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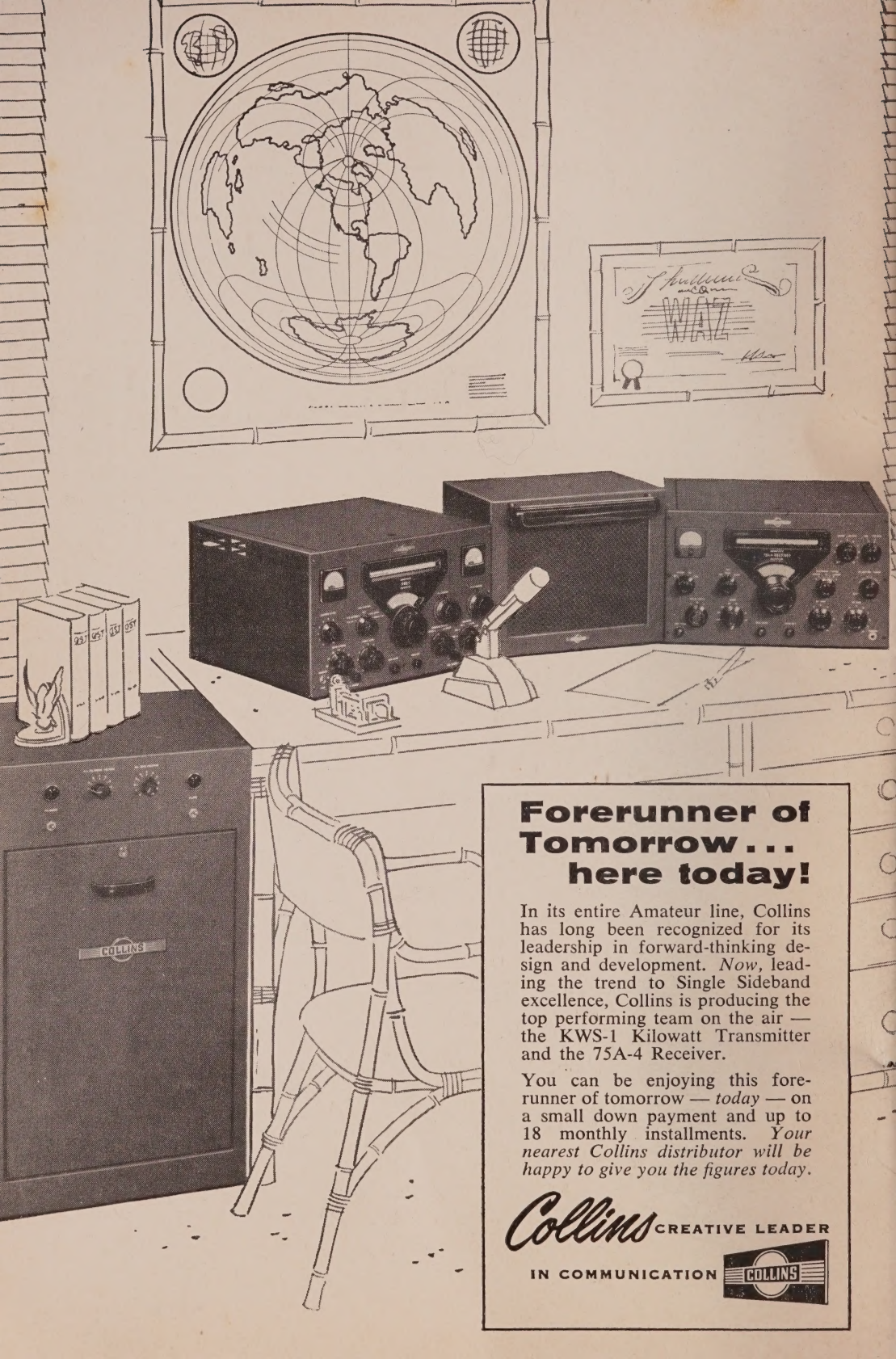
RADIO AMATEURS' JOURNAL



W2GVK tunes up typical amateur antenna for

CQ Summer VHF Contest

August 18 - 19



Forerunner of Tomorrow... here today!

In its entire Amateur line, Collins has long been recognized for its leadership in forward-thinking design and development. *Now,* leading the trend to Single Sideband excellence, Collins is producing the top performing team on the air — the KWS-1 Kilowatt Transmitter and the 75A-4 Receiver.

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PRs are on top! Wherever you go, the world around . . . wherever dependable radio frequency control is essential . . . PR Crystals stand out as the standard by which other crystals are judged. This is no accident. PR stands for superb QUALITY. Nothing is spared to make PRs truly the standard of excellence . . . and your dealer will tell you the same thing.

20 METERS, Type Z-3, $3.95 • 40, 80 AND 160 METERS, Type Z-2, $2.95

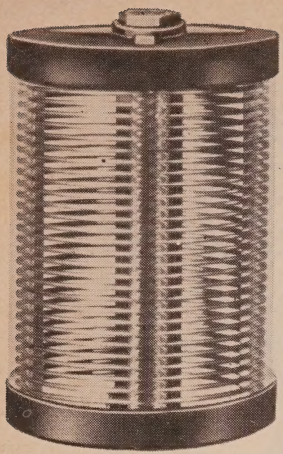
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USE PR AND KNOW WHERE YOU ARE

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HAMS REPORT UP TO 5 TIMES GREATER SIGNAL STRENGTH WITH DAVIS "500 SERIES" HI-Q COILS

(From unsolicited letters in our files)

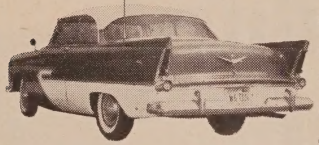


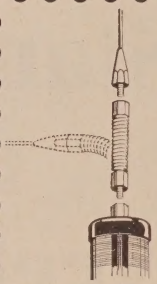
NEW! DAVIS IMPROVED ALL-BAND HIGH-Q MOBILE COIL

All bands 10 through 80 meters. New tuning shaft and silvered tuning contact give you positive, long-wearing action. Select band quickly and lock in position. Maximum efficiency under all road and weather conditions. Tough tenite, solid brass fittings. Standard ¾"-24 thread.

Model V102 **Amateur net: $14.95**

"Rigged For EXTRA Davis Performance"



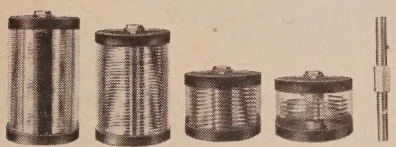


IN-LINE WHIP FLEXOR

Keeps base section rigid by eliminating base section spring. Whip stays upright. Bends for storage, passing under trees.

No. V-110S (Standard Model)
Amateur net: $1.95

No. V-110D (Deluxe Model)
Amateur net: $2.95



NEW! 500 "HI-Q" COILS

"Q" Over 400! Highest known "Q" in mobile coil to date. 1 coil per band (80, 40, 20, 15) plus new attachment for quick conversion to 10 meters. You choose the band you want with maximum efficiency. Coil peaked at factory. Use with 36" base section, 60" whip. No pruning necessary due to advanced tuning method. Color coded for fast selection. Mount coil in 10 seconds.

Amateur Net: $6.25 ea. coil
$3.95 ea. shorting bar • Complete set: **$26.95**



NEW! CONTOUR WHIP CLAMP

Another Davis advancement. This whip clamp fits the natural bending angle of the whip. Protects whip, gives long life. Clamps onto rain drain of any car. Rustproof.

No. VD-109 **Amateur net: $1.25**

Other Davis Mobile Products
Fibreglass Whips
Base Sections *Body Mount*

Friendship Offer! **YOUR OWN SCOTCH-LITE CALL LETTERS**

Visible a quarter of a mile away in the dark! Weatherproofed adhesive backs. Complete set at our cost, only 50 cents. (Worth $1.50.) Your distributor has "Call Letter Coupons" or can get them from Davis Electronics.

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Vol. 12, No. 8 **CQ, The Radio Amateurs' Journal** August, 1956

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Foreign Subscriptions

England: RSGB, New Ruskin House, Little Russell St., London WC 1.
Australia: Technical Book Co., 297 Swanston St., Melbourne C1, Victoria, Australia.

CQ—(title Reg. U.S. Post Office)—is published monthly by Cowan Publishing Corp. Executive and Editorial offices, 67 West 44th Sreet, New York 36, N. Y. Phone MUrray Hill 7-2080. 2nd Class Mail privileges authorized at New York, N. Y. Subscription rates in U.S.A., Possessions, APO FPO, Canada & Mexico. 1 year $4.00; 2 years $7.00; 3 years $10.00. Pan-American and Foreign, 1 year $6.00; 2 years $11.00; 3 years $16.00. Single copies 50 cents. Printed in U.S.A. Entire contents copyright 1956 by Cowan Publishing Corp. CQ does not assume responsibility for unsolicited manuscripts.

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HEATHKIT

DX-100

PHONE AND CW

transmitter

KIT

FEATURES

Design proven through actual signal reports.

★

Only top-quality components used throughout.

★

5-point TVI suppression, and pi network output to match 50 to 600 ohms.

★

Detailed construction manual for simplified assembly.

★

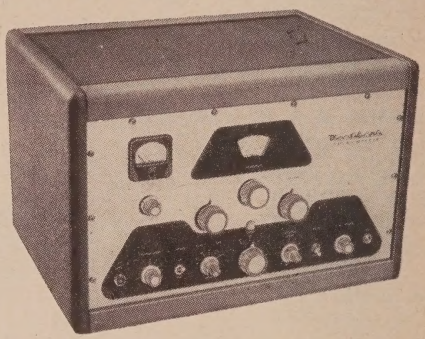
100 watts output on 160, 80, 40, 20, 15, 11, and 10 meters.

★

Attractive and functional physical design.

The Heathkit Model DX-100 Transmitter is rapidly becoming the "standard" ham rig in its power class. The high quality and outstanding performance it offers can be matched only in equipment costing many dollars more. It features a built-in VFO, modulator, and power supplies, and is bandswitching for phone or CW operation on 160, 80, 40, 20, 15, 11, and 10 meters. The kit includes a detailed construction manual, the cabinet, all tubes, prewound coils, and all other parts necessary for construction.

Push-pull 1625 tubes are used to modulate parallel 6164 tubes for RF output in excess of 100 watts on phone, and 120 watts on CW. May be excited from the built-in VFO or from crystals. Features pi network output circuit, illuminated VFO dial and meter face, and 5-point TVI suppression. High grade, well-rated parts supplied. Schematic diagram and technical specifications on request.



MODEL DX-100

$189.50

Shpg. Wt. 107 Lbs.

Shipped Motor Freight unless otherwise specified. $50.00 deposit required on all C.O.D. orders.

HEATHKIT

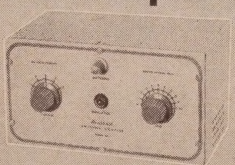
antenna coupler

KIT

MODEL AC-1

$14.50

Shpg. Wt. 4 Lbs.



In addition to matching a low power transmitter to an end-fed long wire antenna, this antenna coupler incorporates a 3-section low-pass filter, to attenuate output above 36 mc and reduce TVI. Handles up to 75 watts, 10 through 80 meters. 52 ohm coaxial input—tapped inductor and variable capacitor—neon RF indicator. Ideal for use with the Heathkit AT-1 Transmitter.

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BENTON HARBOR 12, MICHIGAN

HEATHKIT

grid dip meter KIT

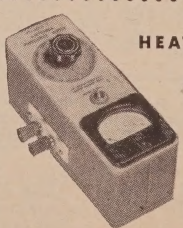
The Model GD-1B is a time-proven instrument. It will enable you to accomplish literally hundreds of jobs on all types of equipment. Frequency range is from 2 mc to 250 mc. A 500 ua meter is employed for indication, and a sensitivity control and headphone jack are provided. Includes pre-wound coils and rack. Indispensable for the ham, serviceman, and engineer. Extra coils available to extend frequency down to 350 kc.



MODEL GD-1B

$19.50

Shpg. Wt. 4 Lbs.



HEATHKIT

antenna impedance meter KIT

MODEL AM-1

$14.50

Shpg. Wt. 2 Lbs.

Used with an RF signal source, the AM-1 will enable you to match your antenna-receiver-transmitter system for optimum operation. Will double as a phone monitor or relative field strength meter. Uses 100 ua meter, and covers 0 to 600 ohms. Frequency to 150 mc.

HEATHKIT communications-type all band receiver KIT

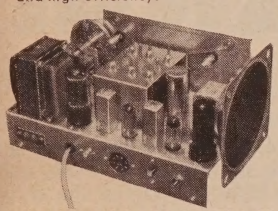
Slide-rule dial —electrical bandspread—ham bands marked.

Slug-tuned coils and efficient IF transformers for good sensitivity and selectivity.

Transformer-operated power supply for safety and high efficiency.

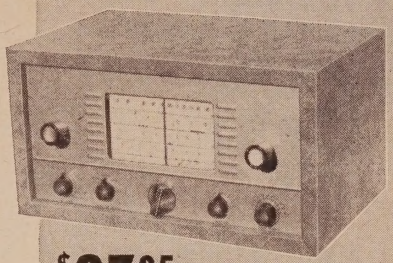
The Model AR-3 receiver features new high-Q slug-tuned coils, new layout, and new-type IF transformers. The result is high sensitivity and selectivity and better image rejection on all bands.

Transformer-type power supply, electrical bandspread, RF and AF gain controls, antenna trimmer, AGC, BFO, headphone jacks, socket for Q multiplier, 5½" PM speaker and illuminated dial.



SPECIFICATIONS:

Frequency Range—550 kc to 30 mc on four bands.
Tube Complement—1—12BE6 oscillator and mixer • 1—12BA6 IF amplifier • 1—12BA6 second detector, AVC, first audio amplifier and reflex BFO • 1—12A6 beam power output • 1—5Y3 full wave rectifier



$27.95 *(Less Cabinet)* • **MODEL AR-3**
Shpg. Wt. 12 Lbs.

CABINET: Fabric-covered cabinet available. Includes aluminum panel, speaker grille, and protective rubber feet. Measures 12¼" W. x 6¼" H. x 7¾" D. No. 91-15. Shpg. Wt. 5 Lbs. **$4.50.**

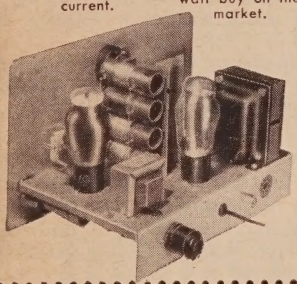
HEATHKIT CW amateur transmitter KIT

Single-knob bandswitching for 80, 40, 20, 15, 11, and 10 meters.

Panel meter monitors final grid or plate current.

Plate power input 25-30 watts.

Best dollar-per-watt buy on the market.



The AT-1 is complete with its own power supply, and covers 80, 40, 20, 15, 11, and 10 meters with single-knob bandswitching. Designed for crystal or external VFO excitation. Incorporates key-click filter, line filter, copper plated chassis, pre-wound coils, 52-ohm coaxial output, panel meter, and high quality components throughout. Easy to build, even for the beginner. Employs 6AG7 oscillator and 6L6 final. Up to 30 watts power input.



$29.50 • **MODEL AT-1**
Shpg. Wt. 15 Lbs.

SPECIFICATIONS:

RF Amplifier Power Input	25-30 watts
Output Connection	52 ohms
Band Coverage	80, 40, 20, 15, 11, 10 Meters
Tube Complement:	
5U4G	Rectifier
6AG7	Oscillator—Multiplier
6L6	Amplifier—Doubler

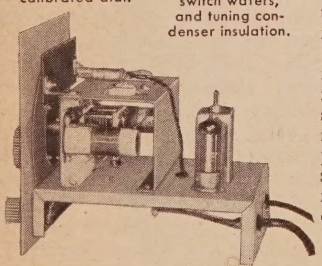
OA2 voltage regulator tube for stability.

Covers 160-80-40-20-15-11-10 meters.

Smooth-acting, illuminated and pre-calibrated dial.

6AU6 electron-coupled Clapp oscillator.

Copper plated chassis—aluminum case—profuse shielding—ceramic coil forms, switch wafers, and tuning condenser insulation.



HEATHKIT vfo KIT

The Model VF-1 features illuminated and pre-calibrated dial scale. Cable and plug provided to fit the crystal socket of any modern transmitter. Covers 160-80-40-20-15-11 and 10 meters with 3 basic oscillator frequencies. Better than 10 volt average RF output on fundamentals. Derives operating power from transmitter power supply. Has VR tube for stability. Go VFO for more operating enjoyment.

MODEL VF-1

$19.50

Shpg. Wt. 7 Lbs.



SPECIFICATIONS:

Output Frequencies—1750-2000 kc, 7000-7425 kc, 6740-6808 kc. **Calibrated Bands**—160-80-40-20-15-11-10 meters. **Tube Compliment**—6AU6 Oscillator OA2 Voltage Regulator. **Power Requirements**—250-350 VDC @ 15-20 ma. and 6.3 VAC @ .45A.

