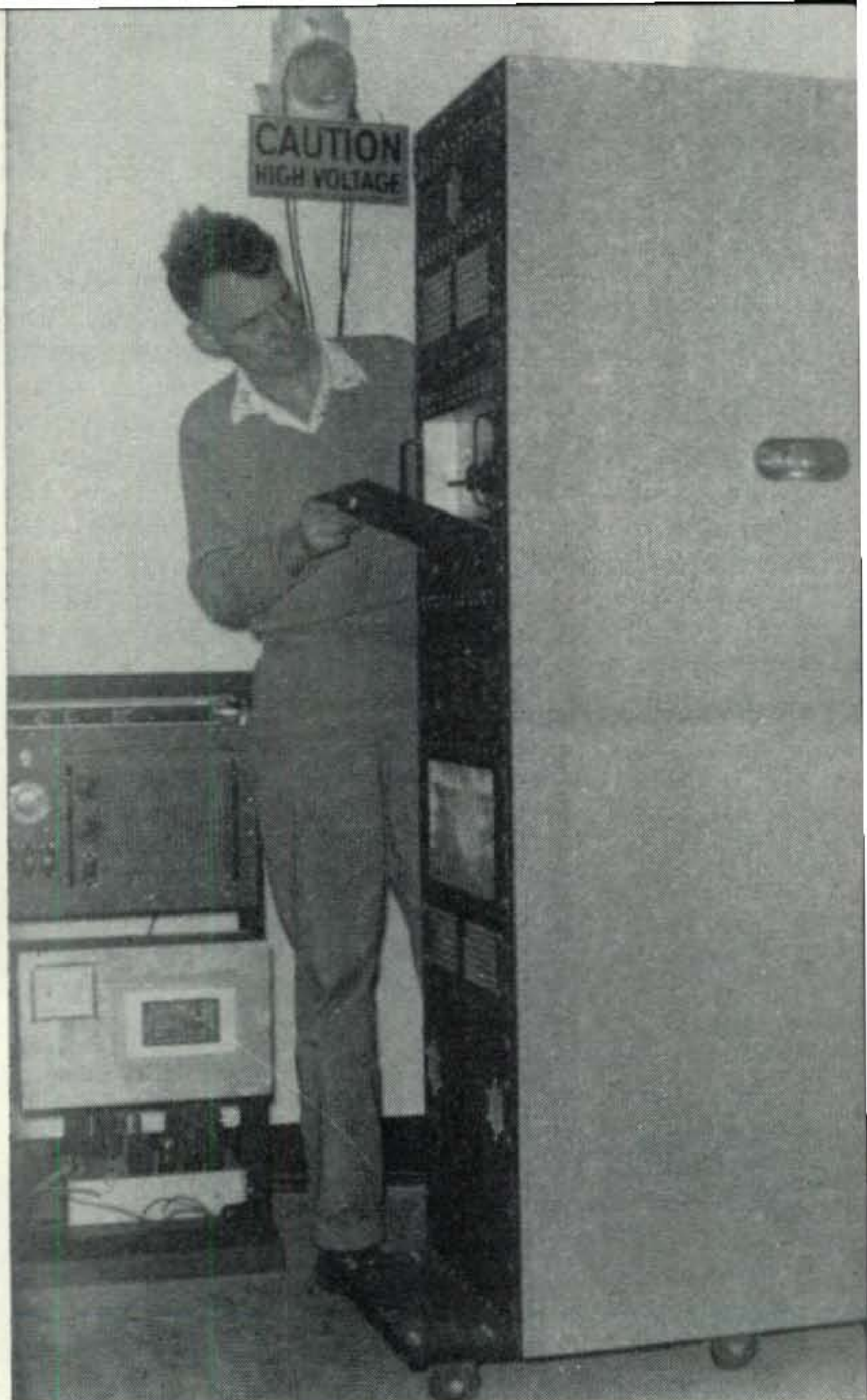
The output of the diode limiter drives a 2N109 *pnp* transistor in a common-emitter circuit which provides a bit more limiting as well as some amplification. Another pair of 2N109's are used as a phase splitter and the collector circuit of each contains the tuned circuit, one for *mark* (2125-cycles) and the other for *space* (2975-cycles). The inductors are the ubiquitous "88-mhy" toroids, and the capacitor values are approximate. The reversing switch in this circuit was added later, externally, as an operating convenience.

Across the load resistors of the diode detectors is connected a miniature 100k-ohm pot to permit compensation for the slightly different levels in the *mark* and *space* channels. (This pot is also available from *Lafayette*.) Output of the detectors then keys the 2N146 *nnp* transistor, which in turn operates the 2N301 as the on-off "switch" to directly operate the printer magnet of a Model 26 from the 7½-volt battery. Loop current on a steady *mark* should be about 50 to 60 ma, but don't let that disturb you. This gives the best range with the low voltage loop supply used. (The 26 magnets are in series.)

The REPT. KEYER jack and the associated diode is a most ingenious device, and it is extremely useful, too. What it is simply, is another "switch," slaved to the 2N301. It can be used to key the fsk circuit of a VFO or an afsk oscillator for automatic repeating and regeneration of the signal. It is usually used, in conjunction with an afsk oscillator, to key the local loop in the shack. Of course, if no machine is plugged into the PRINTER MAG. jack, a dummy plug with a 180-ohm resistor connected across the contacts should be inserted in place of the machine selector magnets.

Tuning up the toroids and setting the detector balance potentiometer is easily done with a VTVM and the 2N146 transistor out of its socket. A tuning fork standard, such as the one described on page 56 of the *RTTY Handbook* (\$3, postpaid, via W2JTP) is very handy right here to make sure that you tune the toroids as closely as possible to the standard *mark* (2125-cycles) and *space* (2975-cycles) frequencies. After tune-up, measurements should disclose a useful band-pass of about 300-cycles, and limiting should begin at an audio level of about -39 dbm, or -47 db below "0-level" when defined at 1.73-volts in a 500-ohm line. A convenient operating level is about plus 8 dbm (0-db as defined above) on the 500/600 ohm line from the receiver. If your receiver has high-level line output, it is a good idea to connect some sort of attenuator in the line to permit operating the Little Masterpiece TU at the recommended input level.

By the way, those 88-mhy toroids can be obtained for \$1 each, postpaid, from Jack Pitts, W6CQK, 710 Madison Avenue, Redwood City, California. And, if you have any questions about the Little Masterpiece TU, Phil asks that



Remote Transmitting Station of W6CQK, with Bob Weitbrecht, W6NRM, inspecting.

Transmitter has push-pull 304-TL's with 1-kw on 80, 40, and 20; 'phone, cw, and RTTY. It is auto-tuned by remote control (*RTTY Handbook*, page 77). Antenna is a 3-band doublet strung between two 80-foot poles.

The small rack contains a patch panel, VFO and local control dial, remote control selector panel, and the speech amplifier for 'phone.

you send your letters to Byron, W2JTP.

RTTY DX

WØANY/VO1 is on 21,090 kc from Newfoundland with 100 watts. KZ5KJ is now on from Balboa in the Canal Zone. KL7OOT paid a recent visit to New York City, but should be back on 14,340 kc from Alaska by the time you read this. KR6AK, pictured in the April RTTY column, and KR6JL from Okinawa now have permission to use the lower 50-kc of the 20-meter band, so they have been active on 14,040 kc, working W3PYW.

W6PHS reports working KL7BK on 7140 kc late in the evening, and that KL7BK is operating this frequency from Anchorage almost every evening, looking for west coast contacts.

KL7SHM in Big Mountain has "ordered" a Model 21 (!). KL7FBA is on RTTY from

the Air Force Base at Anchorage due to the efforts of Dick, W5ALR.

FRESNO

With the coming Pacific Division ARRL hamfest to be held in Fresno, California, June 7th and 8th, plans are going forward rapidly for an RTTY demonstration and display again this year. In addition to the NTS activity, of which K6GES is handling RTTY communications, NCARTS under the chairmanship of Dick, W6CQI, and with Chuck, W6VHS, Howard, W6FYM, and Jack, W6CQK, plans another demonstration and talks on RTTY operation. As everyone who attended last year remembers, the RTTY demonstration was one of the outstanding affairs at Fresno.

SX-101 Modification

Last month, the fine details on exactly how the SX-101 was modified seems to have gotten lost. (Maybe it was because there was so little to them!) Anyway, to bring the 50.5 kc i-f signal out of the receiver, first slide the chassis out of the case and turn it upside down. Locate the 6BJ7 DET. AVC & ANL, V-7, and the rear of the accessory socket SO2 on the back of the chassis. Now, simply solder one end of a 25-uufd mica or NPO ceramic capacitor to pin #2 or #9 on V-7 and anchor the other end on a tie-point or some other sort of insulator in the general direction towards the accessory socket. Then, run a piece of stiff wire to the only blank pin (#6) left on the accessory socket. That's all. The 50.5 kc i-f output then appears on pin #6 against the grounded pins #1 or #8.

Good Grief Dept.

While on the general subject of omissions, mistakes, etc., perhaps we should bring you all up to date, item by item:

January '58, RTTY Column, page 73. In fig. 1, the schematic of the W2JAV audio frequency meter, the 1.5k-ohm resistor connected to the input switch S1 should be 15k-ohms. The values of the capacitors connected to the range switch S3 were omitted, and were subsequently carried on page 81 of the March '58 issue of CQ.

April '58, RTTY Column, page 77. The surplus "IS-80" meter should be "IS-180." At the end of page 77 it says, "Continued on page 114." Actually, it is continued on page 98.

Additional Notes on "An Improved Radioteletype Converter"

The April '58 issue of CQ described a very fine TU designed by Phil Catona, W2JAV. In the article, the power supply for the converter was not emphasized, but perhaps we should have made it clear that a very "stiff" source of plate voltage is required in the interests of stability in the operation of the NE-51 neon switching lamps.

While a plate voltage of 250-volts with a capacity of 80-ma is indicated on the schematic diagram, it is highly desirable to have a supply with very good regulation. In other words, it should have a very low impedance, keeping in mind that we are dealing with switching frequencies around 22.8-cycles for teleprinter keying.

It is recommended that a choke-input power supply be used, and with a smoothing choke, too. The output filter capacitor should be at least 80-uufd, and a heavy bleeder should be used. Where 150-volts regulated is required, it is suggested that this be obtained by using regulator tube, such as the VR-150/OD3.

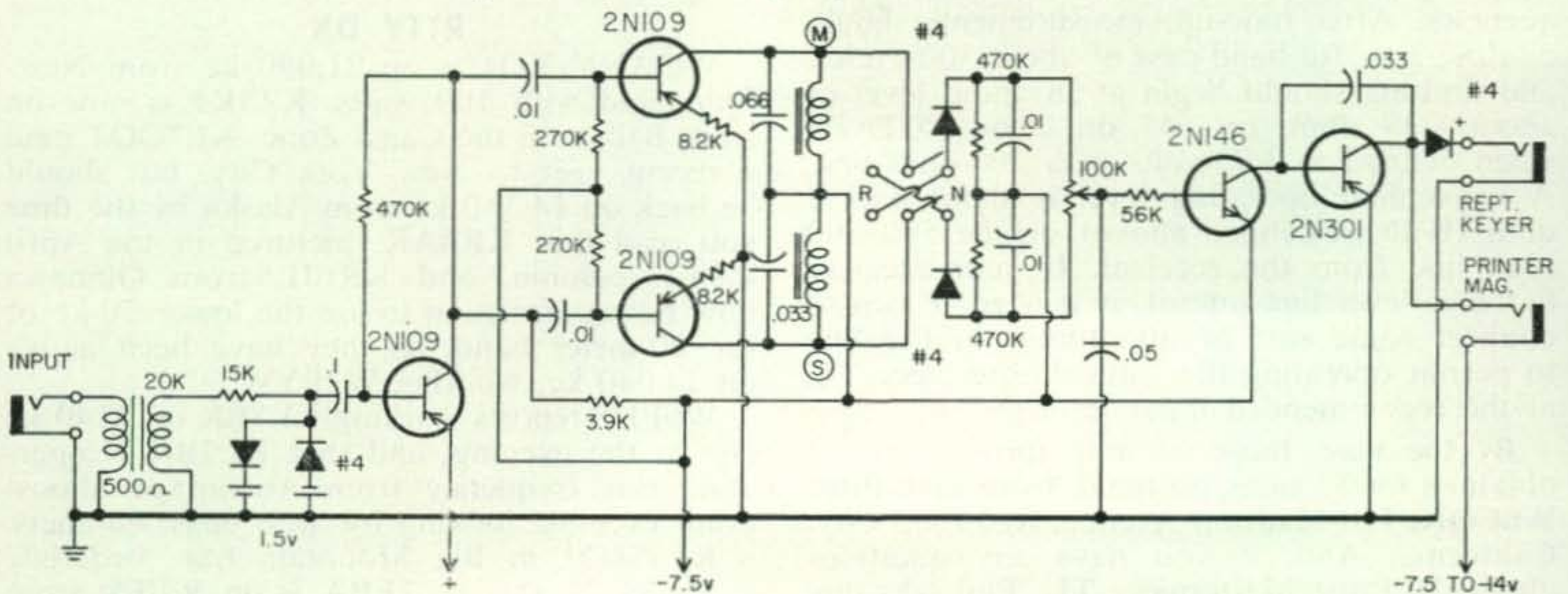
In Fig. 1, the schematic diagram, on page 43, the ground connection on the cathodes of the 12AX7, V-4, was omitted. On page 45, in Fig. 3, the polar relay supply schematic, there should be no connection between the armature (1) of the polar relay and the junction of the two coils (7, 3).

Here and There

W8EKF in Williamson, West Virginia, has a TT-5/FG machine and is looking for the instruction manual. Jim also has an O-73A/URT exciter driving an 813 to 500 watts. The receiver is an NC-173/BC-453 combo with a W5QHB converter from page 48 of the RTTY Handbook.

[Continued on page 117]

Fig. 1 — Schematic Diagram, Transistorized TU.



by **GEORGE JACOBS, W3ASK**
607 Beacon Road, Silver Spring, Md.

PROPAGATION

Last minute forecast: Propagation conditions are expected to be seasonably normal for most of the month of June. Better than average conditions are forecast for June 1-9, while somewhat disturbed conditions are most likely to occur during June 24-27.



Bob White, TF2WCC/W1ZMO, Keflavik, Iceland, and the equipment used for observing 160-meter propagation characteristics. (Photo Courtesy W1BB).

Heat radiated from the sun during June and summer months strikes the earth more directly than during other seasons. This direct, and therefore more intense heat radiation, causes the gases that exist in the region of the ionosphere to expand. As a result of this expansion the electronic density of the ionosphere, or the degree of ionization, *decreases*. This results in a weaker *daytime* F-2 layer, with lower daytime maximum usable frequencies during the summer months as compared to other seasons. This will be particularly noticeable on *6-meters* where very few DX openings are forecast, and to a lesser extent on *10-meters*.

On the other hand, during the summer months the hours of daylight greatly exceed darkness, permitting the layers of the ionosphere to absorb the sun's ultraviolet radiation for longer periods of time, with less time for de-ionization to take place. This results in comparatively *stronger* ionization during the *late afternoon* and *evening hours* than observed during other seasons, permitting both *15 and 20-meters* to remain open longer during these periods.

During June and the summer months ionospheric absorption tends to increase considerably, and signal levels during the daylight hours may be somewhat weaker than they were during the winter months. Atmospheric noise levels (static) also increase during June, reaching a peak during the summer months as thunder storms occur more frequently. The increased static level will be most noticeable on *40, 80 and 160-meters*.

During June there is a sharp increase in the occurrence of sporadic-E propagation over short-skip distances ranging up to about 1500 miles. Based on previous years data, sporadic-E openings on *10-meters* should occur about 35% of the time, with the *6-meter* band opening about 5% of the time.

Band Conditions

6 Meters: Except for an occasional opening to South America, no DX expected on this band until this coming fall. Occasional openings between distances of 1000 and 1400 miles should occur as a result of the increase in sporadic-E propagation. Intense daylight

ALL TIMES IN E. S. T.

EASTERN USA TO:	10/11 Meters	15 Meters	20 Meters	40/80** Meters
Western Europe	11A - 2 P (1) 2 P - 5 P (2) 5 P - 7 P (1)	6 A - 1 P (2) 1 P - 7 P (4) 7 P - 11 P (2) 11 P - 6 A (1)	5 A - 1 P (1) 1 P - 4 P (3) 4 P - 10 P (4) 10 P - 5 A (3)	8 P - 11 P (3) 11 P - 1 A (2) 9 P - 12 M (2)
Scandinavia & North Europe	11 A - 2 P (1) 2 P - 5 P (2) 5 P - 7 P (1)	7 A - 1 P (1) 1 P - 5 P (2) 5 P - 8 P (3) 8 P - 10 P (1)	1 P - 5 P (1) 5 P - 11 P (2) 11 P - 7 A (1)	9 P - 1 A (1) 9 P - 11 P (1)**
Eastern Mediterranean	12 N - 3 P (1) 3 P - 5 P (2) 5 P - 7 P (1)	5 A - 11 A (1) 11 A - 3 P (2) 3 P - 7 P (3) 7 P - 10 P (2) 10 P - 1 A (1)	12 N - 4 P (1) 4 P - 11 P (3) 11 P - 3 A (2) 3 A - 6 A (1)	8 P - 11 P (2) 9 P - 10 P (1)**
Southern Europe & North Africa	9 A - 12 N (1) 12 N - 3 P (2) 3 P - 5 P (3) 5 P - 7 P (1)	5 A - 8 A (2) 8 A - 12 N (1) 12 N - 8 P (4) 8 P - 11 P (3) 11 P - 5 A (2)	1 P - 5 P (2) 5 P - 1 A (4) 1 A - 7 A (2)	8 P - 1 A (2) 9 P - 11 P (1)**
West & Central Africa	9 A - 12 N (1) 12 N - 7 P (3) 7 P - 9 P (1)	5 A - 11 A (2) 11 A - 2 P (3) 2 P - 8 P (4) 8 P - 11 P (2) 11 P - 5 A (1)	1 P - 5 P (2) 5 P - 1 A (4) 1 A - 7 A (2)	8 P - 2 A (2) 9 P - 12 M (1)**
East Africa	3 P - 5 P (1) 5 P - 8 P (2)	9 A - 12 N (1) 12 N - 2 P (2) 2 P - 7 P (3) 7 P - 11 P (2)	2 P - 6 P (2) 6 P - 10 P (3) 10 P - 1 A (2)	7 P - 9 P (1)
South Africa	7 A - 11 A (2) 11 A - 3 P (3) 3 P - 7 P (2)	1 A - 5 A (2) 5 A - 11 A (1) 11 A - 7 P (3) 7 P - 10 P (2)	1 P - 5 P (2) 5 P - 9 P (3) 9 P - 1 A (2) 1 A - 5 A (3)	7 P - 2 A (1)
Northern South America	12N - 6 P (1)* 7 A - 1 A (3) 11A - 5 P (4) 5 P - 7 P (3) 7 P - 10 P (2)	7 A - 5 P (4) 5 P - 7 P (5) 7 P - 1 A (4) 1 A - 7 A (3)	9 A - 4 P (3) 4 P - 9 A (5)	7 P - 6 A (3) 11P - 5 A (2)**
Argentina, Brazil & Chile	3 P - 7 P (1)* 7 A - 11A (2) 11A - 6 P (3) 6 P - 9 P (2) 9 P - 12 M (1)	5 A - 9 A (3) 9 A - 2 P (2) 2 P - 11 P (4) 11 P - 5 A (2)	3 P - 5 P (2) 5 P - 2 A (4) 2 A - 8 A (3) 1 A - 5 A (1)**	8 P - 1 A (2) 1 A - 6 A (3) 1 A - 5 A (1)**
Pakistan, India	NIL	11A - 4 P (1) 4 P - 10 P (2)	5 P - 9 P (1) 9 P - 12M (2) 6 A - 8 A (1)	NIL
Mongolia, Central Asia	NIL	9 A - 3 P (1) 3 P - 6 P (2)	5 P - 9 P (1) 9 P - 1 A (2)	NIL
Japan & Far East	NIL	5 P - 7 P (1) 7 P - 11P (2) 11P - 1 A (1)	7 P - 10P (1) 10P - 1 A (2) 1 A - 6 A (1) 6 A - 9 A (2)	NIL
Malaya & Southeast Asia	NIL	3 P - 5 P (1) 5 P - 9 P (2) 9 P - 11P (1) 6 A - 8 A (1)	6 A - 8 A (1) 9 P - 12M (1)	NIL
Hawaii	6 P - 11P (2)	8 A - 10A (1) 10A - 5 P (2) 5 P - 11P (4) 11 P - 1 A (2) 1 A - 3 A (1)	5 P - 10P (2) 10P - 3 A (4) 3 A - 7 A (3) 7 A - 9 A (4) 9 A - 12N (2)	12M - 7 A (3) 1 A - 6 A (1)**
Guam & Pacific Islands	NIL	5 P - 7 P (1) 7 P - 11P (2) 11P - 1 A (1)	7 P - 10 P (1) 10P - 2 A (2) 2 A - 6 A (1) 6 A - 9 A (2)	NIL
Philippine Islands & East Indies	NIL	3 P - 5 P (1) 5 P - 11P (2) 11P - 1 A (1)	7 P - 12M (1) 6 A - 8 A (1)	NIL
Australasia	6 P - 11P (2)	5 P - 9 P (2) 9 P - 1 A (3) 1 A - 7 A (1) 7 A - 10A (2)	9 P - 1 A (2) 1 A - 8 A (3) 8 A - 9 A (2)	1 A - 6 A (2) 2 A - 5 A (1)**

ALL TIMES IN C. S. T.

CENTRAL USA TO:	10/11 Meters	15 Meters	20 Meters	40/80** Meters
Western Europe	12N - 2 P (1) 2 P - 4 P (2) 4 P - 6 P (1)	6 A - 12N (1) 12N - 2 P (3) 2 P - 6 P (4) 6 P - 9 P (2) 9 P - 6 A (1)	12N - 2 P (1) 2 P - 4 P (2) 4 P - 11P (4) 11P - 3 A (2)	8 P - 11P (2) 9 P - 10P (1)**
Northern and Central Europe	2 P - 5 P (1)	7 A - 10A (1) 10A - 2 P (2) 2 P - 6 P (3) 6 P - 10P (1)	1 P - 4 P (1) 4 P - 11P (3) 11P - 3 A (1)	8 P - 11P (1)
Southern Europe & North Africa	9 A - 11A (1) 11A - 3 P (2) 3 P - 5 P (1)	5 A - 11A (1) 11A - 7 P (3) 7 P - 10P (2) 10P - 5 A (1)	1 P - 4 P (2) 4 P - 9 P (4) 9 P - 1 A (3) 1 A - 3 A (2)	8 P - 12M (2) 9 P - 10P (1)**
Central & South Africa	7 A - 9 A (2) 9 A - 12N (1) 12N - 4 P (3) 4 P - 7 P (2)	12M - 3 A (2) 3 A - 12N (1) 12N - 6 P (3) 6 P - 8 P (2) 8 P - 12M (1)	1 P - 4 P (2) 4 P - 9 P (3) 9 P - 3 A (2)	7 P - 12M (1)
Northern South America	12N - 6 P (1)* 7 A - 11A (3) 11A - 5 P (4) 5 P - 7 P (3) 7 P - 10 P (2)	6 A - 4 P (4) 4 P - 7 P (5) 7 P - 1 A (4) 1 A - 6 A (3)	8 A - 3 P (3) 3 P - 8 A (5)	7 P - 5 A (3) 10P - 3 A (2)**

Argentina, Brazil & Chile	3 P - 7 P (1)* 7 A - 10A (2) 10A - 5 P (4) 5 P - 8 P (2) 8 P - 11P (1)	4 A - 8 A (3) 8 A - 2 P (2) 2 P - 10P (4) 10P - 4 A (2)	2 P - 4 P (2) 4 P - 1 A (4) 1 A - 8 A (3)	8 P - 1 A (2) 1 A - 5 A (3) 11P - 4 A (1)**
India, Pakistan	NIL	7 A - 9 A (2) 9 A - 4 P (1) 4 P - 9 P (2)	7 A - 9 A (1) 5 P - 8 P (1) 8 P - 11P (2)	NIL
Mongolia & Central Asia	NIL	9 A - 3 P (1) 3 P - 5 P (2) 7 P - 11P (1)	5 P - 9 P (1) 9 P - 1 A (2) 1 A - 8 A (1)	NIL
Hawaii	4 P - 6 P (1) 6 P - 11P (2)	7 A - 3 P (2) 3 P - 11P (4) 11P - 1 A (3) 1 A - 4 A (2)	5 P - 7 P (2) 7 P - 4 A (4) 4 A - 6 A (3) 6 A - 8 A (4) 8 A - 11A (2)	10P - 7 A (3) 12M - 5 A (2)**
Formosa, Hong Kong, etc.	6 P - 10 P (1)	3 P - 7 P (1) 7 P - 10P (2) 10P - 12M (1)	9 P - 12M (1) 7 A - 9 A (1)	NIL
Japan & Far East	7 P - 10P (1)	3 P - 5 P (1) 5 P - 7 P (2) 7 P - 11P (3) 11P - 1 A (2)	5 P - 8 P (2) 8 P - 1 A (3) 1 A - 8 A (2)	NIL
Malaya & Southeast Asia	NIL	1 P - 4 P (1) 4 P - 9 P (2) 9 P - 11P (1) 6 A - 9 A (1)	6 A - 8 A (1) 5 P - 11P (1)	NIL
Philippine Islands & East Indies	NIL	2 P - 5 P (1) 5 P - 11P (2) 11P - 1 A (1)	7 P - 11P (2) 6 A - 8 A (1)	NIL
Australasia	6 P - 12M (2)	3 P - 7 P (2) 7 P - 11P (3) 11P - 2 A (2) 2 A - 6 A (1) 6 A - 9 A (2)	7 P - 11P (2) 11P - 4 A (4) 4 A - 6 A (2) 6 A - 8 A (4) 8 A - 10A (2)	12M - 6 A (2) 1 A - 5 A (1)**
McMurdo Sound, Antarctica	1 P - 5 P (2)	12N - 2 P (1) 2 P - 4 P (2) 4 P - 7 P (3) 7 P - 9 P (1)	4 P - 6 P (1) 6 P - 11P (3) 11P - 8 A (2)	9 P - 11P (1) 11P - 2 A (2) 2 A - 6 A (1) 12M - 4 A (1)**

ALL TIMES IN P. S. T.

WESTERN USA TO:	10/11 Meters	15 Meters	20 Meters	40/80** Meters
West & Central Europe	NIL	10A - 1 P (2) 1 P - 5 P (3) 5 P - 8 P (2) 8 P - 12M (1)	3 P - 5 P (1) 5 P - 10P (3) 10P - 12M (2) 12M - 4 A (1)	7 P - 10P (1)
Southern Europe & North Africa	3 P - 6 P (1)	9 A - 1 P (2) 1 P - 8 P (3) 8 P - 11P (2)	3 P - 6 P (2) 6 P - 12M (3) 12M - 4 A (2)	7 P - 10P (1)
Central & South Africa	3 P - 7 P (2)	11A - 1 P (1) 1 P - 3 P (2) 3 P - 8 P (3) 8 P - 12M (2)	4 P - 6 P (2) 6 P - 10P (3) 10P - 12M (2)	7 P - 11P (1)
Northern South America	12N - 6 P (1)* 7 A - 11A (3) 11A - 5 P (4) 5 P - 8 P (3)	5 A - 2 P (3) 2 P - 7 P (5) 7 P - 1 A (4) 1 A - 5 A (3)	8 A - 2 P (2) 2 P - 8 A (5)	7 P - 2 A (3) 9 P - 1 A (2)**
Argentina, Brazil & Chile	3 P - 7 P (1)* 6 A - 10A (2) 10A - 4 P (4) 4 P - 8 P (2) 8 P - 11P (1)	4 A - 7 A (3) 7 A - 2 P (2) 2 P - 7 P (4) 7 P - 11P (3) 11P - 4 A (1)	1 P - 4 P (2) 4 P - 12M (4) 12M - 4 A (2) 4 A - 6 A (3)	7 P - 3 A (2) 9 P - 12M (1)**
Tahiti & Oceania	10A - 6 P (2) 6 P - 11P (1) 11P - 4 A (3)	9 A - 6 P (3) 6 P - 4 A (4) 4 A - 9 A (2)	5 P - 7 P (2) 7 P - 7 A (4) 7 A - 10A (3) 10A - 12N (2)	7 P - 7 A (3) 8 P - 6 A (2)**
Guam & Mariana Islands	12N - 4 P (1) 4 P - 6 P (2) 6 P - 8 P (3) 8 P - 11P (2)	7 A - 1 P (3) 1 P - 8 P (1) 8 P - 12M (3) 12M - 7 A (1)	8 P - 12M (2) 12M - 8 A (4) 8 A - 10A (3) 10A - 12N (2)	1 A - 6 A (2) 2 A - 5 A (1)**
Fiji & Pacific Islands	11A - 1P (3) 1 P - 8 P (4) 8 P - 2 A (3)	8 A - 6 P (2) 6 P - 3 A (4) 3 A - 8 A (3)	7 P - 11P (2) 11P - 8 A (4) 8 A - 11A (3)	12M - 7 A (2) 2 A - 6 A (1)**
New Zealand	11A - 1 P (3) 1 P - 8 P (4) 8 P - 10P (2)	9 A - 12N (2) 12N - 5 P (1) 5 P - 9 P (3) 9 P - 12M (2)	6 P - 8 P (2) 8 P 12M (3) 12M - 8 A (2)	11P - 6 A (2) 1 A - 5 A (1)**
Australia	12N - 2 P (3) 2 P - 10P (4) 10P - 12M (2)	11A - 1 P (2) 1 P - 8 P (1) 8 P - 12M (3) 12M - 3 A (2)	7 P - 10P (2) 10P - 4 A (4) 4 A - 8 A (3) 8 A - 10A (1)	9 P - 12M (1) 12M - 4 A (2) 4 A - 7 A (1) 11P - 2 A (1)**
Philippine Islands	2 P - 4 P (1) 7 P - 11P (2)	1 P - 10P (1) 10P - 2 A (3) 2 A - 7 A (2) 7 A - 1 P (3)	10P - 2 A (2) 2 A - 8 A (3) 8 A - 11A (2)	3 A - 6 A (1)
East Indies	8 A - 11A (1) 2 P - 10P (1)	7 A - 12N (2) 12N - 3 P (1) 10P - 2 A (1)	12M - 6 A (1) 6 A - 9 A (2) 9 A - 12N (1)	NIL
Heng Kong, Formosa, etc.	2 P - 10P (2)	7 A - 12N (3) 12N - 8 P (2) 8 P - 2 A (3) 2 A - 7 A (2)	10P - 2 A (2) 2 A - 8 A (3) 8 A - 1 P (2)	2 A - 6 A (1)

Japan, Okinawa & Far East	11A - 4 P (1) 4 P - 10P (2)	7 A - 9 A (3) 9 A - 12N (4) 12N - 7 P (2) 7 P - 12M (3) 12M - 7 A (2)	9 P - 12M (2) 12M - 9 A (3) 9 A - 12N (2)	2 A - 6 A (2) 3 A - 5 A (1)**
Malaya & Southeast Asia	10A - 2 P (1) 6 P - 9 P (2)	7 A - 11A (3) 11A - 2 P (2) 10P - 2 A (1)	12M - 2 A (1) 2 A - 7 A (2) 7 A - 12N (3) 12N - 2 P (1)	NIL
Siberia	1 P - 4 P (1) 10P - 2 A (1)	4 A - 10A (3) 10A - 1 P (4) 1 P - 8 P (3) 8 P - 4 A (4)	7 P - 10P (3) 10P - 8 A (4) 8 A - 12N (3) 12N - 7 P (2)	1 A - 6 A (3) 2 A - 5 A (2)**
Mongolia & Central Asia	6 P - 9 P (1) 6 A - 8 A (1)	6 A - 8 A (3) 8 A - 4 P (1) 4 P - 8 P (2) 8 P - 2 A (3) 2 A - 8 A (2)	5 P - 9 P (1) 9 P - 12M (2) 12M - 7 A (3) 7 A - 9 A (1)	3 A - 6 A (1)
India, Pakistan	8 A - 12N (1) 7 P - 11P (2)	12M - 2 A (1) 2 A - 6 A (2) 6 A - 10A (3) 10A - 2 P (1)	2 A - 6 A (1) 6 A - 10A (2) 10A - 12N (1)	NIL

SYMBOLS FOR NUMBER OF DAYS CIRCUIT FORECAST TO OPEN:

(1) 1-4 days (2) 5-11 days (3) 12-18 days (4) 19-26 days (5) over 26 days

*Indicates possible six-meter openings.
**Indicates possible eighty-meter openings.

Time Symbols: A - A. M. N - Noon
P - P. M. M - Midnight

The CQ DX Propagation Charts are based upon a CW radiated power of 150 watts at radiation angles less than thirty degrees and are centered on the Eastern, Central and Western areas of the United States. They are valid through July 15, 1958. These forecasts are based upon ionospheric data published by the Central Radio Propagation Laboratory of the National Bureau of Standards, Boulder, Colorado.

meteor showers between June 2nd and 14th may also produce some unusual short-skip openings on this band.

10 Meters: Seasonally lower daytime MUFs will result in fewer DX openings during June. Because of high solar activity however, the band is expected to open to most areas of the world on a few days during the month, peaking during the late afternoon and early evening hours. A sharp increase is expected in short-skip, sporadic-E openings between distances of 600 and 1300 miles.

15 Meters: This is expected to be the best band for DX during the summer months. World-wide openings should occur on most days, with the band peaking just after sunrise and during the late afternoon and early evening hours. Occasionally the band should remain open to many areas of the world throughout the hours of darkness. Numerous short-skip openings between distances of 600 and 2200 miles are also expected to occur almost daily during June.

20 Meters: This is expected to be the best band for DX during the hours of darkness. From late afternoon until a few hours after sunrise good propagation conditions are forecast to most areas of the world. During daylight hours, increased solar absorption will limit most openings to distances between approximately 300 and 2000 miles.

40 Meters: Fairly good propagation conditions are forecast to some areas of the world during the hours of darkness, but the band is expected to be quite noisy as a result of the seasonal increase in static levels. During the daylight hours, absorption will limit openings to short-skip distances between approximately 100 and 750 miles, with the skip increasing as twilight and darkness nears.

80 Meters: High static levels will generally limit night time openings on this band to less than 2000 miles. On nights when static levels may be lower than average, some DX openings may be possible. During the daylight hours static and absorption will limit maximum range on this band to less than 150 miles or so.

160 Meters: In response to this column's request for 160-meter propagation data to be used for a propagation study of this band throughout the sunspot cycle, several interesting reports were received from W1BB, W8GDQ, ZL3RB, W6KIP, TF2WCC and others. TF2WCC's signal strength observations were of particular interest since they were made within the auroral zone at Keflavik, Iceland. There were several reports of East Coast openings to Europe this winter, and of West Coast openings to Hawaii and Australia. During the summer months increased static and absorption usually results in poorer conditions on 160-meters, and night-time openings are not expected to exceed a few hundred miles. W1BB does point out in a recent note however, that if one is patient enough to wait for the "quiet night," 160-meter DX can be worked during the summer months . . . and he has QSL's from South Africa and South America to prove it!

Sunspot Cycle

The Zurich Solar Observatory reports a monthly mean sunspot number of 189 for March, 1958. This results in a 12-month running smoothed sunspot number of 196 centered on September, 1957. The sunspot cycle is based upon these smoothed numbers. Solar activity this past fall was, therefore, nearly 30% more intense than ever recorded previously during the more than 200 years that accurate sunspot records have been kept. A smoothed sunspot number of 166 is forecast by CQ for June, 1958.

Outer Space

A sober, realistic report of scientific information, prepared by leading American experts in the field of space research, was released by President Eisenhower on March 26th. The report, entitled *Introduction To Outer Space*, and prepared at the request of the President, discusses this country's immediate and long-range space exploration programs in descriptive language intended for non-technical readers. The report stresses the adventures that lie ahead in the exploration of outer space, and the opportunities that such explorations provide to extend man's knowledge of the earth, the solar system, and the universe.

The 4,000 word report, prepared by the President's science advisory committee, under the Chairmanship of Dr. James R. Killian, clearly explains why earth satellites stay up, the principal reasons for undertaking a national space program, and what the scientists, and

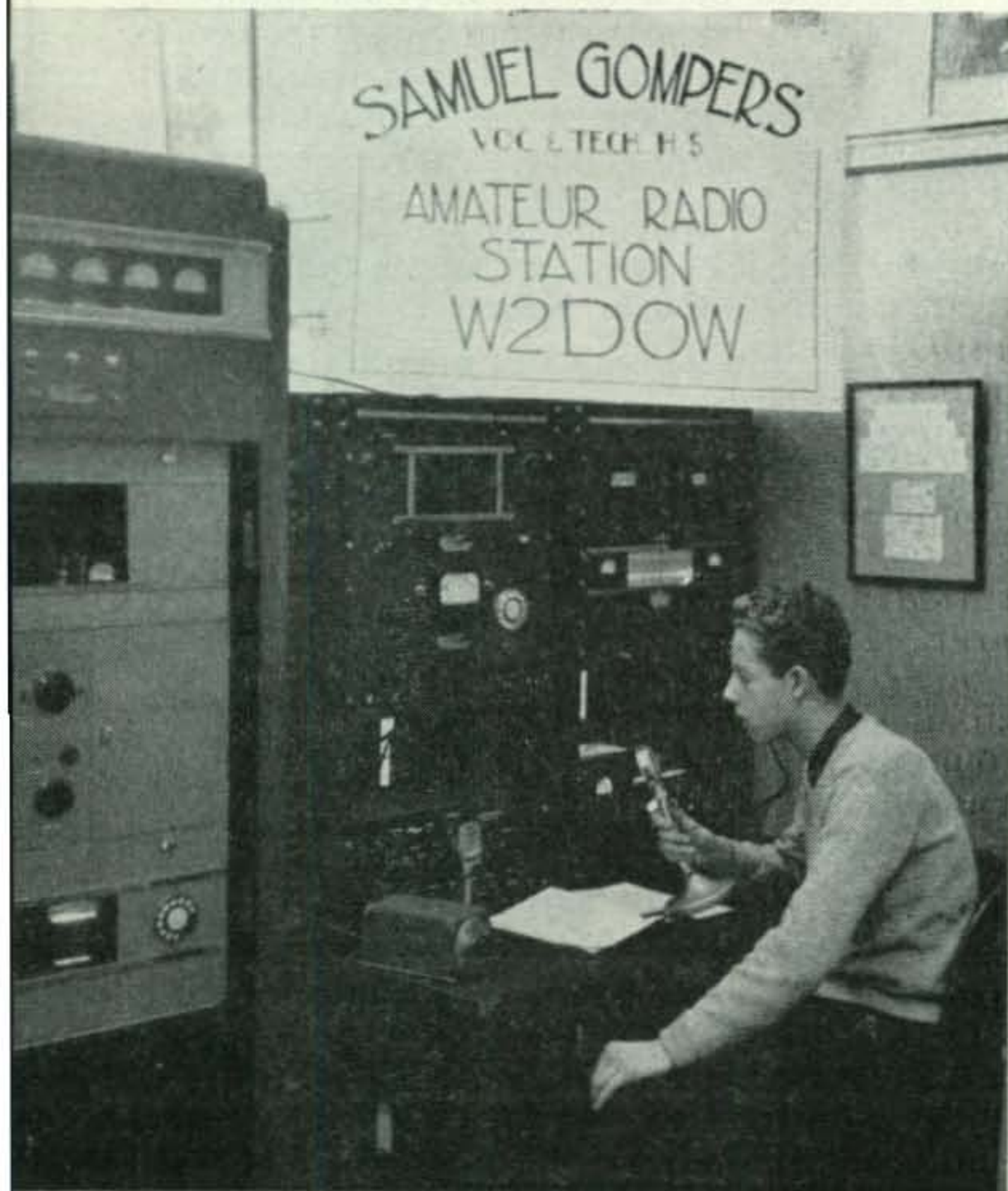
[Continued on page 100]

sideband
sideband
sideband

SIDEBAND

This month's big news concerns the Second Annual Side-Band Contest, held March 15th and 16th in which stations in seventy-five countries participated. On April 10th over four hundred logs were received, with dozens more arriving daily. Many scores of 200,000 points have been unofficially claimed, using the standard CQ DX Contest system of scoring. When heard during the last few hours of the twenty-four hour Contest quite a few side-banders including CN8MM, (last year's winner),

W2DOW, The Samuel Gompers High School, (NYC.) Station, Trustee W2CMM Picture "Worked 100" CQ's DXCC.



by **BOB ADAMS, W3SW**
919 McCeney Road, Silver Spring, Md.

F7AF, TI2HP, KG4AQ, OD5BZ, TG9AF, HB9IE, were giving out report numbers in the 500 series. HR2WC, Wayne who is transferring from LaLima to Fort Lauderdale, Florida, ran up a big score then packed up all his gear the next day for shipment to the States.

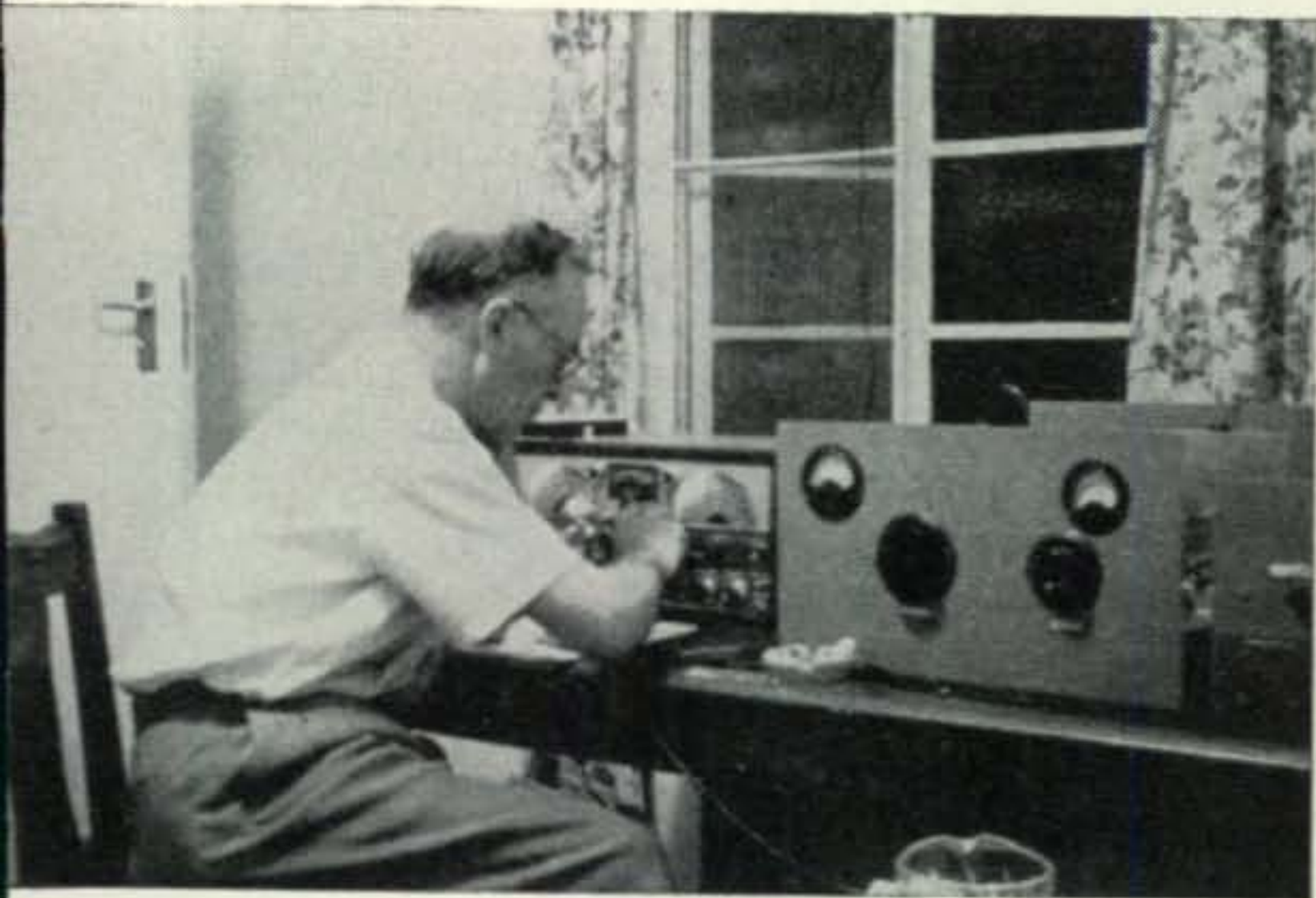
Many worked new countries during the contest. Leonid, UA3CR was very active and made 9312 points. His QTH is: Leonid Labutin, Sushchevski tupid 5/7, KW9, Moscow-A-55, USSR. He QSL's 100%. The transmitter is a homemade crystal-filter type and a 150 watt final into a cubical quad antenna.

Ted Henry, W6UOU whose 100 cards for two-way SB contacts arrived here several hours of those from Harry, W2JXH received "Worked 100 Countries" certificate Number 1, sent in ten more confirmations to total 110. Ted reports his "SSB Argonaut" is now in use at VR2AP/MM enroute from Singapore to Fiji. Short stops will be made at ZC5, CR10, VK9, FK8 and VR4.

The Annual Single-Side Band Dinner was held in New York on March 25th, and was a wonderful success. Congrats to Harry Whiting, W2JXH the Committee Chairman and his associates for a job well done. Mort, W2KR was Master of Ceremonies. Guest speakers included Herbert Hoover, Jr. There were close to nine hundred in attendance, the largest SSB Dinner on record. Many expensive door prizes were awarded to the lucky winners.

Bob, 4X4CJ has been bitten by the SSB bug and is anxious to join Ami, 4X4DK in Tel-Aviv. He will appreciate any technical assistance. His QTH is P.O. Box 3159, Tel-Aviv, Israel. Should any one have some spare equipment such as a 10A, Bob would appreciate it very much. Currency cannot be sent out of the country.

Arthur Godfrey, has made many SSB operators happy by finally sending QSL's for contacts with his D-expedition, K4LIB/FQ8. If



ZS6AJ/ZS8.

you haven't received yours by now we suggest you so advise K4LIB.

Paul, VQ4EO has completed his miraculous safari across Africa. Paul covered many thousands of miles on hazardous roads, through sections where few men have travelled before, without companionship, and managed to get on the air each evening from remote spots. Paul has given more new countries to the SSB gang than anyone, including: VQ3, FQ8, FF8, FD8, ZD2, OQ5, ZD1 and 9g1. Congratulations Paul on an outstanding achievement.

Mannie, ZS6AJH who operated from ZS7-land has promised some photos and a complete story.

Jack, ZS6AJ travelled to Basutoland and operated SSB from the home of Doug, ZS8K. The transmitter was Jack's regular rig consisting of a modified Phasemaster, a linear with two 811A's and a Hallicrafters SX100. The trip was a rough one as the road to Ficksburg on the border of Basutoland was not built for automobiles. Most of ZS8 is accessible only by horse and helicopter. When Jack reached Ficksburg he checked the equipment and found a broken slug in the exciter due to the shaking on the rough roads. Fortunately Jack found an old I.F. transformer in the car with a slug which fit, so quick repairs were made. On March 19th, ZS6AJ started for Maseru, the home of ZS8K and travelled over the "worse roads he had ever encountered". Severe electrical storms did not help ease the situation. The equipment was loaded into Doug's 76' end fed antenna and in a few minutes ZS8-land was on SSB. Mickey, W8YIN was the first contact closely followed by W9HP, K6GMA, W6PXH, W5HJA, W6AIL and W6UOU. In spite of several bad electrical storms and some poor conditions generally Jack worked 116 stations including your Editor, in 16 countries in 15 hours. Jack reports that Doug, ZS8K is "converted" and will operate SSB when he returns from his Holiday in England. See photo of Jack.

CQ Magazine was well represented on the recent D-expedition to Navassa Island by our Editor Wayne, W2NSD and our DX Editor,

Don W4K VX. This trip is written up in another part of CQ but it is interesting that SSB was used for most of the phone contacts and that over 2500 QSO's were made on single-side band. QSL's are available from W8TJM by sending your card in a return, self addressed envelope.

Martin VE3MR and Humberto, TI2HP are just completing a very successful D-expedition to HKØ-land as this story is being written. We have been promised full details and pictures later. During a contact with HKØAI, Martin told me that he would operate several days from Nicaragua before returning home. This will give an opportunity to many of the newcomers to SB to work YN1, as there has been no SB activity there since Wayne, YNIWC left there three years ago.

Fred, VP2LU reports from the Windward Islands that he has mailed all QSL's for his SSB contacts during 1957. His request for a license renewal was refused, but expects to be transferred to another Island soon. If he can obtain a license for the new QTH he will be back on the air.

VK9LE caused quite a pile-up on twenty when he appeared for the first time on March 7th. Lionel was rock-bound with three crystals but worked lots of W/K, etc.

5A2TH, Mick.





5A2TH, Don.

Harry, JA1ANG who has a very poor location for working into the States has a new "AWX" curtain antenna which is producing wonderful results. Harry will send details to any one who is interested. His QTH is Harry Yoneda, 2228 Ohkura, Tsurabawa, Tokyo.

Our old friend Sam, ex OH2OJ is now well established at his new home. His QTH is: OHØNC, Alandsvagen 32, Mariehamn, Aland Islands, (Finland).

A real old timer with a reputation as a DXer is now active on SSB. He was also in the SSB DX Contest. Nearly everyone is familiar with his four element beam as described in various hand-books. I refer to Katashi Nose, KH6IJ, at Kauai.

Watch for W4RQR, Bob, from Martinique and Guadeloupe, around April 19th. Bob was responsible for the SSB activity from VP4TE, VP5AB, VP6LT and VP5RS. One of the calls to be used is FM7WT. Bob who is a pilot in the Marine Corps, was one of the operators of KA2EC and KA2MA.

The closing date for this column has been

Smitty, W4AIX.



advanced a week and it is necessary to have your information and pictures by the 10th of each month. We also wish to correct our statement in April CQ that W8YIN sent in the information about GD3GMH's QSL problem. It was Nick, WØIIC who was responsible. Sorry OM. Nick promised some photos he took of VP2AZ during his vacation there.

Hal, KR6HN has closed down in Ohinowa and will soon be heard from KH6-land. Hal has some KR6HN cards left and will send one to anyone who did not receive a QSL previously. His new QTH is Hal Newsome, KH6CSE, P.O. Box 164, Hawaii, T.H.

Frank, W2BB went to unusual lengths to obtain the names and addresses of all W/K operators who have or had two letter calls. He has issued a printed list of these old timers in several groupings; first by name, and then by the state in which they reside. The average age according to Frank is 60 years, and if the FCC continues its present licensing procedure, the number of two letter call operators will decline rapidly. A high percentage of these old timers are Single-Side Banders, many of whom gave up the "ghost" long ago because of the hetrodyne battle and who have returned to "the fold" because of the pleasures of operating SSB. There are no two letter calls in North Dakota. The name Smith appears 29 times.

Don, VE1LZ wants us to publish the schematic of the G2MA linear as we indicated we would some time ago. This amplifier is very popular and we will try to do so in the next publication. Don tells us that there are four SSB stations in Halifax, VE1's TA, WL, LY and LZ. Outside in the province are VE1's TF, ID, DQ and QM with VE1MQ coming on in a few weeks. There are 14 active SB stations in the VE1 district. VE1BZ from Charlottetown one of the original hams on SB in Canada was recently appointed Lieutenant Governor of Prince Edward Island. He will soon be active from the Government House.

During the Side-Band Dinner in New York the Annual "W3SW Award", a silver cup suitably engraved to the winner of the Annual CQ Single Side-Band World-Wide DX Contest was displayed. The winner of the Contest keeps the Cup which is the first place award.

Eight "Worked 100" certificates were mailed this week and 19 "Worked 75" certificates were also forwarded. So far we have issued 67 "Worked 50" certificates. Please remember to send a self addressed envelope properly stamped for QSL's from EA2CA to the Post Office Box at the top of this column.

There are now officially eight SSB stations who have worked 100 countries or more: W6UOU, W2JXH, F7AF, K6GMA, W4IYC and W3SW. There are probably several more but these are the only ones who have sent in 100 or more QSL cards showing QSO's with 100 countries.

73, Bob, W3SW



Dominate your frequency with 2000 watts*



VIKING "PACEMAKER" TRANSMITTER/EXCITER

This exciting transmitter offers you the ultimate in single sideband . . . 90 watts SSB P.E.P. and CW input . . . 35 watts AM. Self-contained—effectively TVI suppressed. Instant bandswitching 80, 40, 20, 15, and 10 meters. Excellent stability and suppression. Temperature compensated built-in VFO . . . separate crystal control provided for each band. VOX and anti-trip circuits provide excellent voice controlled operation. Pi-network output matches antenna loads from 50 to 600 ohms. More than enough power to drive the Viking "Kilowatt" or grounded-grid kilowatt amplifiers. (Requires Cat. No. 250-34 Power Divider with Viking "Kilowatt".) With tubes and crystals, less key and microphone.

Cat. No. **240-301-2** . . . Wired and tested **Amateur Net \$495.00**

VIKING "KILOWATT" AMPLIFIER

In a class by itself . . . the ultimate in contemporary transmitter design! The Viking "Kilowatt" is the only transmitter available that provides full, maximum legal power in all modes—SSB, CW, and AM. Class C final amplifier operation provides plate circuit efficiencies in excess of 70% with unequalled broadcast-type high level amplitude modulation. A pair of 4-400A tubes in Class AB₂ easily deliver 2000 watts P.E.P.* in SSB mode—provides a full 1000 watts input in AM mode with a pair of push-pull Type 810 tubes in Class B modulator service. 1000 watts input in Class C CW mode. High efficiency pi-network output circuit will match 50 to 500 ohm antenna loads.

Compact pedestal contains the complete kilowatt—rolls out for easy adjustment or maintenance. Excitation requirements: 30 watts RF and 10 watts audio for AM; 2-3 watts peak for SSB. With tubes.

Cat. No. **240-1000** . . . Wired and tested **Amateur Net \$1595.00**

Matching accessory desk top, back and three-drawer pedestal.

Cat. No. **251-101-1** **FOB Corry, Pa. \$132.00**

*The F.C.C. permits a maximum of one kilowatt average power input for the amateur service. In SSB operation under normal conditions this results in peak envelope power inputs of 2000 watts or more depending upon individual voice characteristics.



E. F. Johnson Company

126 SECOND AVENUE S.W. • WASECA, MINNESOTA

Your best buy!

Johnson Amateur Equipment



VIKING "NAVIGATOR" TRANSMITTER/EXCITER

This flexible CW transmitter/exciter has enough RF power to excite most high powered amplifiers on CW and AM. 40 watts input—6146 final amplifier tube. Bandswitching 160 through 10 meters. Built-in VFO or crystal control—TVI suppressed—timed sequence keying. Pi-network output will match 40 to 600 ohm loads. With tubes and self-contained power supply, less crystals and key.

Cat. No. 240-126-1 . . . Kit Amateur Net \$149.50
 Cat. No. 240-126-2 . . . Wired and tested Amateur Net \$199.50

VIKING "ADVENTURER" TRANSMITTER

This completely self-contained 50 watt CW transmitter was used to earn the first novice WAC! (Worked All Continents) Instant bandswitching 80 through 10 meters . . . operates by crystal or external VFO control. Rugged 807 transmitting tube—wide range pi-network output—TVI suppressed—timed sequence keying. Easy to assemble—complete with tubes, less crystals and key.

Cat. No. 240-181-1 . . . Kit Amateur Net \$54.95

SPEECH AMPLIFIER/SCREEN MODULATOR—Designed to provide phone operation for the "Adventurer". High gain—use with crystal or dynamic microphones. Simple installation. With tubes.

Cat. No. 250-40 . . . Kit Amateur Net \$12.25

Pick your power...choose your features



VIKING "RANGER" TRANSMITTER/EXCITER

This popular 75 watt CW or 65 watt phone transmitter will also serve as an RF and audio exciter for high power equipment. Completely self-contained . . . TVI suppressed . . . instant bandswitching 160 through 10 meters. Extremely stable built-in VFO or crystal control. Final amplifier tube is a 6146. Easy to assemble—with tubes, less crystals, key and microphone.

Cat. No. 240-161-1 . . . Kit Amateur Net \$229.50
 Cat. No. 240-161-2 . . . Wired and tested Amateur Net \$329.50



VIKING "VALIANT" TRANSMITTER

Here is power to slice through terrific QRM! 275 watts input CW and SSB (P.E.P. with auxiliary SSB exciter) and 200 watts phone. Instant bandswitching 160 through 10 meters—operates by built-in VFO or crystal control. Pi-network output matches antenna loads from 50 to 600 ohms . . . final amplifier utilizes three 6146 tubes in parallel. TVI suppressed—timed sequence keying—low level audio clipping—built-in low pass audio filter—self-contained power supplies. Complete with tubes, less crystals, key and microphone.

Cat. No. Amateur Net
 240-104-1 . . . Kit \$349.50
 240-104-2 . . . Wired and tested \$439.50



VIKING "FIVE HUNDRED" TRANSMITTER

Rated a full 600 watts CW . . . 500 watts phone and SSB. (P.E.P. with auxiliary SSB exciter.) Compact RF unit designed for desk-top operation—power supply/modulator unit may be placed in any convenient location. All exciter stages ganged to VFO tuning—also may be operated by crystal control. Instant bandswitching 80 through 10 meters—TVI suppressed—high gain push-to-talk audio system—low level audio clipping. Final amplifier uses a 4-400A high efficiency tetrode. Pi-network output will match a wide range of antenna impedances. Complete with tubes, less crystals, key and microphone.

Cat. No. 240-500-1 . . . Kit Amateur Net \$749.50
 Cat. No. 240-500-2 . . . Wired and tested Amateur Net \$949.50

for mobile...

VIKING "MOBILE" TRANSMITTER

Rated at 60 watts PA input—powerful PP807 modulator provides extra audio punch! Instant bandswitching 75 through 10 meters. All stages ganged to a single tuning knob. Under-dash mounting. Specify 6 or 12 volts. Less tubes, crystals, microphone and power supply.

Cat. No. 240-141-1 . . . Kit Amateur Net \$107.00
 Cat. No. 240-141-2 . . . Wired and tested on special order only.

MOBILE VFO—Small size—rugged construction. Temperature compensated and voltage regulated. Calibrated 75 through 10. With tubes.

Cat. No. 240-152-1 . . . Kit Amateur Net \$33.95
 Cat. No. 240-152-2 . . . Wired and tested Amateur Net \$52.50

"WHIPLoad-6"—High efficiency base loading for mobile whips. Bandswitching 75 through 10 meters. High "Q". Fibre-glass housing.

Cat. No. 250-26 . . . Wired and tested Amateur Net \$16.95



for VHF... **VIKING "6N2" TRANSMITTER**

Rated at 150 watts CW and 100 watts phone—bandswitching 6 and 2 meters! TVI suppressed—may be used with Viking I, II, "Ranger" or similar power supply/modulator combinations. Operates by crystal control or external VFO with 8-9 mc. output. With tubes, less crystals, key and microphone.

Cat. No. 240-201-1 . . . Kit Amateur Net \$129.50
 Cat. No. 240-201-2 . . . Wired and tested Amateur Net \$169.50

TWO METER VFO—Replaces 8 mc. crystals in most two meter equipment. Temperature compensated—excellent stability. Output range: 7.995 mc. to 8.235 mc. Lucite dial calibrated 144 to 148 mc. Requires 6.3 volts at .3 amp. and 250-325 volts at 10 ma. With tubes and power cable.

Cat. No. 240-132-1 . . . Kit Amateur Net \$29.50
 Cat. No. 240-132-2 . . . Wired and tested Amateur Net \$46.50



2 exciting desk-top linear amplifiers...

VIKING "COURIER" AMPLIFIER

Rated a solid 500 watts P.E.P. input with auxiliary SSB exciter as a Class B linear amplifier; 500 watts CW or 200 watts AM linear. Self-contained desk-top package—may be driven by the Viking "Navigator", "Ranger", "Pacemaker" or other unit of comparable output. Continuous coverage 3.5 to 30 mcs. Drive requirements: 5 to 35 watts depending on mode and frequency desired. Employs two 811A triodes in parallel. Pi-network output will match 40 to 600 ohm loads. TVI suppressed. With tubes and built-in power supply.

Cat. No. 240-352-1 . . . Kit Amateur Net \$244.50
 Cat. No. 240-352-2 . . . Wired and tested Amateur Net \$289.50



VIKING "THUNDERBOLT" AMPLIFIER

The hottest linear amplifier on the market—engineered to provide maximum "talk-power" to smash through QRM. 2000 watts P.E.P.* input SSB; 1000 watts CW; 800 watts AM linear; in a completely self-contained desk-top package. Delivers a dominant signal on all amateur bands—continuous coverage 3.5 to 30 mcs.—instant bandswitching. May be driven by the Viking "Navigator", "Ranger", "Pacemaker" or other unit of comparable output. Drive requirements: approx. 10 watts in Class AB₂ linear, 20 watts Class C continuous wave. Final amplifier employs two 4-400A tetrodes in parallel, bridge neutralized. Complete with tubes and built-in power supply.

Cat. No. 240-353-1 . . . Kit Amateur Net \$524.50
 Cat. No. 240-353-2 . . . Wired and tested Amateur Net \$589.50



*The F.C.C. permits a maximum of one kilowatt average power input for the amateur service. In SSB operation under normal conditions this results in peak envelope power inputs of 2000 watts or more depending upon individual voice characteristics.



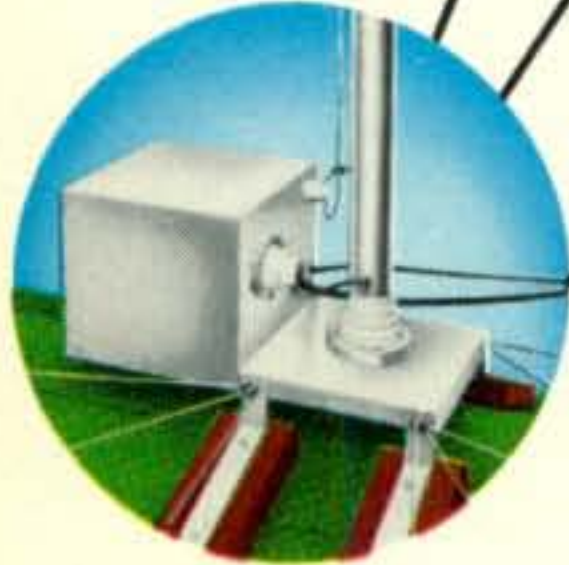
138-420-3



138-112-51



137-102



Antennas, Beams and Rotators...

PRE-TUNED BEAMS—Rugged, semi-wide spaced with balun matching sections. Approximately 9.0 db gain over tuned dipole—more than 27 db front-to-back ratio with low SWR. With 3 elements, boom and balun.

- Cat. No. 138-420-3 .. 20 Meters .. Amateur Net \$139.50
- Cat. No. 138-415-3 .. 15 Meters .. Amateur Net \$110.00
- Cat. No. 138-410-3 .. 10 Meters .. Amateur Net \$ 79.50

"ROTOMATIC" ROTATOR—Supports beam antennas weighing up to 175 pounds. Rotates 1/4 RPM—over all gear reduction, 1200 to 1. Housing is cast aluminum with 5/16" steel rotating table. Hinged to tilt 90°. With desk-top control box.

- Cat. No. 138-112-51 .. With limit switches for 370° rotation for coaxial line .. Amateur Net \$354.00

"MATCHSTICK"—Fully automatic, pre-tuned multi-band vertical antenna system. Bandswitching 80 through 10 meters. Remotely motor driven from operating position. Easily mounts on roof top or in limited space location. Low SWR (less than 2 to 1) all bands. Impedance: 52 ohms. With 35' mast, base, tuning network, relays, control box and Dacron guy lines.

- Cat. No. 137-102 .. Pre-tuned .. Amateur Net \$129.50

Station Accessories...

VIKING "MATCHBOXES"—Self-contained, bandswitching 80 through 10 meters. Provides integrated antenna matching and switching. Tunes out large amounts of reactance. No load-tapping or plug-in coils necessary.

- Cat. No. 250-23 .. 275 watts, wired .. Amateur Net \$ 54.95
- Cat. No. 250-30 .. Kilowatt, wired .. Amateur Net \$124.50

DIRECTIONAL COUPLER AND INDICATOR—Provides continuous reading of SWR and relative power in transmission line. Coupler may be permanently installed in 52 ohm coaxial line—handles maximum legal power specified by FCC. The Indicator is a 0-100 microammeter calibrated in SWR and relative power.

- Cat. No. 250-37 .. Coupler .. Amateur Net \$11.75
- Cat. No. 250-38 .. Indicator .. Amateur Net \$25.00

T-R SWITCH—Provides instantaneous break-in on SSB, DSB, CW or AM. Excellent receiver isolation. Gain: 2 db at 30 mcs.; 6 db at 3.5 mcs. Rated at 4000 watts peak power. With tube, power supply and provision for RF probe.

- Cat. No. 250-39 .. Wired .. Amateur Net \$27.75



250-30



250-39



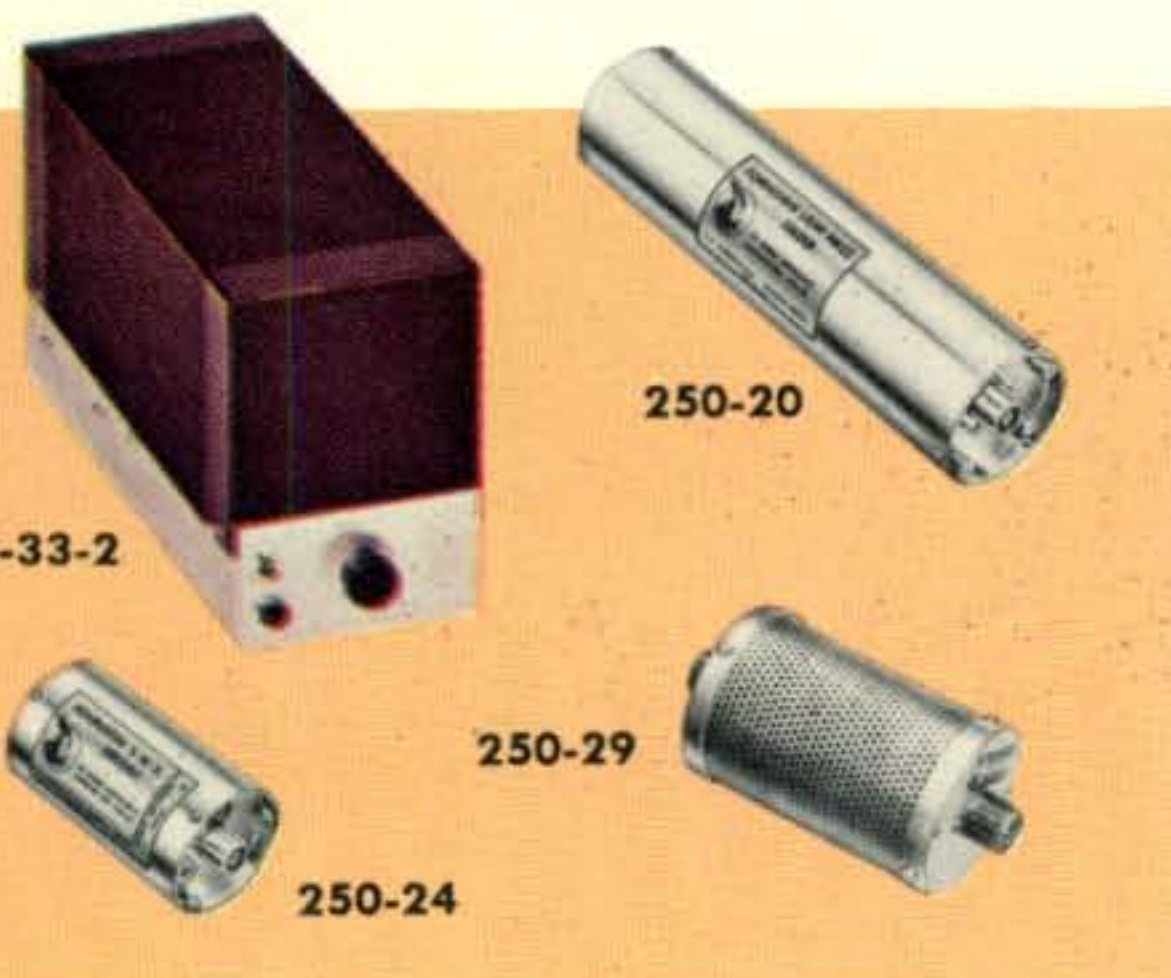
250-23



250-37



250-38



250-20

250-33-2

250-29

250-24

VIKING AUDIO AMPLIFIER—Self-contained 10 watt speech amplifier, complete with power supply and tubes. Speech clipping and filtering improves performance and effectiveness of your AM transmitter.