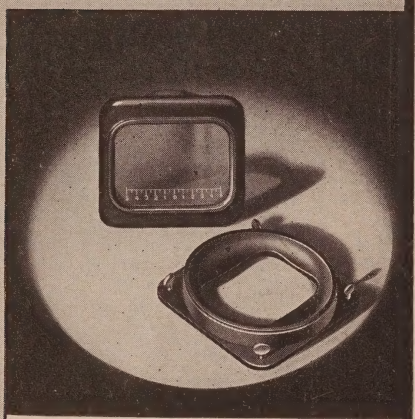
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Designed for

M

Application



The No. 80070 Series
of
Cathode Ray Tube Bezels

The MILLEN "Designed for Application" line of plastic and cast aluminum panel bezels includes units for the 1", 2", 3" and 5" tubes. The 5" size is also available with a special neoprene cushion for the new flat faced tubes as well as the standard cushion. The finish on all types, either metal or plastic is a handsome flat black. The 2", 3" and 5" sizes include a green plexiglass filter. Mumetal and nicoloi shields are also available for all types of cathode ray tubes for use with any of these bezels.

JAMES MILLEN MFG. CO., INC.

MAIN OFFICE AND FACTORY
MALDEN
MASSACHUSETTS

M



Nowhere, Ariz.

Deer Hon. Ed:

You having destroyed me!! Scratchi are now among the legions of missing men. Can't go any place, can't even showing Hon. Face, and all on acct. of you, Hon. Ed. Of all the dirty tricks—of all the low-down, meen, contemptipple idears you are having, this one are popping the modulayshun meter.

There I are, just a few days ago, good old lovable old Scratchi, happy as mouse in bran barrel, sitting down in fayvrut easy chair, glass of icy-cold cacktus jooce in one hand, and latest copy of your Hon. Rag you calling a magazine, and I using the term loosely, in the other hand.

Are turning to page six to making certainly that you printing my last letter, then flipping pages when coming to page twelve, and noticing that you distcussing fact that I are having written you one-hundred letters. Ah so, I saying, this are reel nice of Hon. Ed. He having so much time on his hands he even counting Hon. Letters I riting. This not only showing that you like Scratchi letters, it also proofing that you can count.

Little further on, even noting you planning, maybes, to putting out booklet containing some of my letters. This are getting me so eggcited I almost sending you one bux for awtograffed copy, until I reelizing I already knowing what are in letters, on acct. I riting them, and reely not caring for awtograff, on acct. can't reeding own handriting.

And then, Hon. Ed., you are stabbing me in the chest when my back are turned. Here I trusting you like old friend, thinking you grate pal of mine. Hokendoke Hackensaki!! What are you meeing when you saying "Who writes Scratchi" (and I quoting).

Who you thinking riting Scratchi? Sandy Claws? Jack Frost? Scratchi are ritten by me. Scratchi. Hashafisti Scratchi. You thinking maybes I not being ables to riting such purrfect letters in 1/c English that I getting ghostriter?

Of coursely I knowing good old Dick Spenceley. He are having at least cupple QSL cards from me. Unless he throwing them away he should be finding them. I not remembering what call letters are on them, and I'm surely my rite name not on them, but you not egg-

NOW... MODEL SX-100
SELECTABLE SIDE BAND RECEIVER

BUILT TO THE SPECIFICATIONS OF 1,000,000 FIELD EXPERTS

See it at Your Jobber—only $295.00

Hallicrafters 22 years of production know-how, the engineering experience of developing over 100 different major receiver designs, plus the advice of over 1,000,000 field experts operating Hallicrafters receivers all are combined to bring you this outstanding new receiver—the SX-100! Hallicrafters alone, long recognized as the leading designer and manufacturer of quality communications equipment, can offer you the dependability and performance of this great new SX-100 at the amazingly low price of just $295.00.

Look at these features you enjoy with the SX-100 . . . before, they were available only on receivers costing a great deal more!

1. SELECTABLE SIDE BAND OPERATION.
2. "TEE-NOTCH" FILTER—This new development provides a stable non-regenerative system for the rejection of unwanted hetrodyne. The "Tee-Notch" also produces an effective steepening of the already excellent 50 KC i.f. pass band (made famous in the SX-96) and further increases the effectiveness of the advanced exalted carrier type reception.
3. NOTCH DEPTH CONTROL for maximum null adjustment.
4. ANTENNA TRIMMER.
5. PLUG IN LABORATORY TYPE EVACUATED 100 KC QUARTZ CRYSTAL CALIBRATOR—included in price.
6. LOGGING DIALS FOR BOTH TUNING CONTROLS.
7. FULL PRECISION GEAR DRIVE DIAL SYSTEM.
8. SECOND CONVERSION OSCILLATOR CRYSTAL CONTROLLED—greater stability through crystal control and additional temperature compensation of high frequency oscillator circuits.

Controls

Pitch Control
Reception
Standby
Phone Jack
Response control (upper and lower side band selector)
Antenna Trimmer
Notch Frequency
Notch depth
Calibrator on/off
Sensitivity
Band Selector
Volume
Tuning
AVC on/off
Noise limiter on/off
Bandspread
Selectivity

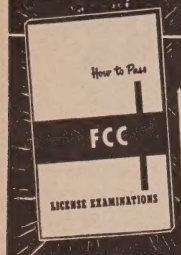
hallicrafters

CHICAGO 24, ILLINOIS

Model SX-100. *Amateur Net* $295.00
Matching R-46B Speaker $17.95
***Frequency Range* 538kc-1580 kc**
1720 kc-34 mc



How To Pass FCC COMMERCIAL RADIO OPERATOR License Exams

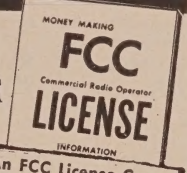


Free . . .

Tells where to apply and take FCC examinations, location of examining office, scope of knowledge required, approved way to prepare for FCC examinations, positive method of checking your knowledge before taking the examination.

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Name ..... Age .....

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

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Electronic Training also available to Canadian Residents

specting me to putting rite name on them when I not having FCC license. I can't be putting Hashafisti Scratchi on my QSL cards and having FCC all over me like tent.

Hon. Ed., you not reelizing what you doing to me with your prank. I going to local amchoor meeting, and everybuddies telling me they knowing I not riting Scratchi letters, on acct. Hon. Ed. saying so. Sum other fellow riting them, they say. So, all I getting is big horsylaff. Peeples seeing me on street and laffing like furies.

Hon. Ed., what can I doing to convincing you that feller what riting Scratchi are reely Scratchi. Hashafisti Scratchi. Living with brother. Riting address are Hashafisti Scratchi, c/o Itchi Scratchi, Rural Root, Feenix, Ariz. (Noting please: if riting to me, please putting return address on male so it can be returning to sender if we away on vaycayshun).

What will reeley convincing you? Needing pickshure of me hard at work riting letter to you? Maybe I should be getting some engraved stayshunary with my name on in large letters? Maybe I should be delivering letters in personally?

Hon. Ed., giving me back to the world. Stop making me a nobuddies. I not wanting to be a man without a name. Telling everybuddies that Scratchi are ritten by me, Scratchi.

Also telling everybuddies to sending in there one bux for the Scratchi booklet, awtograffed. Why, you ask? I telling you why. I giving you odds, eleventeen to one, that when peeples getting those awtograffed copies, they are signd:

Respectively yours,
Hashafisti Scratchi

Southeast Penna.

A joint hamfest, comprised of four Southeastern Pennsylvania Amateur Radio Clubs, will be held in York, Pennsylvania, on August 19, 1956. Come one, come all and chew the fat in person.

Bathurst, N. B.

(Canada)

The North Shore Amateur Radio Club in conjunction with the New Brunswick Amateur Radio Association are sponsoring a hamfest in Bathurst on September 1st and 2nd of this year which is recognized by the A.R.R.L. as the official Eastern Canadian Convention.

Kentucky

The annual Hamfest of the Bluegrass Amateur Radio Club of Lexington Kentucky will be held this year on the 30th of September, Sunday, at the Sportsman Club four miles east of Lexington, Ky. on Route U.S. 25 (Richmond Rd.).

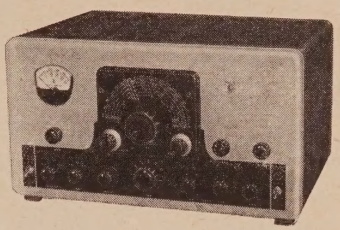
Chicago

The Fourth Annual Side Band Dinner of the Chicago area is to be held August 11th at the Midwest Hotel, Hamlin Ave. & Madison Street, Chicago. Dinner will be at 6:00 P.M. Central Daylight Saving Time. Tickets are $5.00 per person and may be obtained from E. L. Hanna (W9NWK), 640 Newton Ave., Glen Ellyn, Ill. Hotel reservations may also be requested from the same individual. XYL's, YL's and others are welcome. Advance requests are welcome and needed, so the dinner can be properly planned.

275 watts SSB* and CW . . . 200 watts AM!

VIKING "VALIANT"

*P.E.P. input with auxiliary SSB exciter



This compact transmitter gives you outstanding flexibility and performance . . . power to punch through terrific QRM! The "Valiant" may be operated by built-in VFO or crystal control . . . VFO is temperature compensated and extremely stable — operates in the 1.75 to 2.0 mc. and 7.0 to 7.45 mc. ranges. High efficiency pi-network tank circuit matches antenna loads from 50 to 600 ohms . . . tunes out large amounts of reactance . . . final tank coil is silver plated. Other features: Complete TVI suppression; timed sequence keying; high gain push-to-talk audio system; low level audio clipping; built-in low pass audio filter; self contained power supplies; and single knob mode switching.

The "Valiant" is available completely wired and tested or as an easy-to-assemble kit. Dimensions: 11⅝" x 21⅛" x 17⅜". Complete with tubes, less crystals, key and mike.

Cat. No. 240-104. Viking "Valiant" Kit.... **$349.50** Amateur Net

Cat. No. 240-104-2. Viking "Valiant" wired and tested.....**$439.50** Amateur Net

90 watts P.E.P. input SSB! AM and CW at the flip of a switch!

VIKING "PACEMAKER"



Designed for the amateur who wants more than just a single sideband exciter, the exciting new Viking "Pacemaker" has the power to put it in the transmitter class with unmatched flexibility of operation and control. Completely self-contained and effectively TVI suppressed — bandswitching on 80, 40, 20, 15 and 10 meters. Extremely stable built-in VFO operates in 3 to 4 mc. region. "Foolproof" voice controlled operation — VOX and anti-trip controls easily adjusted. Pi-network output circuit will load virtually any antenna system . . . plenty of power here, too, to drive conventional or grounded grid amplifiers up to a full kilowatt.

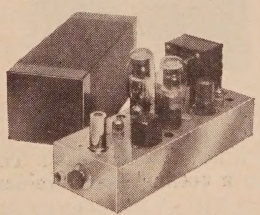
Handsome maroon and grey cabinet . . . 11⅝" x 21⅛" x 17⅜". Supplied as a completely wired and tested unit only — all tubes and crystals furnished, less key and mike.

Cat. No. 240-301-2. Viking "Pacemaker" wired and tested..... **$495.00** Amateur Net

NEW

JOHNSON AUDIO AMPLIFIER

Self-contained 10-watt speech amplifier with power supply



The Viking Audio Amplifier is designed for driving high powered modulators, such as found in the Viking Kilowatt. Completely self-contained, with speech clipping and filtering incorporated for higher average modulated carrier power while maintaining maximum intelligibility.

Three inputs are provided: a high gain, high impedance input for use with crystal or dynamic microphones; a high impedance input requiring approximately 85 mv for use with a remote microphone amplifier or low level speech system; an unbalanced 680 ohm input for use with a phone patch or 500-600 ohm line.

Output transformer feeds a 500 ohm line or modulator grids directly. Audio filter limits frequency range to 3500 cycles, and an adjustable clipper provides up to 20 db clipping. Control circuit for push-to-talk operation, if used, is routed through from microphone input to output connectors.

Available wired and tested or as a complete kit with tubes. Dimensions: 8"x5⅜"x13⅞".

Cat. No. 250-33. Viking Audio Amplifier Kit..... **$73.50** Amateur Net

Cat No. 250-33-2. Viking audio amplifier wired & tested..**$99.50** Amateur Net

E. F. Johnson Company

2933 SECOND AVENUE SOUTHWEST • WASECA, MINNESOTA

Capacitors • Inductors • Knobs • Dials • Sockets • Insulators • Plugs • Jacks • Pilot Lights

See your distributor.

Johnson Amateur Equipment is sold only through Authorized Johnson Distributors—most offer convenient time payment plans. For complete information see your distributor.

EDITORIAL
WAYNE GREEN

. . . de W2NSD

NEVER SAY DIE

Deep in the Heart

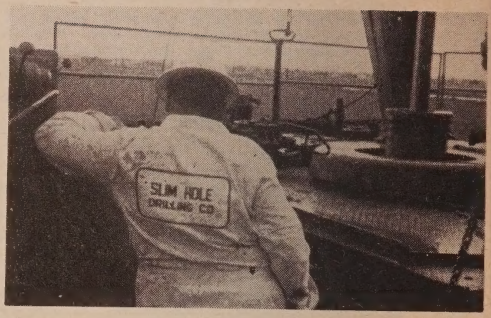
The advent of the Galveston Convention in June seemed like an ideal time to take advantage of W5YVJ's (see "Pony Express" article in July *CQ*) offer to host me around that area. Bernie picked me up at the airport and stopping only to take a quick check on the depth of the drilling of his first oil well (or deep hole in the ground, depending upon the outcome), drove me out to his ranch on the outskirts of Houston. We walked in the house, turned on the rig, and were almost immediately in QSO with K2CBO who lives three blocks from me in Brooklyn. The Brooklyn gang thought I was still at home and refused to believe that I was operating from W5YVJ until Bernie spoke up.



W5YVJ Bernie

The next morning we saddled up two of Bernie's horses, loaded them in a trailer, and drove off to a large cattle ranch. There I was introduced to a cutting horse trainer and had a few minutes trial at this interesting business. We galumphed around the ranch and I really enjoyed myself. I'd like that country real well if they would air condition the outdoors like they do the houses and cars.

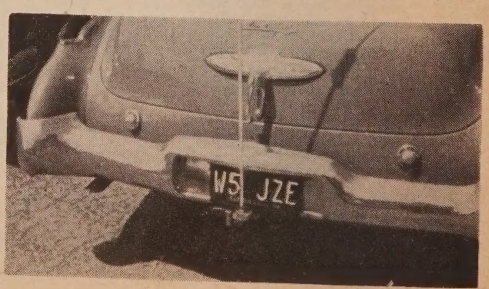
On Saturday we drove the 50 miles down to Galveston where I had a chance to say hello to the SSB gang in particular, meet a lot of old friends (such as W5AJG), some of our authors, and dozens of readers. I pulled about every trick I could think of to talk all those wealthy Oil Men out of some $$ to subscribe, but most of them didn't want to break their thousand

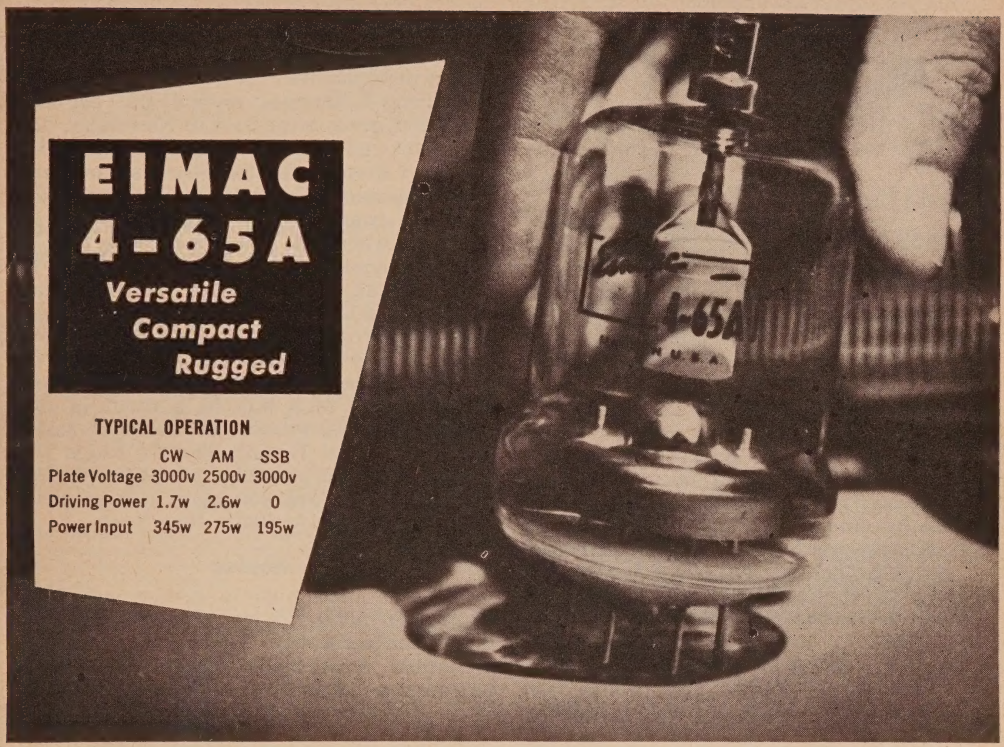


dollar bills and didn't have anything smaller.

Saturday night, back in Houston, Bernie, his beautiful (Conover Model) wife Ann, and I attended a wedding. And what a wedding! It was held at one of the most exclusive clubs, was decorated with thousands of dollars of flowers and had Shep Fields' Orchestra for the dancing. The buffet was fabulous. In the grand rush we scooped a little of everything on our plates; later we looked things over a bit more carefully on the second round and found several unknown items. I pointed at one suspicious brown pile of something and asked the attendant, "What are those?" He looked at me with a straight face and said, "Worms." Yug! They had looked like fried onions to me the first time through and certainly didn't taste bad. Suddenly I felt different. He watched me turn green with white trimming and administered the coup de grace by pointing to the next pile of little black things and saying, "These are grasshoppers." They *were* too! I always used to think of steaks when I thought of Texas; now guess what I think of.

[*Turn page*]





For low to medium powers, mobile or fixed station, the Eimac 4-65A is truly one of the most versatile tubes in amateur use today. The least expensive and smallest of the Eimac internal-anode tetrodes, this compact, rugged tube is ideal for all-band CW, AM, and SSB rigs.

Short, heavy leads and low interelectrode capacitances contribute to stable, efficient operation of the 4-65A at high frequencies. The tube operates over a wide range of plate voltages — 600 to 3000 volts with power inputs from 90 to 345 watts — and as with all Eimac tetrodes, it requires low driving power and simplifies transmitter construction.

For mobile use, the radiation-cooled 4-65A is a natural. Its instant heating filament eliminates battery drain during stand-by periods. And through application of filament and plate power simultaneously, no warm-up periods are required.

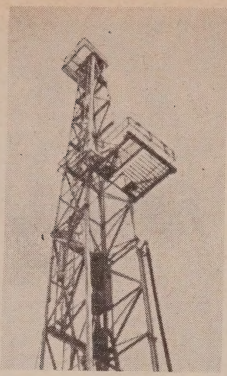
For further information on the 4-65A, write the Eimac Amateur Service Bureau or visit your Eimac distributor.

Eimac

EITEL-McCULLOUGH, INC.

SAN BRUNO, CALIFORNIA

The World's Largest Manufacturer of Transmitting Tubes



Those crazy towers

Sunday morning Bernie, his son Bobby, two neighbors and I went out for an hour's ride. We had to cut it short to get back to the Convention for the big banquet since I was supposed to make a short speech. I guess the biggest disappointment I've had since becoming editor of *CQ* was when the Convention Chairman informed me that they had forgotten I was there and they had no seat for me and did not have me on the program to speak.

That night we took it easy at home and watched TV. Later I fired up the rig and got hold of PJ2MC for Bernie, thus making him a DX man. I don't know how Reg swung the deal, but he managed to get his license to operate from the Dutch side of St. Martin. Pictures and story will probably appear in *QST* one of these months.

Monday I shopped around and got some western shirts to bring back to New York. That afternoon and evening we had a chicken barbeque at Bernie's for the Sheriff's Emergency Communications Corps of Harris County, Texas. Some twenty of the gang showed up and we had a wonderful time rag chewing over the latest equipment pro's and con's. These fellows, all with mobile stations, scramble whenever there is any sort of emergency and have won wide recognition in the area for their work. If you notice a lot of articles about Houston in the future you may rightly suspect that this may in a way be a result of their making me a life member of their club and issuing me a real Deputy Sheriff's badge with my name on it as a member of the Corps. Gentlemen, let me thank you again, it is an honor.

Tuesday: back to sticky New York.

Hosses

We hit a new high in getting call letters wrong last month, all in *one* article. Damaged in the confusion were W5YVJ, the author of the article, W5SDA and W5URU. Under most circumstances I might be inclined to shrug my

[*Continued on page 110*]

HEATHKIT
NEW DX-35 phone and cw transmitter KIT



MODEL DX-35
$56.95
Shpg. Wt. 24 Lbs.

- Built-in modulator for phone operation.
- Bandswitching on 80, 40, 20, 15, 11 and 10 meters. Pi network output coupling.
- Switch selection of three crystals—provision for external VFO excitation.
- Attractive and functional physical design.

This brand new transmitter model provides phone and CW operation on 80, 40, 20, 15, 11, and 10 meters. Plate power input to 65 watts on CW and controlled carrier modulation peaks to 50 watts on phone. Completely bandswitching.

Employs two-stage 12AX7 speech amplifier, 12AU7 modulator, 12BY7 oscillator, 12BY7 buffer, and 6146 final. The buffer stage assures plenty of drive to the final on all bands. Pi network output coupling employed for easy antenna loading. Switch selection of crystals. Crystals changed without removing transmitter cabinet. Husky power transformer and choke are potted, and the circuit is well shielded. Meter indicates final grid or plate current.

Truly a remarkable transmitter package for the price. Ideal both for the novice and for the more experienced operator.

Send for free 1956 Heathkit Catalog describing more than 65 interesting "build-it-yourself" projects.

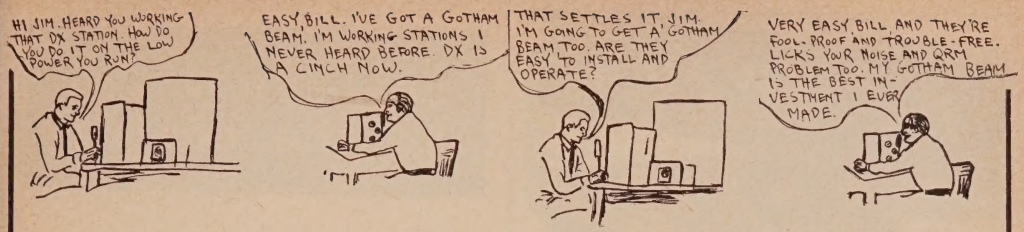
HEATH COMPANY
A Subsidiary of Daystrom, Inc.
BENTON HARBOR 12, MICHIGAN

HEATHKIT "Q" multiplier KIT

Provides extra selectivity for separating signals, or will reject one signal to eliminate heterodyne. Effective Q of 4,000 for sharp "peak" or "null." Tunes any signal within receiver IF. Operates with 450 to 460 kc IF. Will not function with AC-DC type receivers. Requires 6.3 VAC at 300 ma, and 150-250 VDC at 2 ma.



MODEL QF-1
$9.95 Shpg. Wt. 3 Lbs.



Study these specifications—compare them—and you too will agree, along with thousands of hams, that GOTHAM beams are best!

TYPE OF BEAM. All Gotham beams are of the full half-wave plumber's delight type; i.e., all metal and grounded at the center. No wood, tuning stubs, baluns, coils, or any other devices are used.

GAIN. Gotham beams give the maximum gain obtainable. Our 2-element beams give a power gain of four (equivalent to 6 db.); our 3-element beams give a power gain of seven (8.1 db.); and our 4-element beams give a power gain of nine (9.6 db.)

FRONT-TO-BACK RATIO. We guarantee a minimum F/B Ratio of 19 db. for any of our 2-element beams; 29 db. for any of our 3-element beams; 35 db. for 4-element beams.

MATCHING. Matching of the transmission line to the beam is extremely simple and quick. Everything is furnished and the matching is automatic. No electronic equipment or measuring devices are required.

ASSEMBLY AND INSTALLATION. No special tools are required for assembly and installation. Entire job can be done by one man in less thon an hour. Full instructions are included with each beam.

MAST. Any Gotham beam can be mounted on a simple pipe mast. Diameter of the pipe should be between ¾" and 1⅝".

STANDING WAVE RATIO. A very low SWR of approximately 1.5 to 1 will result from following the instruction sheet, depending on the height above ground and the surrounding area. If an SWR indicator is available, Gotham beams can be quickly and easily adjusted to 1.1.

STANDARD AND DELUXE BEAMS. Standard beams in the 6, 10 and 15 meter bands use ⅝" and ¾" tubing elements; the deluxe models for these bands use ⅞" and 1". In 20 meter beams, the standard has a single boom, while the deluxe uses twin booms.

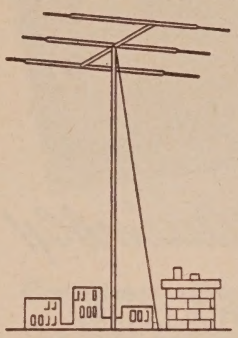
WHAT WILL A GOTHAM BEAM DO? A Gotham beam will amplify the transmitted and received signal tremendously and will greatly reduce noise and QRM.

NEW VERTICAL ANTENNAS

ENGINEERED VERTICAL ANTENNAS for 40 meters, 80 meters, 160 meters. Gotham proudly announces three vertical antennas for unsurpassed performance on 40 meters, 80 meters, and 160 meters. Each antenna is absolutely complete, canb e assembled in less than two minutes and requires no special tools or electronic instruments for adjustmen and operation. Radiation is omni-directional, with maximum radiation at the very low angles necessary for DX operation. These three vertical antennas have been developed over a period of three years in respons to requests by hams for efficient, fool-proof, small-space, low-cost antennas for 40, 80, and 160 meters. Two 12 foot lengths of tubing and loading coil in each vertical antenna. Literature available.

V40 vertical for 40, 20, 15 and 10M..... $14.95
V80 vertical for 80, 40, 20, 15, and 10 M..... $16.95
#V160 vertical for 160, 80, 40, 20 15 and 10 M $18.95

HOW TO ORDER: Send coupon with check or money order directly to GOTHAM or visit your local distributor. Immediate shipment by Railway Express, charges collect. Foreign orders accepted. Some leading distributors who handle GOTHAM beams: Offenbach & Reimus, Curle, M. N. Duffy, Alltronic, Purchase Radio, Lew Bonn Co., Henry Radio, Evans, Gldb's Ham Gear, Hobe's Radio, Western Electronics, Harris Radio, Capitol Radio, Kinkade, Johannsen, W. H. Edwards Co., World Radio Labs, Graham Electronics, Geo. D. Barbey Co., Hudson Radio, Selectronic, Radio Electric Service, Ken-El's Radio, NRM Wholesale Radio.



This Full Size Gotham Cost Only $21.95 And Brought In 87 Foreign Countries, All Continents And 30 Zones On 35 Watts!

MAIL THIS COUPON TODAY!
10-DAY MONEY BACK GUARANTEE

GOTHAM

DEPT. CQ

107 E. 126th ST., NEW YORK 35, N. Y.

Enclosed find check or money-order for:

2 METER BEAMS
- ☐ Deluxe 6-Element $9.95 — ☐ 12-El $16.95

6 METER BEAMS
- ☐ Std. 3-El Gamma match 12.95 — ☐ T match 14.95
- ☐ Deluxe 3-El Gamma match 21.95 — ☐ T match 24.95
- ☐ Std. 4-El Gamma match 16.95 — ☐ T match 19.95
- ☐ Deluxe 4-El Gamma match 25.95 — ☐ T match 28.95

10 METER BEAMS
- ☐ Std. 2-El Gamma match 11.95 — ☐ T match 14.95
- ☐ Deluxe 2-El Gamma match 18.95 — ☐ T match 21.95
- ☐ Std. 3-El Gamma match 16.95 — ☐ T match 18.95
- ☐ Deluxe 3-El Gamma match 22.95 — ☐ T match 25.95
- ☐ Std. 4-El Gamma match 21.95 — ☐ T match 24.95
- ☐ Deluxe 4-El Gamma match 27.95 — ☐ T match 30.95

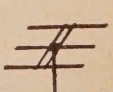
15 METER BEAMS
- ☐ Std. 2-El Gamma match 19.95 — ☐ T match 22.95
- ☐ Deluxe 2-El Gamma match 29.95 — ☐ T match 32.95
- ☐ Std. 3-El Gamma match 26.95 — ☐ T match 29.95
- ☐ Deluxe 3-El Gamma match 36.95 — ☐ T match 39.95

20 METER BEAMS
- ☐ Std. 2-El Gamma match 21.95 — ☐ T match 24.95
- ☐ Deluxe 2-El Gamma match 31.95 — ☐ T match 34.95
- ☐ Std. 3-El Gamma match 34.95 — ☐ T match 37.95
- ☐ Deluxe 3-El Gamma match 46.95 — ☐ T match 49.95

(Note: Gamma-match beams use 52 or 72 ohm coax. T-match beams use 300 ohm line.)

NEW! RUGGEDIZED HI-GAIN 6, 10, 15 METER BEAMS

Each has a TWIN boom, extra heavy beam mount castings, extra hardware and everything needed. Guaranteed high gain, simple installation and all-weather resistant. For 52, 72 or 300 ohm transmission line. Specify which transmission line you will use.



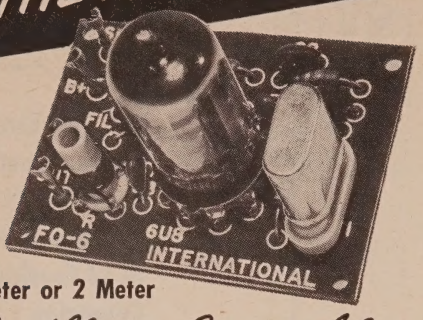
- ☐ Beam #R6 (6 Meters, 4-El) $38.95
- ☐ Beam #R10 (10 Meters, 4-El).... 40.95
- ☐ Beam #R15 (15 Meters, 3-El) 49.95

Name .....

Address .....

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

THE NEW FO-6



6 Meter or 2 Meter

Oscillator Assembly!

"Sure-Fire" Way to Achieve
STABLE CRYSTAL CONTROL
with high frequency crystals!

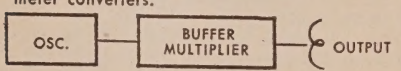
..A 3-WAY UNIT!

1. Midget 6 Meter Transmitter—Provides for separate B+ connections to buffer stage for modulation.

2. Driver Unit for higher power 6 meter transmitter. Will work into a 5763 tube, providing ample drive for a 6146 final.

For 2 meter operation the pentode section of the 6U8 tube may be used as a tripler, or the unit can operate straight thru' on 48MC and drive a 5763 tube as a tripler.

3. Receiver Local Oscillator for 2 meters. By using pentode section of FO-6 as a tripler, this unit provides injection voltage for 2 meter converters.



6U8 Tube
Crystal Oscillator Range, 48MC to 54 MC. **Output** 50-54MC or 144-148 MC. (Specify When Ordering)
Crystal Required—3rd Overtone Type FA-5
Plate Voltage—250 volts @ 20 ma
Filament Voltage—6.3 volts @ 450 ma
Size—2" x 2¾" x 2¾"

Kit (less tube & crystal)	**5.95**
Complete wired & tested (with tube, less crystal)	**9.95**
Crystal Type FA-5 48-54MC	**3.90**

HOW TO ORDER: For fastest possible service, crystals and oscillator assemblies are sold direct. When cash accompanies order, International prepays postage. Otherwise, shipment made C. O. D.

International
CRYSTAL MFG. CO. *Inc.*
18 N. LEE PHONE FO 5-1165 OKLAHOMA CITY, OKLA.

Letters . . . to the editor

Lebanon

Gentlemen:

Disaster sometimes comes with devastating suddenness and so it was on the warm spring evening of March 16th of this year, in the fair and sunny country of Lebanon. The inhabitants were pursuing their business or their pleasure and the OD5 boys had settled down to an evening's rag chewing or D.X.

One distant listener must have been considerably surprised when in contact with an OD5 station he heard the operator shout there is an earthquake. This was no figure of speech it was literally true, there was an earthquake. Although there were ten tremors, the first three being the most severe causing the operators to clutch their rigs to prevent them being thrown to the floor.

The reaction of the members of the Lebanese Amateur Radio Society, whose headquarters are in Beirut the Capital City was almost automatic. Within a few minutes of the first quake, their services as a second line of communication, were offered to the Minister of Information and were accepted. The Minister required information as to the area of the disturbance in relationship to neighbouring countries, it not being known at this time whether the center was in Lebanon or the reflection from larger disturbance at some distance.

A quick decision was made by the OD5 operators to operate several transmitters at spaced frequencies calling the surrounding countries, while others held a listening brief.



Within a short time it could be reported that contacts with amateurs in all surrounding countries including Kuwait, Bahrain and Greece were obtained and it was known that tremors had been felt but were slight and there was no damage.

Turkey was one country with which contact could not be established. Then DL stations operating from Germany offered their services but without any result as there was one amateur transmitting in Turkey and he must have been pursuing his lawful business or sleeping after the labour of the day unconscious that he was the center of such widespread attention.

There being no reply the DL boys on their own initiative engaged the interest of their own Meteorological station who agreed to use their facilities to gather further information.

We must thank herewith all radio amatur stations who actively or silently helped the Lebanese boys to collect information from different centers. It would not be possible to mention every one of them personally but those reading this article will recognize themselves in this feature.

The radio vigil continued all night in spite of the danger of a house collapsing on an amateur every one remained at his post and got the necessary information to help the public know what was going on.

By morning the location and extent of the earthquake had been generally established, as centered in the mountainous districts of Lebanon. The devastation was not as great as was at first feared, though a couple of hundred persons lost their lives and thousands are rendered homeless.