- Cat. No. 250-33-1 .. Kit .. Amateur Net \$73.50
- Cat. No. 250-33-2 .. Wired and tested .. Amateur Net \$99.50

LOW PASS FILTER—Handles more than 1000 watts RF. 75 db or more attenuation above 54 mc. Wired and pre-tuned.

- Cat. No. 250-20 .. 52 Ohms Impedance .. Amateur Net \$14.95
- Cat. No. 250-35 .. 72 Ohms Impedance .. Amateur Net \$14.95

SWR BRIDGE—Provides accurate measurement of SWR for effective use of low pass filter and antenna coupler.

- Cat. No. 250-24 .. 52 Ohms Impedance .. Amateur Net \$9.75

POWER REDUCER—Provides up to 20 watts continuous dissipation, permitting 100-150 watt transmitters such as Johnson Viking, Collins 32V to serve as exciters for the Viking "Kilowatt". Completely shielded.

- Cat. No. 250-29 .. Amateur Net \$13.95

CRYSTAL CALIBRATOR—Provides accurate 100 kc check points to 55 mc. Requires 6.3 volts at .15 amps and 150-300 volts at 2 ma. With tube and crystal.

- Cat. No. 250-28 .. Wired and tested .. Amateur Net \$17.95

"SIGNAL SENTRY"—Monitors CW or phone signals up to 50 mc. Powered by receiver. With tubes.

- Cat. No. 250-25 .. Wired and tested .. Amateur Net \$22.00

KEYS AND PRACTICE SETS—See your distributor or write for descriptive literature on Johnson's complete key line.



250-28



250-25



The E. F. Johnson Co. reserves the right to change prices or specifications without notice and without incurring obligation.



E. F. Johnson Company

126 SECOND AVENUE S.W. • WASECA, MINNESOTA

by **THOMAS K. AALUND, K2VBI**

8525 90th Street, Woodhaven 21, N. Y.

overseas echoes

How about some long distance echoes? In their editorial the *R.S.G.B. Bulletin*, March 1958, G, wonders when the first contact between the United Kingdom and New Zealand will be made on six meters. The New Zealand frequency allocations are 50.0 to 52.35 and 52.65 to 54.0 mc. The United Kingdom has a spot frequency of 52.5 mc. This writer is wondering about two-way contacts with these countries from the US of A. How about it? Interference may be expected from Caen TV and Saarbrücken TV, both at 52.4 mc.

The same issue carries an article entitled "Trends in Aerial Design for the Amateur" by the late G2PU. Several of the designs discussed are not too well known in this country and might prove to be of interest to stateside hams. Another article covers a heterodyne frequency converter for SSB transmission, and this one is written by a stateside ham, W3FIU.

Looking for something interesting? G3JHL and G2BCX, according to G2BCX, in the same issue, have experimented with stereophonic sound transmission. A special permit was required and received for this.

If anyone took interest in the two-meter transceiver mentioned last month, the following should be noted: In Fig. 3 of the article on page 364, *R.S.G.B. Bulletin*, January 1958, pin 1 of V_4 should have been shown connected to the terminal of S_2 marked "off".

Tropospheric scatter in Australia—according to *Journal UIT*, February 1958, HB, the first tropospheric scatter communication circuit in Australia has been put into service between Woomera and Salisbury, nearly 300 miles apart. A continuous test signal is transmitted and monitored at the other station. Automatic recording facilities are used for evaluation of tests. Present use is for basic propagation study only, later the system is to be used for A1 or A3. (With all this interest in commercial applications for scatter, what will happen to our higher frequency bands?)

A very interesting discussion is presented by EA3CA in the March issue of *Revista de la Union de Radioaficionados Espanoles (EA)*

dealing with problems to be expected in communication with spaceships traveling in outer space. The problems are not quite as remote and far in the future as the average person thinks, and therefore importance is definitely to be attached to this article. Briefly it outlines reasons for not using frequencies below 100 mc (reflection as well as refraction), and serious doubts are also expressed about frequencies above 10,000 mc. This is due to possible absorption caused by molecular resonance of oxygen as well as water vapor. Interference is also to be expected due to radiation from various sources in space, particularly from the sun. Interesting receiver problems are also to be expected—remember the Doppler effect noticed when receiving the satellites? Assuming a frequency of 300 mc and a velocity of 100 km per second, the Doppler shift would amount to 100 kc! A receiver passband of approximately 500 kc seems in order. In addition to the above problems a signal loss of 10 db is to be expected when passing through the atmosphere of the earth. Future aeronautical mobiles better start thinking now, hi!

The Short Wave Magazine, March 1958, G, carries a short article by G3JZK in which the substitution of *KT88* tubes in place of *807* is discussed, and the resulting output from the modulator, even *without any circuit changes*, shows a considerable increase as a result of this simple change. With 600 v on the plates the *807* push-pull modulator gives 80 w, and *KT88* tubes will give 100 w. At 750 v the output values are 120 and 150 w, respectively. Only about 15 v of audio will drive the *KT88* to full output. It might be added that this British tube is now easily available in this country, as it appears frequently in hi-fi amplifiers.

The above issue also describes in detail the first complete transmitter kit to be put on the market in the United Kingdom. The unit is a fifty-watt transmitter for ten to eighty meters, phone and cw; it is named the "K.W. Vanguard". The price is appr. \$140.—in U.S. currency. Until now only imported kits appeared

[Continued on page 102]

by **FRANK ANZALONE, W1WY**
14 Sherwood Road, Stamford, Conn.

CONTEST CALENDAR

There is not much contest activity to report in this month's calendar. We have now reached the end of the DX contest season. By next month we should have a few dates for you for the coming season.

Here are a few reports from previous contests.

In the R E F CW Contest for 1957 the boys in the USA stacked up as follows, in number of contacts:

W1FZ—53	W2GVZ—30	W3DBX—9
W1TYQ—42	W3ZMB—15	W4IEH—7
W2EQS—40	W1CTW—12	W1HPI—5
W2CWK—39	W5KC—12	W5JPC—4
W2BRY—32	W1PWK—10	W8YGR—3

VE2ADB—37 VE1EK—16

The R E F boys also wish to announce that there will be a DX-pedition to Andorra again this year during the first two week-ends of July. The call PX1FC will be used and the trip will be made by Charles F9RS, Pierre F8FC/-ON4CH, Jacques ON4AU and Jules F8JD. All bands will be used and the operation will be mostly on CW. Here is your chance to fatten up your total for WAE.

The Radio Club of Peru also had a contest back in September 1957. The activity was mostly on Phone and the following were winners in their respective countries: LU2FR, CE2AN, HK1FF, TI2PP, CO3HD, W4HKJ, HC1JO, YS1JR, HR2MC, XE1PAI, HP1JF, ZP5EC, OA4P, YN1JK, CX2AN & YV2AC.

CE2AN was the Ganador Absoluto, "Top Banana" to you.

On CW the Ws finished in this order: W3VKD, W1CTW, W4LVV, W9ZTD and W2CJM.

Dates and details of the next contest will be in the July issue. Carlos OA4FT promises to have more CW activity in the next one.

Correction

Seems I goofed in reporting that the W/VE Trophy had never been won by a station this side of the border. Back in 1951, W1BFT had won it three years running. I should have remembered, since on one of those three years, Carl only beat me out by the narrowest of margins. Sorry Carl, that I didn't have the facts straight that is. Well it proves that at least someone reads this column.

My reaction from the comments on the logs received in the 1957 World Wide DX Contest, is that almost everybody is happy with the rules as they now stand. A few contestants in countries where operation is not permitted on 1.8 and 27 mcs, feel that they are operating under a handicap. However, world high scores have been from these very same areas; hence there seems little justification for this complaint.

But we are open to new ideas. How about extra points for contacts on 80. This might equalize this condition and at the same time stimulate activity on that band. There is also a suggestion that we make a real departure from our present system and change over to a prefix multiplier, instead of the present country and zone system.

Let me hear from you.

73, Frank, W1WY



ham clinic

We hope you have noticed that replies are being made to correspondence in record time considering the distance involved. Only a handful of cards and letters have been received by regular mail; the bulk being sent airmail with *airmail* return envelopes or cards enclosed. For quick service, remember AIRMAIL both ways! Personal replies are always made on an amateur to amateur basis.

No doubt many of you have wondered who did the typing on the suspense cards (by the hundreds) while I was winging my way over the Atlantic. Well, the xyl Elfriede assumed the responsibility of letting you know that there would be a delay in receiving replies. I can well imagine the task she had because of the large amount of mail forwarded to me by *airmail*. For a gal who has no yen for rf (as such) she certainly deserves public credit for allaying the fear that perhaps your letters or cards had gone astray. Well done; we all thank you Elfriede! (I apologize if she got 88's mixed up with 73's or OM's with YL's!)

Those of you who have asked for irregular circuit design information must wait a little longer than those submitting straight technical queries or trouble shooting problems. We do want to make certain that the information we give you is as accurate as we can make it—but again, we cannot guarantee anything, unless of course we have actually tried out what we suggest.

Observation

Today, there are literally hundreds of types of vacuum tubes obtainable for nearly every electronic need. Because manufacturers (especially in the United States) have standardized tube nomenclature (more or less), it is not difficult for the average ham designer to select tubes whose characteristics vary little from manufacturer to manufacturer. However, one difficulty does exist and that is when substitutions of tubes with slightly dissimilar characteristics may be in order. It takes a good technician to "pour" over currently available tube char-

by **CHARLES J. SCHAUERS, W6QLV**

CQ Magazine, 300 West 43rd St., New York 36, N. Y.

acteristic charts, look up parameters etc. and come up with a good substitution without major circuit changes.

Some manufacturers print substitution tables (especially for old or obsolete tubes) and these really help the ham engineer tremendously. But there is still much to be done to simplify the selection of substitute tubes.

It would help very much if tube manufacturers could include full or even partial circuit diagrams in their books which technically describe tube operation. RCA's newest receiving tube handbook has a number of useable circuits in it and should not be overlooked as a good source of technical information.

Observed: tube manufacturers could no doubt sell more tubes (especially transmitting types) to radio amateurs if they would but supply MORE practical circuit and tube substitution information.

Tech Information Requests

This month we inaugurate a new service for CQ readers. Because so many requests have come in for information relative to old or obsolete equipment for which we do not have schematics, instruction books etc., we will publish each month a few requests in this column.

Do not send the information requested to us but send it direct to the inquirer. Arrangements for postage, (possible payment), etc. must be consummated between interested parties.

Tony Gitt, W3BRQ 428 Burns Drive, Springfield Delaware County, Pa. wants a schematic or book on the NC 120 (?) receiver.

Mike Terry wants info on an Army surplus receiver Mark II (No address—send info to column).

E. W. Johnson, 926 Felix St., St. Joseph, Mo. would like info on a Guthman V50 Super receiver.

Don Johnson, Box 71 Brunswick, Maine wants info on an Abbot TR4, 2 meter transmitter.

Robert Covey Route No. 1, Dover, Ohio

wants info on a Model Du-1 Coupler Unit CRR 50061, Loop and Azimuth CRR 69054 and how it can be used in his ham work.

H. J. Sherry, 17, New Drive, Totteridge, High Wycombe, Buckinghamshire, England, wants some information on a GE surplus receiver CG 46116 (Serial No. 521) a unit of Model RAX-1 aircraft radio equipment made for the Navy.

Anyone have the information needed by these fellow hams? How about helping them out?

Questions

K. C. of Milwaukee writes: "I've got a receiver about 15 years old which has a sporadic hum. Turning the set off and on usually stops this hum for awhile. Have you any suggestions as to what the trouble might be?"

Yes, Ken, replace those *old* electrolytics in the power supply. Electrolytic condensers do "expire" with age. If the hum continues after replacement check for bad coupling and blocking condensers, resistors etc. A tube having an intermittent cathode to filament short will also cause the trouble. However, old dried out electrolytics are usually at fault. In your trouble-shooting of course, look for the simplest causes of trouble *first*.

Dx 100

J. M. of Beford, N. J. writes: "I seem to be having trouble with my DX-100 on and above 20 meters. Upon attempting to load an antenna on 20 meters or above the COARSE TUNING SWITCH on the DX 100 has to be in at least position 7. Any position lower yields excessive plate current which cannot be dipped down. Any information on this?"

Yes Joe, Roger Mace (W8MWZ) of Heath's Ham Division says this: "the loading action referred to is perfectly normal. Advancing the coarse loading from 0-10 removes capacity from the circuit which is the necessary requirement as the frequency increases. In practice, the coarse loading control will be 7 or 8 on 20 meters; 8 or 9 on 15; and 9 or 10 for 10 meters. You might congratulate the gentleman, he has given birth to a completely normal transmitter."

Thanks Joe and Roger.

R. F. Amplifier

M. A. Brooklyn, N. Y. writes: "if you had a driver capable of only 4 watts output and had a power supply with a capacity of 1500 volts at 350 mils and wanted to build a class "C" rf output stage using maximum available power, what transmitting tube would you use?"

Well Mike, I would use RCA's high-perveance power tube having high power gain, the 7094. With 1500 volts on the plate with only 4 watts drive, you have useful power of approximately 340 watts. It has a plate dissipation of 125-watts—nothing to be sneezed at.

Receiver Noise

"When it rains my receiver is so noisy I can't even enjoy regular broadcast programs, but when it dries up, everything's fine. Any hints as to the possible cause?" writes a reader from

Santa Barbara, Calif.

Sounds to me as if you have power line trouble. Corona possibly of nearby power lines. How about the insulation on your wires coming into the house? I used to live in that area and there are many homes whose power input systems could stand replacing. The salt air etc. raises heck with insulation! Give the power company a buzz and ask them to check your location (when it is wet). I'll bet in addition to other things they'll find some poor grounds!

6BE6

S. A. Fort Worth, Texas wants to know the miniature tube equivalent for the 6SA7.

Try the 6BE6, Sam.

Antenna Gain

F. G. San Francisco writes: "what is the approximate gain in db of two colinear half-wave antennas in phase?"

Depends upon spacing for one thing. If the antennas are spaced $\frac{1}{2}$ wave-length apart, the gain is around 3 db.

Technical Opinion

"When one asks you your opinion on say a rotary beam antenna, how do you go about getting the information to pass on to them?" writes H. B. from Atlanta, Ga.

Well, in most cases we go to the manufacturer and obtain the information. In many cases we ask the manufacturer to give us a list of names (obtained through distributors) or from warrantee cards of purchasers. We then contact them and ask them a number of questions. If we have tried the equipment ourselves we don't go to all that trouble. The information passed on to you is our *best* technical opinion. One thing for sure, we know we have tried to do an *honest* job of "opinionating." We are impartial and the views we express or imply are our own and not the publishers or any governmental or civilian agency's.

No Address

We have a number of letters and cards without return addresses. One letter is evidently from South America—but what country? Please re-write if you are missing a reply.

Rockets

"I'm *playing* around with rockets and am contemplating on building a telemetering transmitter, but I need help in locating small batteries. Any suggestions?" writes P. B. of Albuquerque, N. M.

Dry or wet? Voltage? Ampere hours? The Yardney Electric Corporation, 40 Leonard St., New York 13, N. Y. makes batteries expressly for missiles and rockets. I hope you are cautious if you are experimenting at home and consult with those with prior experience. I'd hate to see a future scientist blow himself to smithereens!

Question Of The Month

H. F., Jackson Heights, N. Y. writes: "Could you kindly furnish me with any information

[Continued on page 98]



by LOUISA B. SANDO, W5RZJ
212 Sombrio Drive, Santa Fe, N. M.

YL-OM Contest Scores

YL PHONE	
KIADY	3,294
KIDGZ	22,326
WIICV	6,780
WIMDB	420
WIQON	471
WIRLQ	28,286
WIYPT/I	8,080
WIZEN	694
W2EWO	11,912
K2JYZ	12,240
W2OWL	536
K2ZQG	7,000
W3APT	3,836
W3BIW	7,437
K3BLG	440
W3GTC	1,232
W4WPD	4,250
W4KOH	7,920
W4BIL	14,083
W4BLR	3,500
K4CZP	5,824
K4IFF	12,860
K4KKR	18,330
W4KYI	32,375
K5BNQ	52,930
K5CCJ	2,100
W5DRI	64,149
W5EGD	28,481
K5HTO	13,889
K5IHF	100
K5LIU	20,988
K5MSE	731
W5YKE	8,075
W6EHA/M	6,160
K6EXQ	36,060
K6HVC	36,904
W6JZA	17,683
W6LFF	594
K6QDQ	11,257
W6QGX	42,640
W6WDL	55
K6ENK	2,210
K6H01	3,400
K6PWH	3,159
K6RQE/M	8,793
W6YZV	14,350
K7ADI	1,496
W7CSQ	1,294
W7DIF	2,530
W7DRU	18,562
W7DXM	37,030
W7KAE	8,800
W7LXQ	2,275
W8KLZ	1,584
W8NDS	21,504
W8TPZ	1,147
W8WUT	248
K9BRJ	4,366
K9CQF	7,751
W9KSE	10,000
W9LDK	860
W9MPX	20,790
W9STR	780
W9VNG	1,530
W9YWH	1,260
K0ATT	2,625
K0BFS	32,175
K0BTV	1,075
K0EPE	22,464
K0GIC	12,119
K0GRG	10,588
K0LYV	10,250
W0PSP	18,000

Logs for confirmation only: WIYPH, K2AGJ, W3MDJ, W4PPQ, W4SGD, W5RYX, W5YSJ, K6KUP, K0HEU, KL7ALZ, CR7LU

OM PHONE	
WIAF	920
WIBAB	1,236
KIDLQ	1,323
WIFYF	1,631
WIGKJ	1,281
WILQJ	105
WINEP	3,150
WINJL	179
WINLM	266
WITTI	860
W2CVW	156
K2DSW	2,441
K2GTC	520
K2JVE	90
W2MCO	1,017
K2MWK	1,121
W2OVF	248
K2PTU	210
W2RHM	744
K2SIF	775
K2TSW	788
K2UUT	5
W2VUM	255
W2WPH	740
W3ARK	1,215
W3BQA	1,098
W3BST	1,344
W3BVL	1,500
W3BXG	480
W3EIV	1,236
W3FOX	432
W3HWU	2,848
W3JKE	240
W3KQD	220
W3MDO	805
W3QLW	850
W3YLL	509
W3ZHQ	935
K4ASI	1,593
K4DKE	2,360
W4EFY	814
K4HIA	3,700
K4HNC	1,470
K4IEX	446
W4IJJ	1,035
W4KZF	264
K4LGP	3,065
W4MMD	66
K4OVE	488
K4RWX	1,100
W4WZT	40
W4ZCD	420
W4ZPR	15
W5AWT	81
K5BBA	1,411
K5CLI	1,958
K5EDM	309
K5EJC	1,300
W5FHL	450
W5GB	357
K5HWY	840
K5IHD	257
K5IID	380
K5JCC	125
W5JD	627

W5ZAL	836
W6BWG	144
K6CQM	75
K6EIE	1,235
W6FGJ	3,011
W6FKH	3,424
W6JVA	2,788
K6MPX	1,789
W6MTJ	124
W6OII	63
W6PVD	1,958
K6SXX	15
W7BCE	1,848
K7BSR	227
W7ESN	825
W7GDS	1,812
W7GVG	194
W7K0I	20
W7SFK	3,744
W8AJW	6,131
W8BVF	1,575
W8CEL/0	744
K8ESY	70
W8FFF/3	765
W8IBX	294
W8IEC	1,456
K8IZM	60
W8QHW	31
W8TEY	294
W8WVK	650
W8WWF	150
W8OYL	770
W8LQA	1,032
K9AZX	225
K9BLY	792
K9DWG	480
K9DWK	368
K9DZF	78
W9EBB	25
K9IGF	150
W9JXN	1,350
W9LNQ	240
W9MWR	11
W9NLF	1,073
W9POY	1,155
W9RYL	36
W9YCI	680
W9YT	1,175
K0AAF	950
K0AJW	169
W0AQE	390
K0ATS	1,294
W0BHT	40
W0BLH	588
K0BLX	113
W0BWJ	594
K0BWN	865
K0ENM	540
W0GAX	945
W0GBP	210
K0GJR	725
W0GQY	1,400
K0HQX	439
K0IGO	836
K0KQY	300
K0LFA	83
W0SKF	786
W0TOM	1,560
W0USP	345
W0YCA	303
KH6BLX	442
KP4KD	500
VE2UN	570
VE3DYB	255

W0SZH	9,546
W0ZWL	7,740
G2YL	1,950
KH6BGE	14,296
KL7BHE	57,885
KL7BJD	12,544
KZ5VR	24,360
VE3DDA	166

W5KEA	280
W5LVM	3,800
K5MWZ	124
K5MRQ	875
W5NYN	945
W5OUH	315
W5ULN	341
W5VVW	2,645
W5ZAR	2,560

VE4SX	63
VO2NA	221
Logs for confirmation only: WIJSS, WICUE, WIGMH, WIZKQ, W2LKW, W3AKG, W4WLM, K5MYB, W8FGS, VE5JK	

YL CW	
WIRLQ	23,870
K2AGJ	140
K2DKL	560
W2MWY	22,258
K2JYZ	7,483
K2UKQ	3,080
K2ZQG	12,950
K3BLG	2,904
W3CDQ	585
W3GEU	525
W3JWM	3,500
W3TSC	16,115
W4BIL	3,879
W4HLF	10,408
W4KZT	7,220
KN4PPX	420
W5EGD	24,192
W5IKC	3,308
K5LIU	20,106
K6ENK	8,950
K6H01	75
W6NAZ	1,400
K6OWQ	12,740
KN6PBG	35
W6PCA	2,940
W6QMG	2,500
K6QPO	9,100
K6SYR	570
K7ADI	10
W7FDE	420
W7LXQ	2,349
W7PTX	8,788
W7PUV	6,080
W8KLZ	4,133
W8OGY	4,060
W8QQQ	17,640
W8SNB	5,720
W8UAP	8,750
W9KSE	7,285
W9MLE	720
W9MYC	2,563
W9WZL	22,501
K0GIC	6,660
K0IKL	9,604
G2YL	950
KH6BTX	5,080
KL7ALZ	8,331
VE2A0B	1,600
VE3DDA	110
VE5DZ	5,907
VE7ADR	1,380
Logs for confirmation only: WIYPH, W4BLR, W4PPQ, K6KUP, W6UXF, W7DIF, W7FRS, PY4AMX	

W2CUE	60
W2CVW	238
K2DSW	1,755
W2EWZ	120
K2GTC	723
K2HXR	1,018
W2JB	72
W2JOA	150
W2NGE	225
K2OEG	60
K2PDL	53
K2PPV	175
W2RHM	175
K2TBU	11
K2UTV	20
K2UUT	60
K2UJZ	5
K2VPB	135
W3ARK	1,104
W3BQA	814
W3CN	31
W3DXA	75
W3EIV	469
W3FOX	432
W3GYP	83
W3HWU	495
W3KQD	214
W3MDO	1,208
W3MSR	450
W3OP	585
W3QLW	350
W3UIU	188
W3WHK	31
W3YLL	825
W3ZHQ	300
W3ZSX	1,656
K4DRO/4	949
W4EFY	459
K4EJG	75
K4IEX	375
W4IJJ	1,586
K4RWX	195
W4ZPR	210
W4ZQK	500
W5AWT	651
K5DKL	531
K5EJC	300
K5IID	31
K5JCC	68
W5JD	816
K5KWC	641
W5LGG	255
W5MPE	5
W5QVZ	975
W5VZU	520
K6CQM	403
W6JVA	1,377
K6LZU	36
K6RFT	150
K6SXA	1,631
W7BLH	25
K7BSR	44
W7ESN	260
W7FKF	53
W7TDT	247
W8AQ	1,593

W8AYV	160
W8BVF	1,183
W8FNI	1,610
W8IBX	1,140
W8KPL	675
W8KTR	276
W8LQA	1,586
W8OCA	594
W8PYX	390
W8QHW	1,313
W8UPA	459
W8WVU	971
W8YGR	875
W9BZW	1,586
W9CHD	919
K9DWG	425
K9DWK	455
W9DYG	1,519
W9GWO	275
W9LNQ	1,620
W9NLF	893
W9OT/6	510
W9RKP	1,333
W9SZR	665
W9YDQ	595
W0BLH	40
K0DQI	760
W0GAX	500
W0GXO	240
K0IWK	70
K0KKM	309
W0RJJ	546
W0SGG	112
W0YCA	248
DLIQT	53
FA8CR	300
KP4KD	46
OH2RD	1
SM7CAB	5
VE2AQO	275
VE2AWR	79
VE2IL	146
VE3CKR	88
VE3DDU	40
VE3DLS	53
VE3DYJ	273
VE3ENL	79
VE3RN	193
VE4SX	261
VO2NA	176
Logs for confirmation only: W2CUE, W2HAE, W2HPK, W2IVL, K2SEK, W2UAP, K2VVL, W4JII, W6BIL, W6HWF, W6JH, W6QCQ, W6ZD, W7GVG, W7HCW, W8BZX, W8WVK, W8TEY, K9BLY, OH3NY, OH3TH, OZ7SN, VE2AJD, SM5BTU	

OM CW	
WIAJZ	1,045
WIEQQ	480
WILQQ	146
WINJL	146
WINLM	1,107
W2ATC	285



W9WZL, Edith Viburg, of Milwaukee, Wis., made third high YL cw score in the YL-OM contest. Engineers at Centralab, where she is a lab technician, interested Edie in Ham radio and she got her ticket in '53. She operates 20 and 40 mostly and holds WAC, RCC and A1-op.

W5EGD, Lillian Beebe, of Houston, Tex., made high YL cw score in the '58 YL-OM contest. The XYL of FCC radio inspector W5DIW, Lillian got her ticket in '54. She is active on the YLRL nets, in TYLRUN, and GAYLARK.

W5DRI, Dena Morgan, of Brookhaven, Miss., top YL phone scorer in the 1958 YL-OM contest. Dena got her license in '54 along with OM W5DQK. She works all bands and has recently applied for DXCC. Dena and OM have three jr. ops, ages 12, 8 and 6.



Congratulations to the winners in YLRL's 9th Annual YL-OM Contest held in March. Top scores:

YL PHONE		Contacts	Sections	Score
1st	W5DRI, Dena Morgan	703	73	64,149*
2nd	KL7BHE, Sheila Goodhue	681	68	57,885*
3rd	K5BNQ, Doris Anderson	632	67	52,930*
OM PHONE				
1st	W8AJW, Jack Siringer	109	45	6,131*
2nd	W5LVM, Peyton Ohlson	80	38	3,800*
3rd	W7SFK, Ray Woods	104	36	3,744
YL CW				
1st	W5EGD, Lillian Beebe	378	64	24,192
2nd	W1RLQ, Grace Swenson	308	62	23,870*
3rd	W9WZL, Edith Viburg	383	47	22,501*
OM CW				
1st	K2DSW, Robert Panek	52	27	1,755*
2nd	W3ZSX, Thomas Softley	53	25	1,656*
3rd	K6SXA, Lowell Fink	45	29	1,631*

*Low power multiplier
Winner among the YLs in the phone section, W5DRI, Dena, placed second in the 1957 contest. For KL7BHE, Sheila, in 2nd place phone, it was the first time as a top scorer.

On cw, for W5EGD, Lillian, highest YL scorer, it was a "first." In 2nd place on cw, W1RLQ, Grace, placed third in the '57 contest.

Among the OMs, W8AJW, Jack, placed first on phone for the third time, having won this contest in '57 and also '55. K2DSW, Bob, is another "repeater," having placed first on cw



in '57 and in '56 he had highest aggregate (cw and phone) OM score.

YLRL's vice president, W4BLR, Kay, who handled the contest, reports this was the biggest and best one yet with about 300 YLs and 1500 OMs getting into the fun. Most popular band was 15 with 10 next, though on cw more time was spent on 20 meters, with the YLs looking for multipliers rather than just stacking up numbers as the case used to be.

Coming Conventions

The Rocky Mountain Div. Convention will be held in our home QTH, Sante Fe, N. Mex.,

June 14-15, with a pre-convention party Friday evening, the 13th. Headquarters will be the lovely new Desert Inn by the river in downtown Santa Fe. Sat. a.m. there will be free coffee for all at the general assembly. Special interest luncheons (VHF, DX, SSB, Mobile, MARS, Novice) are planned for noon, with the YLs-XYLs gathering at La Posada Inn. A YL Forum will be held Sat. p.m. with YLRL's secretary, WØTYB, Betty, as one of the guest speakers. There will be a special program for the children, with baby sitting facilities available for the younger ones. A swim followed by hamburgers around the pool at Desert Inn is planned for older children who do not attend the Sat. evening banquet at the Town House. A sightseeing drive around the "City Different" is planned for Sun. a.m. for those not wishing to attend the technical meeting. Santa Fe is at its lovely best in June—come join us, amigos!

The West Gulf Div. Convention will be held in Oklahoma City July 25, 26, 27. W5OQT, Sue, is in charge of the YL activities, with W5CCK, Illa, assisting. They are planning a YL breakfast at the convention hotel (Biltmore) on Saturday, July 26, with a get-acquainted session, favors and prizes. All YLs are asked to bring their QSL cards for a display. KN5PBE, Mary, is chairman of the XYL program.

YL chairman, Sue, W5OQT, has been one of the NCS of the North Texas Oklahoma Net for many years. She and her OM, W5DRE, have mobile rigs in both their cars and much of Sue's operating is done mobile though they run a kw at home.

"CQ YL"

In the write-up about "CQ YL"—the first and only book recording the part YLs have played in Ham radio—in April CQ, we somehow neglected to include mention of the chapter on Public Service. This is one of the larger chapters in the book—including traffic handling and personal QSOs, BPLers, AWTAR nets, radio classes, and emergency communications work by the YLs in such disasters as floods, hurricanes, blizzards, tornados and fires.

For subjects covered in the rest of the 18 chapters (and over 500 photos) in the book, check April CQ. Order your copy from this column editor, Louisa Sando, W5RZJ, 212 Sombrio Dr., Santa Fe, N. M.—\$3.50 per copy, by check or money order. Please indicate if you wish it autographed.

YL Article

The lead article in the June issue of *The American Girl Magazine* features a number of our teen-age YLs—K2DSL, W7TQP, W7TQR, K9GNQ, W5ILO and W5IOZ—along with suggestions for would-be YLs to get started in Ham radio. If you know a teen-ager you'd like to get interested in radio, suggest that she read this article. Authored by your column editor,

we're happy to see *American Girl* give this boost to Ham radio and YLs in particular.

SK

Our condolences to W7IGM whose XYL, W7JWC, Manila Beebe, of Seattle, Wash., became a Silent Key on Jan. 25. Manila was licensed in 1946 and was well known on all bands.

33, Louisa, W5RZJ



K5BNQ, Doris Anderson, of Broken Arrow, Okla., third high YL phone scorer in this year's YL-OM contest, placed second in '57. Currently YLRL's 5th D/C, she has WAS/YL, YLCC (300) and in '57 was NCS of TYLRUN. Licensed in '55 she works all bands 10 through 75 phone and cw plus 6-meter CD and has been active in emergency work. Doris and OM W51WL have three jr. ops, ages 14, 12 and 10.



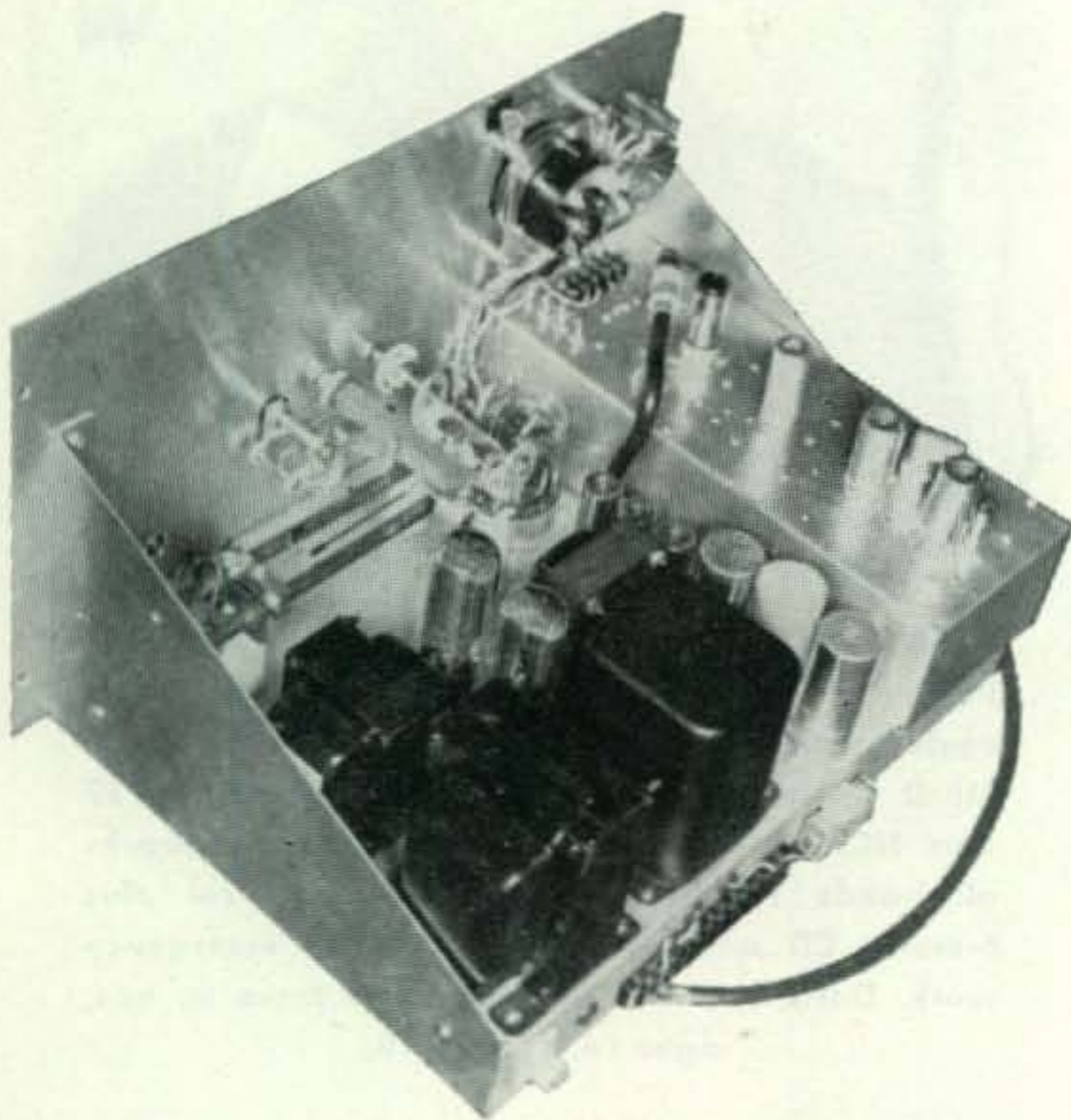
Among the 29 YLs attending the YL meeting at the Michigan State Convention at Saginaw, March 1, 1958, were, l. to r., K8CKE, Anne, chairman of the YL program; W8VRH, Mary, YLRL 8th D/C; W8SNB, Mary, co-chairman, and W8ATB, Esther, NCS of the Wed. a.m. Welcome Net.