We beg every radio amateur who participated in the cooperation to find herewith the sincere thanks of the Lebanese Radio Amateurs Society.

Ron Gardner, OD5BN

Visitor

Dear Wayne:

It is seldom that I write to the editor of a magazine but I think now the time has come.

I read with much interest your editorial in the February issue. I took special notice of the people that you mentioned.

It was my great pleasure to work one of the fellows that you visited down there. I was running along, calling the roll of the Virginia Fone Net and when I got to the area for stations outside of the state lo-and-behold but who should come back but W6CIW/KP4.

Bill had a very fine signal up into Virginia and I hope mine was likewise down there. It is not often that I get to work people that I have just seen in a magazine like CQ, especially up on 75 Fone.

I enjoyed very much being able to get a look at who I was working.

I have enjoyed CQ much more since it has been enlarged and as much as I hate to say it I think it is well worth the additional 15c.

Keep up the good work and I'm all for your wonderful editorials.

Best 73,

Jeff Walker, W4AAD
Warwick, Va.

Conversation

Dear OM:

The guest editorial by K2ORS struck a responsive chord here—ham QSO's are heavy on the "tube line-up," the means by which the contact was established. However, a local TV show, "Science Fiction Theater," was tailor-made to spark up our local rag-chewing.

The writer reasoned that the ham was a sort of scientific chap who could talk atom physics, biology, and botany as well as beams and modulators. Why not start a "science fiction net" on 10 Meters? The object: to discuss the last TV science fiction play and let the conversation ball roll where it may.

So every Friday night at 11 p.m., the science fiction net is called to order and the following enthusiasts respond: W9LHR, UFV, and K9TKO (More members are expected as the idea catches on).

What do we talk about? Here are typical conversational subjects—anti-gravitation, guantum theory, solid-state physics, brain waves, artificial heart, to mention a few. Conversation is never at a loss; we have to keep transmissions down to 3-minute periods. New ideas are created with the stimulation of others. We all learn something and at the same time have a lot of fun. What an interesting way to learn more about the sciences!

73,

Fred E. Ebel, W9PXA
Milwaukee, Wis.

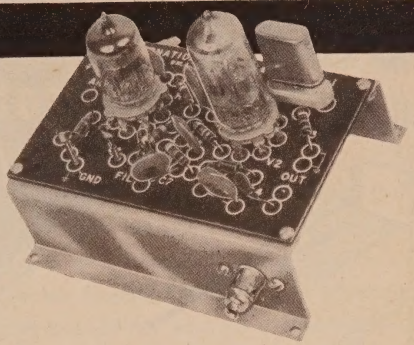
Police CW

Dear Sirs:

Want to hear what a commercial CW Op sounds like? Want to hear how tfc *should* be handled? Want some good hi-speed code practice? If you are fortunate enough to have a general coverage rcvr, listen to the National Police CW frequencies on 2804, 2808, 2812, 5195, 5135, 5140, 7935, 7805, 7480. Naturally, the law regarding secrecy of communications is in full effect, and you may not divulge the content of any transmission—but there is no law against listening for practice. There are a few dub ops, but most of them gallop along at 35 WPM or better—and the tfc really moves—with no silly breaks or interruptions. (I doubt if there is any element of secrecy about these frequencies—after all, a crook isn't very likely to be able to copy 35 or better. . .

F. C. Hervey, W9IIU
Appleton, Wisc.

PRINTED CIRCUIT
6 METER CONVERTER



Compact, Broad Band Crystal Controlled

● No *alignment* necessary . . . *Simple to assemble* . . . with *snap-on connectors* for power leads! Output IF frequency can be changed by merely changing the crystal (crystal range of 40 MC to 50 MC).

Specifications

Freq. Range	50-54 MC (51 MC design center)
Sensitivity	1 microvolt or better
Output IF*	(1) 600 KC to 1500 KC (2) 7 MC to 11 MC
Crystal Freq.	49.4 MC or 43 MC depending on IF desired (Oscillator range 40 MC to 50 MC).
Plate Power	150 volts to 250 volts DC @ 15 ma to 20 ma
Heater Power	6.3 volts @ 600 ma
Tubes	6AK5 RF Amplifier 6J6 Mixer Oscillator
Size	(overall) 4" x 3½" x 3½"
Weight	3 ounces

KIT (with crystal less tubes)..... **$10.95**

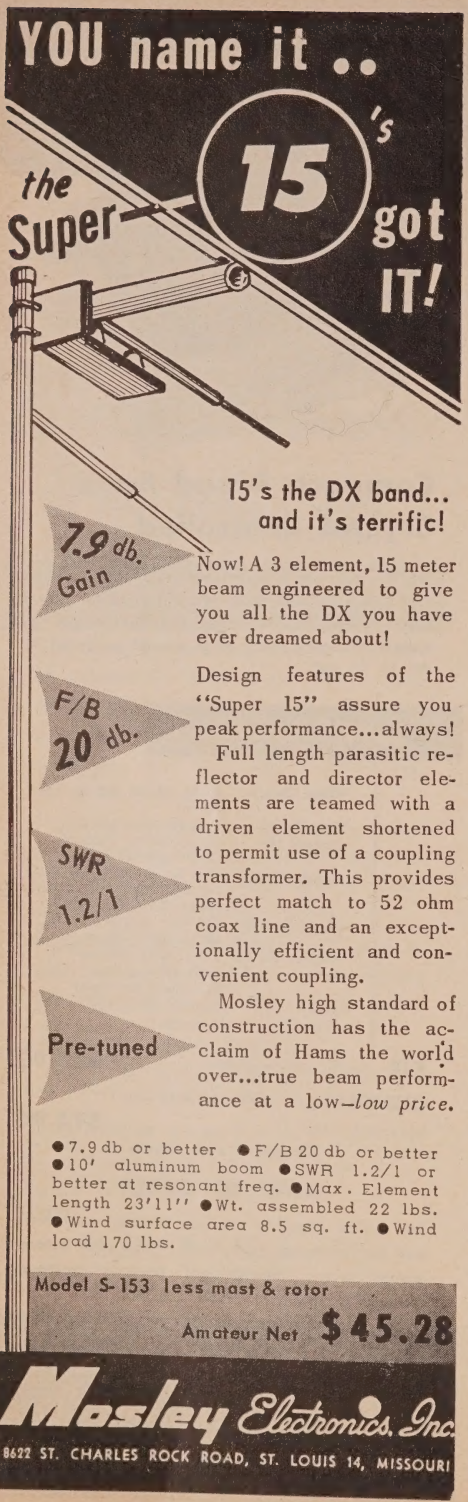
COMPLETE, wired and tested with tubes and crystal..... **$15.95**

*Specify IF when ordering

HOW TO ORDER

For fastest possible service, crystals, oscillators and converters are sold direct. When cash accompanies order, International prepays postage. Otherwise, shipment made C.O.D.

International
CRYSTAL Mfg. Co., Inc.
18 N. LEE PHONE FO 5-1165
OKLAHOMA CITY, OKLA.



SSB Dinner Prize

Dear Wayne:
If any of the gang who attended the SSB Dinner in New York on March 20th doesn't yet know who won the 600L Broad Band Amplifier, they may be interested to learn that the winning ticket was that of

Florence Lee (YF of K2FZ)
170-10 Cedarcroft Road
Jamaica Estates, New York

As announced at the dinner, when I had the unusual good luck of winning the main prize, it was passed along by means of a drawing which gave every ticket-holder another chance to win it.
Fred Huff, W2AMB, is to be congratulated upon the social and commercial success of this affair, and for his enterprise in promoting it.

73,

Bill Harrison, W2AVA

Puzzler

Autocall, the monthly publication of the Washington, D. C. Mobile Radio Club, has been running a series of particularly difficult mathematical and logic problems. Most of them are deceptively simple on the surface and they have beguiled *CQ's* editor into hours and hours of furious calculations. The only way he can figure to get even with the world is to publish them here and trap you into trying for a solution. The answer to the problem will be printed next month if we don't forget about it.

> The combined ages of Mary and Ann total 44 years. Mary is twice as old as Ann was when Mary was one-half as old as Ann will be when Ann is three times as old as Mary was when Mary was three times as old as Ann. How old is Ann?

CN8GH and 5A4TW qsl's

Gentlemen:
I've been meaning to drop *CQ* a line for several months now, here it is.
I returned just recently from 3 years in England and French Morocco. While overseas I operated both CN8GH and 5A4TW. Still have stacks of QSL's I'd be happy to send anyone whom I contacted and missed QSL-wise.

Dave, W6FRS
6655 Sepulveda Blvd.
Van Nuys, Calif.

Transistor info please

Editor, CQ:
Several times I have seen articles or heard about converting those little subminiature transistor or 2 tube radios to ham bands. If anybody has any info, I would appreciate their sending it to me. The dope doesn't especially have to be on converting the commercial models; a complete circuit will do swell. I might add that 10 meters is the band I have in mind, and all letters will be answered.

Harry Hochman K2IQN

[*Continued on page 102*]

RADIO OPERATOR-TECHNICIANS

THE U. S. Government has a continuing requirement for single and married men between the ages of 20 and 40 with radio operator-technician experience. Individuals with less than minimum required experience can qualify for training. Persons with past applicable experience, who for some time have been out of touch with this type of activity, will be refreshed. Assignments are overseas at interesting foreign posts.

STARTING annual salaries, which will be determined by the applicant's experience and ability, range from $3670 (GS-5) for trainees to $4970 (GS-8) for fully qualified men. Normal promotional progress within this salary range may be expected when quality of performance dictates. Beyond this latter level advancement possibilities exist on a selective and competitive basis. Standard government allowances are paid in addition to the salary.

A VARIETY of foreign posts is available. Rotation of the employee and his family from post to post is accomplished in accordance with standard government regulations and usually involves tours of 24 months duration at each post followed by Stateside leave between assignments. Work is challenging and varies from post to post. If you are in good health, not subject to military draft, and are interested in the above openings, please write—

DAVID R. RINGLAND
U. S. Government Personnel
Post Office Box 6478, "T" Street Station,
Washington, D.C.

When writing please give us the following information:

1. Name, address, telephone number, and hours when you can be reached;
2. Date of birth;
3. Military history including dates, schools, experience, grade or rank, and MOS (primary and others);
4. Civilian training and experience;
5. FCC license if any;
6. CW speed;
7. Typing speed;
8. Marital status and dependents.

If your letter indicates that you have the required qualifications, a local interview will be arranged in the near future.

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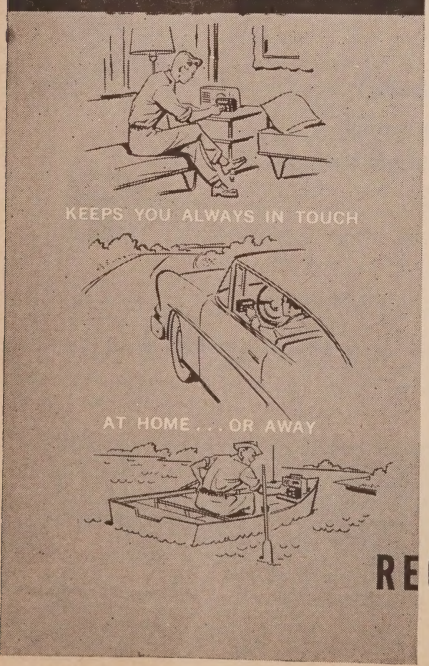
Amateur Band Converter

Regency

ATC-1



a tiny self-powered converter that connects INSTANTLY to any receiver



● No other converter like it! REGENCY's new ATC-1 is truly portable. Hooks up in seconds to *any receiver* (including car radios)—only connections are to an antenna and to receiver's antenna input.

The ATC-1 takes no power from the receiver. It is self-powered by three tiny Penlight cells which have a current drain of only 450 to 600 micro-amperes.

World's Smallest Converter. Use of transistors instead of bulky vacuum tubes makes this remarkable unit as easy to carry as a candid camera—it's actually less than half the size of this page!

The ATC-1 provides AM, CW and SSB reception on the 80, 40, 20, 15 and 10 meter amateur bands. Sensitivity is 5 to 10 mv for 6 db signal-noise ratio. A modified "Q" multiplier circuit improves sensitivity and selectivity for phone operation. Smartly styled aluminum cabinet is covered in dark grey tweed with satin finished aluminum front.

With features that can't be duplicated at any price, the transistorized REGENCY ATC-1 is available now at just. . . . **$79.50**
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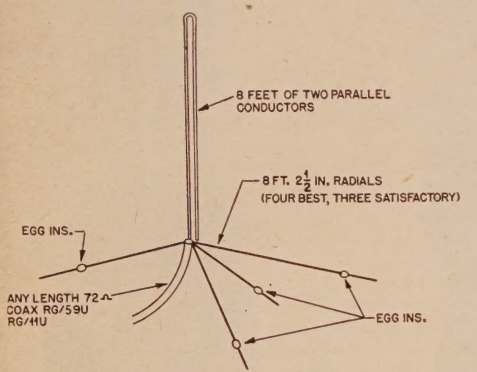
Dept. C, 7900 Pendleton Pike, Indianapolis 26, Indiana

Herb Greenberg, W2EEJ
821 Rutgers Rd.
Franklin Sq., N. Y.

10 M Folded Ground-Plane:

With ten meters on the upsurge again, an antenna which would give a good account of itself and in addition be both inexpensive and relatively inconspicuous was needed. Though a rotary array would be far and away the most efficient, it was ruled out on financial grounds as well as being too conspicuous.

A horizontal dipole was considered and rejected as being too wasteful of r.f., spraying too much skyward, and also because of the nulls off its ends. Some type of non-directional vertical with a low angle of radiation therefore seemed advisable and various types were given consideration. A vertical dipole could be erected, but to obtain the optimum angle of radiation, it should be but four feet off the ground, leaving it surrounded by buildings, definitely lowering its efficiency. A vertical "J" seemed awkward to put up, so a ground-plane looked best at this point.



Previous experience with a ground-plane on the 20 meter band had been good, but it was evident that changing the operating frequency from one end of the band to the other resulted in a considerable rise in the SWR since the antenna was sharply self resonant. The ten meter band is almost two megacycles in width, and eleven meter operation was also contemplated. An antenna with a broader self resonance was desired and a little research disclosed that a folded unipole has all of the desirable characteristics of a ground-plane and in addition has the broader self resonance. It also has a higher input impedance than the ground-plane and is thus easier to match to commonly used coax transmission lines. The entire array is at d-c potential, affording some degree of lightning protection and picking up less random noise.

The Andrew Co., a manufacturer of commercial antennas, had advertised this type of antenna in *CQ* during 1945 and published performance graphs which looked very good. There also was a drawing of the commercial version, a trombone-like vertical radiator with self supporting radials.

The ground-plane already in use on the lower band has drooping radials of #12 copper-enameled wire, which also serve as guys. The amateur version of the folded unipole was similarly constructed. The folded unipole is only slightly more complex than a ground-plane, having a second conductor in parallel to the vertical radiator. This conductor is connected to the radiator at the top and also to the simulated ground at the junction of the radials and the coax shield at the bottom of the vertical portion of the antenna. It can be considered as half of a folded dipole vertically positioned and working against a ground. It has the higher input impedance and broader self resonance characteristics of the folded dipole.

In the version used at this location it was not practical to duplicate the trombone shaped vertical, so a single 8 foot copper pipe and a similar length of /12 wire were used for the radiating portion. Two small standoffs were attached to the pipe to keep the wire spaced away from it in strong winds.

The dimensions used for ten meters were standard for a ground-plane: an 8 foot vertical with slightly longer, 8'2½" radials, for still further broadband response. A 72 ohm feeder is a better match than 52 ohm, but if the latter is on hand, and used, little loss should result.

Another version used by a friend who wanted to try out the antenna at his QTH was made of a length of 300 ohm line attached to a wood mast. The conductors were soldered together at the top and connected to the inner and outer conductors of the coax shield at the bottom. It performed about as well as the more elaborate original. The dimensions and spacing of the verticals do not seem to be critical. Two columns of beer cans soldered together would probably do as well or better, but the basic materials were not on hand and it will be left for a more enterprising (hic!) amateur to try this one.

The effectiveness of this broadband "cousin" of the ground-plane would be realized to an even greater extent on higher frequencies such as six or two meters. This is due to the greater

[*Continued on page 118*]

Ronald L. Ives
251 Lincoln Ave.
Palo Alto Calif.