VHF

50mc. 144mc. 220mc. 420mc. and above

by **SAM HARRIS, W1FZJ**

P.O. Box 2505, Medfield, Mass.



Two Meter SSB Transmitter as built by W90KB. Used in conjunction with a Central Electronics 10B sideband generator, it will put about fifty watts of SSB on two meters.

Six Meter Century Club

Certificates number 1, and 2 for one hundred stations worked in 1958 have been issued to W6BAZ, and W8NAF respectively. Old Paul wins the engraved plaque for his efforts. His cards arrived on the 31st of March. Included were one from New Zealand and a couple of KL7's. (We're trying to trade him a dozen Louisiana cards for the ZL.) Ev (W8NAF) got his cards in just a week after Paul's and

received his certificate in person at the Dayton Hamvention. (Which see.)

Among the several dozen pre 1958 certificates issued was one to JA1AN. Shyzo in *ONE HUNDRED* JA cards. All different. Course we know you bums on the west coast have lots of them but they sure look good to us. (None of them addressed to W1HOY though.) Shyzo is the first certificate winner from outside the country and as such wins an engraved Microwave Associates achievement plaque for his efforts.

Two Meter Century Club

No one, so far, has qualified for the first Two Meter Century Club Certificate. I don't know if this indicates less activity on two meters or less QSL's. Closest to the mark so far is W1FHP (Bethlehem, Connecticut). Bob has worked one hundred different stations but has not got hot in the QSL department yet.

220 Mc Century Club

Leading the list in the 220 mc race is W3LCC. Don has QSL's from nine different stations worked since January 1, 1958.

Don is using a 5894 final, running 80 watts and feeding an eleven element yagi. (Forty-four element box yagi ready to go up on the first good day.) Receives with a Natco converter and an NC300. A 416B preamp peeps things up in front. If you are looking for W3LCC, you can find him on the Washington-Baltimore net which meets Sundays at 11:00 A.M. on 220.050.

Four Twenty and Up

Guess nobody operates these bands.

Six Meter Kilowatt

Several letters of inquiry about the six meter kw final described in the March column. Most

questions about the neutralizing capacitor. This mysterious device consists of a piece of half inch wide, copper strap about two inches long. Any thickness which will allow easy bending will do. It is mounted on a feed through insulator located one inch from the envelope of the tube. Adjustments are made by bending the strap (with the power OFF).

The tuning capacitor can be any variable which will stand the voltage used on the tube plate. (Plus modulation that is.) Naturally a vacuum variable would be ideal. (Anybody got a spare?)

Two Letter Technician

In case you work that old timer WIFY on six, be advised that he enjoys the distinction of holding the only two letter technician call in the country. Ray held the call of 1FY before the war (First world war, that is.) and after the war held, of all things, the original 1BU call.

Two Meter SSB

Local SSB activity in the Chicago area on two meters is provided by W9UMD, W9VX, and W9FHS. W9UMD is running a 4X-150 with a "gold-plated" tank cavity from a TS-1/ARR-1 surplus test oscillator. W9VX is running a single 4X-150 driven by an 829B mixer and is testing a pair of 4CX300's. W9FHS is running a pair of 4X-150's driven by a zero bias, grounded grid 2C39.

Picnics

Picnics and such summertime activities are again making news. First this time is the Dayton, Ohio group (who just can't be over the "Hamvention" yet).

DAYTON (OHIO) AREA VHFEST picnic will be held at Triangle Park, Dayton, Ohio on May 25, 1958. This will be sponsored by the Miami Valley VHF Club of Dayton. **PRIZES! MOBILE CONTEST! SOFT DRINKS! HOT DOGS! BRING: Your XYL and children. Your PICNIC LUNCH! Your JUNK BOX! \$1.50 donation per Licensee. This is the third year and last year we had 300 attending! Come ONE and ALL!**

Receiving location at Paul's, W6BAZ. At the left, the Jones Micromatch, which is left in the line all the time. The 75A3, with the Filter-King converters for Six and Two.



One of the "Hammiest" families in the 6-Meter Club of Dallas. Left to right is Ena (K5CHF), 4 day old Tom III, 2½ year old Lisa, and Tom (K5AON).

Sounds like fun, hope the attendance is doubled this year.

Awards

This award is sponsored by the "Mobile Sixers Radio Club", Springfield, Pennsylvania. The award shall be called the "Worked Mobile Sixers" and shall consist of an appropriate certificate of award with proper endorsements. Proof of two way contact such as QSL cards or other written proof shall be submitted to the Secretary, W3JBA, The Mobile Sixers Radio Club, 717 Haines Lane, Springfield, Pennsylvania. Only contacts made after 0001 EST, February 1w, 1958, shall count, and active members of the club shall make proper endorsement as follows:

"Active Mobile Sixer Members and only ACTIVE members shall count for official certificate.

Fixed stations shall be divided into two classes, i.e., those within 35 air miles of City Hall, Philadelphia, Pa.; Class I; those farther than 35 air miles from City Hall, Class II.

Class I Award (Stations within 35 miles of City Hall, Philadelphia, Pa.)

1. Must work 15 active members of Mobile Sixers while said active members are mobile.

2. Must work 30 active members of Mobile Sixers while said active members are either mobile or fixed.

Class II Award (More than 35 miles from City Hall, Philadelphia, Pa.)

1. Must work 5 active members of Mobile Sixers while said active members are mobile.

2. Must work 15 active members of Mobile Sixers while said active members are either mobile or fixed.

To date (February 11, 1958) there are forty-seven active Mobile Sixers.

Christchurch, New Zealand 'Mac' McKenzie (ZL3RK) opens our letters this month with news that makes our mouths water:

"Here's some news from 'down under'. The following American stations have been heard here in Christchurch on the 50 mc band: February 1st—K6RNQ; February 22nd—W6AJF, W6FAZ, K6RNQ; March 4th—W6BAZ, K6EJO, K6RNQ, W6KD, K6BNQ, K6OUJ, W6BJI, W6UZK, W7MAH, W6EOZ(?); March 10th—K6PXT and K6GMX; March 1st—On cw K6RNQ and W6DJI were copied in Ashburton, 50 miles S.W. from here by ZL3AQ; March 8th—K6BO also copied ZL3AQ; March 12th—K6PXT and K6HMK."

"These stations have all been heard about 12 noon—1:00 P.M. P.S.T. So far the only ZL3—W QSO's have been by ZL3QK, who worked K6PXT; and by ZL3FR who has worked K6HMK, W6BAZ, K6EJO and K6RNQ. The ZL1, 2, and 4th district chaps have been more fortunate in that they have been able to work Stateside, while we in ZL3 have been unable to do so except for the 3QK and 3FR QSO's. Maybe our signals have been heard in the States and we have been called by W's and K's and have been unable to hear them."

"Active on 6 meters in ZL3 are ZL3's QK, FR, CT, FL, RK, ME, AQ, GV, and HJ. Our power ranges from 10 watts to 100 watts most receiving being done on RF26 converters."

"JA's have also been heard here in Christchurch, but so far no QSO's. VK's 2, 3, 4, and 5 have also been worked from here."

"We ZL's would be pleased to hear if our signals have been heard in the States." *Very good to hear some of the 50 mc news from 'down under' Mac. Hope to work you ourselves one day from the east coast.*

Santa Rosa, California Ole Faithful, Paul, W6BAZ, comes through again with the following:

"Today (March 15) between 1245 and 2145 PST, worked ZL2ABX, AZ1ADP, ZL1UZ, ZL1WW, ZL1MQ, and VK4HD. Scattered betwixt and between these contacts, had other contacts with assorted W5's, W7's, and WØ's."

"About five stations in Northern California worked VK today. Some of the southern California gang made it too, but don't know how many. VK4HD heard WØCNM on that day also."

"What a day! About 10:00 P.M. was hearing a foreign speaking station to the SE. Probably a TE from South America, but couldn't raise him." *Continued good luck Paul, with the DX. We didn't hear a thing on the 15th.*

San Diego, California And another contributor from the bright and shining state, this time from Red Schneider (K6IJL):

"Summertime is vacation time, and this year the XYL (K6IJM) and our one year old harmonic and I will be traveling some 6000 miles through fifteen southern and mid-western states. We operate on 50 mc and will be both mobile and portable during our twenty day vacation. Our overnight stops will be mostly in the larger cities. It was planned this way mainly because the 50 mc population is concentrated more in the populated areas. We will be equipped with over 300 QSL cards and hope to get rid of all of them." *Better get some more, Red, don't think you'll have a bit of trouble getting rid of that many cards.*

"The following is a list of cities and the dates we will be there. Leaving early on June 14, we will stop that night in Phoenix, Arizona. On the 15th it will be Albuquerque, New Mexico. (*Be looking for you there, O.M.—W1HOY.*) The night of the 16th we will be in Amarillo, Texas. The 17th in Oklahoma City; Kansas City, Missouri will be our stop on the 18th. On the 19th, it's Davenport, Iowa. The night of the 20th, Indianapolis, Indiana will be our stop-over. Nashville, Tennessee, will find us on the 21st. June 22nd—Little Rock, Arkansas, June 23rd—Jackson, Mississippi; June 24th and 25th—New Orleans, Louisiana; June 26th—Shreveport, Louisiana; June 27th—Dallas, Texas; June 28th—Snyder, Texas; June 29th and 30th—Carlsbad, New Mexico; July 1st—Lordsburg, New Mexico; July 2nd—Gila Bend, Arizona; and back in San Diego in the afternoon of the 3rd. We will arrive in the

above cities in the early afternoon (barring any trouble), and are looking forward to working as many stations as we can, and possibly have a few eyeball QSO's."

"I would like to get cards or letters from some of you in the above mentioned cities telling some of the points of interest, etc." *Sounds like a wonderful vacation Red, good luck! The boys have been alerted now, so you should get a lot of cooperation.*

Reno, Nevada John Webb (W7MAH) sends us some long-wished-for-info from Nevada:

"Six meters seems kind of dead here since the east coast quit coming in several weeks ago. Guess I got kind of spoiled as the band was open every day after I got on in November, until February. *That's alright John, any station operating 50 mc in Nevada deserves a little spoiling.* Have been able to get in on openings to ZL, KL7, KH6, CO2, HC1, ZS3, and VE1. We had a short skip opening to Colo., Texas, and New Mexico on the 15th of March. *Notice, that was the day so good for W6BAZ.* Was surprised to work HC1JW amid a band full of W5's." *You were surprised! Guess what he was?*

"Enjoyed your description of the 4-1000 six meter final. I'm using about the same type of circuit only with a 4-400. Put up a new eight element beam last week but the band has been dead so unable to try it out. Am able to keep regular skeds into the bay area with K6RNQ on six meters. Use cw or SSB for most of my six meter work. Am presently building a two meter rig. Kind of interested to see if we will be able to work out of here on that band. The SSB has worked so well on six, am going to go all the way and use it on two also." *It surely worked out well on six, hope it does as well on two meters. Good luck!*

Pittsburgh, Pennsylvania Alfred Cammarata (W3AWU) comes up with:

"I have been interested in amateur T.V. for the past year and have been reading up on it (what little there is). I am on six meters at the present time and am building a converter for 220 mc."

"I would like to get in touch with amateurs who already have amateur T.V. installations for 432 mc or higher; or those amateurs who are contemplating going on amateur T.V. in the near future."

"Another amateur, W3UFB and myself are going to 'pull together' and put a station on the air. All letters or helpful information will be appreciated. Send correspondence to Alfred Cammarata, W3AWU, 3030 Marshall Road; Pittsburgh 14, Pennsylvania." *O.K. you T.V. enthusiasts, here's your chance to 'Get with it'.*

North Platte, Nebraska W. T. Gemmer (WØRQK) sends us a bit of news along with his 100 QSL's for Six Meter C.C.C.:

"So far this year I have only worked five stations (February 25). Three JA's, one KL7, and WØDNW, the only station I can work when the band isn't open." *And some of us gripe because of low local activity!!!*

"WØDNW, Wess, has worked twenty some JA's, KL7, VE3, and cross-band to the G's. He is running 800 watts into a 4 element beam and both of us are willing to make schedules with the local stations. To date, neither one of us have had contacts with anyone within two hundred and fifty mile radius."

"At WØRQK, the power is rather low, 20 watts into a three element beam." *Stay with it O.M., and one day you'll be mobbed with calls.*

Collierville, Tennessee The two-meter DX man from Collierville, Paul Wilson (W4HHK) comes through with some six meter news:

"Began hearing fluttery signals on 49.96 and 49.92 about 1130 CST (March 20th). They were up to 459x a short time after, but by 1342 CST they were very weak. At 1348 CST, discovered HC1JW coming through on phone. After frantically calling, finally worked him at 1401 CST with the home station set-up (20 w., 4 el. yagi, conv. 75A3). He gave handle as "Vic" and address, P.O. Box 2536, Quito, Ecuador. This was my first and only WSO with South America. This gives me Europe, Africa, South America and North America all on the 20 w. transmitter—also Alaska. On the farm layout, not

[Continued on page 127]



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For further information, check number 21 on page 130.

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For further information, check number 58 on page 130.

SQUELCH FOR 92¢ [from page 51]

output. The positive peaks add to produce 400 ua while the negative peak subtracts towards zero current. Now suppose a larger sine wave signal of 300 ua zero to peak is applied; On-negative peaks 100 ua of current will actually flow in the opposite direction cutting off the diode and producing an output of $-100 \text{ ua} \times 1 \text{ meg} = 100 \text{ volts}$. This action is essentially what happens in the circuit of Fig. 1.

R3 the bias current source must be a high impedance compared to R1, otherwise excessive loading of the detector will take place. 1 Megohm is a reasonable size and should be physically placed with the other detector components. A shielded lead should connect it to the potentiometer which may be located elsewhere. These precautions are taken to minimize hum and noise pickup. In addition to the squelch action provided by the circuit, operation is further enhanced by delayed AVC action if the AVC is derived in the manner shown in Fig. 1. This is the case in the majority of the receivers. In mobile operation the high noise level on the higher frequency bands produces sufficient AVC voltage to cause a considerable decrease in receiver sensitivity before any signals are present. With the squelch operative the detector output is held up at ground level in the presence of background hash and weak signals which insures maximum sensitivity on the weaker signals. The more squelch applied the more delayed AVC action present.

One point to remember is that the squelch circuit does not take the place of a noise limiter. Noise appears as a signal to this squelch circuit and output is produced. An effective combination is the use of the simple self-adjusting series type noise limiter in combination with this squelch circuit. The noise limiter is connected to the detector in the usual fashion. As is the case with most squelch circuits, distortion is a possibility at low signal levels. However, I have not noticed any to speak of. Distortion caused by the noise limiter completely masks other contributions.

One dollar doesn't go very far these days but 92 cents invested in 2 components sure buys a lot of receiver improvement whether it is home station or mobile. ■



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For further information, check number 23 on page 130.

HAM CLINIC [from page 88]

you have on underwater communications equipment? It may seem like an awfully strange request but skindivers, like hams, are strange people!

"Although there are several methods known to me that entail having a cable to the diver from the boat, these methods are not satisfactory for my needs. I must have a wireless method. It may be electronic or mechanical."

Well, Henry, you do have a strange request (but our Editor is enthusiastically interested too). Some years ago, some outfit on the West Coast had a unit which was used for short distance underwater communication. It consisted of an audio amplifier of relatively high wattage feeding an electromagnetic underwater reproducer. The diver wore an earplug type of receiver connected to a small audio amplifier which in turn was fed by a small "ball type" conduction type microphone. This outfit was said to have a range of about 50 feet.

If code could be used there would be little or no problem because a device could be constructed along SONAR lines (using transistors). However, you would still need *power*. Low frequency rf around 65KCS will travel short distances under water. The Navy (God Bless 'em) may have some information on underwater communications which they will pass on. However, your request is being printed here asking for tried ideas. So, do any of you have any information or ideas relative to Henry's request? If so, shoot the information to us.

Operating Twist

Mobile hams must keep up their logs when operating on the highways and by-ways just as they must at home. However, unless the XYL is along to do the paperwork, accurate log keeping is difficult. To solve the problem, obtain a good grease pencil (preferably black) and write your contact data on the dashboard; when you return home it is very easy to copy the data into the regular mobile logbook. A quick wipe with a soft piece of cloth obliterates the pencil markings. The grease pencil does *not* harm the paint on the dash. (Thanks to K6ESZ.)

Thirty

Recently, we received a letter from an avid 160 meter fan who took exception to our mentioning the *fact* that not all hams work the 160 meter band. Or rather, he defended this particular portion of the spectrum as still having great communications possibilities; we agree with him and hasten to add that we feel that more hams should use this low frequency portion of our allocation. However, if *everybody* did there would certainly be a mess. Many hams do not use it because of antennae difficulties . . . or because they are in areas of restricted operation. But each man to his own opinion.

With that, we say "30" for this month and again thank you for reading this column.

73, Chuck, W6QLV

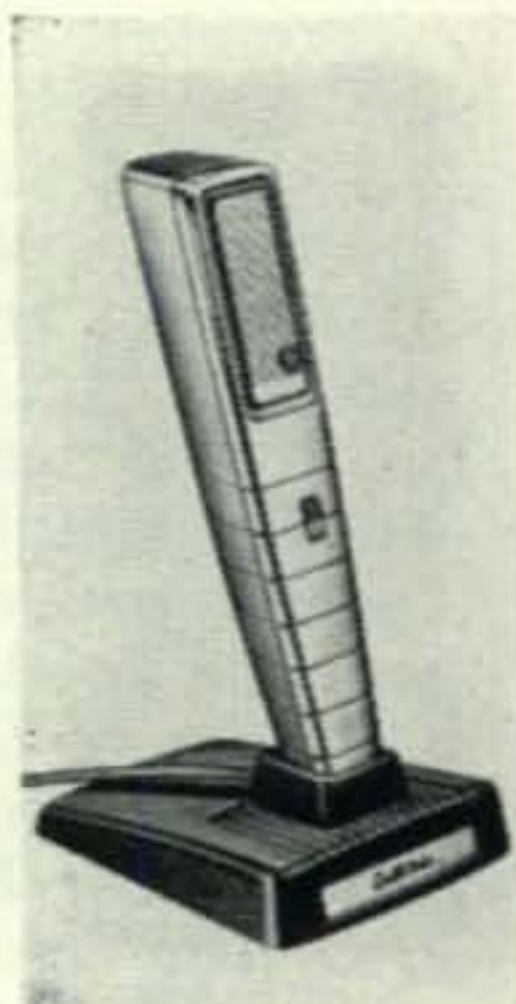
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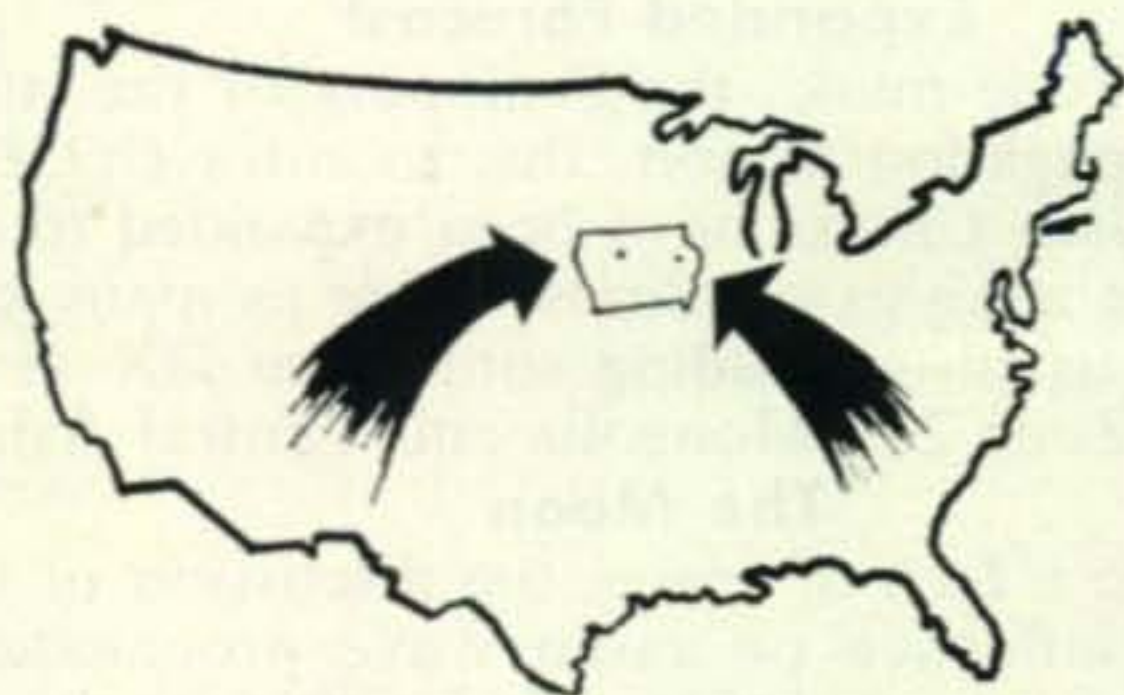
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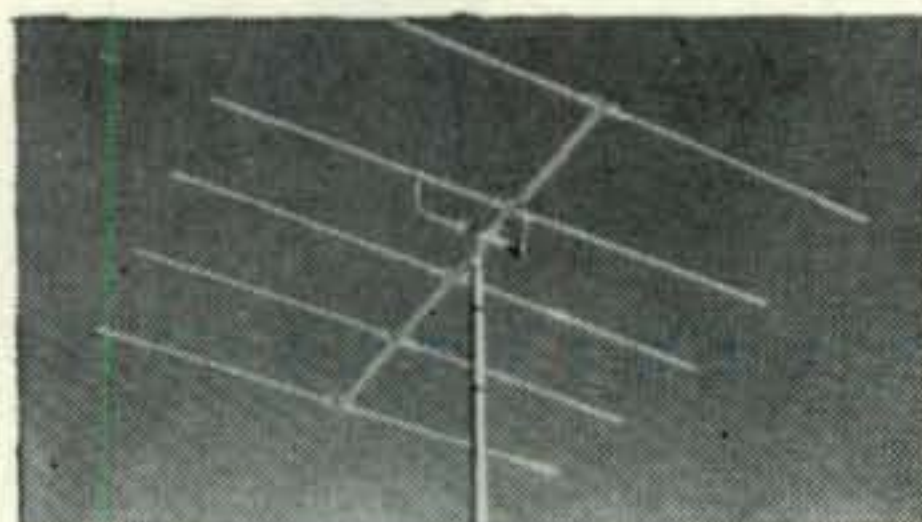
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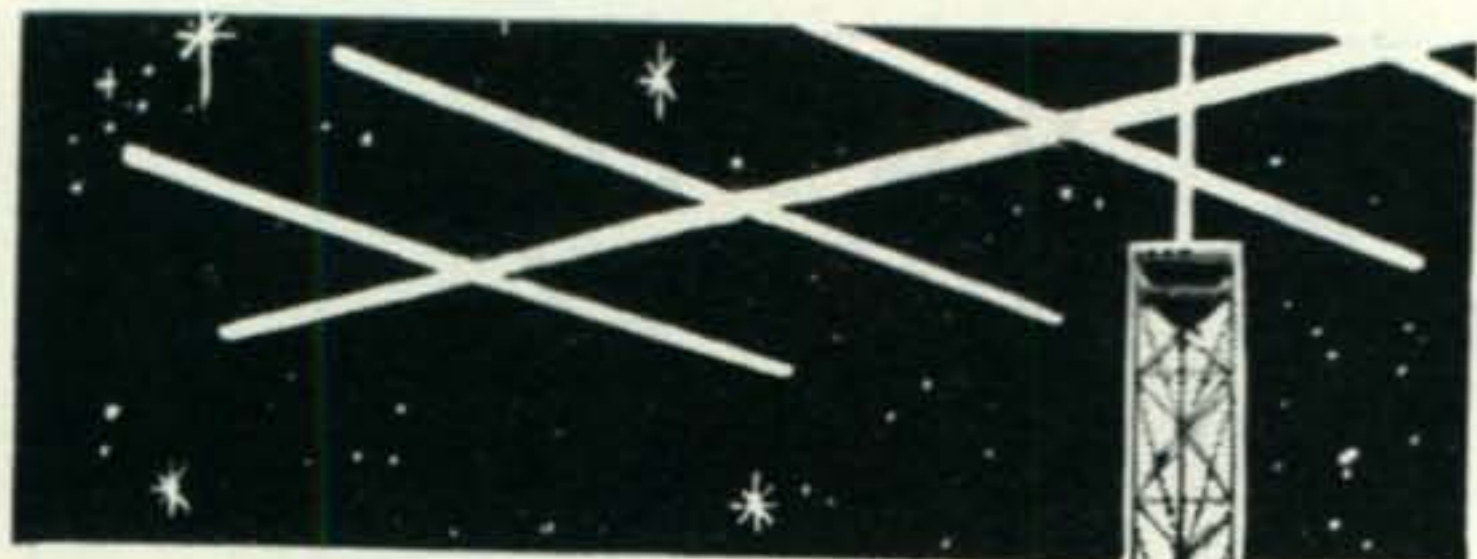
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PROPAGATION [from page 77]

the world as a whole, hope to gain from space exploration. The report ends with an exciting space project timetable for exploring the Moon, Mars and Venus with instrument carrying rockets as early objectives, and human planetary exploration as a much later objective.

President Eisenhower, in his introduction to the report, states:

"... I have found this report so interesting that I wish to share it with all the people of America and indeed with all the people of the earth... for it clarifies many aspects of space and space technology in a way which can be helpful to all people... Every person has the opportunity to share through understanding in the adventures which lie ahead."

Copies of *Introduction To Outer Space* are for sale by the *Superintendent of Documents, Government Printing Office, Washington, 25, D.C.* The price is *fifteen cents* a copy.

Because of its special interest to readers of this column, that part of the report discussing the role earth satellites are expected to play in the field of radio communications is reprinted below.

The Satellite Radio Network

"Meanwhile back at Earth, satellites will be entering into the everyday affairs of man. Not only will they be aiding the meteorologists, but they could surely—and rather quickly be pressed into service for expanding world-wide communications, including intercontinental television.

At present all trans-oceanic communication is by cable (which is costly to install) or by shortwave radio (which is easily disrupted by solar storms). Television cannot practically be beamed more than a few hundred miles because the wavelengths needed to carry it will not bend around the earth and will not bounce off the region of the atmosphere known as the ionosphere. To solve this knotty problem, satellites may be the thing, for they can serve as high-flying radio relay stations. Several suitably-equipped and properly-spaced satellites would be able to receive TV signals from any point on the globe and to relay them directly—or perhaps via a second satellite—to any other point. Powered with solar batteries, these relay stations in space should be able to keep working for many years."

Expanded Forecast

Since June marks the beginning of the summer propagation season, this month's *CQ DX Propagation Charts* have been expanded to include the analysis of almost twice as many circuits as usual—including some rare DX areas such as Zone 23 (Mongolia and Central Asia).

The Moon

Due to a lack of space, the discussion of the Moon's influence on radio wave propagation, originally intended for this month's column, will appear later this year.

73, George, W3ASK

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1078 entertaining educational pages, this one is a gotta for every hamshack, too bad it's so expensive
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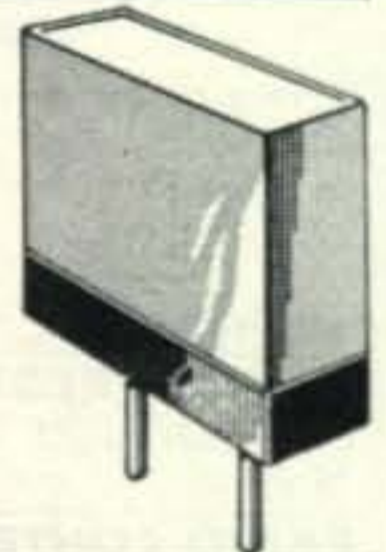
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Rated 2.4 amp. hr. Approx. dimensions: 3 1/2" l. x 1 3/4" w. x 2 3/8" h. Weight: 1 lb. 3 oz. (plastic case) Dry charged Price \$2.50 each

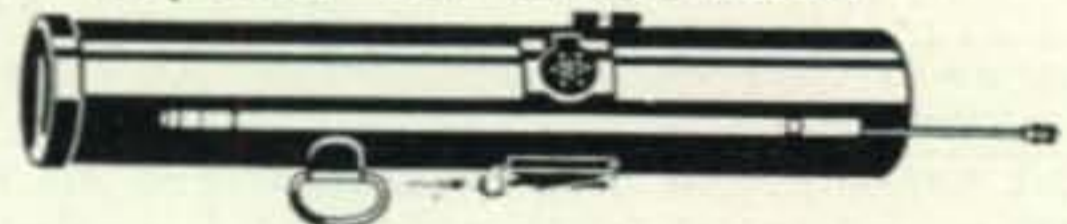
500 KC CRYSTALS IN FT241 HOLDER

(54th harmonic type).....\$1.00 each

6 for \$5.00 postpaid

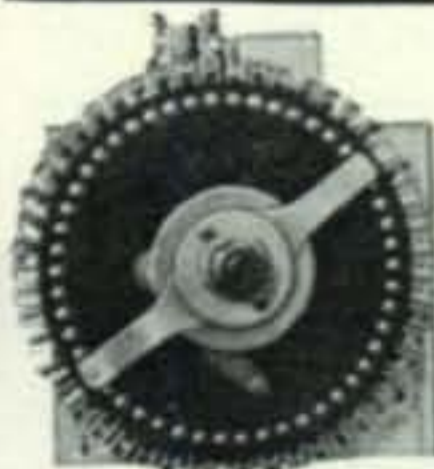


AN/CRC-7 VHF TRANSCEIVER



With voice or transmit tone, used with air-sea rescue work. Crystal controlled. 140.58 mc. Used, good. See conversion data, Apr. '58 CQ

\$15.00 each (less battery)



44 POSITION STEPPING SWITCH

With automatic reset. 24 volt A.C. Dimensions 4 1/4" x 4 1/4" x 3" deep. Mfgd. by Wico\$3.00 each

Five for \$12.50 postpaid

RG-8/U (52 OHM) 100 ft. Roll with connectors\$5.95 per roll

RG-11/U (75 OHM) 200 ft. roll with connectors.....\$7.95 per roll

NO C.O.D.'s. REMIT FULL AMOUNT WITH ORDER, ALL PRICES F.O.B. PASADENA

C & H SALES CO.

2176 E. Colorado St. • Pasadena 8, Calif.

For further information, check number 36 on page 130.

June, 1958 • CQ • 101

QUALITY CUT QUARTZ FOR EVERY SERVICE



All crystals made from Grade "A" imported quartz — ground and etched to exact frequencies. Unconditionally guaranteed! Supplied in:

FT-243 holders pin spacing 1/2" pin diameter .093	MC-7 holders pin spacing 3/4" pin diameter .125
DC-34 holders pin spacing 3/4" pin diameter .156	FT-171 holders pin spacing 3/4" banana pins

MADE TO ORDER CRYSTALS

1001 KC to 2500 KC:

.01% Tolerance	\$1.75
.005% Tolerance	\$2.50

2501 KC to 9000 KC:

.01% Tolerance	\$1.50
.005% Tolerance	\$2.50

Specify holder wanted.

3500KC hermetically sealed frequency marker crystal .005% tolerance fits octal tube socket **Special \$1.00**

ANY AMATEUR BAND CRYSTAL

.05% Tolerance

NOVICE BAND CRYSTALS

80 meters 3701-3749 KC
40 meters 7152-7198 KC
15 meters 7034-7082 KC

99c ea.

6 METER TECHNICIAN BAND CRYSTALS

ASK YOUR LOCAL PARTS DISTRIBUTOR FOR TEXAS CRYSTALS... LOOK FOR THE YELLOW AND RED DISPLAY BOARD.

SEALED OVERTONE CRYSTALS supplied in metal HC/6U holders—pin spacing .486, diameter .050.

10 to 30 MC .005 tolerance	\$3.85 ea.
30 to 54 MC .005 tolerance	\$4.10 ea.
55 to 75 MC .005 tolerance	\$4.25 ea.

TEXAS CRYSTALS, TRANSISTORIZED 100 KC MARKER OSCILLATOR

Compact, portable, in attractive metal carrying case with handle. Size: 4"H x 3"W x 6"D. Connects to any receiver to get 100 KC markers from 100 KC to 50 MC. Factory wired with two transistors, one 100 KC crystal, self-contained battery. Shipping weight, 10 oz. Add 50c for prepaid parcel post. **Net \$17⁹⁵**

MARINE FREQUENCY CRYSTALS • All marine frequencies from 2000-3200 KC .005 tolerance **\$2.50** (Supplied in either FT-243, MC-7, or FT-171 holders.)

RADIO CONTROL CRYSTALS • 27.255 MC sealed crystals (1/2" pin spacing... specify pin diameter... .093 or .050) **\$2.50 ea.**

Stock crystals in FT-243 holders from 5675 KC to 8650 KC in 25 KC steps **50¢**

FT-241 lattice crystals in all frequencies from 370 KC to 540 KC (all except 455 KC and 500 KC.) **50¢**
Matched pairs ± 15 cycles **\$2.50** per pair.

200 KC Crystals, **\$2.00**; 455 KC Crystals, **\$1.00**; 500 KC Crystals, **\$1.00**; 1000 KC Frequency Standard Crystals, **\$3.50**; Dual Socket for FT-243 Crystals, **15c**; Ceramic socket HC/6U Crystals, **15c**.

(Add 5c per crystal for postage and handling)

WRITE FOR CATALOG AND QUANTITY PRICES

Texas Crystals

The Biggest Buy in the U.S.

8538 W. GRAND AVENUE • RIVER GROVE, ILL.
ALL PHONES — GLADSTONE 3-3555

Terms: All items subject to prior sale and change of price without notice. All crystal orders MUST be accompanied by check, cash or M.O. WITH PAYMENT IN FULL. No C.O.D.s. Postpaid shipments made in U.S. and possessions only. Add 5¢ per crystal for postage and handling charge.

OVERSEAS ECHOES [from page 85]

on the British market. It is amazing how many American kit products can be seen in pictures of overseas ham shacks, and the majority seems to be of Heath origin.

While there are several methods by which the frequency of a crystal can be changed, GRFMO describes an interesting system in the same issue. His circuit accomplishes it electronically, and not only is it possible to shift one's operating frequency to dodge another station using the same crystal, but is also possible to use FM control on a crystal oscillator in this manner. The circuit described oscillates at 8 mc and triples in the plate. The amount of FM shift is adjustable. Should have interesting possibilities for six as well as two meters.

An article on reactance modulation may be of interest also, it is by G3BTM and the first part appeared in the January issue.

More on modulation — *Revista Telegrafica Electronica*, March 1958, LU, has a very good article about the principles of pulse modulation and the various forms thereof. The author is a professor at the Technological Institute of Aeronautics of Brazil.

The April issue of *The Short Wave Magazine*, G, states that DL2 licenses (held by British service personnel and British civilians in Germany by virtue of holding a U.K. license) will in the future be issued by the German government instead of by British authorities as in the past. British license examinations will still be accepted in lieu of the German examination. There are no other changes in DL2 license arrangements.

The same issue describes an *eight-foot high vertical antenna* designed and built by G3KOC. Most encouraging results are described and this article is definitely not an April hoax write-up. This should really be the ticket for those poor fellows who live in an apartment house and still want to work all bands from 10 to 160 meters. 579 results have been obtained in transatlantic work.

OEM, March 1958, OE, carries a very nice summary of the type 6146 which has recently appeared on the European market as the *QE05/40*, and gives six separate and complete circuits with parts lists, etc., for designing equipment around this tube.

The Polish Shortwave Amateur Radio Union, with headquarters in Warsaw, SP, has mailed us the new rules governing their awards and suggested their publication in our "well known magazine". This makes us feel very good, so here they are:

Polski Związek Krótkofalowców, Warsaw Section, issues the AC15Z (All Countries 15. Zone) and W21M (Worked 21st Meridian of Warsaw) certificates to licensed amateurs all over the world. The AC15Z and H21M (Heard 21st Meridian) certificates are issued to SWLs.

[Continued on page 104]



LORAN APN/4 OSCILLOSCOPE

Easily converted for use on radio-TV service bench.

Completely Assembled
Supplied with 5" Scope, type 5CP1 only.
Excellent. Used \$10.95

\$19.95

SCR-274 COMMAND EQUIPMENT

Type	Description	Excellent Used	Brand NEW
BC-453	Receiver 190-550 KC	\$14.95	\$18.95
BC-454	Receiver 3-6 Mc	9.95	12.95
BC-455	Receiver 6-9 MC	9.95	13.50
BC-457	TRANSMITTER—4-5.3 Mc. complete with all tubes and crystal. BRAND NEW		\$7.88
BC-458	TRANSMITTER—5.3 to 7 Mc. complete with all tubes and crystal. BRAND NEW		\$7.88
BC-459	TRANSMITTER—7-9.1 Mc. complete with all tubes and crystal. BRAND NEW		\$11.95
ARC-5/T-19	TRANSMITTER—3 to 4 Mc. BRAND NEW complete with all tubes & crystal		\$8.88

110 VOLT AC POWER SUPPLY KIT

For All 274-N and ARC-5 Receivers
Complete kit of parts with metal case, instructions
Factory wired, tested, ready to operate.....**\$11.50**
SPLINED TUNING KNOB for 274-N and ARC-5 RECEIVERS. Fits BC-453, BC-454 and others. Only **49¢**



ASB-5 'SCOPE INDICATOR

BRAND NEW, including all tubes, together with 5BP1 Scope Tube. Originally used in Navy Aircraft RADAR equipment. Easily converted for AC operation.

VALUE \$250.00!
OUR LOW PRICE **\$15.95**

SPECIAL PURPOSE & RECEIVING TUBES

Type	Each	Type	Each	Type	Each
RK34	\$.39	1626	\$.21	6AG5	\$.33
VR105	.79	1629	.27	6AS6	1.20
VR150	.79	1S5	.44	6J4	.65
717A	.29	2X2	.39	6J6	.33
CRP-730A	4.50	3Q4	.44	6SN7	.44
826	.44	6A7	.35	12AT7	.44
837	1.15	6AC7	.44	12AX7	.44
1625	.29	6AL5	.44	12SA7	.34
		6BA6	.44	12SQ7	.33

NEW! Cathode Ray Tubes NEW!

3CP1	\$1.18	5CP1	\$2.45
3FP7	1.18	5FP7	1.44
5BP4	2.22	9LP7	1.86



BC-906 FREQ. METER—SPECIAL!

Cavity type, 145 to 235 Mc.
BRAND NEW, complete with antenna. Manual incl.

OUR LOW PRICE **\$9.99**

DYNAMIC HANDMIKE with "Press-to-talk" Switch, cord and plug—BRAND NEW, only **\$2.95**

DYNAMIC HEADPHONES, 600-ohm impedance, with large ear-phone cushions, cord, phone plug. BRAND NEW, special **\$3.95**



ARC-5/28 RECEIVER

2-meter Superhet, 100 to 156 Mc in 4 crystal channels. Complete with 10 tubes. BRAND NEW **\$22.45**
110 V AC Power Supply Kit for above.....**\$9.75**

ARC-5/T-23 TRANSMITTER

100-156 Mc Includes 2-832A, 2-1625 Tubes, all crystals. BRAND NEW **\$19.95**
SPECIAL OFFER! Limited quantity ARC-5/T23 xmitters. BRAND NEW, less tubes.....**\$7.95**
Excellent Used, less tubes.....**\$5.95**

ARC-5 MARINE RECEIVER-TRANSMITTER

Navy Type Comm. Receiver 1.5 to 3 Mc BRAND NEW with 6 tubes.....**\$16.95**
Navy Type Comm. Transmitter 2.1-3 Mc BRAND NEW with 4 tubes and Xtal.....**\$12.45**
Modulator for above. New, with tubes **\$4.95**

BC-683 FM RECEIVER

27 to 39 Mc. 10 pushbuttons select channels. Cont. tuning entire range. Complete with tubes, built-in speaker, schematic on case. **\$14.50**
Like new.
BRAND NEW, with tubes**\$24.50**
12 or 24V DC Dynamotor for above **\$ 3.95**
BC-603 FM RECEIVER 20-27 Mc, otherwise similar to above. Excellent used, with tubes **\$ 8.95**
BRAND NEW, with tubes**\$13.50**



SCR-522 2-METER RIG!

Terrific buy! VHF Transmitter-receiver, 100-156 Mc. 4 channels. Xtal-controlled. Amplitude modulated voice. They're going fast! Excellent condition.

SCR-522 Transmitter-Receiver, complete with all 18 tubes, top rack and metal case.

COMBINATION Special **\$33.33**
Receiver only, with all tubes**\$19.50**
Transmitter only, with all tubes.....**\$22.25**
Shock mount for above **\$ 2.45**
Accessories for above available.

BC-929 3" SCOPE INDICATOR COMPLETE

Originally used for IFF and Radar Navigation. Can be easily converted for general bench service work. Tubes included: 2-6SN7, 2-6H6, 1-6X5, 1-6G6, 1-2X2 and 3BP1 Cathode Ray Tube. A TERRIFIC BUY at our **\$12.95** low price! Excellent used
As Above, BRAND NEW.....**\$14.95**
Conversion instructions for AC operation**.65**



BC-659 TRANSMITTER & RECEIVER

27 to 38.9 Mc F.M. Two preselected channels crystal controlled. 5 to 10 watts. Complete with speaker, tubes. **\$11.95**
Excellent Used
POWER SUPPLY for above, 117 V 60 cy AC.....**\$16.95**
VIBRATOR POWER SUPPLY for above, works on 6-12-24 V DC **\$ 9.95**

FOR HOME—FOR OFFICE FOR FACTORY!

BC-605 INTERPHONE AMPLIFIER

Easily converted to general purpose inter-communication set. A fabulous BUY at this LOW PRICE! BRAND NEW, **\$4.95** with original schematic
AC Conversion Instructions for above **65¢**



INTERPHONE AMPLIFIER

Type BC-347C. Fully wired, ready to operate! Uses 6F8G tube. Housed in metal container 5 3/4"x3 3/4"x2 3/8" high. **\$3.45**
A SPECIAL VALUE at our low price.....

DIRECTIONAL ANTENNA, 3-6 Mc.

Collapsible type, folds down to minimum size. **\$1.49**
NEW

GOLD PLATED SPECIAL! TS-1/ARR-1 TEST OSCILLATOR

Portable, complete with two 955 tubes cavity and antenna. BRAND NEW, in metal housing 9 3/4"x6 3/4"x7" high. OUR LOW PRICE, each.....**\$3.95**

FL-5 FILTER**79¢**

BC-442 ANTENNA RELAY

Wonderful Value! Consists of 3/4 amp 2" RF Ammeter (antenna current indicator). 0-10 scale. Transmitter-Receiver Switching relay, in aluminum case with associated components. BRAND NEW.....**\$2.49**



SCHEMATIC DIAGRAMS For any equipment on this page, each **65¢**

Please include 25% Deposit with order—Balance C.O.D. 50¢ HANDLING CHARGE on Orders under \$5.00 MINIMUM. All Shipments F.O.B. Our Warehouse N.Y.C.

G & G Radio Supply Co.
Telephone: CO 7-4605
53 Vesey St., New York 7, N. Y.

HARRISON HAS IT!

100 FOOT VERTICAL ANTENNA (OR BEAM MAST) IN YOUR CAR TRUNK!

Just the thing for vacation or field day portable — but rugged enough for year 'round dependable service in the worst weather!

Heavy duty Signal Corps AB-85 portable antenna sections, at a fraction of their original cost. Each 3 feet long, 1 3/8" diameter, with 1/8" thick wall. Made of highest tensile strength light-weight aluminum alloy. Only 34 ounces. Bonded olive drab finish. Precision telescoping joints 6 inches long give sturdy rigidity. Four heavy internal spring fingers insure positive contact.

A cinch to run up, a sec-

tion at a time — and just as easy to take down! 40 section, 100 foot vertical radiators are giving excellent service in commercial installations. (For a rugged high Q vertical, use an insulated base and "Glas-Line" or nylon guys, or wire guys broken with egg strain insulators). 18 sections, guyed every 15 feet, have been holding a heavy Telrex full sized 20 meter beam 45 feet up in 75 MPH winds for more than a year!

Signal Corps AB-85 Mast Sections.
Brand new, in original sealed wrapping.
(Add \$1 per order for packing)

ONLY
\$1.25
EACH

Be sure to order enough sections, now. You might want to go higher, later, and you'll never see a mast bargain like this again! Use some for guy anchor stakes.

ACCESSORIES

Flat guy rings 4 for 88c	Guy wire clamps 6 for 98c
Floating guy rings... 96c	Egg strain insulators 7 for 98c
Roller bearing guy rings. For easy rotation of mast and beam.... \$2.97	Rotary screw earth anchors (Deadman) \$4.35
Thimbles for guys 12 for 49c	Universal mounting base. For flat, sloping or peak \$1.45
Glas-Line, per 100 feet \$2.89	Insulator for base. Heavy ceramic, glazed. 5 1/4" high 49c
Heavy 7x17 high tensile strength aluminum guy wire. Per. 100 feet \$2.63	(Or, use a Coke bottle)

C·D·R BEAM ROTATORS.

Complete with direction indicating control unit: New, heavy-duty HAM-M model—\$99.50 (Special 8 wire cable—\$6.25 per 100') Standard heavy automatic model, FB for VHF arrays, up to 15-20 mini and loaded beams. AR-22—\$31.17 (4 wire cable—\$3.25 per 100')

"HAM HEADQUARTERS, USA"

has all the best antennas (beams, verticals, multi-bands, mobiles, etc.), towers, accessories, measuring equipment — everything you need to put out a better signal!

Come on in, or order by mail for fast service (\$3 minimum, please)

HARRISON
Ham Headquarters Since 1925
225 GREENWICH STREET
NEW YORK 7, N.Y.
PHONE ORDERS - BARCLAY 7-7777
LONG ISLAND - 144-24 Hillside Ave., Jamaica

OVERSEAS ECHOES [from page 102]

For AC15Z, 23 or more confirmations of contacts (or SWL reports) from 26 districts of following countries are required: OH (3 districts)—UP2—UQ2—UR2—SP (4 districts)—OK—OE (2 districts)—HA—YU (3 districts)—ZA—II—II/T—M1—IS—IT—F/C—HV—ZB1. For W21M (H21M), 16 or more confirmations of contacts (or SWL reports) from the following countries are required: LA/P—LA—OH—OHØ—SM—UP2—UQ2—SP5—OK—HA—YO—YU—ZA—SV—5A—FQ8—OQ5—CR6—ZS—ZS3—ZS9.

Only contacts (or SWL reports) made after January 1, 1955 count for PZK certificates. Work may be on all bands, cw and/or phone. Cost of certificate is 3 IRC. For return of cards by registered mail 2 additional IRCs are required. Applications should be sent to SP5HS, Polski Związek Krótkofalowców, Award Manager, P.O. Box 320, Warszawa 10, Poland.

That's it for this month.

73, Tom, K2VBI

hamfests

Santa Fe, New Mexico

The 1958 Rocky Mountain Division Convention (of ARRL) will be held in Santa Fe, New Mexico on June 14-15. Special activities have been planned for visiting XYLs and Harmonics. Talks, mobile hunts, special interest luncheons and lots of rag-chewing are part of the activities for all registrants, ham and non-ham. Pre-registration prior to June 1 is \$7.50 per person. Registration after June 1 is \$8.50 per person. For more details write to: Santa Fe Radio Club, Box 1002, Santa Fe, New Mexico.

Jackson, Tenn.

The Jackson Radio Club will sponsor the Annual West Tennessee Ham Picnic on June 1, 1958 to be held at Dr. Webb's Quinlac Farm six miles out on Old Medina Road. Stations on 75 (3980kc) and 10 (29.1kc) meters will guide in mobiles. There will be prizes, a Trading-post and other activities. A Barbecue Platter will be available at \$1.25 per person. For more information, write: Herman Williams, W4UAW, Secretary, Jackson Radio Club; 172 Summar Drive, Jackson, Tenn.

Four Corners, U.S.A.

The Totah Amateur Radio Club of Farmington, N. Mex. will operate Field Day stations from Four Corners, New Mexico on June 28-29, 1958. Four Corners is the only point common to four states; Utah, Arizona, Colorado and New Mexico. Operation will be on all bands and all contacts which are confirmed by a QSL card sent to Totah Amateur Radio Club; Box 24, Farmington, N. Mex. will be acknowledged with a special 5Ø7 Award Certificate.

For further information, check number 29 on page 130.

YOU ARE CORDIALLY INVITED . . .

- ✓ to visit Ham Headquarters, U.S.A.
- ✓ to inspect the greatest array of all the newest and best Ham equipment.
- ✓ to meet our most helpful and friendly Hams, and get their experienced advice.
- ✓ to be surprised at how much more you can get for your money, here in the world's largest trading center.
- ✓ to see how little a month you pay on our easy credit terms.
- ✓ to get the most fabulous deal in the whole country!

73, *Bil Harrison*, W2AVA,

HARRISON

is

'Ham Headquarters, USA'

for

Collins

the Cadillac of Hamdom!

it actually costs less per year to own the best, especially when you get it from Harrison.

You can be enjoying this new Collins KWM-1 Mobile/Fixed Trans-Receiver while paying as little as

\$39 A MONTH!

(Even less, if your trade-in and down payment come to more than \$68 and the low carrying cost.) You always get the best deal from Harrison!

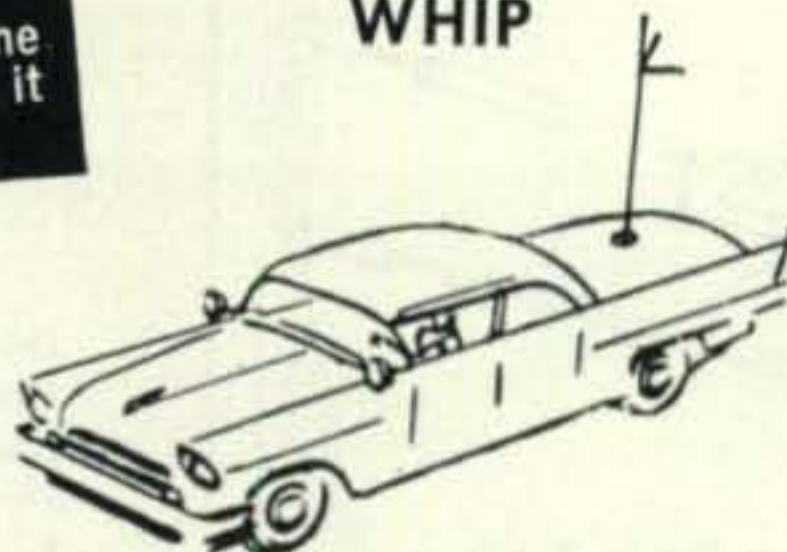


FOR QUICKEST DELIVERY—

send me your order right now! A deposit of only \$5 (returnable any time you say) will start fast action. If you have a trade-in, tell me all about it so I can give you the very highest allowance. Mention the approximate terms you would like, and give employment and credit references.

Prompt, safe shipment to most anywhere in the world, or, you can "Come and get it!" and take it safely home with you.

MARK 3 BAND HELI-WHIP



Here's the ideal mobile antenna for the KWM-1.

Only 72 inches long, but its new principle gives more radiated power on 10, 15, and 20. Entirely automatic—no band switching. Perfect match. No QSB.

Model HW-3 \$27.50

SINGLE BAND HELI-WHIPS

10, 15 (only 48").....\$15.00 ea.
20, 40, 75.....\$18.00 ea.
MARK MOUNT HWM-1....\$ 7.50



75A-4

No question about it! You're just not getting the most operating fun per hour unless your receiver is a new Collins 75A-4! With almost any kind of a trade-in as down payment, we'll surprise you with how little a month it takes for you to have the pleasure of using the best!

COLLINS ACCESSORIES

Naturally, Harrison carries a large inventory of accessories for all COLLINS equipment. Save Time! Order from "Ham Headquarters, U.S.A.!"

COMING! This Fall. The new 325-1 Transmitter 75S-1 Receiver.

For earliest delivery, place your order with Harrison, NOW!!

KWS-1 SSB/CW/AM TRANSMITTER. The favorite with thousands of discriminating Hams who take pride in owning the very finest!

You can get yours from Harrison for

ONLY \$79 A MONTH.

(Your trade-in and down payment totalling more than \$199 and the low finance charge will make the monthly payments even smaller!) Let's talk it over, now, so you can start living it up, while you're still young enough to enjoy it!

KWS-1



The world-famous HARRISON TRADE-IN CENTER

is the greatest! Come, pick your choice from the hundreds of like-new trade-ins, all money-saving bargain price tagged! Easy terms, trades.

OPEN WEEKDAYS,
SATURDAYS, 8:30 to 6:15

FREE PARKING

AVAILABLE IN
NEW BIG LOT
RIGHT AT OUR CORNER

HARRISON

Ham Headquarters Since 1925

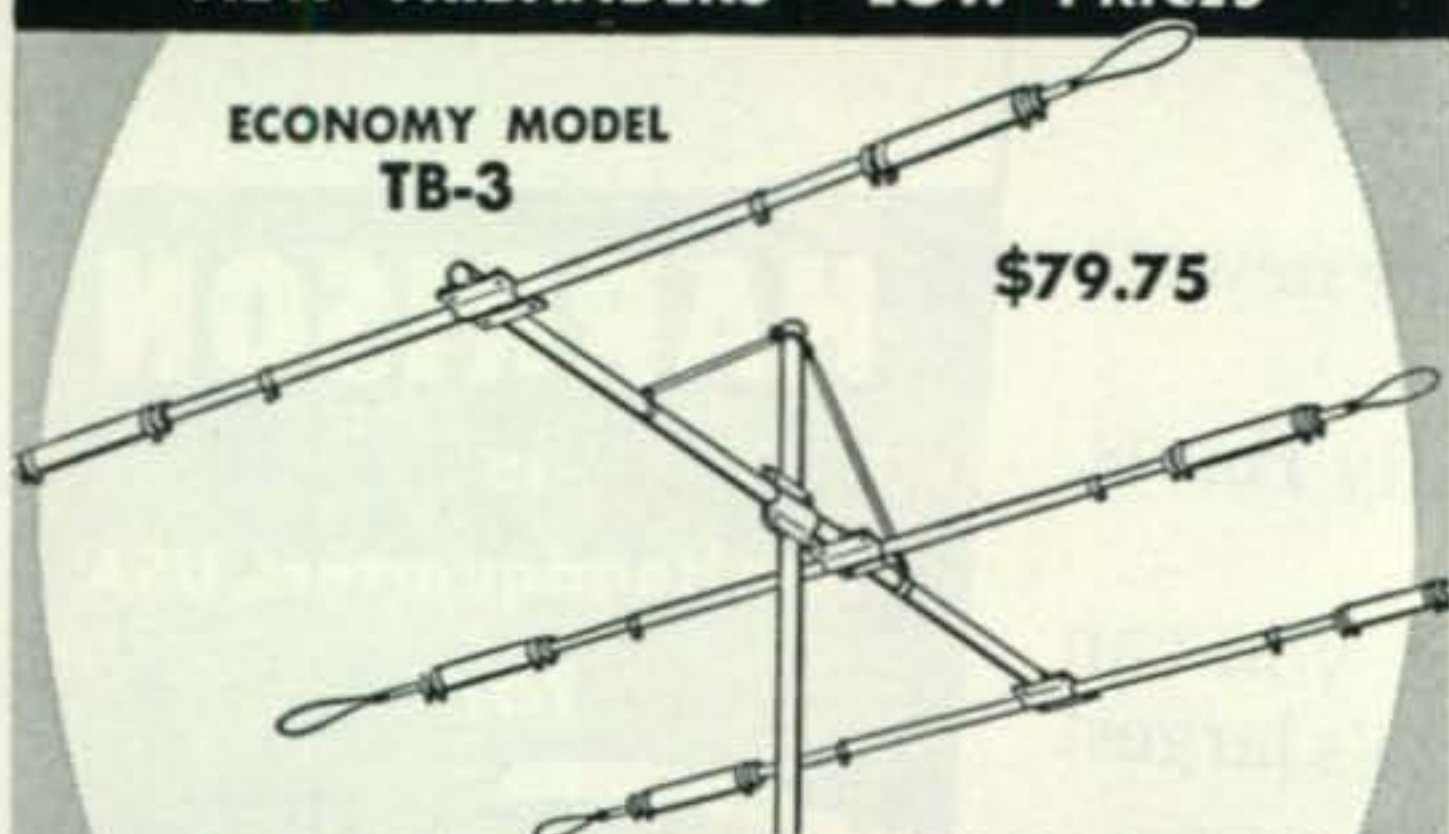
225 GREENWICH STREET
NEW YORK 7, N.Y.

PHONE ORDERS - BARCLAY 7-7777
LONG ISLAND - 144-24 Hillside Ave., Jamaica

For further information, check number 29 on page 130.

NEW TRIBANDERS — LOW PRICES

**ECONOMY MODEL
TB-3**

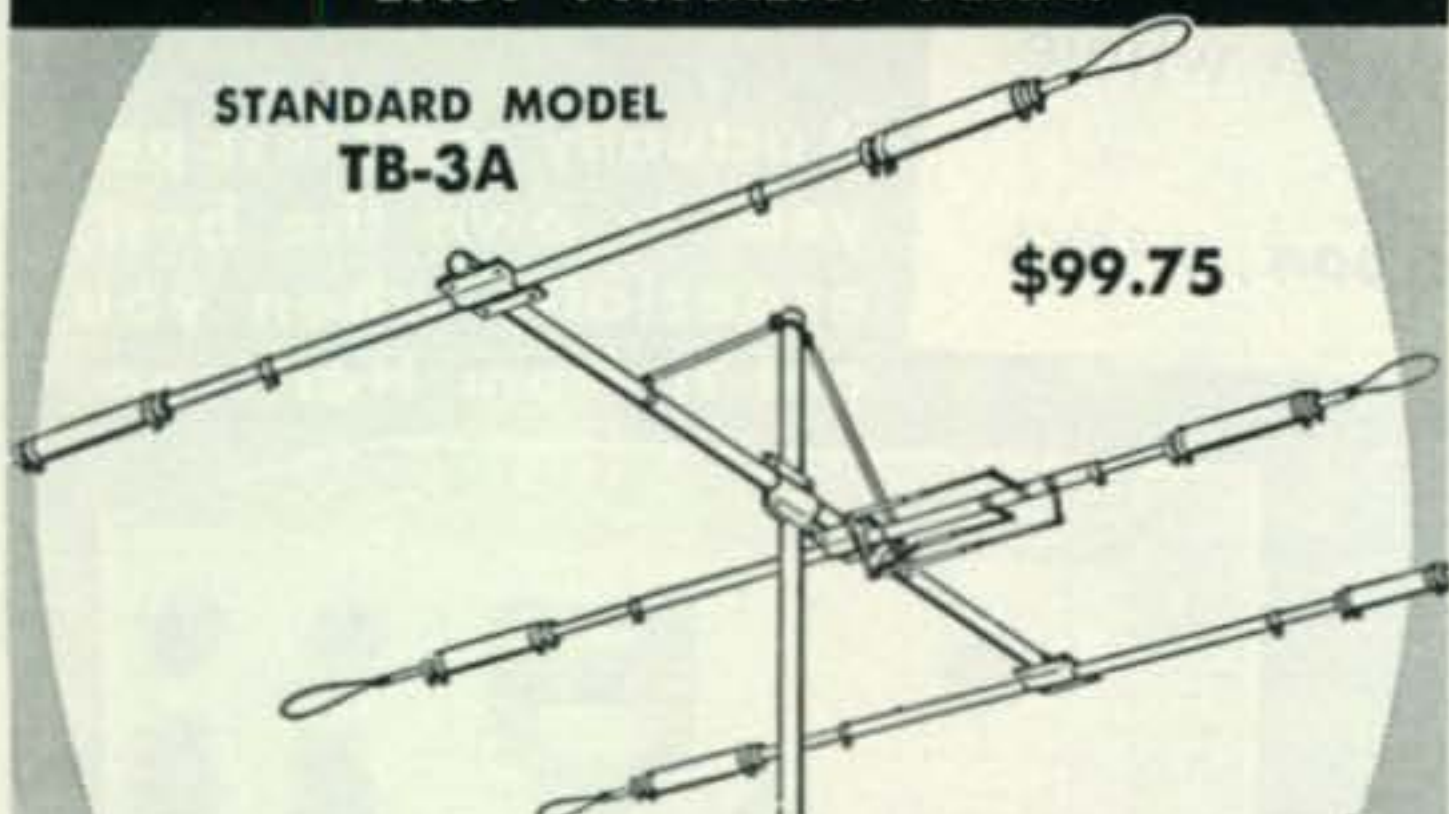


\$79.75

10-15-20 METER — FORMED ALUMINUM FITTINGS
GAIN 8db AVERAGE • F/B 25db AVERAGE
MAXIMUM SWR 1.65:1 ONE FEED LINE

EASY PAYMENT PLAN!

**STANDARD MODEL
TB-3A**

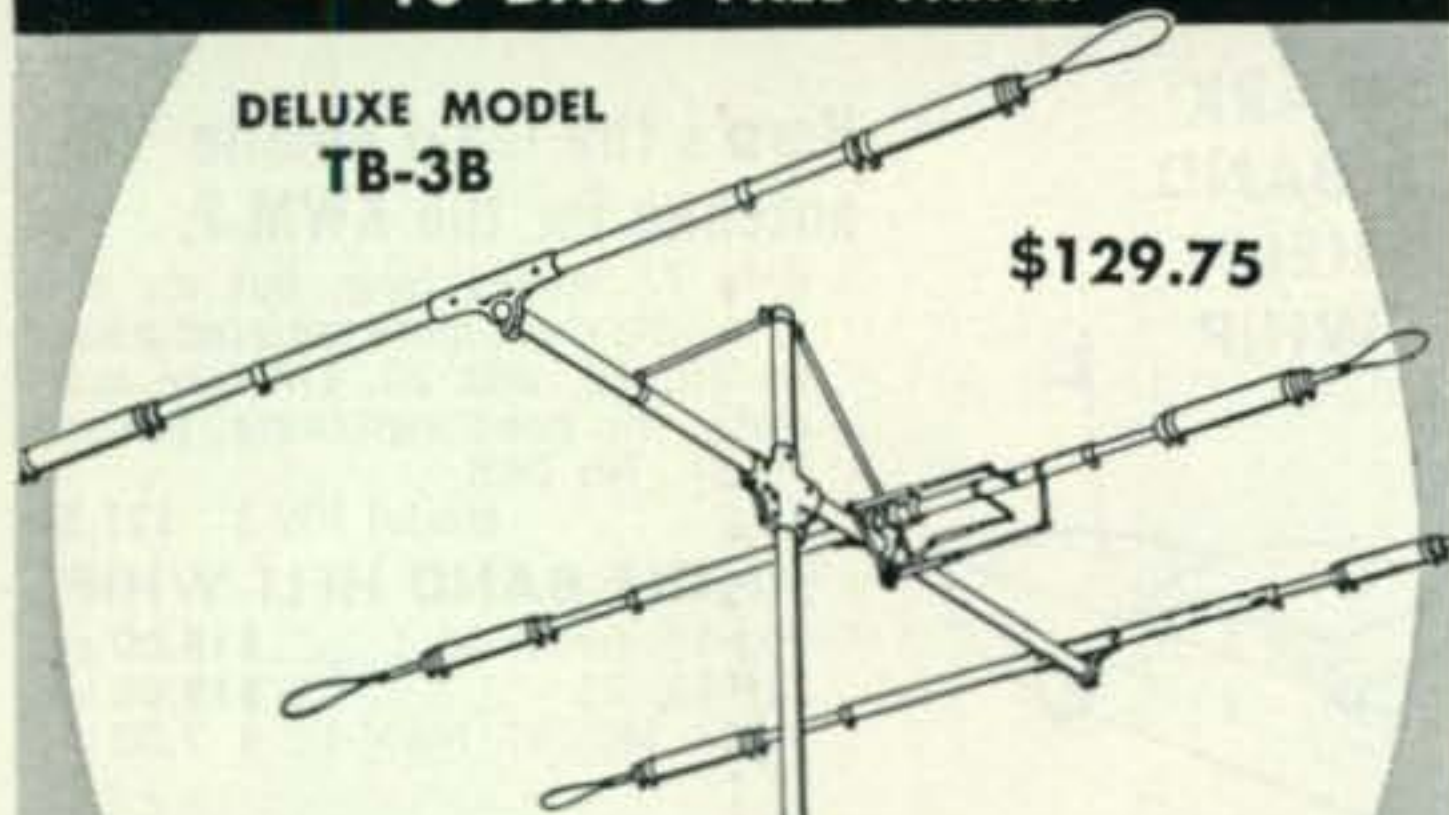


\$99.75

SAME AS ABOVE PLUS HORNET'S ADJUST-A-GAM*
FOR PERFECT 1:1 SWR.

10 DAYS FREE TRIAL!

**DELUXE MODEL
TB-3B**

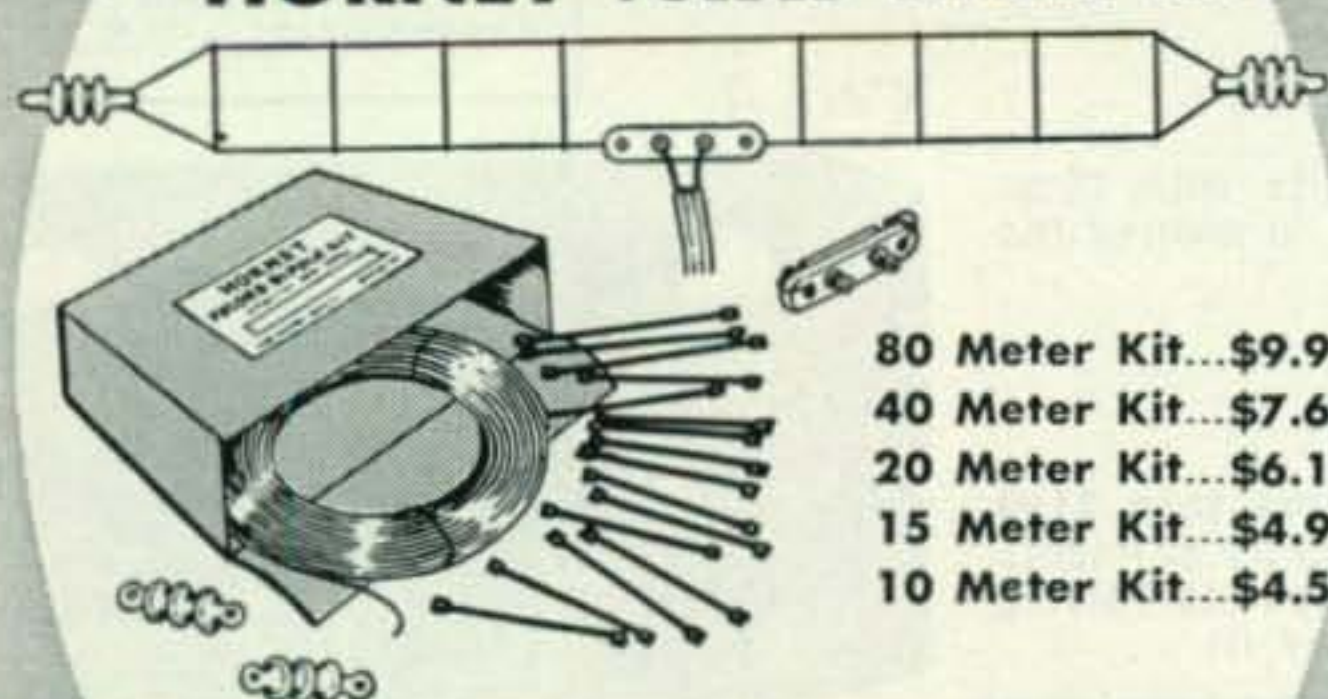


\$129.75

DELUXE MODEL WITH ADJUST-A-GAM* PLUS
HORNET'S STREAMLINED CAST ALUMINUM FITTINGS

GUARANTEED FOR ONE YEAR!