Improving the S-9'er

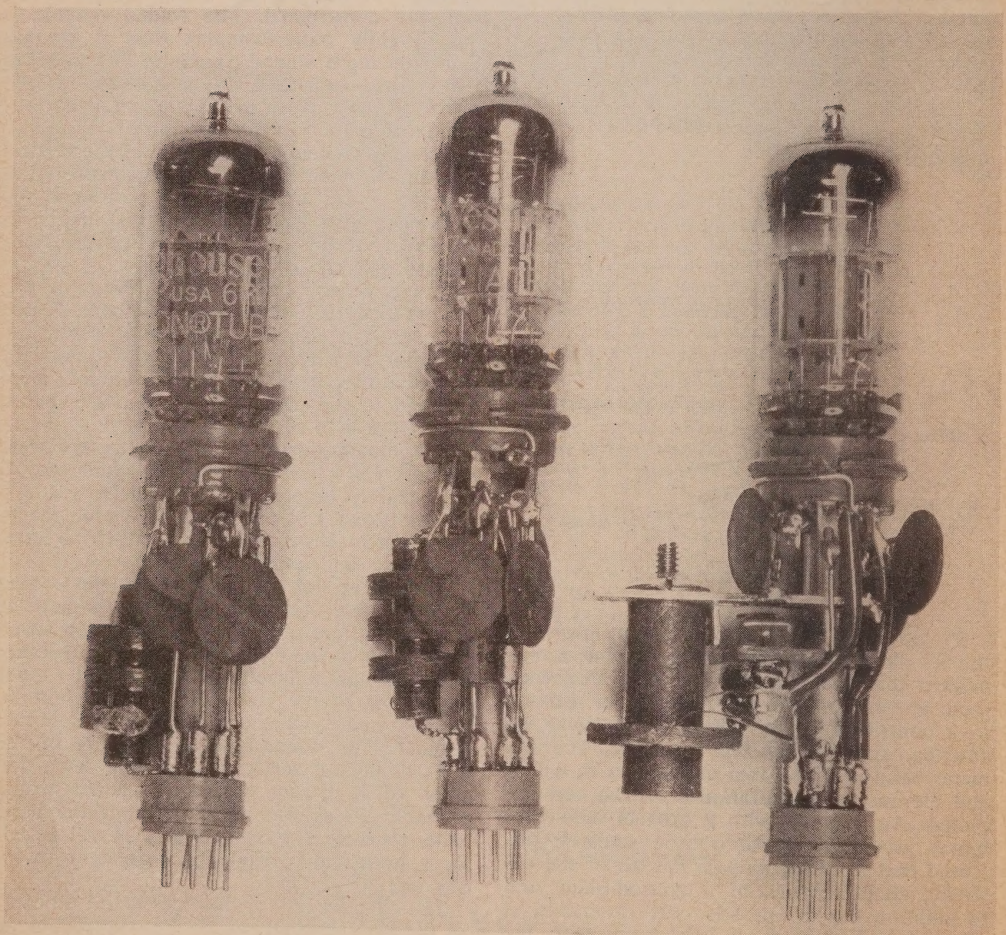


Fig. 4. Dual triode adapters to replace pentodes. Left: S-9er with increased low-frequency response and added bypassing, as in Fig. 1. Center: same with avc voltage eliminated from first grid as in Fig. 2. Right: I-F sharpener, as in Fig. 3.

Recent publication of a workable design for a plug-in low-noise front end, for use as a replacement of the first R-F tube in almost any commercially-made ham receiver (The S-9er, May, 1956, CQ, 21 et seq.), brings out into the light the increasing need for such devices, particularly for use in receivers of initially good design which are now becoming obsolete.

Tests of the S-9er, in several receivers, disclose that it does exactly what is claimed for it. At frequencies below about 2 mc, it is somewhat inferior to a pentode first stage, as might be expected. From two to about fifteen megacycles, it is just about as good as a pentode first stage. Only complicated laboratory tests will show which is better, in most instances. Above fifteen megacycles, the S-9er is definitely superior to the pentode, largely because of its low noise.

This is exactly what might be expected, as the signal-to-noise ratio is largely determined by external noise at low frequencies; and by front-end noise at higher frequencies.

Difficulties

Tests of an S-9er built exactly in accord with Sam Canter's original description (Op. cit.) showed that it will oscillate in some receivers; that its efficiency at lower frequencies could be increased slightly; and that AVC voltage on the first grid didn't improve performance.

Circuit of an improved version, more stable than the original, and more efficient at low frequencies, comprises Fig. 1. Stability is attained by generous bypassing of both filament leads to the adapter ground (pin 2); and by similar bypassing of the first plate of the 6BK7A. In receivers where one side of the filament is grounded, one of the filament bypass condensers will be unnecessary.

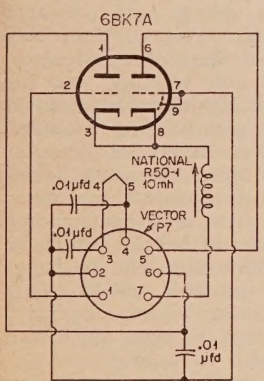


Fig. 1. Improved and stabilized S-9er circuit, arranged to plug into a 6BA6 socket.

Low frequency response was improved by using a larger cathode choke, which theoretically has a higher impedance at all frequencies. Actually, because of distributed capacity, increasing the size of the choke doesn't produce a comparable increase in its impedance at the higher frequencies.

If the S-9er is to be used only at frequencies above about 20 megacycles, a choke consisting of about thirty turns of #32 enameled wire, wound directly on the neck of the adapter, will work very well, and will permit use of a very short adapter. Either remove or ground the metal web on the noval socket, to prevent "floating" capacity in the adapter circuit.

Both as originally constructed and as modified for greater low frequency response and increased stability, the adapter performed very much better with weak signals than with strong. This was attributed to the effect of AVC on the first grid, and the observation verified by switching off the receiver AVC. Elimination of AVC voltage from the first grid requires the use of a blocking condenser and a grid resistor, connected as in Fig. 2. The value of the blocking condenser is not critical, but the grid resistor is somewhat critical. With a large value of grid resistance, the tube tends to "bias itself off" due both to contact potential and to grid rectification of strong signals in adjacent channels (which may not be heard in the receiver output). Optimum value of this resistor (Rg in Fig. 2) seems to be between 22k and 47k ohms.

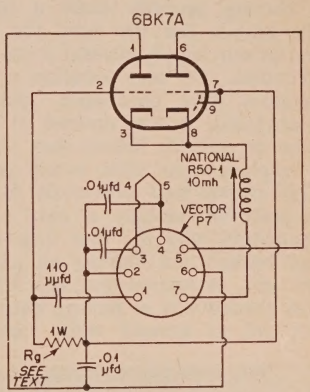
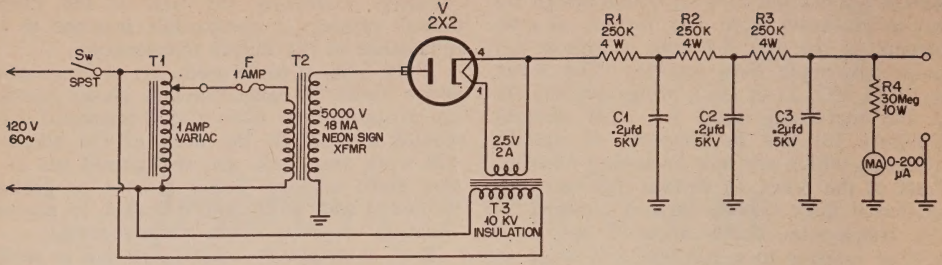


Fig. 2. Circuit for elimination of AVC voltage from first grid.

Increasing Selectivity

While Canter was developing the S-9er in San Francisco, completely independent experiments were being conducted in Palo Alto in an effort to develop a simple plug-in device which would give more I-F selectivity. The end result looks much like an overgrown S-9er, the adapter having been made to replace a 6BD6. Circuit of this adapter comprises Fig. 3. The tuned circuit is one half of a Miller #912 C 4 IF transformer, which supplied the coil, fixed condenser, mounting bracket and connecting strip. All that was necessary was to

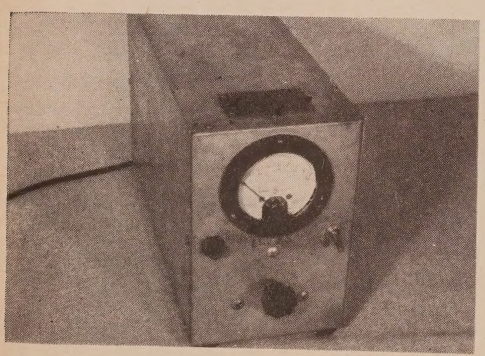
[*Continued on page 121*]



High Voltage Test Power Supply

Derward T. Burbank, W6OVY
1093 Westwood Drive
San Jose 25, California

Having recently built a new transmitter, the author felt the need for a high voltage test power supply several times during its construction. On one occasion some surplus capacitors were purchased, and as they were guaranteed, it was desired to check them as soon as possible before they were all sold out as replacements then would be unobtainable. The author had previously had the sad experience of making a case for a group of capacitors, and the first time they were used one burned out leaving an unused "hole" in the unit. A second time that the power supply was needed was in finding switches that would not arc to ground while cutting in or out



Front view of Power Supply

resistances in the screen voltage that was obtained from the transmitter's high voltage supply. The test power supply has since been used on a number of other important jobs around the shack.

Initial design of the supply revolved about the high voltage transformer. The 5000 volt neon sign transformer was on hand, and it was a natural as the secondary can be momentarily shorted without much danger of burning out the transformer. Poor transformer regulation also seemed quite desirable in such a high voltage, low current supply. Second, to be of value for testing, the supply needed to be adjustable, and a 1 ampere Variac that was purchased on the surplus market with many wires broken filled the bill to a "Tee" after rewinding. A 1 ampere fuse was incorporated into the circuit to protect the Variac from possible overload.

A 2X2 was used as the high voltage rectifier because of its relatively high current capacity (compared to high voltage T.V. rectifiers) and to the fact that several of them were on hand. Next came the problem of supplying the filament voltage with adequate insulation from ground. This problem was solved by using an old filament transformer, removing the old 10 volt winding, and replacing it with one for 2.5 volts. The removal of the old insulation and winding provided enough space for seven layers of fiberglas cambric below and on top of the newly added 2.5 volt winding. This insulation has since proved ample. An old style, all bakelite socket was mounted on a sheet of bakelite which in turn was held on to the transformer by bakelite posts and plastic machine screws. This later step may have been "gilding the lily," but corona losses at high voltages are rather tricky things with which to work.

Filtering was practically "lifted" from a surplus BC-412 'scope unit. The capacitor voltage ratings were a bit low but have stood up at full peak voltage without any trouble. All the resistances in the filter were actually ½ megohm, 2 watt resistances in parallel.

Metering and bleeding was combined because of the desire to have the maximum voltage obtainable; thus the lowest current meter on hand was used as a voltmeter, and the multiplier resistances also act to discharge the capacitors. The meter was supposed to require

[*Continued on page 120*]

Our hats are on to Dale . . .



the Shortbeam;

End Loaded

Dale M. Springsted W2GRI
837 Eastern Avenue
Schenectady 8, N. Y.

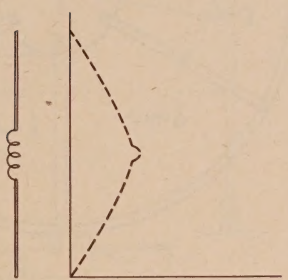


Fig. 1. Current distribution center loaded 1/8th element

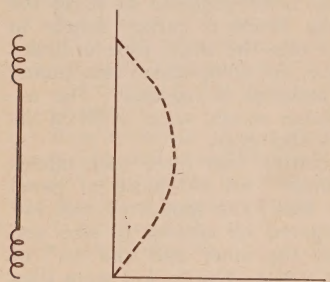
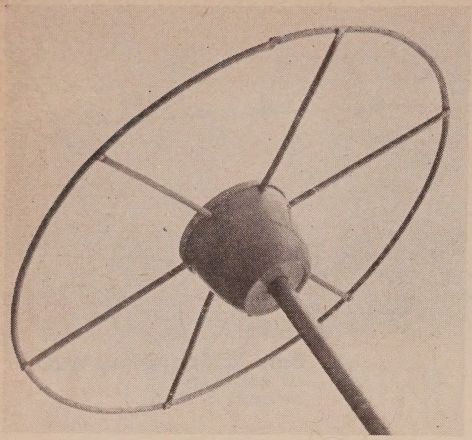


Fig. 2. Current distribution end loaded 1/2 wave element

Like most things, this antenna had several reasons for its birth. The antenna farm consists of a 20′ by 50′ flat roof (thank heavens it's flat), an area not by any means conducive to the erection of wire antennas. A full sized twenty meter beam proved to be the neighborhood distraction, especially since it hung out over the street when faced north or south. A few nights' worry about guy line failure with visions of crushed or impaled passersby and that was it. Following this was a vertical, groundplane style. The QRM was pretty bad with this so a short beam was an obvious answer to the problem. I was not enthused by anything I saw in print at that time, with the exception of the Simple Squirt antenna by Bill Clausen, W4MGY. His design featured the simplicity of construction which I was seeking.

When it came to theory I looked for help from friend W2ODC. Les verified that the idea of resonating coils at the end of the elements with capacity hats would work. The Antenna handbook states that field strength is a function of antenna length and current. Therefore it is a good idea to preserve as much of the current carrying portion of the elements as possible. Since maximum current appears at the center of a halfwave element this is the part to keep intact.

To illustrate, *Fig. 1* shows the current distribution in a center loaded half wave halfsize element. *Fig. 2* shows the current distribution in the end-loaded version of a halfsize element. The coil and capacity hat, a lumped constant, which adds nothing to the field strength is placed where the voltage is high and the current low. Top-loading of mobile whips has been used for a long time as a means to resonate a short antenna. I simply adapted this feature to fit a 16′ beam element by placing two whips butt to butt. From theory this configuration should perform with better efficiency than the center loaded type. After completing a check with W2GTB, located about ¾ of a mile away disclosed that the antenna was functioning as desired. His S-meter reading showed 18 db difference front to back, a very com-

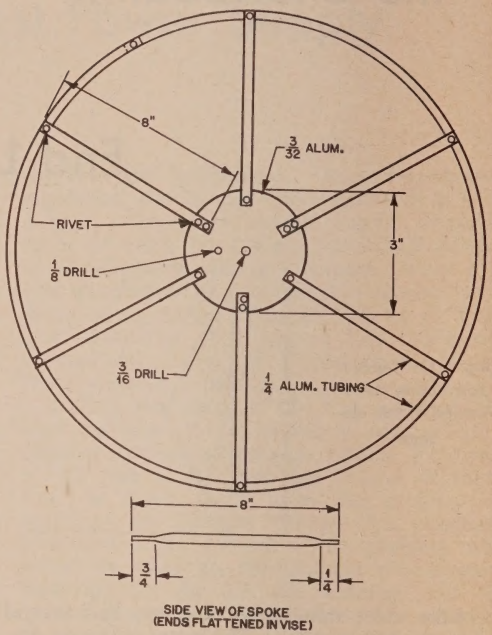


Plastic refrigerator bowls make fine coil covers

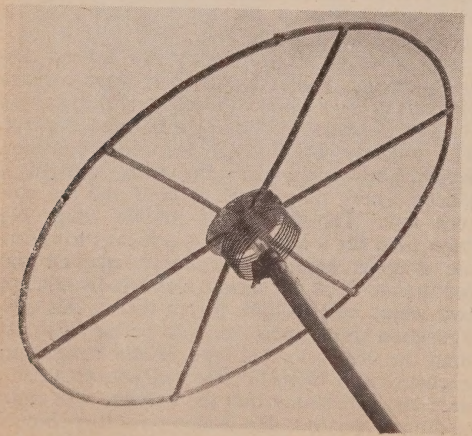
fortable figure for a two element beam. A later check with K4BYN in North Carolina provided a 12 db difference in reading. In any case the antenna was working.

Other than the labor required to make the capacity hats the beam is rather simple to build. The hats may be built with ordinary hand tools, since no complicated machining or bending of material is required. The accompanying sketches should serve to fill in the necessary details and sizes.

I started by cutting four three inch circles of 3/32" aluminum. An old piece of panel stock served for this. The spokes of soft ¼" tubing were prepared by cutting to size and flattening ¾" of the inner end and ¼" of the outer end in a vise. The spokes were then riveted to the discs, using double rivets in every other spoke to help hold alignment. Finally the rim was bent by hand to the approximate shape required and fastened by rivets to each spoke. The loose ends of the rim were brought together and riveted. This sounds like a lot of riveting, but aluminum rivets peen over easily. Four ⅝" diameter 6" long pieces of poly rod were required. The only work done on these was to drill and tap a ¾" deep hole for a 10/32 machine screw in one end of each rod. The elements are a 12' length of dural tubing ⅞" OD, slotted lengthwise for a distance of 1½" at each end to allow clamping to the end pieces. The end inserts are ¾" OD dural 36" long slotted at the outer end only where they clamp the poly rod. The ½" galvanized water hose clamps can be persuaded to do the necessary clamping.



Capacity hat construction details

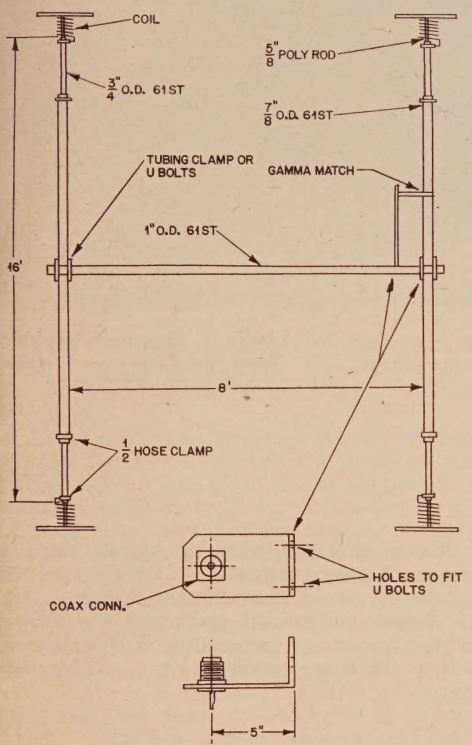


Capacity hat for end loaded beam

The coils are easily cut from *Air Dux* or *Barker & Williamson* coil strip 2-½" dia. 8 turns per inch. The driven element coils were finally pruned to 9-½ turns and the director coils to 8-½ turns each. These were fastened to the capacity hat with a bolt and to the element by running an extra nut on the bolt through the hose clamp, which also served to hold the poly insulator in place. The coil coverings, which were added after tuning operations were completed, are polyethylene plastic refrigerator bowls with snap on covers. These were notched about ½" deep at the lip to fit through the hat spokes and the lid was snapped in place to hold them firmly.

Amphenol tubing clamps hold the elements to the boom, although standard "U" bolts should do as well. The coax connector is mounted on a 1/16" aluminum plate, which in turn is held in place by the "U" bolts that

tie the element to the boom. I selected a Gamma match system to feed the antenna since the rig is single ended and feeds 52 ohm coax direct from the pi tank circuit. Some capacity was needed to reduce SWR and a 3 kv block mica of 50 $\mu\mu$fd from a BC-375 tuning unit is close to right. This is bolted to the 1/16" bracket just above the coax connector. ¼" tubing of the same material as the hats was used for the matching section. References to articles like "The Terrible T and Gamma Too," (*CQ, Oct. 53, p 15*) will help in finding the proper match point.



Beam layout and dimensions

The assembled antenna was hung just within reach on the tower, and by using a GDO and the ever faithful Antennascope set the match to near 50 ohms and pruned the coils of the driven element until we were close to resonance at the desired frequency, in our case 14050 kc. Be careful to stay just a bit below the final frequency when pruning. The parasitic element-coil sets were similarly pruned to resonate at 14750 kc, 5% higher in frequency. This was easily done by placing the whole director end insert, tubing and all, in the driven element while the pruning was accomplished and then noting how far it slid into the ⅞" tubing. Replace it at this measurement in its proper element. Fine tuning can be done by sliding the ends in or out or by bending a link of the coils, but remember to do the same thing to both sides of the element.

The rig worked as soon as I put power to it and several DX contacts were made. However, never being satisfied, I attempted some more tuning adjustments and fixed things up so I could not even get out of the back yard. Finally, after more readjustment, I got it back nearly to the starting point where I should have been satisfied in the first place. Is there a moral here?

For some reason or other I get all fouled up with the weather. Antennas are built and erected in the winter and indoor work like transmitters and accessories are built during the summer when it is nice and hot. There must be a fatal fascination, and I mean fatal, which makes one stand on a six foot stepladder on top of a 35 foot roof in winter wind and snow to make adjustments on an antenna.

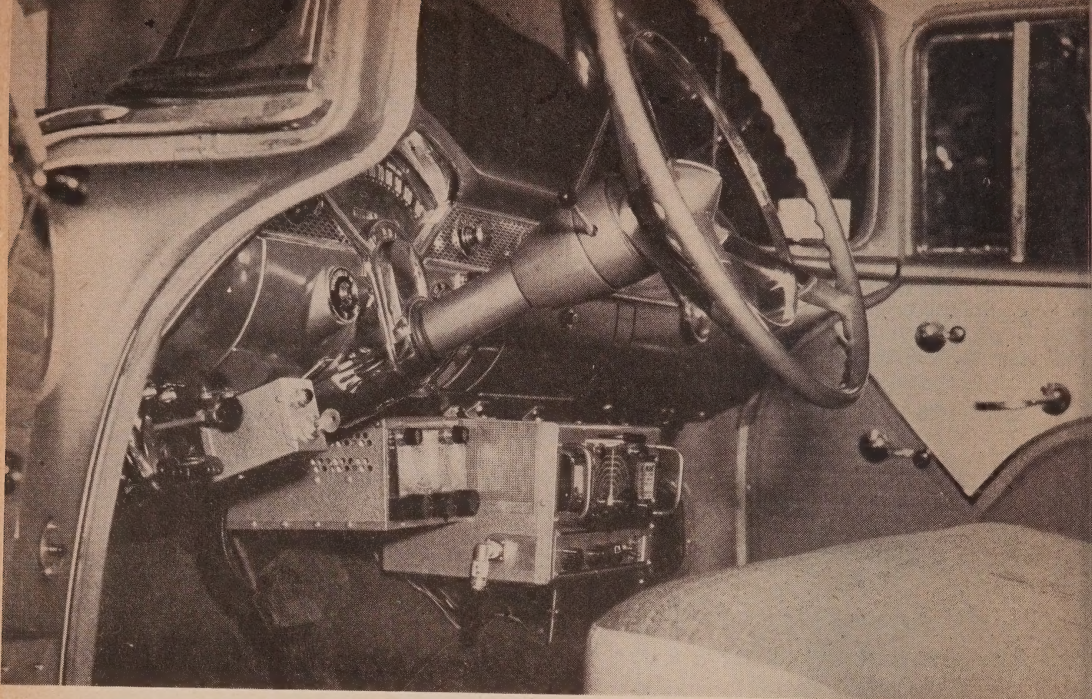
Price is important to lots of hams, and as antennas go this one is fairly reasonable. Required are the following:

1—1" x 8' x .058 dural 61st. boom	$5.00
2—⅞" x 12' x .058 dural	8.60
1—¾" x 12' x .058 dural	3.50
2—⅝" x 12" polystyrene rods	1.40
8—¼" soft alum. tubing 54" long (we obtained this from a local plumber)	1.50
2—Bags reynolds Aluminum rivets	.30
1—B & W coil strip #3906-1	1.50
9—½" galv. water hose clamps	.45
2—Amphenol tubing clamps U Bolts cost 15¢ ea.	???
1—Coax Connector	$ .60
	$22.85

In addition to this, several pieces of soft aluminum sheet and some assorted nuts and bolts are needed. These are scrap bin and scrounge items. In any case cost should not exceed $25.00.

Morrow makes a capacity hat for mobile antennas which would work just as well for those not desiring to roll their own: cost $2.50 each.

This installation uses a TR-4 CD rotator, which does the job easily as the total weight of the beam is only 10 lbs. The beam although light whips very little in the wind and there is no element sag or boom droop. After the rig was built a further thought occurred. 15 is the currently hot band, at least here in Schenectady, and only a bit of pruning of coils would be required to put this antenna on 15 meters. If you already happen to have a 10 meter beam of plumbers delight design it is possible to add the ends, readjust the T or Gamma match and retune to 20 or 15. A 20 meter full size beam could be tuned to work on 40 meters the same way. Here's hoping somebody else has good luck with this array. ■



Irvin J. Gordon, W2MPT
Signal Corps Engineering Laboratories
Fort Monmouth, New Jersey

Mobile

"Calling CQ from Mobile W2MPT." Nothing spectacular or exciting about that cry, when the other fellow comes back and says, "Receiving you 5x9, a coal chute signal," the world can suddenly become a wonderful place to live in.

Not so long ago, when the mobile bug first bit me, the big question was, what makes one installation better than another insofar as signal output and ease of operation? The answer to that question, I concluded, is contained in part in the many articles written on that sub-

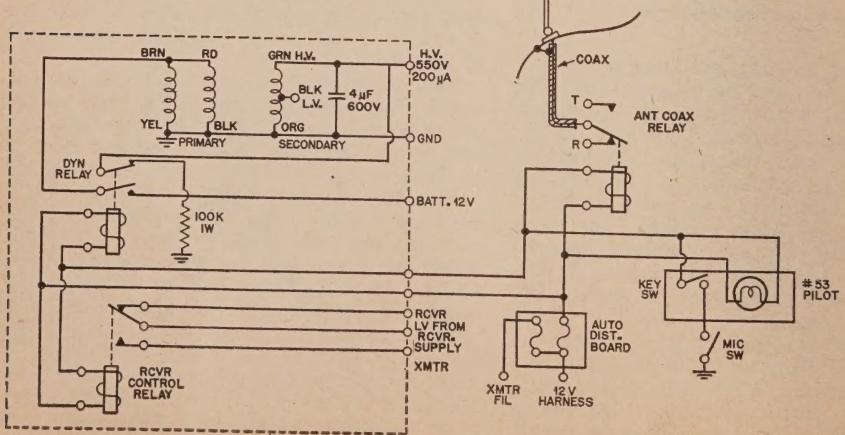


Figure 1

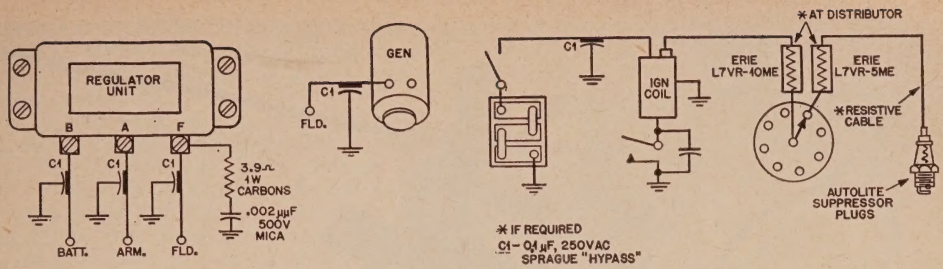


Figure 2

ject. The logical approach therefore was to read everything available and cull out what I considered to be the cream of mobile knowledge.

For my particular lashup, the basic unit so-to-speak, was a 12 volt "55 Chevrolet." This meant I would be able to use a surplus dynamotor such as the popular PE-101-C, currently being sold at a fraction of its worth. Like most of the amateurs who buy when the price is right, even though at the time of purchase they have no special need, I had one.

The next most important consideration was to build or buy. Notwithstanding twenty years' construction experience, I chose to buy. My choice being the *Elmac* AF67 transmitter and PR6A companion receiver with power supply, a decision which has since proven to be a prudent one.

Since it is generally agreed that no communication equipment is better than its antenna, much thought was given to this point with special emphasis as to the type of coil to be used. Considering past stated pro and con, it has always been my contention that the "One Band Coil" more than offsets the disadvantage of changing coils by enhancing the in and out signal strength. Going one step further, I used a *Bassett* helium filled coil married to a 60 inch *Shakespeare* fiberglass top rod with metal corona ball. Base extension is also of fiberglass, one half inch diameter, 36 inches in length, all being attached to a *Ward* base mounting. I am sure that it is no news to all that current automobiles are made of that "Thin" stuff. If you contemplate mobile operation do not neglect to reinforce the base mounting by fastening a back-up-plate beneath the fender for added rigidity. It should be noted that no shock spring is used since it was felt that it would offer no mechanical advantage and the antenna was sufficiently resilient without it. The present thinking on this matter calls for the elimination of springs altogether since they cut down the signal.

Placement of the antenna is on the rear left fender. Feedline approximates one-half wavelength of RG-8A/U coaxial cable which exhibits a nominal capacitance of 28.5 $\mu\mu$f per foot.

Installation was planned with safety as the keynote. Overcrowding especially in the proximity of the brake pedal was avoided since ample foot action room must be available for those emergency stops. As an additional safeguard a key switch was incorporated to prevent unauthorized operation.

Our electro-mechanical friend, the relay, does the multiple switching when prompted by a slide switch mounted on the microphone. *Fig. 1* shows one possible receiver-transmit arrangement. This particular set-up allows transposition of the receiver power supply for transmitter low voltage excitation in transmit position, a dual function allowing the dynamotor to supply a higher voltage since drain will be minimized.

Regarding suppression. *Sprague* coaxial type capacitors replaced the original paper type supplied with the broadcast receiver. The internal inductance of the paper type is too high above 2 megacycles to be effective as an r-f filter. *Fig. 2* shows a typical ignition and generator system with suppression devices at every trou-

[*Continued on page 63*]





The key, QSL card and cigarette package sort of dwarf the "lil" rig. The neon bulb is used to indicate the maximum xmtr output when placed near the antenna feeder. The wire loop on the pilot bulb makes a useful gadget for checking resonance of plate ciruit

the Lil' Rig

Howard C. Buerger, W3BQU
5614 N 13th St.
Philadelphia 41, Pa.

No Transformers! 24 watts input and pocket sized too! Oh, it's an AC-DC circuit. *BUT wait!* before you turn the page—note that the chassis is grounded and that this lil' rig is *safe* to use. No electric shock worries from the chassis. And the key won't bite you very badly either, in case you do get across it or between the key and ground. Low plate voltage and limited plate current remove the hazard from the shock.

What's new with this rig? Nothing. It's a standard circuit design with ordinary parts, but the combination of a voltage doubler and 117-volt tubes provides a power packed pocket sized transmitter that can't be beat for its size.

Going traveling? Even if you go by plane, you don't have to be without your hobby. Pull out the coil and tubes and tuck the 4" x 4" x 2" rig in any corner of your suitcase. Slip the coil and tubes inside of your slippers and you're on your way.

Wait! Don't turn that page. Let me tell you about the DX this lil' rig has worked—consistently, too. I've QSO'd ZL2SX seven times during this past year. Received lots of S7 reports in most of the 53 countries that I have worked in the past two years. Yes, WAS and WAC too. These being achieved while operating portable on a job assignment down in Texas.

Here are some interesting comments by a few well-known hams that you've worked yourself. "It certainly did a good job for its size. We usually think of the W's as having the full gallon or at least a mighty job when compared with our limit of 100 watts" says VK2ZR. And from ZS1G, "That small rig of yours certainly does the trick." "U are doing a FB job wid tt low powr, Howard, Congrats—" said

CX1FB. From GI3IVJ, "Ur small TX doing vy well." And KR6LJ was worked during the DX contest. He said, "No doubt lowest power I QSO in contest."

Rockbound! Yes, but not a disadvantage—actually a blessing in disguise. With a handful of surplus crystals and being able to QSY almost every 5 or 10 kc in the desired portions of the band you will benefit by this when working DX. By not being able to zero beat the DX station I have lots of times walked away with the prize while the gallons fight it out. And what a thrill to do it with *flea power!*

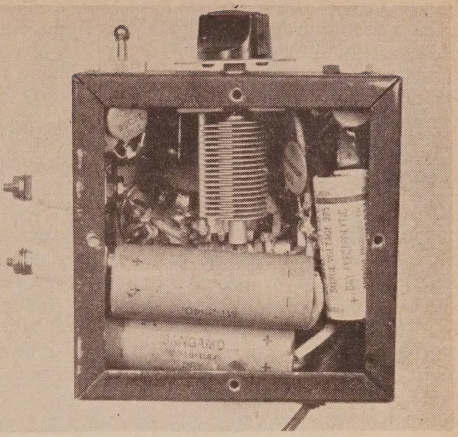
Circuit Description

Of paramount interest are the tubes. The 117L7GT tube is a beam power pentode and a half-wave rectifier combined in one glass envelope. The rectifier section has an indirectly heated cathode element. Two such tubes lend themselves admirably to use in a voltage doubling circuit. The rectifier circuit uses the two rectifier sections of the tubes and is one of the several forms of voltage-doubling circuits available. I picked this particular one because 117V A-C line is not connected to the negative side of the supply. No matter which way you have the a-c plug connected, it is impossible to get shocked by the a-c line voltage between the negative lead and ground. By insulating the negative lead from the chassis extra precaution is taken, thereby eliminating the possibility of getting a d-c voltage shock from the chassis.

The beam power sections of the tubes are used in a push-pull crystal oscillator circuit. Using push-pull cancels out the even harmonics, which helps to eliminate TVI. On the subject of TVI: don't substitute another type for the .002 *μfd* 600v mica plate blocking condenser. When I was de-TVI-ing the rig (since it was originally built before the day of the one-eyed monster) I changed this mica condenser to the smaller ceramic type. I erred there, because it wasn't until I put back the mica one that I licked the TVI.

No d-c current flows through the crystal in this particular circuit, eliminating any worry as to crystal failure. A pilot light (#47, brown bead, 150ma.) serves as a resonance indicator. The transmitter is tuned a tiny bit off resonance to get the best keying. Also, another pilot bulb is used in series with one antenna feeder lead wire, to adjust for maximum output. When all tuned up and feeding the antenna, the tubes draw 120 ma. at 200v. With this 24 watts input the lil' rig lit a 15w bulb more than full brilliance in a dummy antenna circuit. I estimate that the output is about 18 watts.

TVI? None, though no elaborate shielding is used. Just a handful of ceramic condensers placed as indicated in the circuit diagram did the trick. All right! You're sold? Let's get on with construction.