HORNET FOLDED DIPOLE KITS



- 80 Meter Kit...\$9.95
- 40 Meter Kit...\$7.65
- 20 Meter Kit...\$6.15
- 15 Meter Kit...\$4.95
- 10 Meter Kit...\$4.50

Hornet Folded Dipole Kits offer the easiest, most economical way to put up a folded dipole. Kits are available for the five lower frequency amateur bands.

WRITE FOR
**FREE
ILLUSTRATED
CATALOG**



*Pat. Pending.

P.O. BOX 808 • DUNCAN, OKLA.

For further information, check number 64 on page 130.

CONTEST RESULTS [from page 46]

U.S.S.R.—Ukraine

UB5KCE
AB 3,196 94 11 23
(University of Khorkov)

Our thanks to the following stations for sending us their logs for checking purposes. Even those from SLWs sometimes prove useful.

OCEANIA

Guam, M. I.

KG6FAE
AB 691,601 1321 76 105 D
(W4WHP—K4AQL—K4OP1—
W5RYG)

W3MDO	DL1QS
W3VD	DL4AB
W3VTH	G3EEM
W4EEO	G6XA
W3MDI/4	G13LFH
W6CTO	JA1BCQ
W6FKZ	OK1KBI
W6ICQ/6	OK3KMY
W9MUJ	PA0PLM
W9LZ	SM4ASJ
W0YPQ	SM5UU
VE1OM	SP2SJ
VE4MF	Y03FN
VE6VO	OK2-107890/-
VESOM	SWL
CX1FB	HE9EQ/SWL

NOVICE OPERATOR

KN1AOK	21.	1,152	24	5	13	B
KN5KIZ	21	2,030	23	16	19	B
KN5LMJ	21	289	13	9	8	B
KN7AHK	21	120	7	5	4	B

U S A Club Scores

North Jersey DX Assn.	3,502,080
So. California DX Club	3,134,771
Potomac Valley Radio Club	2,472,403
Ohio Valley Amateur Radio Club	1,210,211
Frankford Radio Club	786,002
Northwest Amateur Radio Club	613,584
Conn. Wireless Assn.	501,676
Greater St. Louis DX Club	396,174
Redding Radio Club	228,800
Western Washington DX Club	204,228
Rochester DX Assn.	143,741
Teenage Radio Assn.	129,764
Lake Success Radio Club	124,528
Northern California DX Club	99,318
Pembroke Radio Club	83,912
Harvard Wireless Club	68,250
New Bedford Amateur Radio Ops.	64,800
Willamette Valley DX Club Inc.	62,930
West Gulf DX Club	37,442
Central High Radio Club	34,020
Hamfester Radio Club	32,130
Swani Amateur Radio Club	20,664
Ridgewood Amateur Radio Club	19,053
Four Lakes Amateur Radio Club	5,986

Anchorage Amateur Radio Club
(Alaska) 535,053

Foreign Club Scores

Japan DX Radio Club (Japan)	473,414
Poznanski Radio Club (Poland)	226,176
Radio Society of Harron (England)	115,482
Bydogoszes (Poland)	106,392
Warsaw (Poland)	84,386
Wrockaw (Poland)	76,313
Bad Aibling Amateur Radio Club (Germany)	73,699
Gpansk (Poland)	55,024
F O C (Sweden)	51,595
Mike & Key Club (Japan)	49,712
L P Z (Poland)	44,808
Maui Amateur Radio Club (Hawaii)	43,398
Rzeszow (Poland)	41,412
District of Lubin (Poland)	40,260
Klub-W-Nowym-Bytom (Poland)	14,940
LODZ Radio Club (PZK) (Poland)	7,802
Siemen Radio Amateur Club (Germany)	5,734
DL4MSA Radio Club (Germany)	5,247
Goosebay Amateur Radio Club (Canada)	5,022
KRAKOW (Poland)	1,785

A few Phone scores that were inadvertently left out of last month's report. Sorry fellows, we goofed.

PHONE

Single Operator		Multi Operator	
PJ2AA	AB 203,263 391 59 122	CKR6AF	AB 74,576 233 52 66 B
DL4AAU	AB 68,120 262 36 68 C	(KR6BA—KR6CV—KR6JR— KR6DS)	
LA6CF	AB 416 26 4 12 B		
SP9DT	14 3,900 54 5 21 B		

NEW CALL SIGN PREFIX TO BE ASSIGNED AMATEUR STATIONS

Amateur radio station call signs having the K and W prefix available for assignment in the second and sixth call areas of the continental United States will be exhausted in a short time. The Department of the Navy does not concur in the use of "N" calls for amateur stations because of its use of such call signs for the identification of certain military reserve radio stations. Consequently, the "N" call sign block, which is the only remaining call sign block allocated internationally to the United States from which a single-letter prefix amateur call sign can be derived, is not available for assignment to amateur stations. Therefore, when single-letter K or W prefixes are no longer available for assignment in a continental call area, such as the second and sixth call areas referred to above, two-letter prefixes will be assigned in accordance with the following:

1. The WA prefix will be assigned to call amateur stations except the stations of Novice Class operators.
2. When practicable, the WN prefix will be assigned to the stations of Novice Class operators, otherwise the WV prefix will be assigned to such stations.
3. Call signs with a two-letter prefix and a two-letter suffix will not be assigned to amateur stations located in the continental United States.

THE CALL SIGN RULE AND EXAMPLES OF ITS APPLICATION

Section 12.81(a) of the Commission's Amateur Radio Service Rules provides that:

"The call signs of amateur stations will be assigned systematically by the Commission with the following exceptions:

- (1) A specific unassigned call sign may be re-assigned to the most recent holder thereof;
- (2) A specific unassigned call sign may be assigned to a previous holder if not under license during the past 5 years;
- (3) A specific unassigned call sign may be assigned to an amateur organization in memoriam to a deceased member and former holder thereof;
- (4) A specific call sign may be temporarily assigned to a station connected with an event, or events, of general public interest;
- (5) An unassigned 'two-letter call sign' (a call sign having two letters following the numeral) may be assigned to a previous holder of a two-letter call sign the prefix of which consisted of not more than a single letter."

All assignments of amateur station call signs will be strictly in accordance with Rule Section 12.81. The following requests are not deemed to be in accordance with this rule:

1. Requests specifying a certain one of the prefixes (i.e., K, W, WA) assigned in the pertinent call area; and
2. Requests for specific suffix letters, except where the entire call sign requested in accordance with Section 12.81(a)(1) or (2) is identical in prefix(s), number and suffix letters to one previously held by the applicant.

REASSIGNMENT PRACTICE REGARDING "EXPIRED" CALL SIGNS

While the established practice of assigning a call sign having the same suffix letters to the station of a Novice Class licensee who qualifies for a higher class of operator license prior to the end of his Novice license term will be continued, the call signs of other Novice licensees will be subject to immediate reassignment to other applicants upon expiration of the Novice license.

The call signs of the stations of all operator classes other than Novice will be subject to immediate reassignment to other applicants unless an application for renewal has been received at the Commission's Washington, D. C., office prior to 1 year after the expiration date.

GUARANTEED CRYSTALS!

HERMETICALLY SEALED CRYSTALS $\frac{1}{2}$ " Spac. .050 or .093

Amateur & Novice — .01% tol. ea. \$2.50
 Marine & Aircraft — .005 tol. ea. 4.10
 10 to 30 Meg. tol. .005% ea. \$3.75
 Overtones: 30 to 54 Meg. tol. .005% ea. 4.10
 54 to 75 Meg. tol. .005% ea. 4.25
 75 to 90 Meg. tol. .005% ea. 5.40

Special! FT-243 Prec. Calib. to 1st Decimal

2 Meters { Exam: *8010.6 x 18=144.190
 { Exam: *8010 x 18=144.180

Note—10 KC difference between the above

6 Meters { Exam: *8340.6 x 6=50043.6
 { Exam: *8340 x 6=50040

Note—3.6 KC difference between the above

This is a must if you want exact freq. on these 2 pop. bands.

Hermetically Sealed for new Gonset.....ea. \$2.50

Thin-Line FT-243 for new Gonset.....ea. \$1.49

Calibrated FT-243 as exam. above* spec.ea. .99

Don't take chances with uncalibrated surplus—Be sure of freq.

NOVICE BAND FT-243 Fund. or DC-34 Freq. 99c

80 Met. 3701-3748—Steps of 1 KC. FT-243 or DC-34

40 Met. 7150-7198—Steps of 1 KC. FT-243 only

Dbl. to 40 Met. 3576-3599. Steps of 1 KC. FT-243 or DC-34

15 Met. 5276-5312—Steps of 1 KC. FT-243 or DC-34

3005	3800	4900	5873	6350	6973	7350	7520	7640	7860	8090	8300	8560
3010	3885	4930	5875	6362	6975	7358	7525	7641	7866	8091	8301	8566
3015	3955	4950	5880	6373	7000	7366	7530	7650	7870	8100	8306	8570
3020	3980	4980	5892	6375	7006	7373	7533	7658	7873	8106	8316	8575
3025	3990	4995	5900	6400	7025	7375	7540	7660	7875	8108	8316	8575
3030	3995	5030	5906	6405	7040	7400	7541	7666	7880	8110	8320	8580
3035	4035	5035	5906	6406	7050	7400	7550	7670	7883	8116	8325	8583
3040	4045	5090	5925	6425	7073	7400	7558	7673	7890	8120	8330	8590
3045	4080	5127	5940	6440	7075	7406	7560	7675	7891	8125	8340	8591
3050	4095	5165	5950	6450	7100	7408	7566	7680	7900	8130	8350	8600
3055	4110	5205	5955	6473	7106	7416	7570	7683	7906	8133	8366	8603
3060	4135	5235	5973	6475	7106	7416	7570	7683	7906	8133	8366	8603
3065	4165	5245	5975	6500	7106	7416	7570	7690	7908	8140	8375	8608
3070	4175	5327	5995	6506	7106	7416	7570	7700	7916	8150	8400	8616
3075	4190	5385	6000	6525	7106	7416	7570	7706	7920	8158	8400	8620
3085	4215	5397	6006	6540	7106	7416	7570	7708	7925	8160	8408	8625
3110	4270	5435	6025	6550	7110	7420	7570	7710	7930	8163	8410	8630
3130	4255	5437	6040	6573	7116	7420	7570	7716	7933	8166	8420	8633
3135	4280	5485	6042	6575	7120	7420	7570	7720	7940	8170	8425	8640
3140	4295	5500	6050	6600	7120	7420	7570	7720	7941	8173	8430	8641
3145	4300	5545	6073	6606	7120	7420	7570	7723	7950	8175	8433	8650
3150	4330	5582	6075	6625	7120	7420	7570	7725	7958	8180	8440	8658
3155	4340	5587	6100	6640	7120	7420	7570	7725	7960	8183	8441	8660
3160	4395	5645	6106	6650	7120	7420	7570	7730	7966	8180	8450	8666
3165	4397	5640	6125	6673	7120	7420	7570	7733	7970	8191	8458	8670
3170	4445	5675	6140	6675	7120	7420	7570	7740	7973	8200	8460	8673
3175	4490	5687	6142	6700	7120	7420	7570	7741	7975	8206	8470	8675
3202	4495	5700	6150	6706	7120	7420	7570	7750	7980	8208	8473	8680
3205	4535	5706	6173	6725	7120	7420	7570	7760	7983	8210	8475	8683
3210	4540	5725	6175	6740	7120	7420	7570	7766	7990	8216	8480	8690
3220	4580	5730	6185	6750	7120	7420	7570	7780	7991	8216	8483	8691
3225	4610	5740	6200	6773	7125	7425	7573	7783	8000	8225	8490	8700
3230	4620	5750	6206	6775	7140	7433	7575	7790	8016	8233	8491	8703
3235	4635	5760	6225	6800	7150	7440	7580	7791	8020	8240	8500	8708
3240	4680	5773	6235	6806	7200	7441	7583	7800	8025	8241	8510	8710
3290	4695	5775	6240	6815	7206	7450	7590	7806	8030	8250	8508	8716
3310	4710	5780	6250	6825	7225	7458	7591	7808	8033	8258	8510	8720
3340	4735	5782	6273	6840	7240	7466	7600	7810	8040	8260	8516	8725
3410	4780	5800	6273	6850	7250	7473	7606	7820	8041	8266	8520	8730
3420	4785	5806	6275	6873	7273	7475	7608	7825	8050	8270	8525	8733
3455	4815	5820	6300	6875	7275	7483	7610	7830	8058	8273	8530	8740
3465	4820	5825	6306	6900	7300	7500	7616	7833	8066	8275	8533	8741
3485	4840	5840	6315	6906	7306	7506	7620	7840	8073	8280	8540	8745
3655	4845	5850	6325	6925	7316	7508	7625	7841	8075	8283	8541	8747
3680	4852	5852	6335	6940	7325	7510	7630	7850	8080	8290	8550	8750
3760	4860	5860	6340	6950	7340	7516	7633	7858	8083	8291	8558	8753

GOVT. STOCK FT-243 FUND. FREQ. 59c ea.

1000 KC-DC9-LM-BC 221 Std. \$6.25

FT-243—From 1005-2999. Steps of 5 KC ea. \$1.99

SPECIAL ITEMS

- FT-241 SSB. Matched Pairs..... pr. \$1.95
- FT-241 Single Side Band low frequency Crystals — 370 KC to 540 KC.....ea. 59c
- DC 34/35 from 1690 to 4440 KC.....ea. 75¢
- AN/TRC-1 FT-241 holders from 729 to 1040 KC— 1000 KC excluded..... 75¢
- FT-241 200 KC or 500 KC.....ea. \$1.00

Marine & C.A.P.—All Freq. Available
 2009—2182—2637 etc. Tol. .005% ea. \$2.99

OTHER FREQUENCIES AVAILABLE—SEND FOR CATALOG

Include 5c per crystal for postage and insurance. Calif. add 4% Tax. No. C.O.D'S. Prices subject to change. Ind. 2nd choice; substitution may be necessary. Min. Order \$2.50.

U. S. CRYSTALS, INC.

1342 So. La Brea Ave., Los Angeles 19, Calif.

For further information, check number 32 on page 130.



pi-network coils provide complete line



Model 851
\$16.50

Model 850A
\$35.00

Model 852
\$39.50

Now—Pi-Network inductors specially tailored for your needs. Here are highly-efficient, super compact tank coils incorporating the unique feature of integral band switching.

Model 850A and Model 852, now complement the famous B&W Model 851. All are designed for single or parallel tube operation on 80, 40, 20, 15, 11 or 10 meters, with top efficiency in Class "C" or linear operation. Windings give ample current carrying capacity with optimum "Q" over the entire operating range.

See these superior B&W inductors at your dealers *now*, or write B&W direct for detailed information.



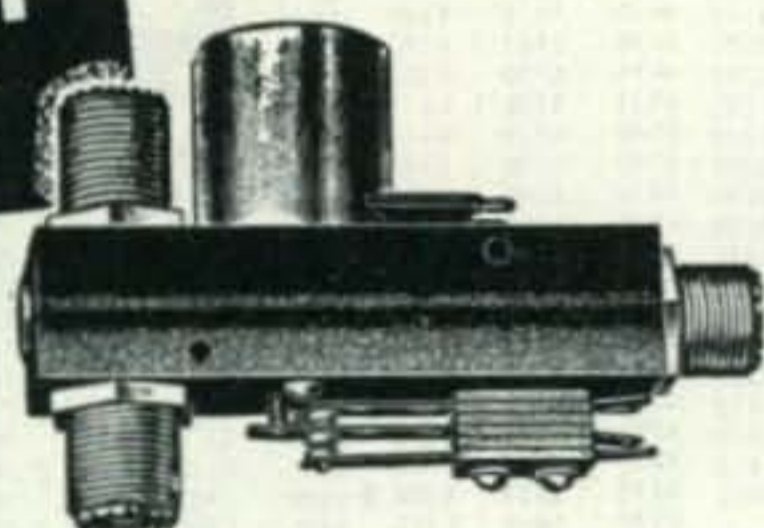
Barker & Williamson, Inc.

Canal Street & Beaver Dam Road
Bristol, Penna.

For further information, check number 33 on page 130.

SILENT Coaxial Relay

MODEL
DKC-GE



TESTED AND PROVEN BY AMATEURS AND INDUSTRIALS

New magnet principle makes high-contact pressures possible—gives a new concept of low-contact resistance. Free of AC hum or chatter, available with special receiver protecting connector and heavy-duty external SPDT switch.

One-million operations completed in life test with no apparent deterioration. Power consumption, AC models approx. four watts; DC models three watts. V.S.W.R. at 150 mc 1.1 and 1.2 at 300 mc. Coil voltages: AC 6, 12, 24, 110 and 220; DC 6, 12, 24, 48, 110 and 220. Special coil voltages available. **GUARANTEED!** Fully backed by factory warranty for unit replacement.

Price \$10.90 to \$15.65

DOUBLE MALE-CONNECTOR (DKF2) for mounting relay directly onto output of transmitter \$1.45. See your local electronic parts dealer or write direct for complete specifications.



DOW KEY CO., INC.
THIEF RIVER FALLS, MINNESOTA

For further information, check number 34 on page 130.

de W2NSD [from page 10]

power limitation already imposed there. The fellows who want to open the VHF channels want to do it with high power and big antennas. How come our representatives were not able to even salvage one megacycle for exclusive operation out of a 200 mc wide band?

Speaking of our representatives, it is rumored that they intend to, or already have, interfered with the request of the maritime mobile group in their request for permission to operate on the lower frequencies while in zone 2 waters. If so, this is unfortunate.

Gentlemen, we have just been clipped from both ends . . . be careful when you stand up.

Encouraged Amateurs

The Novice program has brought a vast number of younger fellows into the ham ranks, fellows who eventually find a couple of years of military service coming at them. Many of these men will be interested in keeping up their ham radio during their period of service, both as a way of keeping in touch with the folks at home and continuing a swell hobby.

What does the Army, Navy and Air Force hold for the enlisting ham? Some pretty good deals apparently. Rather than just give you my opinion and some hearsay, I'll ask at this time for those of you who are in the armed services to sit down and drop me a letter telling me what you think so we can have the straight dope. We'll mention no names, so let your hair down.

Naturally I have some good ideas what the answers are going to be, but I want to be absolutely sure before I start the steam flowing in the Pentagon. Does anybody out there need an ex-magazine editor?

QST? CQ!

All sorts of things arrive in the mail . . . I never know what may turn up next. This time it was a new official listing of changes in "Q" code abbreviations, Article 29, Section I, etc., etc., etc. According to this "QST" now means, "What other units are taking part in the operation?"

Selling Ham Radio

Treasure Chest comic books have been running a series on ham radio. If your child attends a parochial school perhaps he has been reading this series. Treasure Chest is published every two weeks during the school year and is distributed through teachers in parochial schools and religious classes. Hero is a ham and the villain is a father who won't (the scoundrel) let his boy get a ham ticket. Ham radio wins in the end, naturally.

. . . de Wayne, W2NSD/AF2NSD/K2PMM/KC4AF/XEØNSD/FO8AS.

be varied. The resistor R-14 will have to be set on the initial adjustment. The adjustment is such to make the relay function and then it should be left alone. With the voltages given, 15,000 ohms comes out about right. At 20,000 ohms the relay will close too weakly.

Note that contacts 5 and 7 of the relay open and close the plate and screen voltage of the 6AG7 oscillator. Make sure that the screen is broken or the oscillator will not completely cut off. Terminal 2 and 3 open and close the r-f circuits of the NC-300 or HQ129x receivers or others using the same receiver keying system which mutes the receiver. The potentiometer R-15 is adjusted for proper monitoring of the transmitter signal when the contact opens during transmission. The author uses as mentioned before a TR switch and only one relay was used. If an antenna relay is desired it could be made to work as explained.

This system of break in operation is the most foolproof of any method the author has tried. Operating on cw is much more enjoyable when no switches of any kind have to be thrown. The whole operation is controlled by just pressing the key. After a slight pause the receiver is on and you can monitor the breaking station or see if the DX station is CQ'ing again. The 6AG7 crystal oscillator and 807 stages are only shown for reference, hook up. ■

HAMS, CAP, CD—LOOK!

THIS IS YOUR CHANCE TO SET UP THAT LONG-AWAITED STATION ON 2 METERS AT HOME OR IN YOUR CAR FOR A LOW, LOW PRICE. NOW YOU CAN AFFORD TO GET IN ON THOSE NETS! WE ARE OFFERING TO YOU A COMPLETE SYSTEM OF SCR-522-C VHF TRANS./REC., 4 REMOTE XTAL-CHAN, 100-156 MC. NO CONVERSION IS REQUIRED FOR TWO METERS. EXCELLENT FOR MOBILE.

Transmitter is model "AM" and is LATEST model trans. of SCR-522, and it features AM VOICE MODULATION and a feedback circuit for TONE-MODULATED CODE.

Receiver is model "C" and is LATEST model of SCR-522 Rec., and it features ELECTRONIC SQUELCH, CASCADE AVC system, adjustable NOISE LIMITER, and Rec. is easily converted to continuous tuning.

COMBINATION PRICE FOR COMPLETE TRANS./REC. WITH ALL TUBES, METAL RACK AND CASE, AND LORD SHOCK MOUNT, 28V DYNAMOTOR AND LORD SHOCK MOUNT, FREQUENCY SELECTOR, MICROPHONE ADAPTER FOR CARBON MIKES, ALL INTERCONNECTING PLUGS, IN EXCELLENT LIKE NEW CONDITION AND WITH COMPLETE INSTRUCTIONS AND COVERSION INFO FOR CONTINUOUS TUNING IS ONLY **33.95**

Transmitter only with all tubes and shifters..... \$19.95.

Receiver only with all tubes and shifters..... \$15.95.

PRICES F.O.B. TUCSON, ARIZ.
25% DEP. ON C.O.D.

PACIFIC COMMUNICATIONS CO.
P.O. BOX 5661-C, TUCSON, ARIZ.

For further information, check number 67 on page 130.

ASSEMBLE YOUR OWN WALKIE-TALKIE RADIOPHONES

General specifications applying to all models:

Highest quality workmanship and materials, silver plated coils, ceramic capacitors and advanced design assures maximum performance with the longest battery life. Sensitive receivers can detect signals as small as one microvolt and feature automatic volume control and noise clipping. Transmitters use high level amplitude modulation, have a power input of one watt to the R.F. stage and will radiate a signal for 1 to 5 miles (depending on obstructions) using antennas supplied. Up to 40 miles have been reported by some of our customers when communicating with stations having directional beam antennas. Radiophones can be used singularly to communicate with fixed stations or two or more to communicate with each other providing they are for the same frequency band. Fully portable, no external connections needed. Uses standard radio and flashlight batteries available at your local store. Total weight of completed unit including all accessories is less than 5½ lbs.

Model TC-144. Meets FCC requirements for general class amateur license. No minimum age requirement. Variable frequency transceiver circuit. Tunes from 144 to 148 mc. Wired, tested and guaranteed electronic chassis complete with two high frequency triodes (3A5)..... **\$7.98**

Model TR-144. Similar to above but with independently tuned receiver and transmitter circuits, using 4 high frequency triodes (2-3A5's). Permits receiving frequency to be changed without affecting transmitting frequency..... **\$11.98**

Model TRX-50. Crystal controlled transmitter and variable frequency receiver with R.F. stage. Tunable from 50 to 54 mc. Meets FCC requirements for general and technician class amateur licenses as well as for civil defense and other special services. Wired, tested and guaranteed electronic chassis complete with six high frequency triodes. (3-3A5's) **\$16.98**

Model TRX-50-A. Similar to above but with transistorized audio booster stage for extra loud reception..... **\$18.98**



for as little as

\$7.98

plus accessories

NOW 4 MODELS TO CHOOSE FROM
IMPROVED CIRCUITS
GREATER POWER
TRANSISTORIZED

The following accessories are required to complete the walkie-talkie as illustrated:

Strong 16 gauge 8" x 5" x 3" aluminum case satin etched and anodized with all holes punched for quick assembly. Heavy duty battery holders with phosphor-bronze contacts, battery switch, telephone handset cradle, retractable coiled cord, adjustable shoulder strap, 18" or 24" antenna with loading coil (depending on frequency) and necessary hardware. All for only **\$9.98**
Western Electric telephone handset with push-to-talk switch **\$6.98**
Handset similar to above but used surplus..... **\$3.98**
Input and output impedance matching transformers for either of the above handsets. Both for..... **\$1.98**
Very active quartz transmitting crystal for models TRX-50 and TRX-50-A ground to .01% of your desired frequency and hermetically sealed..... **\$3.98**

How to Order: If your dealer cannot supply you with our products you may order direct from our factory by checking each item desired and ADD 5% of total for postage and insurance. Orders not paid in full will be sent COD for the balance due. COD orders must include \$3.00 deposit. All orders immediately acknowledged.

Dealer inquiries invited.

FREE power output indicator kit with each order over \$20.00.

Manufacturing division
SPRINGFIELD ENTERPRISES
Box 54-C6, Springfield Gardens 13, N. Y.

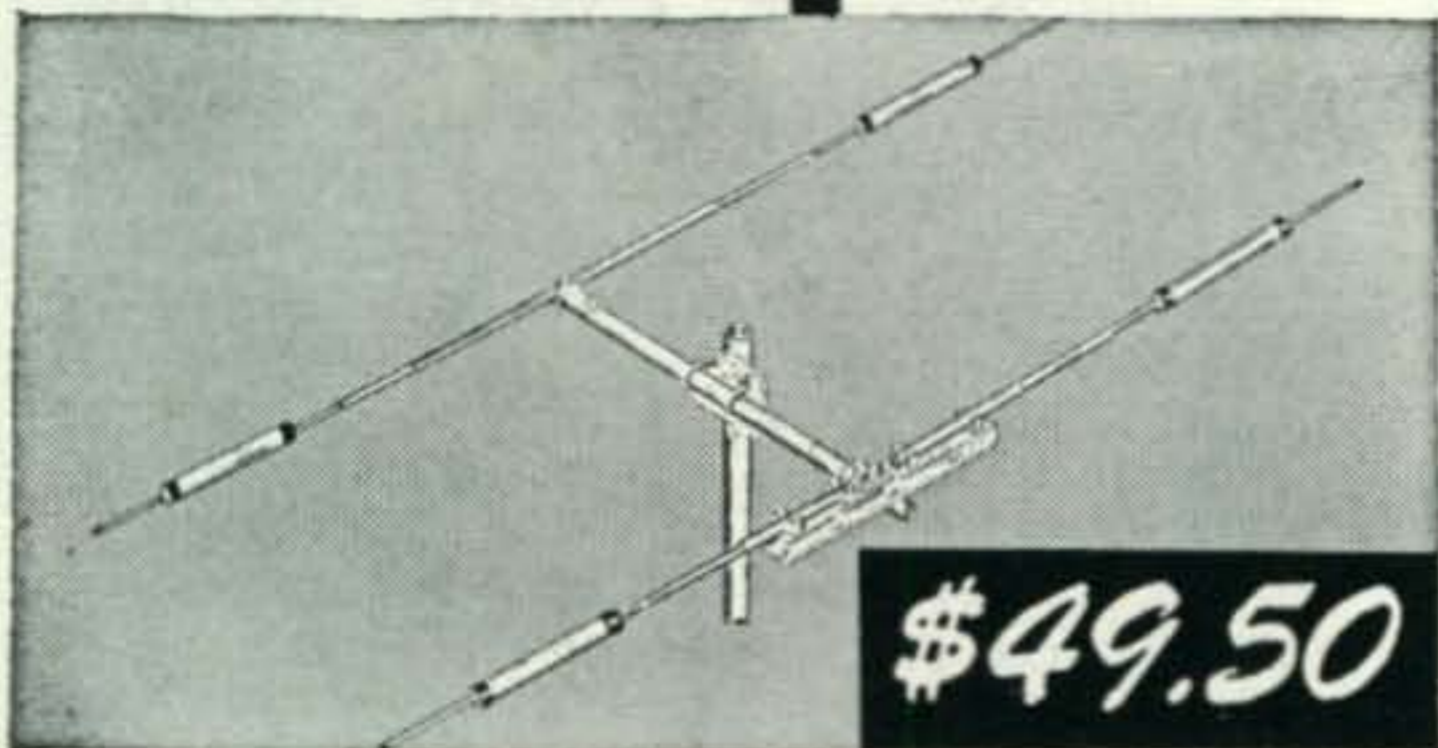
For further information, check number 35 on page 130.

"Hey Hams! "Trap-Master JUNIOR'S" here!"

NEW

Model TA-32 "JR."

Designed specifically for low and medium power transmitters... 300 watts or less!



\$49.50

Also: Model TA-33 "Jr." (3 el.) \$69.50

3 Bands, 10-15-20

Gain 5.5db, F-B 20db, SWR 1.5/1

Max. element length 24 ft.

Aluminum construction

Boom 6 ft.

For complete information, write for Catalog H-58.

Mosley Electronics, Inc.

8622 ST. CHARLES ROCK ROAD, ST. LOUIS 14, MISSOURI

For further information, check number 37 on page 130.



6 3/4" Wide,
4" High,
and 3 3/4" Deep.

the **WACOM**



6-METER TRANSMITTER

- "Flip-Top" for easy adjustment
- 6 or 12 volts, operated mobile
- Full AM plate modulation
- Carbon mike input, equipped for push to talk
- 250v. 100ma. for 6-watt output
- Uses dynamotor, vibrator or AC
- Convenient metering points
- Octal power plug

*In kit form ready for assembly
— with wiring instructions**

Less tubes and crystal* **\$23.50

Send Cash, Check or Money Order to:

WACO COMMUNICATIONS, INC.

1213 CLAY • WACO, TEXAS

For further information, check number 38 on page 130.

CERTIFICATE SEEKERS [from page 57]

land, Jamtland, Vasterbotten, Norrbotten.

Switzerland — The 3 members of the Keel family (HB9P, HB9PU and ex-CN8ML) recognize those who have made radio contact with all of their group since March 1, 1946 by granting a special "WAK" certificate. The first amateur in each country to achieve such contact will also receive a Swiss watch. Application may be made thru Dr. C. G. Keel, HB9P, 30 Bannwartweg, Basle, Switzerland.

Union of South Africa—Thanks to ZS4MG comes announcement of the Kroonstad Radio Club award for working specified numbers of amateurs in that city. Other ZS stations must contact 5, hams in OQ5, VQ2, ZE, CR6 and CR7 must work 3 and all others need work but 2 Kroonstad stations to qualify. No QSLs from Kroonstad amateurs are needed, but in all cases the Kroonstad stations must be in receipt of the applicant's card and thereby logs will be checked. A fee of 1 shilling or 3 reply coupons must be sent to ZS4MG, P.O. Box 325, Kroonstad, U. of South Africa. Active ZS4's in the area include: AA, BH, BN, CO, HN, IO, JB, JC, JL, MG and VR.

Yugoslavia — Word relayed by W4ML says that the S.R.J. of Yugoslavia disclaims any connection with a "YU-100" certificate, mentioned in our last assemblage of such data. ■

KC4AF [from page 121]

All of us wish to thank the companies that helped our expedition along with loaned equipment. In addition to the two Tele-Vue towers already mentioned which were donated, there was a tri-bander beam by Mosley on loan, the Onan generator on loan from the Cincinnati Electrical Equipment Company (We've never had any success in getting an Onan directly from the manufacturer), several hundred feet of heavy duty power cord plus guy gires and other miscellaneous wire from the Mytronic Corporation of Cincinnati, an excellent six meter converter loaned by Tapetone, two six meter Communicators loaned by Gonset (we listened and called on six dozens of times, but never heard a whisper . . . guess conditions weren't right), a tri-band beam loaned by Hy-Gain plus a special beam made for us that unfortunately never made the trip (I hope Don will explain some of the snafu details of the equipment procurement of this trip in his column . . . there were beams and towers spread all over the southern states that were scheduled for the trip).

Results

Looking back on it we are all well satisfied. Over 7000 contacts were made in the four days of operating. Over 75 countries were worked, including JT1AA. It was indeed a very successful DXpedition. Just don't forget those donations, eh? ■

A HAM'S DREAM COME TRUE!

3 BEAMS FOR THE PRICE OF ONE The SKYLANE Cubical Quad

10-15-20 meters

- ★ 8 db gain on 20.
- ★ 10 db gain on 10 and 15.
- ★ 20 db or better F/B Ratio.
- ★ Pretuned reflector coils.
No adjustment required.
- ★ Cast aluminum alloy end and center spiders
for perfect alignment.
- ★ Minimum wind resistance.
- ★ Turn with a T.V. rotator
wt. 23 lbs.
- ★ No field distortion.

Hams the world over praise the SKYLANE.

Send for free brochure.

SURPLUS [from page 69]

have him order it if he doesn't have it in stock. Another good trick is the one used in the ARB conversion that is shown this month. On twenty-four volt equipment the use of six volt tubes in place of the twelve volt ones will allow the use of the equipment with the new twelve volt systems of our late model cars. Then only the B-plus need be added, and this can be obtained by the use of the transistor power supplies available.

A lot of surplus is available in Europe and at decent prices — including transportation and duty. We are currently planning a round-up of this equipment for *CQ* readers and much credit will go to our new Overseas Publications Editor, Tom Aalund K2VBI, who speaks about six or seven languages and manages to keep me informed about overseas news. He dug up one nice six meter transceiver with wave-meter ready to go for about twenty dollars in the USA but more about that later.