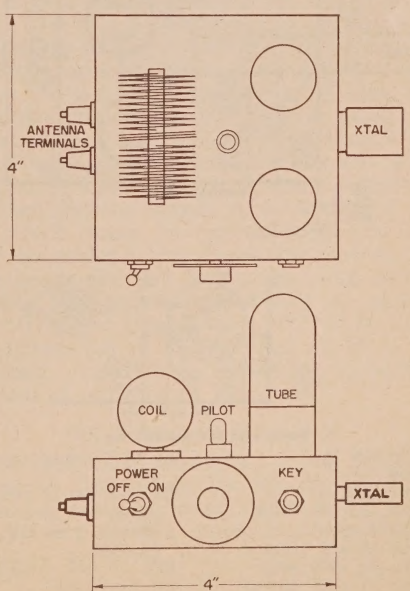


The inside view of the "Lil" rig. It looks crowded but it wasn't difficult to wire as outlined in the text.

Construction Tips

Use a 4″ x 4″ x 2″ box and do the wiring while it is disassembled. No trouble will be encountered if the wiring is done with the parts in position on the top cover plate which is to becomes the chassis. Afterwards, the top cover plate is screwed to the sides and the parts are put in place.

Lay out the top chassis plate as shown and

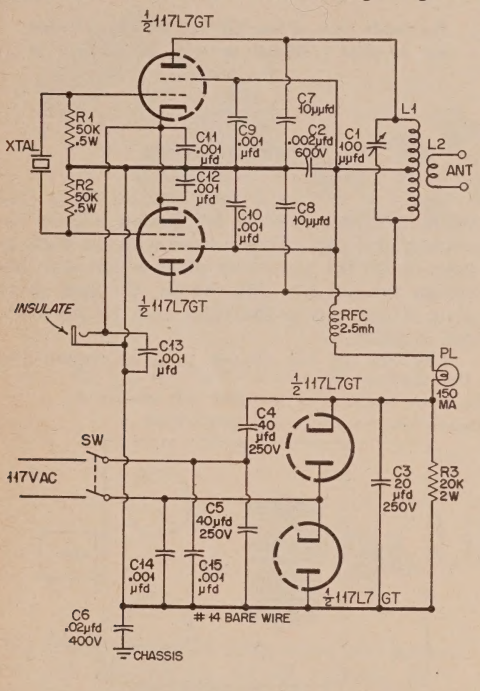


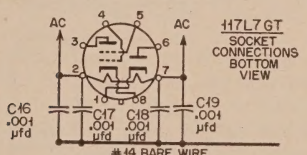
Parts placement and chassis dimensions for the Lil' Rig.

mount the sockets and the pilot lamp socket. I used a small porcelain socket for this pilot light. Remember to insulate this from the chassis. Then mount the parts on the chassis sides. Use insulating washers on the key jack. Now that these parts are mounted temporarily, fasten the top cover plate to the box sides. Then wire these few parts as follows in order to hold the placement of these when you remove the top plate to do the rest of the wiring.

Using #14 tinned bare wire, connect the antenna feed-thru insulators to the coil socket. Then, with another piece of the same type wire, connect the center of the jack to the pigtail of the two resistors that are connected across the xtal socket extending this wire to the plate of the rectifier section of the tube nearest the key jack. Next connect the variable tuning condenser. Run the line cord through a grommet and with insulated hookup wire connect one side of the switch to the plate of the other rectifier section and to the cathode of the rectifier section nearest the key jack. Now you are ready to unfasten the parts from the chassis sides and remove them all with the top plate, keeping everything positioned right so that when the wiring is completed it will go back together easily.

All electrical grounds of the circuit are brought to the short bare tinned wire that you connected from the center of the key jack to the pigtail of the crystal resistors and to the plate of the rectifier section nearest the key jack. This isolates the electrical ground from the chassis. It is important to do it this way to eliminate any electrical shock hazard. Proceed with the remaining wiring in the usual way. Connect parts directly on socket prongs using as little wire as possible. An hour or two should complete the job.





Parts List for the Lil' Rig

R1, R2 50K ½w
R3 20K 2w
C1 100 µµfd
C2 .002 µfd 600v mica
C3 20 µfd 250vdc
C4, C5 40 µfd 250vdc
C6 .02 µfd 400v paper
C7, C8 10 µµfd ceramic
C9 to C19 .001 µfd ceramic
L1 B&W Junior coil type JVL
L2 Link coil of JVL replaced by 4 turns on 20 Meters, 7t on 40M, 12t on 80M.
RFC 2.5 mH r-f choke
PL Key Jack
Sw DPST toggle switch
Input 24 watts: 200v @ 120ma.

Testing

Before reassembling the chassis, check the following points with a VOM for continuity. There should be no reading between the center of the key jack and the chassis. With tubes, coil and pilot bulb in place, check between the pilot bulb and chassis. No reading obtained? Good! Now remove the coils, tubes and bulb and reassemble the wired top cover plate onto the chassis sides. I used nuts as washers to provide a one-eighth inch space for ventilation under the top and bottom cover plates.

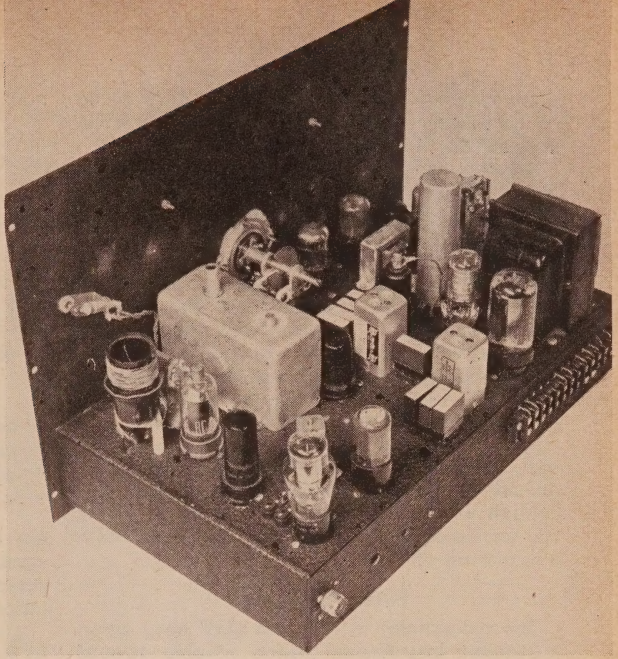
Using your desired band coil and xtal start testing the rig. After the tubes warm up, tune rig to customary resonant dip as indicated on bulb. Connect the antenna. I have been using a folded dipole with the feed wire connected directly to the feed-thru insulators on the transmitter. The original link on the coil was replaced with a seven-turn link coil to give sufficient coupling.

Keying is sweet and the bell-like tone of the xtal cuts through the QRM like a knife. A word of warning! Don't hold the key down while you go to look at the neighbor's TV set. The tubes are overloaded several hundred percent, but no trouble will be had on CW since they have time to cool off between the dots and dashes. In the 15 years that I've had this rig I've blown only two tubes.

So now you'll get the biggest thrill of all—DX with only 18w output. As W2ANR wrote me recently: ". . . I sure do get a kick playing with low power rigs and trying new things. OK on that low-power movement, Howard. First we must get a few interested in it by showing what can be done with low wattage. Low power *can* become a *fad* because it makes the individual feel important by frequently duplicating what the ham with the 500 watts or KW can do." ■

Note: the condensers C-16 through C-19 are connected across the individual filament pins of each 117L7 tube. The socket connections diagram is correct electrically but does not bring this out clearly.

here is a fine 10 watt lattice type SSB rig—
what's stopping you?



Robert C. Treadwell, Jr., W3TCQ
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Seaford, Delaware

Vox SSB Exciter

In getting started in SSB, it seemed to me that the lattice filter approach offered the simplest means of breaking into the supersonic world of quacking ducks often found on 3997 kc. It all began with the usual investigation of 4,991 circuits, a few of which appealed to me for reasons of pocketbook and degree of simplicity. After a considerable amount of plagiarism from such notables as W1JEO, W3SHY, and others, I contrived a lattice type SSB exciter. It features built-in power supply, voice control, a stable VFO and a husky little 2E26 final. The rig is intended to drive a large bottle, but the exciter running barefoot was capable of good reports. The first contacts included W2's, W3's, W1's, W8's, etc., who agreed that 10 watts peak was getting through 75 meter QRM amazingly well. A check with several stations confirmed good quality audio after a very preliminary tune-up of the lattice filter. All in all it appears that this exciter is a way of getting into SSB sans the pain and strain of complicated instrument tune-ups, matched parts, etc.

The Exciter General

The circuit begins with a crystal oscillator on 401 kc in the triode section of the 6K8. The output from two stages of audio is mixed with the 401 kc signal from the oscillator in the hexode section of the 6K8. The output from this stage is connected to the SSB crystal lattice filter. The filter is so effective in rejecting carrier and the unwanted sideband that only an extremely simple alignment of the filter is necessary. The single sideband signal is then balance modulated with the VFO to bring the signal within the 75 meter band. A class A untuned buffer gives sufficient drive for the 2E26. A good 10 watts of output is then available.

Other features include A voice control circuit which causes the receiver to standby and keys the exciter output stages. The receiver 500 ohm line is also tied back to the voice control to keep loud signals from keying the exciter. The VFO is so arranged that 180° of an ACN dial covers 3.8 to 4.0 mc. Best of all is the simplicity of getting on SSB with a signal that you can be proud of.

The Sideband Generator

The 6K8 triode section is a crystal oscillator at 401 kc. The reason for this choice of frequency is the 49¢ crystal versus 99¢ for the 450 kc crystal. The output from the Pierce oscillator is mixed with audio in the 6K8 hexode section to become a 401 kc amplitude modulated signal. The modulation is obtained from two stages of audio and a crystal microphone. The crystal frequency can be varied

approximately ± 500 cycles with *C20* so as to be exactly resonant with the carrier reject crystals *X6, X7,* and *X8.*

Crystals *X2, X3,* and *X4* reject one sideband. My choice was to reject the lower sideband although it could just as well have been the upper. The final sideband can be either the upper or the lower, as determined by the VFO. If the filter crystals are so arranged as to pass the upper sideband, and the VFO is 400 kc *above* the 75 meter band, the resulting sideband will be the *lower.* In this rig the filter passes the upper sideband and the VFO covers from 4.2 to 4.4 mc which gives an output from the balanced modulator of 3.8 to 4.0 mc.

C23, C24, C26 and C27 are 3-30 $\mu\mu f$ trimmer condensers to lower the pass band frequency of the i-f transformer. The filter has enough carrier and sideband rejection that it can be tuned up very quickly and easily with a minimum of steps.

Filter Alignment

Several articles in *CQ* and *QST* have given alignment instructions which involve several not-so-often available items such as a scope, vacuum-tube voltmeters, etc. Although a more perfect alignment is possible as these articles outline, I have found that a good sideband signal can be obtained using a minimum of test equipment.

Step 1—Set the VFO at 4.4 mc.

Step 2—Set the receiver at 4.0 mc.

Step 3—Set C23, C24, C26, and C27 about ¾ closed or approximately 20 $\mu\mu f$.

Step 4—Remove crystals from the filter but leave crystal in the oscillator.

Step 5—With the transmitter turned on, tune all the i-f trimmers, *C25* and *L3* slugs for the maximum S-meter reading on the receiver. It may be necessary to remove the receiver antenna to get a good maximum reading.

Step 6—Replace 6AG7 and 2E26 and locate a wave-meter close to the final tank coil *L1.* Set at 4.0 mc.

Step 7—Tune the final condenser *C11* until output on 4.0 mc is seen. Check to see that output is 4.0 and not 4.4 mc by removing the crystal in the oscillator to see if the output ceases. Retune slugs of *L3* to get maximum output.

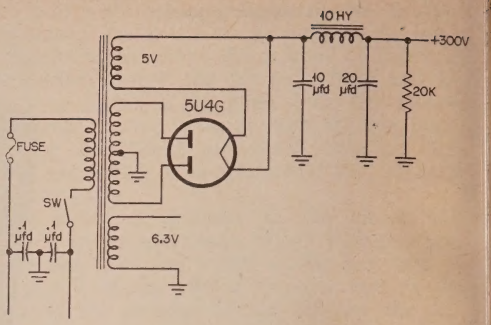


Diagram of power supply for the SSB unit. Good regulation is achieved by the use of filter condenser values indicated.

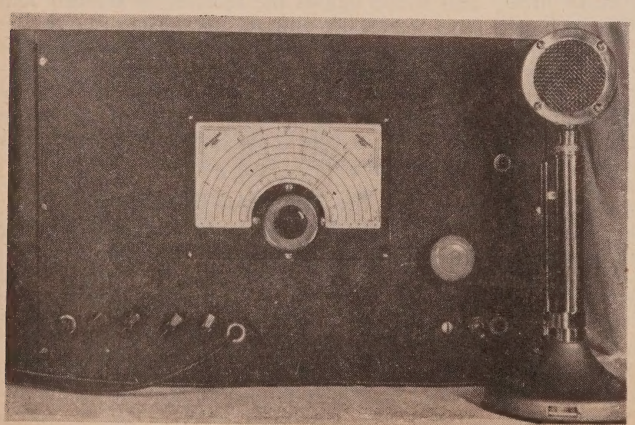
Step 8—Check carrier output from 2E26 by loading the stage with a 7 watt bulb. A good 7 watts should be possible.

Step 9—Replace all filter crystals. Using an audio generator of any make or variety, set the frequency at 300 cycles. Inject 300 cycles at approximately 10 millivolts into the mike jack. Tune *C25* for peak output on the bulb load. Using a field strength meter near the final tank, set the *C25* for exact maximum signal.

Step 10—Check frequency of signal and sound on local receiver with antenna removed. You are then finished with the preliminary tune-up.

Balanced Modulator and Final

The balanced modulator mixes the 400 kc sideband with the VFO to set the output signal on 75 meters. Other circuits were tried in place of a balanced modulator, but it was impossible to tune out the VFO carrier from the succeeding circuits. The balanced modulator however, completely eliminated VFO carrier leaving only the sideband signal. The output



The completed unit mounted in its own individual box.

is very low power and will not drive the 2E26 directly so an interim buffer is required. The class A 6AG7 serves two purposes. First, it gives sufficient drive to the 2E26 and second, it stabilizes the tendency of the 2E26 to 'take off'.

The 2E26 stage was impossible to get perfectly stabilized without excessive swamping when both the grid and the plate were tuned. The 6AG7 untuned buffer completely eliminates a need for swamping. The final stage is very stable with screen voltage regulated and 15 volts of fixed bias on the grid. The 15 volt bias battery is no larger than a .1 paper condenser, so it's just wired into the circuit with pig tail leads. The final tank along with the *L3* are broad band enough to cover 100 kc without retuning. The link and 150 milliwatt bulb

[*Continued on page 127*]

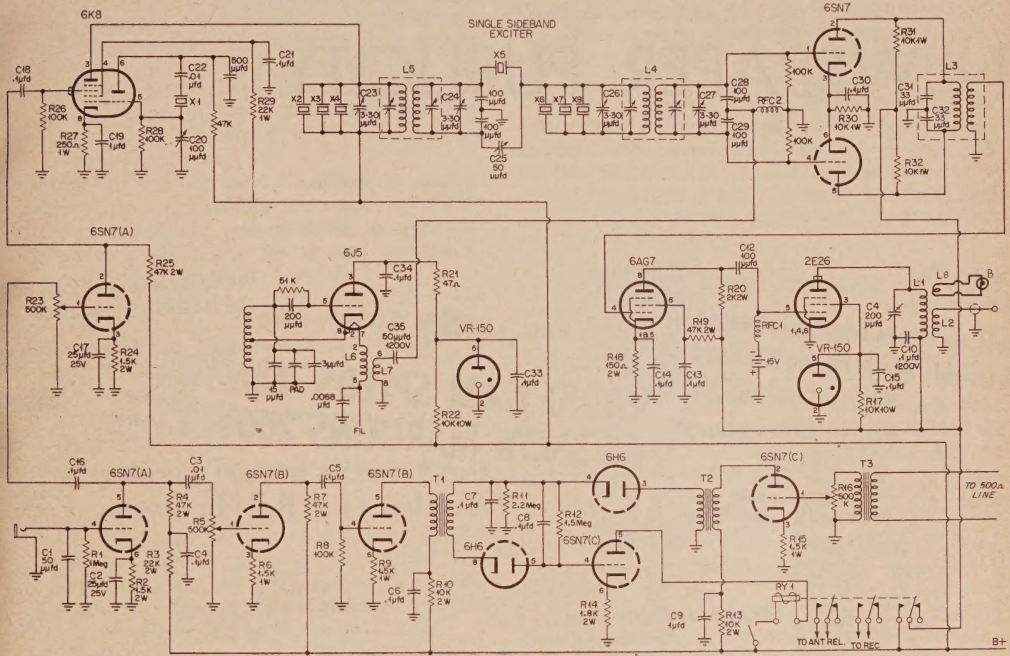


Diagram of complete exciter with VFO, VOX and power supply

Parts List

R1—1M
R2—1.5K 2W
R3—22K 2W
R4—47K 2W
R5—500K pot
R6—1.5K 1W
R7—47K 2W
R8—100K
R9—1.5K 1W
R10—10K 2W
R11—2.2M
R12—1.5M
R13—10K 2W
R14—1.8K 2W
R15—1.5K 1W
R16—500K pot
R17—10K 10W
R18—150 ohm 2W
R19—47K 2W
R20—2K 2W
R21—47 ohm
R22—10K 10W
R23—500 ohm pot
R24—1.5K 2W
R25—47K 2 W
R26—100K
R27—250 ohm 1W
R28—100K
R29—22K 1W
R30, 31, 32—10K 1W
C1—50 μμfd
C2—25 μfd 25v
C3—.01 400V
C4, C5, C6, C7, C8—.1 600V
C9—.1 400V
C10—.1 200V mica
C11—200 μμfd variable
C12—100 μμfd mica
C13, C14, C15, C16—.1 600V
C17—25 μfd 25V
C18—.1 600V
C19—.1 200V
C20—100 μμfd variable
C21—.1 600V
C22—.01 600V
C23, C24—3-30 μμfd trimmer
C25—50 μμfd trimmer AFC
C26, C27—3-30 μμfd trimmer AFC
C28, C29—100 μμfd
C30—.1 600V
C31, C32—33 μμfd
C33, C34—.1 600V
C35—50 μfd 1200V mica
L1—25 turns 1¼ dia. #16
L2—5 turns 1¼ dia. #16
L3—4.5 Mc slug tuned IF trans.
L4, L5—455 kc IF interstage trans.
L6, L7—ARC-5 osc. coil (see text)
T1, T2—3:1 interstage transformer Stancor A 63 C
T3—100K sec/500 ohms primary
RY1—10K 3 pole plate relay
RFC1, RFC2 — 2.5 μh choke
L8—1 turn on 1¼ dia. loose around form
X1, X6, X7, X8—401kc, channel 289
X2, X3, X4—398kc, channel 287
X5—402kc, channel 290

Note: R35 as indictaed in the schematic is incorrect. The correct value is indicated above.
All condenser values in μfd unless otherwise indicated.