Not too much in the way of handbook requests have been received this month, but Bill Head, 101 King Phillips Ave., Bristol, R. I. is looking for an RAL-6 handbook, while W8SNI has a Link 205-ED-3 and a 25 UEM ED 2 with

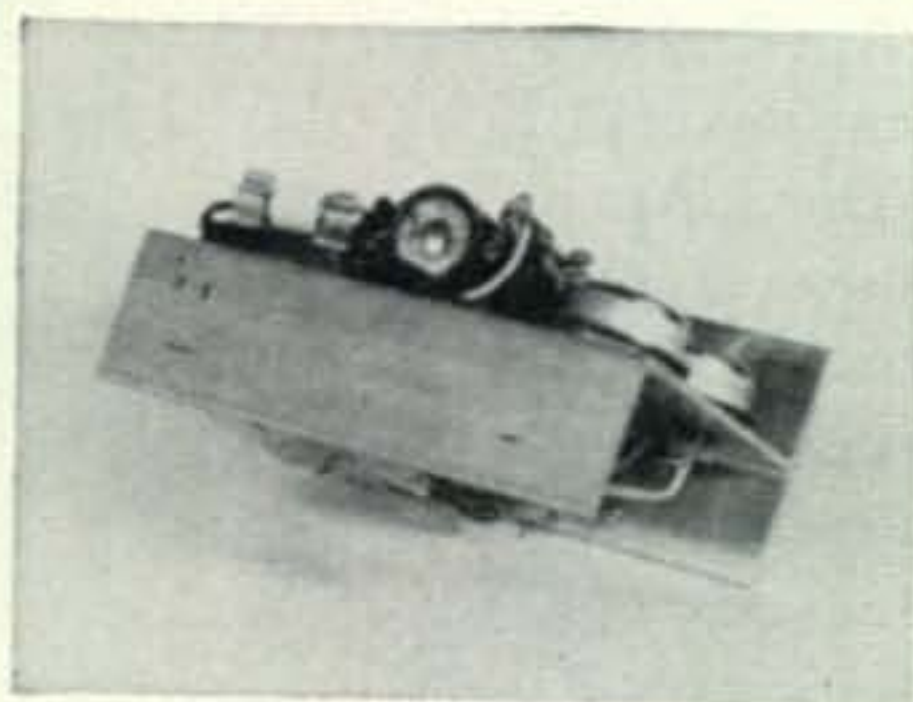


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True or False

1. Subscribing to CQ makes the editor rich.
2. Subscribing to CQ saves me all sorts of money.
3. CQ carries more pages of construction articles than any other ham magazine.
4. CQ is run by real live on-the-air hams.
5. A Porsche placed second at Sebring this year.
6. Alexander the Great's horse was named Bucephalous.

Answers: 1) False, CQ gets about the same

money whether you subscribe or buy from the newsstand, the only difference is that you save the profit of the newsdealer and distributor and we get a bigger subscription list to show to our advertisers. 2) Yup. You save \$2.50 over the one year newsstand price, \$6.00 over the two year cost. 3) Natch. 4) No other magazine can make this claim. 5) Wrongo, it was third overall and first in its class. 6) Right. Now fill out the blank below.

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For further information, check number 66 on page 130.

114 • CQ • June, 1958

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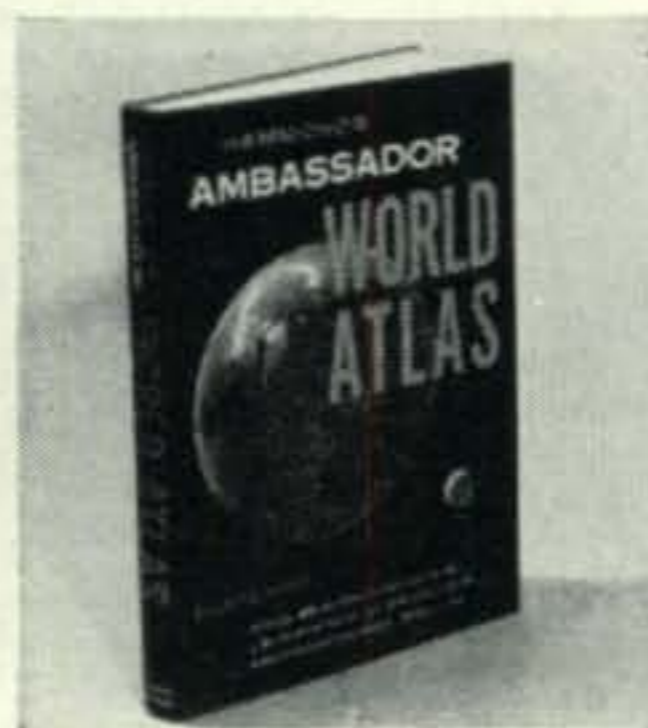
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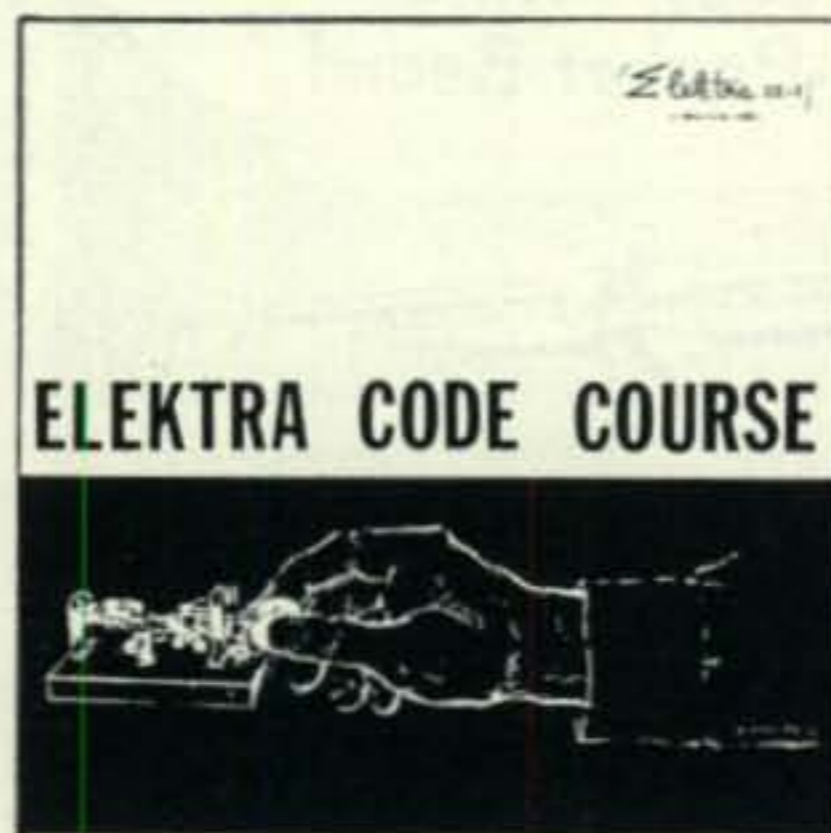
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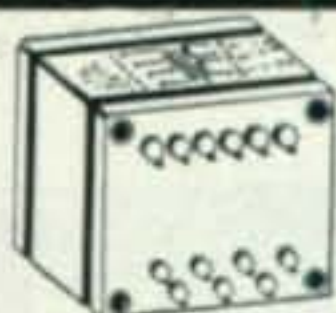
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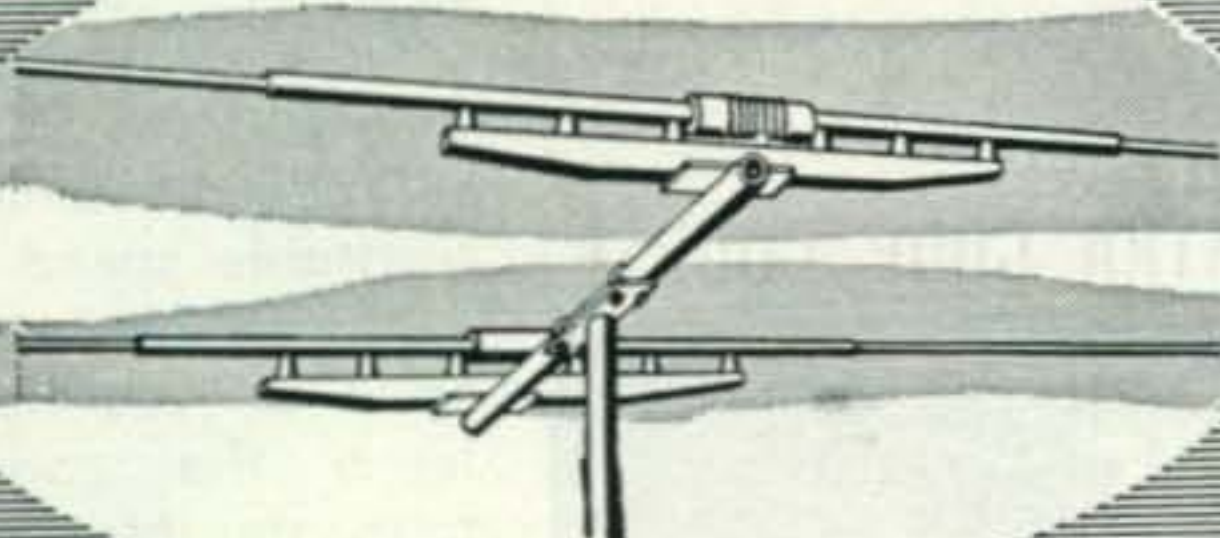
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CLUB BULLETINS

by **MARVIN D. LIPTON, VE3DQX**

311 Rosemary Road, Toronto 10, Ontario, Canada

Each month the Atlanta Radio Club Inc., of Atlanta, Ga., sends its official bulletin, THE ATLANTA HAM, to 400 interested parties. The "one-time" 2 page publication has increased six fold and now encompasses 6 departments which serve YL, DX, Teenage, Mobile, CD, and VHF interests. The staff of 7 is headed by Jeff Jacobs, K4KRR, who edits the paper. The first copy of THE ATLANTA HAM was mimeographed in 1947, and since then the club monthly has been edited by Warren W4HDC, (now K6JFX), Gene W4KFL, and Bob Keegan W4ZXE, who preceded the present editor, Jeff. The "HAM" is one of the few club papers printed on an offset press. In the News section of this publication, one can find items related to events of neighboring clubs. The other radio clubs of Georgia must find this co-operation most stimulating. The folks behind THE ATLANTA HAM are to be congratulated for the true ham spirit exhibited in their paper, and to these OM's and YL's our best wishes for continued success.

It always gives us pleasure to welcome new members into our news service. This month we are proud to announce that the following club journals have joined us and will receive our news release, CQ NEWS: NORTH HILLS RADIO CLUB NEWS, North Hills, R.C., CRAY VALLEY R.C. MONTHLY NEWS-LETTER, Cray Valley R.C., London, England, CQ2U2, Key & Mike A.R.C., SCAN, Saint Clair A.R.C. Inc., OSCILLATOR, Associated R.A. of Long Beach, and HAM TRIX, West Allis R.A.C. Inc.

The SHORT SKIP RADIO CLUB BULLETIN, Short Skip R.C., and HARC NEWS, Houston A.R.C. recently celebrated their third anniversary. The latter of the two is our biggest member with a circulation of 2500 each month. Our congratulations to both of these members.

RF, which used to be sponsored by the Calgary Amateur Radio Ass'n is now published by the RF Propagation Soc. of Canada. The METRO MODULATOR, Metro A.R.C., is now being put out by Al, VE3DSM, Lee, VE3CDX, and Bruce, VE3CLV.

We were sorry to learn that the SIOUX-LAND HAM, Sioux City Iowa, is now defunct. It seems that the editor, WØAF, was too busy to maintain the paper and no one else could be recruited.

Here we are at the end for one more month. If your radio club is contemplating putting out a bulletin we may be of some assistance to you. If you run up against a problem don't hesitate to write us. If we can't personally help you, one of the dozens of our associated editors is bound to lend a hand.

73, Marv. VE3DQX

RTTY [from page 74]

Riley, W4RHH, the SCM of North Carolina, found that just a few drops of oil on the felt clutches of his Model 15 cured his mis-printing difficulty. Riley also reports the organization of an RTTY Society of North Carolina. (Be sure to incorporate, OM!)

W6VXN now has an AN/FGC-1X, too. Say, how many of you fellows have these? Mine has serial number 76. What's yours? W5TYI in Alice, Texas, has the matching AN/FRR-3 diversity receivers.

Bob Weitbrecht, W9TCJ, has moved back to California and is back on RTTY with his old call, W6NRM, from Sierra Madre. Bob is a remote control bug like W6CQK and has been getting his head together with Jack's for a new remote California Kilowatt.

Comments

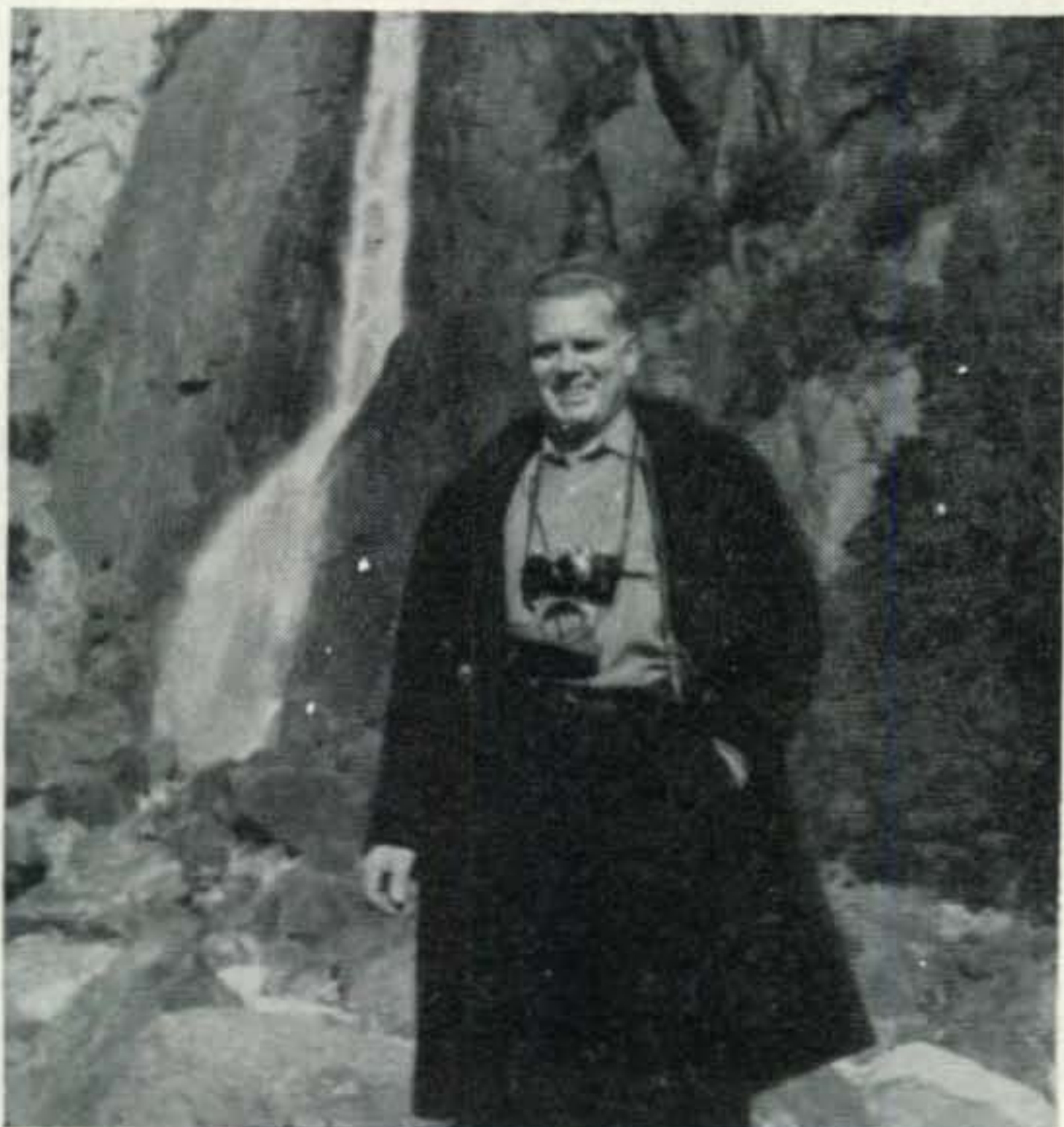
The mail bag is indeed running over these days; and I don't mean just mine alone. A very special vote of thanks should go to those unsung RTTYers, those experts in the mechanical functioning of machines, who have quietly extended a helping hand, not just through the mail, but many times in person as well. Of course we can't name them all because we don't know them all, but some of the better known ones are W3CRO Dick Urian, W6AEE Merrill Swan, W7HRC Harold Wade, and Ray Morrison W9GRW.

In the "things-to-come" department, keep your eyes on the RTTY column in *CQ* for the technical details on an improved tuning indicator for RTTY, and a transistorized distortion generator.

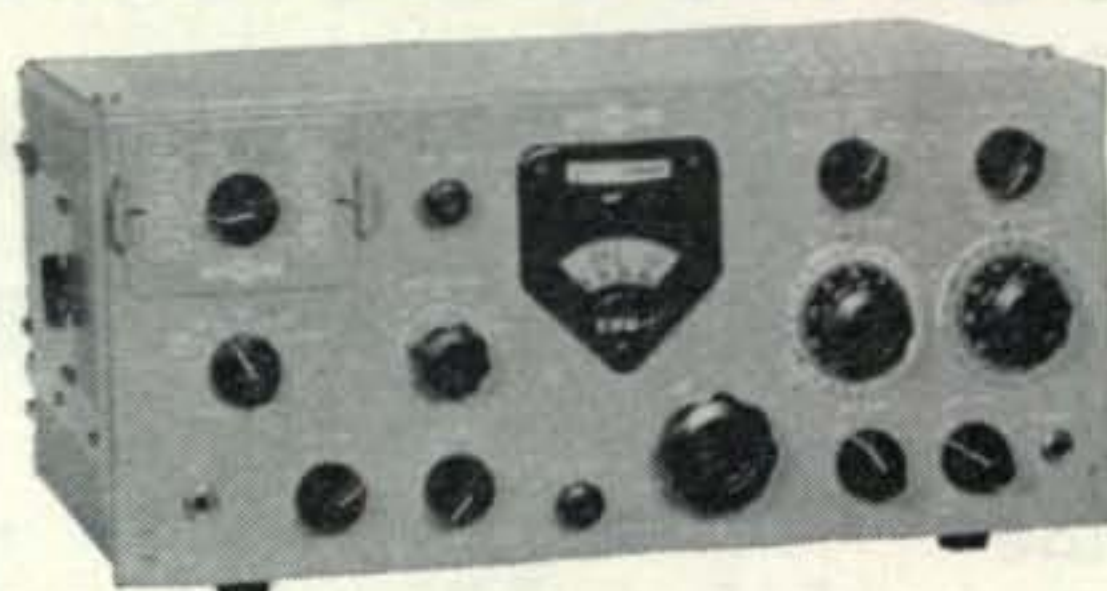
73, Byron, W2JTP

CQ WHO'S WHO . . .

Don Chesser, W4KVX poses for a snapshot during a quickie trip to Yosemite, a short distance from the DX Conference.



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KC4AF [from page 37]

SSB I had had a clear channel and been calling CQ for an hour without more than a dozen replies. Reports from all over the world were good, but it seemed as if everyone interested had already been contacted. Most of the fellows calling in said that they had already been logged by me and were just calling to say hello again. I muttered under my breath and crossed them off the "contest" log and called more CQ's. A hurried check of the logs showed that we had made over 7000 contacts during our four days on the air . . . how much could there be left to work? OK, to heck with it . . . let's pack and head home. Later, in retrospect, we decided that the "leak" emergency of Bill's was largely imaginary and was prompted more by his boredom parked over at Haiti than by any danger to the boat.

Once the decision had been made we turned off one station and started packing things for the return to the ship. Don headed for the other station and announced that he would keep it on the air until the last moment while the rest of us packed up everything else and got it back on the boat. We looked at each other for a couple of minutes . . . remembering the incredible job we had getting everything on the island . . . and, with a nod of assent from Jake, Dale, Red and Frank, I trotted down to the generator. As I pushed the "stop" button I waited for the explosion. I hadn't long to wait. Don came charging down over the hill. I'll spare you the gory details . . . it was two days before Don would speak to me again.

By eleven o'clock everything was back aboard, the Haitian boat was tied a hundred feet astern, and we were on our way back to Cape Dame Marie to drop them off. As we got out to the windward of Navassa we hit the heavy seas again and most of us hit the sack rather than fight to sit or stand up. Jake, thank Heavens, sat aft and watched the Haitian boat. About two hours out we were all shaken awake by Jake yelling, "Man Overboard." I bounced out on the deck ready to go over the side if the fellow needed any help. Bill swung the *Empress* around and about 10 minutes later we came upon the skipper of the Haitian boat swimming our way through the mountainous waves.

Jake had just happened to be watching when a particularly big wave hit the small boat and flipped the fellow out . . . he had been steering at the time. We never would have heard the other two calling to us about it so it was darned lucky that Jake was there with his eyes open. I hate to think what would have happened if we had come back with only two Haitians. We'd probably still be locked up there.

That's about it on the exciting part of the expedition. We made Haiti that afternoon, paid off the Haitians, and headed out again immediately for Port-Au-Prince. Jake and I left the *Empress* there and flew back, while Don and the others continued on to Nassau with the equipment.

Equipment

Neglecting all other facets of DXpeditions, they do make an excellent testing ground for new pieces of equipment. Since they are used under difficult conditions, usually on a 24 hour-per day basis, you can get a good idea of the stamina of the units.

In this expedition the equipment had to withstand extremely destructive circumstances. First, it was thoroughly shaken down on a 1500 to 2000 mile ride in the back of a station wagon or car. Then it was left sitting in the car in the hot sun of Florida and baked. Next it was unloaded a couple of times and wrestled aboard a small freighter. Then it was unloaded on the dock at Nassau and piled into a heap there for a few hours. Later it was quickly thrown aboard our charter vessel, with some units being stored on the open deck, covered a bit by a tent thrown over the top of the pile. The other units were stored in the cabins below, but were subjected to just about 100% humidity and high heat for the week of the trip to Navassa. During heavy weather waves broke over the deck and salt water got through everything topside and dribbled down into the cabins, splattering everything.

Then came the trans-shipment to the island via the small Haitian boat where everything was again salt splattered, shaken up, broiled, and bounced around. Once on the island the equipment was set up and turned on . . . to be left running for five days straight.

With all this mayhem, here is how things survived. We had one Hallicrafters HT-32 transmitter which was loaned to the Ohio Valley club for the 1957 trip to Grand Cayman Island plus a second one bought by one of the club members more recently. Along about four in the morning of the third day the older HT-32 blew its fuse and expired. A quick check showed that the 5U4 rectifier had blown its lid. Closer inspection revealed a brown arc spot between the filament pin and ground on the tube socket. This was scraped with a knife, a new 5U4 was installed and the fuse replaced: no more trouble. Chalk one up to salt air and dampness. Outside of that and a little difficulty in loading a long wire on 80 meters (which was cured by the Harvey Wells Z-Match) the HT-32 did magnificently. Reports were excellent on CW, AM and SSB. The rig was very easy to tune and shift from one band to another and it made an ideal unit for the expedition, if a bit heavy for wrestling around in a small boat.

The new Drake 1-A Sideband Receiver was lauded by all operators. It turned out to be absolutely great for tuning both CW and sideband. True, it didn't have quite the bandspread of a Collins 75A4 . . . but then it cost only a fraction of the price. Difficulty was encountered when operation of both stations was attempted on the same band for then the Drake

[More on page 120]

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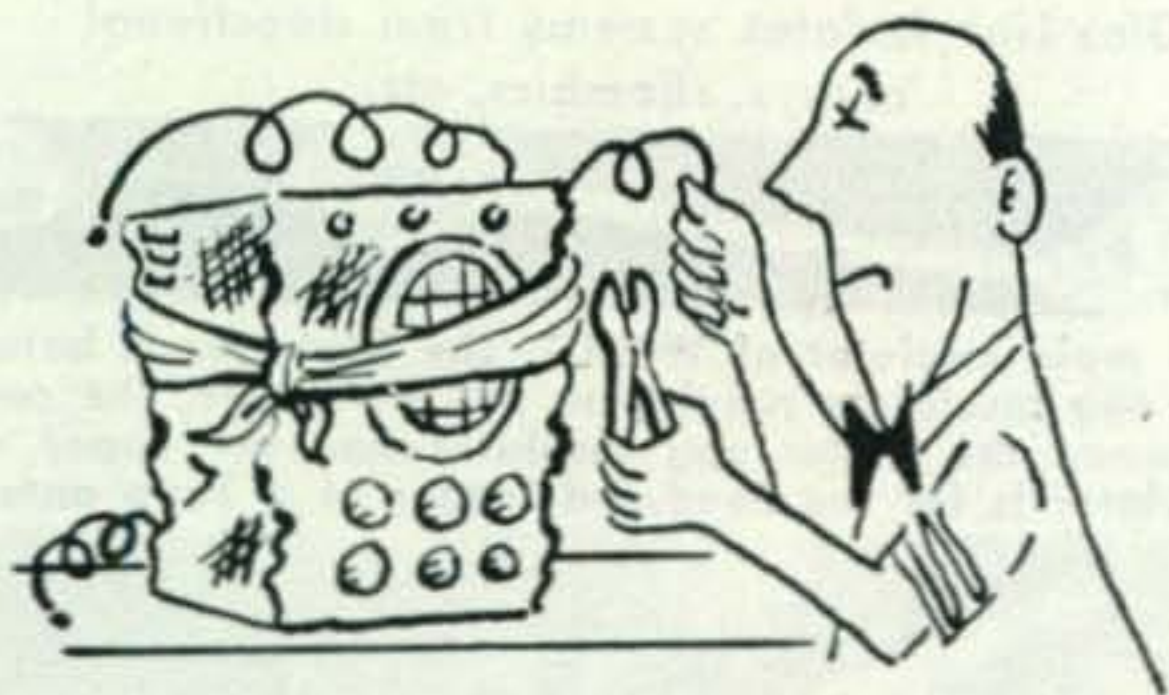
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For further information, check number 50 on page 130.

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SPERA Electronic Supply

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- Here's \$3.50 plus postage to cover cost of
my 1958 MASTER Catalog — weight 7½ lbs.
(ALSO SEND ME FREE TRANSISTOR BOOKLET.)

KC4AF [from page 119]

would block and necessitate the throwing of the "Attenuate switch" on the back which would knock down not only the interfering signal, but all incoming signals since it put a low resistance across the antenna input. Two breakdowns hit the Drake. The first came during a short rain (the receiver was uncovered) when water shorted several tube pins to ground. This was cured by removing the receiver and wiping all the tube sockets and bases dry. The second disaster hit at about four in the morning, as with the HT-32, and turned out to be an open cathode bypass condenser in the audio output stage. Troubleshooting was difficult since we had absolutely no test equipment or spare parts. How six supposedly intelligent hams can hit a desert island for a week's radioing without even a volt-ohmmeter or a spare condenser is something I'll never understand.

Fortunately we had a code monitor along which wouldn't work and we ripped out the filter condenser from it for the Drake and were back in business.

Note to future expeditioners: take along a few spares, test equipment, and instruction books. We left the HT-32 and Drake instruction books on the boat.

The Onan generator worked fine as did the Bendix. Now and then we would lean up on the oil in the Bendix gas and the motor would cough to a cranky halt. A shot of pure oil had it perking again each time.

The Tele-Vue towers turned out to be worth all the trouble. True, they were a little bulky, but they were fairly light and presented no problems in getting up on the island. Once there they went up in a matter of minutes and gave us a fine crank-up 40 foot platform for our beam and doublets.

The Mosley tri-bander beam gave us extremely loud reports world-wide even though parts of it had spent one night under water. Beams are a little difficult to cart around, but they sure help get that signal out and bring in the weaker ones. No trouble was experienced in any way with putting the beam together, loading it, or taking it apart later.

The Financial End

By the time Bill got through working on the bill for us it was a whopper. Though most of the food that we ate through the entire trip seemed to come from the batch that Frank and I bought in Miami we still got charged over \$400 for food . . . plus fuel . . . plus gas . . . plus coke . . . plus rum for Red . . . plus this . . . plus that . . . plus three weeks at \$100 per day . . . ! We were staggered! By the time we figured in the expenses run in getting down to Miami . . . plus a couple of days in Miami . . . plus plane fare to Nassau . . . plus shipping all the equipment to Nassau and back . . . plus the Haitians fee . . . plus . . . plus . . . plus . . . oh my! It all ran to about \$4200, or \$700 each

split six ways. And that is one heck of a chunk of dough.

The only ray of sunshine in the intense gloom following the foregoing computations was the fact that quite a few fellows made donations last year to help the crew that went to Grand Cayman Island out of their hole.

Breaking this down further . . . out of the 7000 contacts made from Navassa there were probably about 4000 different stations since several fellows went after us wholesale and worked us twelve times . . . phone and cw on all bands. A good number of the stations were DX and are unable to send funds even if they want to.

It boils down to this: If you managed to hook KC4AF and sent your QSL card to W8TJM as per our instructions (or 'most anywhere else . . . we've been getting all cards sent to the KC4 Antarctic QSL bureau, to W2NSD, to *CQ Magazine*, etc.) you will receive a KC4AF QSL card in return. If you can find your way clear to part with some money it will be much appreciated. Send all donations to the Ohio Valley Amateur Radio Association . . . check, cash, money order, etc., and be as generous as you can. We already have permission to operate at Clipperton (call FO8AS) and are assured that we will have no trouble in the future getting permission and a license for Socorro. But before we can ever hope to get another expedition going we will have to get out from the crushing debt of the last one. \$1 contributions to the expedition make you an "Enthusiastic Supporter", \$2 counts you as a "Patron of the Expedition", \$3 wins you the title of "Financial Backer", \$4 reserves you the name "DXpedition Philanthropist" and \$5 brings you a year's supply of the famous OVARA DX Bulletin plus all four previous titles. \$10 warrants you the Bulletin plus lifetime membership in the DXpedition *Financiers Club*. \$20 gives the Bulletin and a FOREVER membership in the DXpedition *Financiers Club* plus an invitation to join one of our future trips. A mad, impetuous \$50 will probably make you leader of the next trip.

[Continued on page 110]

ARMY MARS TALKS

AF MARS Eastern Technical Net

- June 1—Electronic Flight Test Equipment by Jack Stoltz, Gruman Aircraft Engineering.
- June 8—Antenna Symposium by Warren Offutt, Bruce Woodward, John North.
- June 15—The Engine 'Scope by Eugene E. Ecklund, DuMont Laboratories.
- June 22—Nucleonics and Radiological Safety by Dr. Karl Speh, Airborne Instruments Laboratory.
- June 29—Education's Challenge by Hofstra College and representatives of industry.

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This outstanding SSB receiver features AVC on SSB and CW, separate detectors for AM and SSB, passband tuning, rejection tuning, Gear Reduction Tuning Knob, superior selectivity and many other time-proven Collins features. Net Price ----\$695.00

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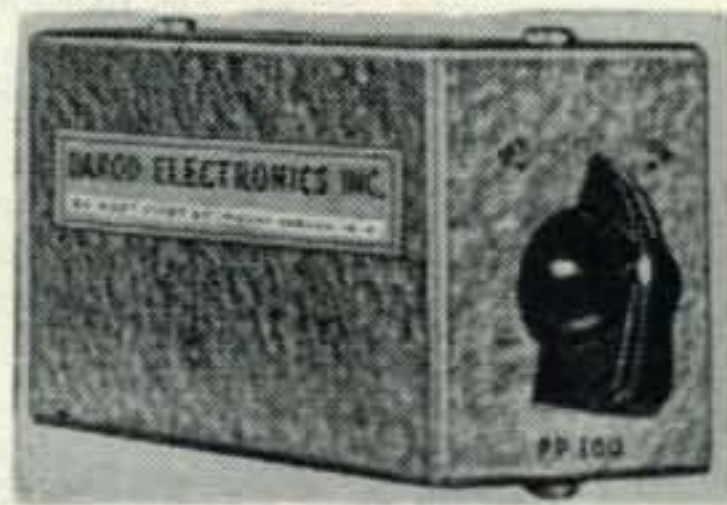
P. O. Box 312

Concord, New Hampshire

For further information, check number 51 on page 130.

YOUR HAM SHACK IS NOT COMPLETE WITHOUT THIS IMPORTANT LINK . . . DAROD HI FI PHONE PATCH

The DAROD HI FI Phone Patch is the Ham's answer to a distortionless Phone Patch. With this versatile piece of Ham equipment as part of your rig, people actually seem to be right in your shack . . . the quality is so fine. The DAROD PP-100 Phone Patch is a quality engineered piece of gear for the Ham.



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ADDRESS

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For further information, check number 52 on page 130.

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- RCA Power Xmfr—1100 VCT at 250 Ma—6.4 volts at 8 amp.—5 v. at 3 amps. with 125 volt bias winding. Primary: 115 volts—60 cycles with taps. Brand New—CA cartoned\$6.95
- RG-59/U—Amphenol stamped—72 ohms Co-Ax Cable in multiples of 100 feet @ 5¢ per foot.
- Eldico 2 meter mobile foundation XMTR assembly. Chassis punched—many parts and sockets mounted—modulation XMFR—Schematic included—an excellent value @ \$3.50 (uses 2E26 final).

(cont'd on next page)

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FOR SALE: Receivers SX-16 (like SX-28) 500 KC-60 mc, \$60; S-53 all bands plus 6 meters, \$45; BC-224, 12 volt version BC-348, \$45; ARC-5 two meter transmitter with modulator, \$25; original SCR-522 VHF antenna, new, \$2.50; SCR-522 Control Box new, \$2.50; ART-13 audio driver transformer, \$8; batteries BA37, BA38, brand new for BC-611 walkie talkie, \$1.25; T.S. 183 test set for dry batteries, \$28.50; Harvey Wells Deluxe TBS-50D power supply, VFO, all bands plus 2 and 6 meters, and 148.14 mc. C.A.P., \$125; new plate transformers 115v/2300 vct-500 ma., \$25; 115v/3200 VCT-250 ma., \$25; 115v/2200 VCT-740 ma., \$38; have others, also H.V. Chokes, filter capacitors, modulation and constant voltage transformers, tubes, write needs, all guaranteed, COD's OK. Bill Slep, W4FHY, Box 178, Ellenton, Florida.

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DECORATE YOUR CAR WINDSHIELD WITH YOUR CALL LETTERS. Attractive 1" letters and numbers available in gold or black. Complete single set 75¢, two sets for \$1.25. Include name, call, address and color preference. Money refunded upon return of unused decals if not satisfied. All orders must be prepaid. Send to Box RJ, c/o CQ Magazine, 300 West 43rd St., N. Y. 36, N. Y.

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See Page 28 of May, 1957 CQ For Conversion to 420 Mc. TV. Also Closed-Circuit TV Applications. Complete with all tubes including Iconoscope, unused only \$75.00 F.O.B. N.Y.C.

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 BARGAIN BULLETIN

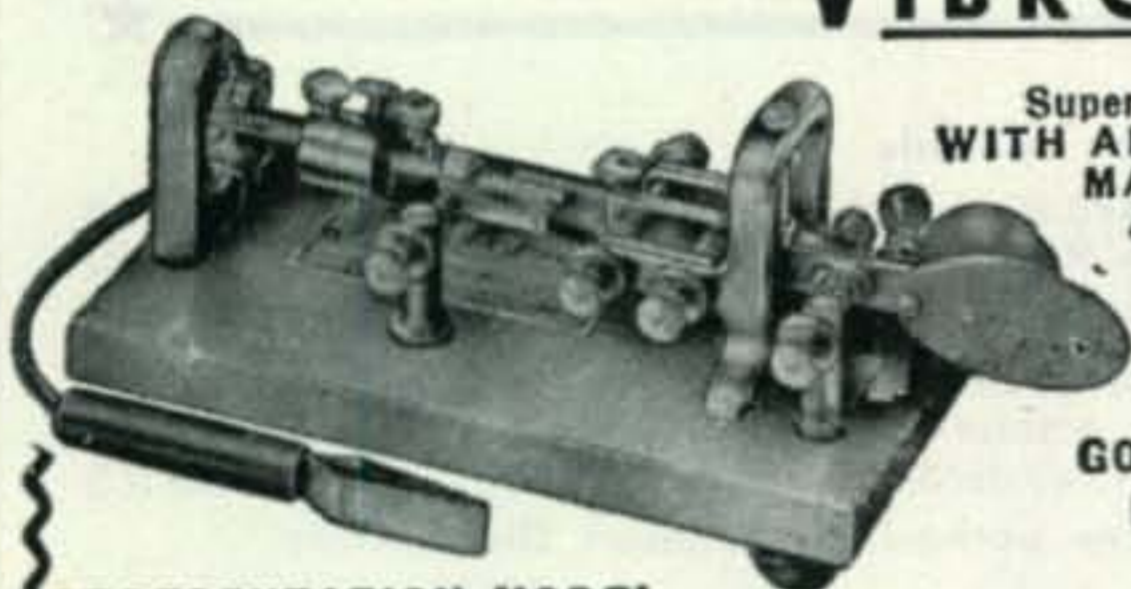
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FOR SALE (Conf'd)

PHONE PATCHES TO SELL: Guaranteed, write for full details, Mike Coulter, 24 Prince Street, Newton, Mass.

GONSET 2-meter converter \$20. ARC-5 schematics 25¢. S. Consalvo W3IHD 4905 Roanne Dr., Wash. 21, D. C.

SAVE! BUY surplus direct from Government at tremendous savings, radio, electronic equipment, parts, power tools, machinery, hundreds others. Gov't. surplus bulletin, \$1.00. Box 169CAF, East Hartford 8, Conn.

KITS ASSEMBLED, wired and tested promptly. Our charge 20% of kit price. Experienced with all makes ham equipment, test instruments and high fidelity. Partly wired kits same price. Finest checking equipment. Also equipment designed and built, factory workmanship. Have kits sent direct to us. Surplus gear converted. (Licensed ham since 1924—EX-W9AXJ) Money back guarantee. L. P. Jackson, KØKJX, 645-B Marshall, St. Louis, Mo.

FOR SALE: Collins 32V3 transmitter, \$475. In excellent condition. Howie Rice, W1TMH, Frenchtown Rd., East Greenwich, R.I.

FOR SALE: Collins 75A-4 recvr. Purchased new Christmas, 1957. (Serial #4611) No time for use. Never registered, in original container. First \$525. Will ship. Fred O'Burn, 628 W. 238th St., Bronx, N.Y. Phone: KI 6-5334.

FOR SALE: Elmac A54H all bands \$70; Super 6 Converter \$35; 6 volt Dynamotor 425V at 375ma \$7; and Coax Relay 6 volt \$5; all like new. John Demuth, WØUCU, 2916 Meadowbrook Dr. S.E., Cedar Rapids, Iowa.

FOR SALE Gonset bow-tie 20 meter beam in excellent condition \$20 or trade. Byars, WØBNF, P.O. Box 105, Kearney, Nebr.

FOR SALE: Viking II & INFO, used less than 50 hours. Johnson Lo-Pass Filter and D-104. Going SSB, must sell. Asking \$250. Best offer over \$225 takes it. Local sale preferred. H. Fisher, K2CJP, Floral Park, L. I., N. Y., FI-7-8651.

FOR SALE: Gonset G66B with universal power supply and connecting cable, \$200 Hallicrafters SX-96 with R46B speaker, \$200. Rek-O-Kut model B16H turntable with GE pickup arm, variable reluctance cartridge, and diamond stylus, \$200. Above items used less than 5 hours and in excellent condition. RCA type 77D polydirectional broadcast microphone with desk stand and 25 ft. cable and plug, \$100. New, in original carton. Prices fob Middletown. No COD's. Ray Dupes, 30 Ann Street, Middletown, Pa.

FOR SALE: Hallicrafters S-85, good condition, \$70. Johnson Viking Adventurer, used three hours, \$45. Vibroplex Original, \$15. Walter Gooditis, 63 Vincent St., Nixon, N.J.

FOR SALE: PE103A-6 & 12 volts, SX96, B&W 5100, advance coax relay, D104, 100 & 1000K crystal calibrator, negative peak indicator, power supply & set of baluning coils. All equipment like new & in very good condition. Johnny Gray, Box 505, Daingerfield, Texas.

BC-342 RECEIVER: BC-221 F.M.; RA-20 rectifier; Gonset 27-30 converter; BB-27 broad band converter. C. Horn, 325 E. 163 St., N.Y. 51, N.Y.

FOR SALE: WØJNK Co-Axial antenna or Bandhopper 6 sheet metal available in limited quantity. See Feb. 1958 CQ Bandhopper 6 article. Write Lyle L. Farver (WØJNK), 23 Miller Place, Ferguson 21, Missouri.

FOR SALE: WU Type 2-B narrow tape teletype (1/4"). Make an offer. R. Corbett, W1JLL, 46 Prospect, Torrington, Conn.

KITS WIRED: For details write Stephen Callender, KN2DUM, 130 Franklin Ave., Pearl River, N.Y.

FOR SALE: Gonset 20 bantam beam, can ship \$20. Trade 75A2 for 32V2 or sell with speaker, calibrator \$325. Byars, WØBNF, P.O. Box 105, Kearney, Nebr.

FOR SALE: HQ-100 receiver, DX-35 transmitter, Knight Kit-VFO, Gonset 3-30 mc. mobile converter, Johnson Bug, perfect condition. Neil Aldridge, 308 East 7th St., Lexington, Nebr.

FOR SALE: 2 meters, SSB, PM, AM, CW. High level mixer and 6146 linear amplifier on 144 mc. Requires 14 mc. injection from present SSB generator. Send for specification sheet. Tele-Products Co., 26184 Springland, Farmington, Michigan.

FOR SALE: Linear amplifier (2000 w. PEP) two 4/400A parallel, made by Adams Electronics, best of components, Eimac air sockets and chimnies, vacuum variable, four meters, completely shielded & TVI-proof, with 150 CFM blower, less power supply, \$350 perfect condition. Harvey-Wells, TBS-50A less power supply, \$45. Moniscope 3" (see April 1954 CQ) \$20. Send self addressed stamped envelope for list. Al Waring, W2CFT, Box 483, Lake Ronkonkoma, L.I., N.Y.

WILL ASSEMBLE AND WIRE HEATHKITS. Reasonable. For information write to R. Clifton, c/o Model T.V. Service, 836 S. Baldwin, Arcadia, California.

NEED DXCC or WAS CONFIRMATIONS? International Reply-Paid QSL's will help. 25, \$1. Sample free. Hart, 467 Park, Birmingham, Michigan.

FOR SALE: HQ-110, one month old with guarantee card, \$205; Johnson Ranger, still in kit form, never assembled, \$195; Heathkit FM tuner in working condition, \$15; S. Louv., 107 Dwight Rd., Springfield, Mass.

MUST SELL SHACK: Best offer takes it. \$1000 worth of equipment. Malcolm Pedersen, 9 Leeward Rd., Belvedere, Calif.

VIKING ADVENTURER: Used 3 hours and Johnson signal sentry never used, in perfect condition. No time for hamming. Best offer. Niel Nieman, Route 1, Cedarburg, Wisconsin.

ELECTRONIC DRAFTING for your pet or commercial circuit. Reasonable, send sketch & \$2.50, per stage to ENDECO, 1148 Wilmington Blvd., Wilmington, California.

COLLINS KW-1: Deluxe AM-CW kilowatt transmitter, recently factory modified for SSB linear operation. Excellent condition, complete with many spares. \$2,650. Write Bill Orr, W6SAI, 555 Crestline Dr., Los Angeles 49, Calif.

WANTED

WANTED: All types of communications receivers, transmitters, test equipment, Teletype printers, URA-8, 75A, 32V, 51J, BC-348, BC-342, BC-221, etc. Cash or trade for NEW Ranger, Valiant, Thunderbolt, HT-32, HQ-160, Gonset, Fisher Hi-Fi, Bell, etc. Write Tom, W1AFN, Alltronics-Howard Co., Box 19, Boston 1, Mass. (Richmond 2-0048, Stores: 278 Friend St., Boston, near North Station; 60 Spring St., Newport, R.I.)

NEED THE FOLLOWING BACK ISSUES OF CQ: November 1955, July 1956, February 1957. Will swap a brand new first MOBILE HANDBOOK, or copy of COMMAND SETS, or \$1 in cash for the above three issues. Must be in good condition. Offer limited to first 100 copies. Send to CQ Magazine, 300 W. 43rd St., N. Y. 36, N. Y.

WANTED: Aircraft, ground, airline, military electronic equipment, Collins, Narco, ARC, BC348, ART13, ARN6, ARC1, BC221, 51R3, ARN14, BC610, all test equipment, others, advise condition, price we pay COD, RITCO Box 156 Annandale, Va. Phone Jefferson 2-5805.

WANTED: BC-610E and up, BC-939, BC-614E and up, RA-63, BC-312 and BC-342 material. We buy all types of Electronic Surplus. RADALAB INC., 87-17 124th St., Richmond Hill 18, N. Y.

CASH PAID FOR TG-7 and Model 15 teletype and parts. Also BC-312, BC-342, BC-610E, BC-614, BC-939, BC-221, RA-63, JB-70, JB-60 and APR-4, APR-9, ARN-6, 7 and 14, ARC-3, 21, 27 and TEST EQPT. We pay freight. AMBER INDUSTRIAL CORP., 75 Varick St., New York 13, N. Y. CANal 6-7455.

WANTED URGENTLY: Collins BC-401-A transmitter, Tensor Elec. 1873 Eastern Parkway, B'klyn 33, N. Y.

WANTED: Matched set of ant. and rf coils for McMurdo Silver 801 receiver. George Schwind, 2514 Bonds Ave., South Bend, Ind.

RECEIVER WANTED: BC-348, BC-224, VC-312, or BC-342. E. Overbey, W9GCB, 834 Garfield Street, Burlington, Wisc.

WANTED: Jennings vacuum variable 300 uuf, type UCS, Candwell 1500 uuf variable type 8013, Weston Q-250 ma model 301 Bakelite case, three 4-250A tubes, Ripley model 8433 blower 21 CFM, B&W BTEL torret assembly, B&W Model 850 Pi-tank inductor, Thordanson T21F07-A Filament transformer 5 volts, 29 amps. Larry Kleber, K9LKA, Belvedere, Illinois.

WANTED: Olde telegraph keys and bugs. Virginia Zitzow, W1HGM, 11 Oak Street, Reading, Mass.

HAVE \$200: Want xmitter, 150 to 300 watts, complete with power and VFO. Prefer Collins, AN/ART13, Viking, Globeking or DX100. Quote price my QTH. (No home brew rigs) Col. E. W. Sears, 4725 Bridle Trail, Santa Rosa, Calif.

WANTED: Information or tech manual on Navy RDG Panoramic search receiver. Bill Slep, W4FHY, Ellenton, Florida.

WANTED: Scott Philharmonic console radio, 1947 or later model, or similar model. State full particulars as to model, condition, and price. Jack Rhodes, 1880 Juniper St., Prince George, B.C., Canada.

WANTED: Hallicrafters SX-24. Advise condition and price. Local preferred. Harry Register, 25-94 42nd St., L.I. City 3, N.Y.

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For further information, check number 55 on page 130.

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... Because it's the answer to feeding either a single or folded type dipole or, the driven element in a beam antenna.

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Collins KWM-1 SSB Mobile
Transceiver 820.00

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For further information, check number 31 on page 130.

WANTED (Cont'd)

WANTED: 75A1, A2, or A3 in good condition, immediate cash. Byars, WØBNF, P.O. Box 105, Kearney, Nebr.

WANTED: HRO Senior coils; HRO Senior S metre; old HRO or Collins receiver. Emmet Weber, 31 Wolcott Rd., Chestnut Hill 67, Mass.

QSL

QSLs ? ? ? LARGEST variety, samples 25¢. (refunded) CALLBOOKS (summer) \$5. Sackers W8DED, Holland, Michigan.

QSL's: Samples, dime. Print Shop, Corwith, Iowa.

QSLs-SWLs: Samples dime. Backus, 703-A Cumberland St., Richmond, Va.

PHOTOGRAPH QSL's-SWLs at reasonable price, plus distinctive assortment by Mike. Samples 10¢. K6GCJ Press, 678 South Cloverdale, Los Angeles, California.

QSL's, SWL's, VHF's, XYL-OM's. (Sample assortment approx. 9¼¢.) Covering designing, planning, printing, arranging, mailing, eye-catching, comic, sedate, fatuous, DX-attracting, prototypal, snazzy, unparagoned, cards. Rogers KØAAB 737 Lincoln Ave., St. Paul 5, Minn. Also glamorous, pulsating, super-passionate. (Wow!)

QUALITY QSL's. Samples, 10¢. Lee, W5CZA, Box 7171, Oklahoma City, Oklahoma.

FREE FLYER. DX QSL, Radio Coop., Box 5938, Kansas City 11, Mo.

QSL's—"Brownie" W3CJI, 3110 Lehigh, Allentown, Pa. Samples. 10¢ with catalogue, 25¢.

QSL's: We've printed a million. Samples 10¢. VYS QSLs, 1704 Hale, Ft. Wayne, Indiana.

QSL's-SWL's. 100—\$2.50. Samples, 10¢. QSO file cards, \$1.00 per 100. Rusprint, Box 7507, Kansas City 16, Mo.

QSL's-SWL's: High quality, reasonable prices. Samples. Bob Teachout, W1FSV, 204 Adams Street, Rutland, Vermont.

QSL stock samples, dime. Give us a try. St. Louis Amateur Radio Club, Inc., 628 Buder Bldg., St. Louis 1, Mo.

QSL's—Glossy. Samples 10¢, W10OLU Press, 30 Magoun, Medford, Mass.

QSL's: \$4.65 per 500. Free circular for details. Vorderberg, K9EUF, 1839-46th St., Rock Island, Ill.

SWAP OR SELL

NEED THE FOLLOWING BACK ISSUES OF CQ: November 1955, July 1956, February 1957. Will swap a brand new first MOBILE HANDBOOK or copy of COMMAND SETS, or \$1 in cash for the above three issues. Must be in good condition. Offer limited to first 100 copies. Send to CQ Magazine, 300 W. 43rd St., N. Y. 36, N. Y.

SELL OR SWAP for O-27 railroad gear—Viking I, coax relay, Baluns, xstal mike, two meter converter, GF-12 navy transmitter, prefer local deal. F. Yates, K2DZS, 58 Wayside Lane, Trenton, New Jersey.

MISC.

YOUR BEST CONTACT: (spiritual side of ham's life) Free on request. Rus Sackers, W8DED, P.O. Box 218, Holland, Mich.

PRESERVE YOUR HAM TICKET. Social Security Card, small photo, and anything else of value that is wallet size. We will laminate it in clear plastic guaranteed for life. Lamination will prevent it from getting torn, soiled or frayed. Send your ticket or anything of value with 45¢ in stamps or cash for each item that you want preserved. This SPECIAL PRICE for limited time only. 24 hour service. Send to Dept. HW, CQ Magazine, 300 West 43rd St., N. Y. 36, N. Y.

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DECORATE YOUR CAR WINDSHIELD WITH YOUR CALL LETTERS. Attractive 1" letters and numbers available in gold or black. Complete single set 75¢, two sets for \$1.25. Include name, call, address and color preference. Money refunded upon return of unused decals if not satisfied. All orders must be prepaid. Send to Box RJ, c/o CQ Magazine, 300 West 43rd St., N. Y. 36, N. Y.

HAMS! In central Illinois it's Knox Electronic Supply, 67 North Cherry, Galesburg, Illinois.

TRANSFER SNAPSHOTS to drinking glass. Formula, 50¢. Tom Kelly, Jr., 26 High Plain, Andover, Mass.

PITTSBURGH HAMFEST: Biggest Yet! 21st Annual Hamfest of the South Hills Brass Pounders & Modulators. Sunday, August 3, 1958 South Park Totem Pole Lodge. Contests for young and old. Swap Shop. Preregistration \$1.50. Write or call William E. Guthrie W3LDB 4949 Roberta Drive, Pittsburgh 36, Pa. \$2 at door.

ANNUAL WYOMING HAMFEST: July 12-13. Ham vacation in the beautiful Big Horn mountains. Information, Miller, W7QPP, 362 E. Loucks St., Sheridan, Wyoming.

INSTRUCTION

HAM LICENSES: Resident courses, novice and general classes, 3 eves. weekly. Delehanty Institute, 117 East 11th St., N. Y. 3, N. Y., GR 3-6900.

VHF [from page 94]

as much, due to inaccessibility, etc. The right frequency, and sometimes cw, helps a lot in working the dx. Especially with low power." *Fine business Paul, bet you'll do it from the farm too.*

Vancouver, Washington Tom Berkey (W7VPT) sends his dx list along with QSL's for C.C.C.:

"Have worked 37 states, VE1, VE2, VE3, VE7, JA1, JA2, JA3, JA4, JA5, JA6, JA7, JA8. Have worked somewhere around thirty separate JA stations in all, but JA9 and JA0 I still need. Also worked KH6 and TG9JW. Best DX to date is JA." *Fine business Tom, keep up the good work.*

Ripley, West Virginia From the mountain state and Jerry Skeen (K8AON) comes the following:

"We have a very nice six meter net in Charleston, called 'The West Virginia VHF Net', meeting twice weekly, Sunday and Tuesday nights at 2000 on 50.760. We handle traffic and have a rag-chew afterward. About twenty-five members at present."

"Also have a net starting on six meters in Huntington, frequency will be 50.550."

"I have been on six since last May ('57). The rig is Johnston 6n2, NC300, and home brew six element beam up 30', elevation here is 1300', very good for this area. Have thirty states and 4 continents confirmed."

"I'll be on 220 mc in May and would like backscatter sked on cw." *Very glad to hear of both nets, Jerry, and to find out that there is so much activity in your area.*

Shreveport, Louisiana A very quick "quickie" from John Lakey (K5BLC):

"Just a note to say that K5BLC is on 420 and would like to hear of others in the area on 420. Rig running about 10 watts to a Ref. Srn. Dipole. Open for sked at any time." *Quick and to the point, thanks John.*

Millbury, Massachusetts Word of another net or group from 'Tick' Melanson (W1GLD):

"Officers of the newly-formed 'Worcester County V.H.F. Club' are: Tick Melanson, W1GLD, President; Wayne Lovell, W1HJF, Vice-President; Hal Wilson, W1DRZ, Secretary; Ken Wilson, K1APW, Treasurer." *Thanks 'Tick', send us news of your get-to-gethers.*

Arlington, Virginia Tom Custer (W4ZBS) sends a note or two along with his 100 QSL's:

"I've been on six meters since last March 25th ('57). I have the 1st VA-JF (Jonestown) for all QSO's on six meters. Also have the first OH-Sam 6 (one-hour-solid-after-midnight-on-6-meters.)" *Thanks for the infor, Tom, send us territory news once in a while.*

New Castle, Pennsylvania Larry Whitman (K3BWH) sends us a bit of two meter news:

"I have an LW-50 and an International Crystal converter on two (Novice) and a ten element Hy-Gain antenna. I am just finishing up a 12AT7/2E26 rig for six. I use an HQ-110 as a hearing aid. My next construction project will be a 416A converter, a kilowatt or near on two and a decent beam. I wish you would stop showing those antenna pics in your column because each time I see one, I go just about nuts. *That's the object, Larry. Just egg'in' you on.*"

[Continued on page 128]



Going Mobile?

- Want to work 10-15-20 without stopping to change bands?
- Want the durability of stainless steel construction?
- Want Low SWR over full bandwidth?
- Want a mobile antenna that never requires adjustment?

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For further information, check number 59 on page 130.



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RDO—Navy VHF-UHF RECEIVER. Similar to APR4 however more versatile having input metering, DB output meter, automatic noise limiter and greater selectivity. Complete with tubes, plug-in tuning units, connectors and tech manual. 110 VAC 60 cycle operation. Brand New—Original Carton.
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Tuning Unit 34-78MC\$ 29.50
74-300MC\$ 39.50
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BC-659 FM Receiver-transmitter, xtal controlled, two channels, freq. range 27-38.9, 9 Mc, 13 tubes, built-in speaker, dual meter for testing filament and plate circuits. **\$6.95**
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BC 683. Ten Channel Push-button or continuous tuning FM RECEIVER 27 to 39 Mc complete w/tubes, speaker, squelch circuit. Exc..... **\$12.95**
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Motorola F.M. Receivers, Double Conversion\$55.00 each
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VHF [from page 127]

"Two meter activity in my area is real gone. If they're on, they're on, and if they're off well then they're off. I've been occupying my time talking to the local fellows. I have a 3 to 1 SWR, 2.75 watts output, and a non-rotatable beam but the results have been good. I have a mismatch on my lead-in which causes the 3 to 1. A bad 2E26 and lack of money account for the others."

"Two will be picking up in New Castle, however. There are now two stations on, me and KN3BDX, but KN3DKO and KN3DKM are trying to make it. They both just got their licenses." *Nice to hear that New Castle is making two meters, Larry, now put that nice town on the map two-meter-wise.*

Riverside, California Dave (K6VHP) gives and asks for some dope:

"I've been reading your VHF column in 'CQ'. I'm sure becoming interested in six meters. Sounds like a lot of fun." *That it is!*

"My transmitter is a DX-35 and I saw in the January '58 'CQ' where a certain Doug Jones, Jackson, Mississippi, uses one on six. Could you get the conversion data for me? *Better yet, Dave, I'll send you his mailing QTH, and you can find out direct.*

"My receiver is an NC-57 with a Q-multiplier. I plan to get a Gonset 6 meter converter to use with it. That should set me up for six meters. I'd also like to know if it's necessary to have a beam in order to work DX on six meters." *Well now Dave, it's like anything else; the more you put into it the more you get out of it. A beam isn't necessary for DX on six but it helps, just as power will help to some degree.*

Dayton, Ohio From the home of the 'Dayton Hamvention' and Ev Taylor (W8NAF) we get word of another Club:

"There is now a new club in the Dayton area. It is known as the Miami Valley VHF Radio Club. We started off with thirty-five paid up members, with W8TEK, President; W8GHX, Vice President; and K8IYW (XYL of W8TEK) as Secretary/Treasurer. We meet at WHIO-AM-FM-TV-studios once a month." *Thanks Ev. That Dayton gang sure keeps interest up.*

73, Sam, W1FZJ

hamfests

Oglesby, Ill.

The 12th Annual Hamfest of the Starved Rock Radio Club will be held Sunday, June 8, 1958 in the La Salle County 4-H Home and Picnic Area, southwest of Ottawa, Ill. just off Route 71. This promises to be a bang-up affair and you can get all the details from George Keith, W9QLZ, Secretary, The Starved Rock Radio Club, RFD 1, Oglesby, Ill.

Uniontown, Pa.

The Ninth Annual Gabfest of the Uniontown Amateur Radio Club will be held on Saturday, June 21, 1958 at the Club House on Old Pittsburgh Road, just off Route 51, two miles north of Uniontown, Pa. There's FREE coffee, pretzels and other such edibles as well as prizes and the chance to win a wired-up DX-40. The club station, W3PIE will be operating on ten meters for those who come for other things than the free food! This will be a strictly stag affair and you can get all the details by writing: Uniontown Amateur Radio Club, Box 849, Uniontown, P. Registration fee is \$2.00.

Advertising Rates

To fill the many requests for advertising rates that come into our office each month, rate information will be provided periodically in the magazine. For more detailed information interested parties may contact our advertising representatives as listed on the mast head.

	1 Time	3 times	6 times	12 times
1 Page	\$360.00	\$340.00	\$310.00	\$285.00
1/2 Page	190.00	180.00	170.00	155.00
3/8 Page	150.00	140.00	132.50	127.00
1/4 Page	100.00	95.00	90.00	85.00
1/8 Page	51.00	49.50	48.00	46.50
1/16 Page	26.50	25.50	24.50	23.50

Mechanical Requirements

	Width	Depth	Width	Depth
1 Page	5 1/2	8 1/8	.....	.....
1/2 Page	5 1/2	4	2 5/8	8 1/8
3/8 Page	5 1/2	3	2 5/8	6
1/4 Page	5 1/2	2	2 5/8	4
1/8 Page	5 1/2	1	2 5/8	2
1/16 Page	2 5/8	1

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701A	W.E. 1.95	4X150A	Sockets 8.50

While they last

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1108 VENICE BLVD., LOS ANGELES 15, CALIF.
Richmond 9-7644

The PALCO BANTAM 65

The smallest, most compact
MOBILE TRANSMITTER with
65W-Phone 90W-CW



NEW HIGH STABILITY VFO
and many other improved features

The PALCO "BANTAM 65" is only 4" high, 8" wide and 8 3/4" deep—can be mounted right at your finger tips—leaves you lots of leg room. The separate modulator cabinet is only 4" x 4" x 9"—mounts in any out-of-the-way location. Exclusive new tune-up meter designed with HIGHWAY SAFETY in mind. No more stooping, no squinting. You'll like this new idea!

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- Either 6V or 12V. filament supply. Plate supply 450-600V. @ 250 ma.
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- VFO and exciter stages gang-tuned.
- Efficient Pi-section output.
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- AB1 modulation with speech filter and negative peak clipping.
- Makes an ideal NOVICE transmitter.

"BANTAM 65" complete with tubes and power connectors. **\$159.50**

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PALCO ENGINEERING CO. FRANKFORT INDIANA

For further information, check number 57 on page 130.

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Available everywhere including ...

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Newly developed, highly efficient transistor operated power supplies capable of furnishing power for all types of mobile communications equipment. Available in two standard models as listed below with other voltage and power ratings on special order.

Input: Either 6, or 12 V.D.C. (Please specify).

Output: 150 V.D.C. and 300 V.D.C. (simultaneously) at total of 150 M.A. from a full wave silicon bridge rectifier at a constant 45 watt load. Loads up to 90 watts on 20% intermittent duty cycle.

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Net Price
\$55.00
each

Net Price
\$75.00
each

Boulevard ELECTRONICS, INC.

1229 WEST WASHINGTON BOULEVARD - CHICAGO 7, ILLINOIS

For further information, check number 65 on page 130.

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Void after June 25, 1958



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37	38	39	40	41	42	43	44	45	46	47	48
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For further information, check number 62 on page 130.

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OUR 37th YEAR

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For further information, check number 63 on page 130.

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PLUS

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\$39.90

down, without trade-in.

Cash price \$399.00
at most National
Distributors

Both for the price of the receiver alone

BURTON BROWNE/New York

NEW FROM NATIONAL—VFO-62



At your National Distributors now! The first SELF-POWERED VARIABLE FREQUENCY OSCILLATOR for 6 and 2 meter operation! Self-powered, self-contained. Plugs into 117v AC outlet and transmitter crystal socket. Provides front panel crystal control without changing connections; has phone jack, precision vernier dial, and provision for remote standby/operate control. Low power drain (18 watts) allows 24-hour operation for pennies a day. Maximum frequency stability better than 1 part in 10^5 per 24 hours. $6\frac{1}{2}$ " wide x $5\frac{1}{4}$ " high x $5\frac{1}{2}$ " deep, 6 lbs.

For further information, check number 2 on page 130.

Suggested Price: without trade-in, only \$10.00 down.

Cash Price \$69.95, at most National Distributors.

See your National Distributor today or write for full specifications.

WANTED SENIOR ENGINEERS
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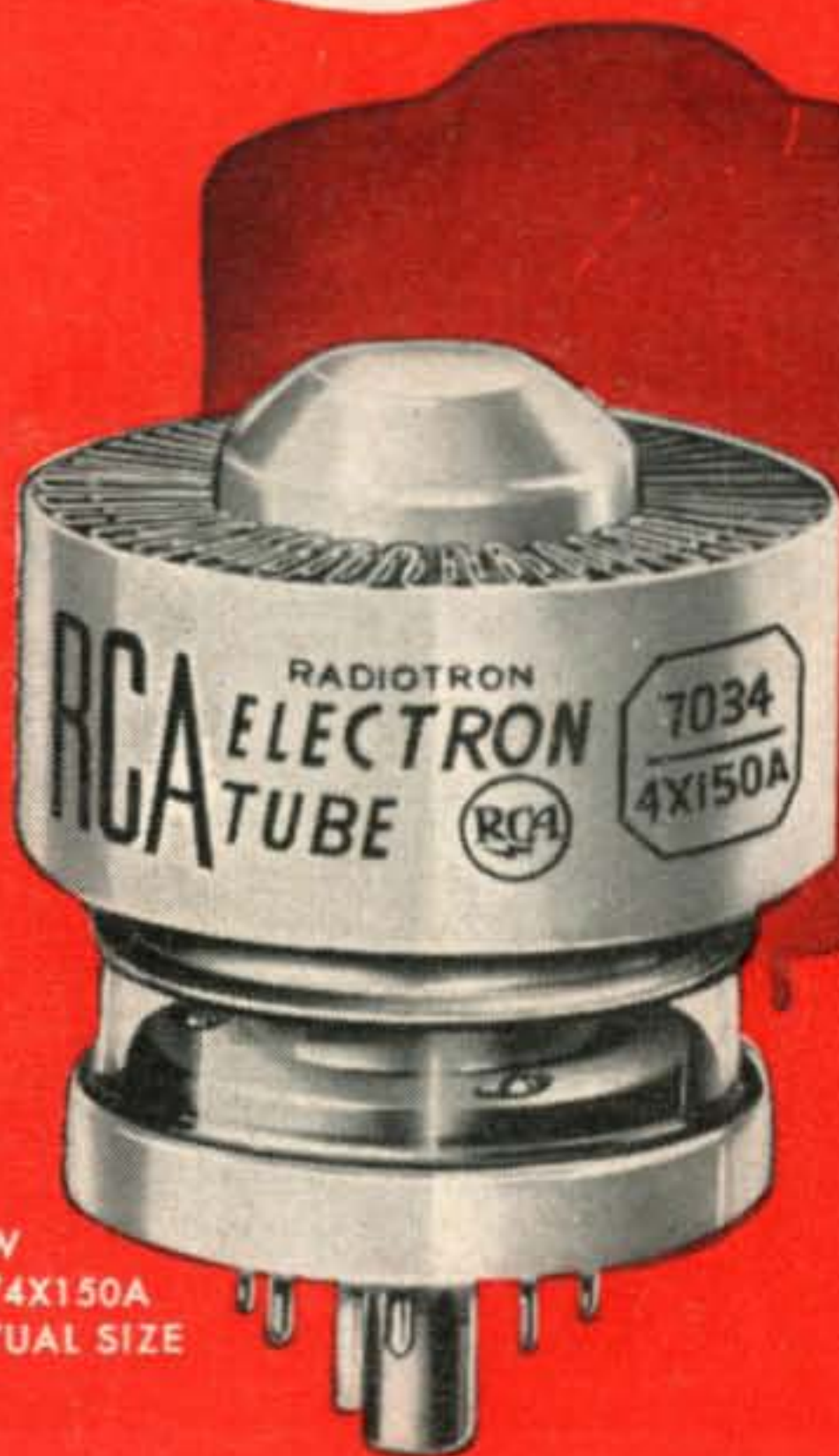
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tuned to tomorrow



500 WATTS INPUT



NEW
RCA-7034/4X150A
SHOWN ACTUAL SIZE

- Can take 500 watts CW or SSB—in new transmitters.
- Operates with higher margin of safety and longer life—directly replaces 4X150A in present transmitters.
- Useful up to 500 Mc at reduced ratings.



Key to High Power
New, high-efficiency radiator is hard soldered directly to plate for increased heat transfer.

New RCA-7034/4X150A Beam Power Tube uses new high-efficiency radiator to handle higher power

This is it—for its size, the most powerful RCA beam power tube suitable for amateur service. Plate dissipation rating is 100 watts higher than for the 4X150A. Plate input power of 500 watts can be used in CW and SSB operation—at frequencies as high as 150 Mc.

Small as golf balls, two RCA-7034/4X150A's are the answer for compact, all-band finals handling inputs up to the legal limit. And note this fact: RCA-7034 can be used to replace type 4X150A in your present transmitter to give longer life. *No circuit changes needed!*

RCA-7034's are now available from your RCA Tube Distributor. Tube technical data is available from RCA, Commercial Engineering, Section F-15-M, Harrison, N. J.



TUBES FOR AMATEURS
RADIO CORPORATION OF AMERICA
Electron Tube Division Harrison, N. J.

RCA-7034/4X150A Typical CW Operating Conditions (up to 150 Mc)			
DC Plate Voltage	1500	2000	Volts
DC Screen Voltage	250	250	Volts
DC Grid Bias	-88	-88	Volts
DC Plate Current	250	250	Ma
DC Screen Current (approx.)	24	24	Ma
Driving Power	1.5	2.5	Watts
Power Output (approx.)	260	370	Watts