Bill Lowenberg, W2OOJ
5 Circle Lane
Albany 3, N. Y.

HOW TO GET

NEWSPAPER PUBLICITY

"Hams" On Duty Past 3 Helping Stricken Areas

RADIO HAMS PROVIDE DISASTER AREA LINKS

Los Angeles Times

Radio Hams Given Part of Credit ... Reducing Casualties in Storm

Radio Hams Keeps Trinidad in Contact With Outside World During Big Flood

'Ham' Operators Aid In Emergency

RADIO HAM SPEEDS AID AS SNOW MAROONS 200

Donner Pass Area Blocked

Amateur Radio Operators Had Vital Role in Storm

Ham Radio Cars Used In Patrols

Hams Alert Record On Edgewater Fire

Thanks for Hams Disaster Calls

Florida Radio H... Play Vital Storm ...

Flood Waters Delay Travel By Oneidians

Radio Hams Perform Vital Storm Emergency Services

Trinidad 'Ham' Radio Operator Rendered Outstanding Emergency Service During Recent Flood Rampage in Area

'Hams' City's Only Outside Link If Disaster Hits, CD Chief Says

La Crescenta Radio Ham Aids Snowbound Rescue

RADIO HAMS IN TORNADO AID

Natick Mother Exhausted By Tornado Radio Vigil

Relay Messages

Radio Amateurs Offer Emergency Message Aid

Radio Hams Sped To Milford By 'Copter And Car To Play Heroic Role In Flood Crisis

'Ham' Plays a Key Role In Aiding Downed Plane

Hams Meet Challenge In Mt. Vernon Fire

'Radio Ham' Calls Police After Crash

FIRE CUTS PHONES OF MOUNT VERNON

Austin Ham Radio Operator Aids Plane in Caribbean

Red Cross, Ham Operators Aid Stranded Travelers

Mobile Radio Units Win Praise for Storm Patrol

Ham Radio Test

So you've been appointed publicity chairman of your radio club.

Nice. Now what do you do?

Get stories in your local newspapers, of course. Stories that keep people in your community aware of amateur radio, the service it renders the community and individuals, the role it can and does play in national defense and emergencies, its advantages as a hobby—in short, stories that create and maintain a pleasant impression of hams and their doings in the public mind.

Trouble is, hams generally know less about how newspapers operate and what constitutes news than newspapermen know about ham radio—which is very little, indeed.

So the first thing a publicity chairman needs to know is what makes a story. (Newspapermen call them "stories," not "articles" or "write-ups.")

A story to a newspaper city editor, is a newsworthy happening—something that occurs to or is done by people, preferably in his own circulation area—that will be of real interest to the majority of the paper's readers.

If it is of interest only to a very small group—if it promotes an individual or a very few individuals, or a commercial enterprise—it's not news, it's publicity.

He wants *News*.

And he wants it RIGHT NOW, not a couple of days later.

Nothing in the world gets stale as fast as news.

You'll find that out the first time you stroll in to the city desk of your hometown gazette and start to tell the character in charge how Joe Localham got on a 20-meter roundtable with his brother at an Army station in Japan and their cousin at an air base in Alaska.

"Uh-huh," says the City Editor. "When?"

"Oh, last Wednesday night. Or I guess it was Tuesday night." (This being on the following Monday.)

"Oh," oh's the C. E. "Shoulda told us about it then. Kind of late, now."

If it happened today, or is happening tomorrow or in a few days, it's news. If it happened yesterday or before, it's too old for a daily newspaper. (Exceptions being morning newspapers which necessarily are written and printed at night and must concern themselves with what happened yesterday and last night. But they don't want to hear about it today—after the paper's printed. You should have told them about it yesterday or last night, when the paper was being put together.)

Your story must be of interest to people who know nothing of amateur radio; the daily newspaper is not a technical journal. Save the technical stuff, the controversies over new FCC rules and regulations, etc., for your club bulletin, *CQ* and *QST*.

As a newspaper reader, you are not fascinated by the detailed doings of the local garden club or cryptography group. Not unless you're a gardener or a cryptographer.

But you might care to read that a neighbor down the street was being hailed in gardening circles for developing a new variety of roses. Or that a local cipher fiend had managed to crack a wartime Japanese Army code that had baffled military crypt experts for years. Interesting stories.

So is the story of the local amateur who conducts a daily schedule with a ham at a weather station on the Arctic ice cap and one day phone-patches him through to the local Weather Bureau to give the Weatherman some hot dope straight from the North Pole. This actually happened—and it got a big play in the papers.

Switch it around a little. Suggest to the city editor that a reporter talk to the polar station at some appropriate time, like the hottest day of the summer, or in the middle of a cold wave. He might go for that. If he does, he's likely to use a picture of the local ham and the reporter at the mike.

"AREA RADIO HAMS AID POLIO VICTIM IN VIRGIN ISLANDS."

That was the headline on a story that told how hams in Albany and Schenectady played a key role in getting vitally needed electronic equipment to St. Croix to repair a defective power supply control circuit in a polio patient's rocking bed.

Newspapers like that kind of story—and stories like that do ham radio a lot of good. They show the public it's more than just a hobby.

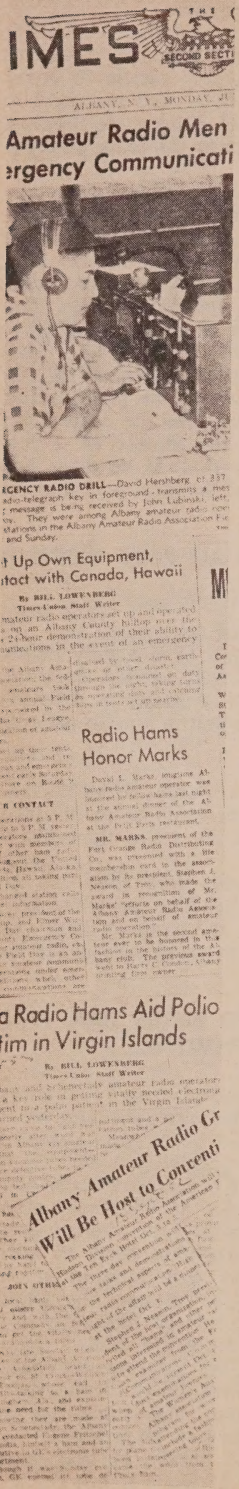
The right story at the right time can get amazing results. This headline appeared over a three-column picture and story on Page One of a big metropolitan morning newspaper the day after Christmas:

"SANTA VISITS POLIO VICTIM 'HAM' BEARING GIFT OF NEW TRANSMITTER."

Hams in the area chipped in to buy a superduper transmitter for the paralyzed ham who'd been struggling along for years with makeshift low-power gear and presented the new rig to him as a surprise on Christmas. Details were phoned to the newspaper on Christmas afternoon within a few minutes after the presentation, and a ham-photographer sped 40 miles to the newspaper office with pictures of the wheelchair-bound ham at his new rig. Didn't wait to develop and print the film—the boys in the newspaper darkroom did that.

Naturally, names of the local amateur radio clubs involved were mentioned in the story, as were names of hams who organized the project and installed the new transmitter.

Timing was the big factor in that story. Happening on Christmas made it just the sort


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of human interest story the city editor was looking for. Getting details and pictures to the paper the day it happened was of obvious importance. And the city editor knew it was coming and was allowing space for it—the club's chairman had alerted him a few days in advance. Only the fact that it was Christmas and the city editor was working with a short staff prevented him from sending one of his own photographers to take the picture.

That's where the ham with photo know-how is of value. Papers can't always send cameramen to meetings, Field Days, Simulated Emergency Tests, etc. But they'll often use pictures you bring in to them—if they get them right away. The pictures should be 8 by 10 inch glossies.

A MUST with photographs you send or bring in: On the back of the picture print full names of everyone in the picture, from left to right. Also, the date, place, event and what's happening in the picture. Identify any equipment. Don't put this caption data on a separate sheet of paper unless you paste it to the photo. Pictures and written copy have a nasty habit of getting separated in newspaper offices.

Always keep picture possibilities in mind. Often a picture can tell a story better than half a column of type. Give the city editor a good suggestion—like the teen-age schoolgirl who just got her Novice license and has a station set up, or the 100-foot tower-raising bee one of the boys is having next Saturday—and he may figure it's worth a picture and send a cameraman out to have a look. Both are fair stories, but pix would make them better.

The bigger your community, the more good stories you're likely to run into. But, big or little city, you do have meetings and other activities and nearly every one of them is good for an "item" in the paper—what the editor calls "shorts."

A few days before your regular ham club meeting, send the papers in your area a brief notice telling date, time and place of the meeting, whatever program feature is scheduled. If you have a speaker lined up, give his full name, address, occupation and such claims to fame as he might have. Send in a good head-and-shoulders type photo of the guy. The editor might just happen to need a one-column picture to fill a spot.

Planning a dinner or picnic? Send in a similar announcement. Include all necessary details of time, place, program, etc.

Be sure to get it to the paper several days ahead of the event. Bring it to the city editor in person, if possible. You should make his acquaintance if you're going to be sending stuff to him. He'll probably be gruff, won't know if he can use the stuff, but don't let that bother you. He acts that way because he thinks it's expected of a city editor. Tip him off to one good story (not necessarily a ham radio story, but something hot you happened to hear


ospital's Amateur Rad
Patients Direct Home C

'HAMS' IN MOCK U. S. DISASTER

Amateur Radio Men Hold Annual Test

Radio 'H
In Alban

Paul S. Darnel
To Be Speaker

around town) and he's your blood brother.

And don't feel badly treated if every short you bring in doesn't get in the paper. Shorts are "filler" material. Many more are written than are actually published. A lot of them are left over every day and 'twill always be so until somebody figures a way to stretch paper or squeeze type.

Shorts are used to fill up the empty spaces after the big important news stories have been placed in the pages. If your short is two inches in length when set in type and the printer making up the pages needs one that size—you're in. If the space he has to fill under a near-column of type about a three-alarm fire is only an inch and a half deep—well, maybe the little item about the garden club meeting just happens to fit. No time to rewrite your story or change things around. Editors, reporters, printers, etc., all are working on tight time schedules and deadline is only minutes away.

Keep sending them in, no matter how few make the printed page. Those that do get printed help keep ham radio a familiar thing to the public. A little meeting notice, mentioning that all those interested in ham radio are welcome to attend, can get your club new members. Would-be hams have come to our club for information after seeing just such a little story in the paper.

Between the big headline stories, which admittedly occur infrequently, and the short notices, come the meat-and-potatoes variety of ham publicity stories.

They're about club events, ARRL activities your group is taking part in, club projects, etc. Some will be worth no more than a few paragraphs in the paper, others may run 300-400 words in type. Many have good picture angles.

Let's make a list of a few, as the headlines might read:

LOCAL AMATEUR RADIO CLUB ELECTS

ARRL OFFICIAL TO ADDRESS HAM CLUB

AMATEUR RADIOMEN IN EMERGENCY TEST

RADIO HAMS AID AIR DASH, FURNISH COMMUNICATIONS FOR WOMEN'S CROSS-COUNTRY RACE

HAM RADIO DIVISION CONVENTION PLANNED HERE

LOCAL HAMS PUBLICIZE CITY'S TULIP FESTIVAL; SPREAD WORD VIA SHORT WAVES

RADIO HAMS IN FIELD DAY EXERCISE

MAYOR SENDS FIRST MESSAGE FROM HAM STATION AT HOME SHOW

HAMS UNITE IN CIVILIAN DEFENSE

AMATEUR RADIO CLUB CONDUCTS CODE CLASSES

LOCAL HAMS RELAY MESSAGES FROM MIDWEST TORNADO EMERGENCY

HAM CLUB TO STAGE TVI DEMONSTRATION FOR SERVICE MEN

HAMS SUPPLY COMMUNICATIONS FOR ROAD RACE

RADIO EXAMS TO BE GIVEN HERE NEXT WEEK

HIGH SCHOOL FORMS RADIO CLUB, HAMS GIVE AID

AREA RADIOMEN ATTEND HAM CONVENTION

FAMILY GETS WORD OF MISSING SERVICEMEN VIA HAM RADIO MESSAGE

HAM TO ADDRESS KIWANIS CLUB (OR OTHER LOCAL GROUP)

HOMETOWN HAM MAKES RADIO CONTACT WITH SOUTH SEAS EXPEDITION

GI OVERSEAS TALKS TO ILL MOTHER HERE VIA HAM RADIO

More story ideas later on. Meanwhile, did those events sound familiar? Of course they would—to hams. Remember, a lot of things happen in amateur radio that seem routine to you, but may be very interesting to non-amateurs—which makes them legitimate news stories.

Learn to recognize a story when you see it. Think like a newspaper reporter. Look for a story in everything that happens in ham radio locally, or even nationally. If there's some local connection in a national story, make the most of it.

You recall when the world learned Capt. Kurt "Stay-Put" Carlsen of Flying Enterprise fame was a ham. Some of the boys in our radio club recalled QSO's with him and visits to his ship when it docked here. That made a local-angle story that ran side-by-side with the big story about Carlsen's epic battle to save his sinking ship.

Drill into fellow club members the importance of telling you every out of the ordinary thing they do or hear about. That's how you'll pick up story leads. Perhaps they shy away from personal publicity, but remind them it's amateur radio you are publicizing, not individuals.

Now about the mechanics of getting your stories in the paper.

Take the first one on the above list, for example. About a week before the club election meeting, shoot a story in your local newspaper—or newspapers, if there's more than one in your city or area of club memberships.

Address it to the City Editor or City Desk. At the top of the page put "From the Hometown Amateur Radio Club, Joseph J. Inductor, Publicity Chairman." Give your address and phone number.

The city editor likes to know where the stuff comes from, and he or the reporter rewriting your release may want to call you about something you didn't make clear. Give the name, address and phone number of the club presi-

dent or anyone else they can call if they can't reach you.

Then write something like this:

"Members of the Hometown Amateur Radio Club will elect new officers at the annual meeting Monday, May 7, at 8 P. M. in the Hometown High School auditorium.

"Raymond J. Megohm, professor of electrical engineering at Hometown University, author of several textbooks on electrical engineering and electronics, will discuss 'Microwaves—Theory and Practice.'

"Plans will be made for the club's participation in an annual Field Day exercise of national scope next month. (Or whatever event you have coming up. This is a neat way of getting double value and a little extra space out of one story.)"

Mail it in, or better, bring it in to the city editor. Then phone him a day or so before the meeting, remind him about the story—he won't remember it out of the hundreds he sees daily—and ask if it's possible to have a photographer come up to the meeting to get a picture of the new officers.

If it's a morning paper, tell the C. E. you'll phone the city desk with the details immediately after the election. Keep your word about this. In the case of an afternoon paper, call in the election results first thing next morning.

If all goes well, you've gotten two stories and a picture in the paper out of one event. If there's more than one newspaper in the town, you naturally try to get the stories in all papers.

You can do the same with other events. Field Day, for example.

Send in the advance story a week or more ahead of time, then contact the city editor to tell him what swell picture opportunities there will be at the Field Day site. Follow up on the day itself with a story of what was done, how many participated, how many other stations contacted, etc. If it's for a Monday morning paper, phone it in or go there, yourself, on Sunday as soon as FD activities end. For Monday evening's paper, bring your copy in early Monday morning.

If the idea strikes the C. E. right—and there is Field-Day type chow and beverages available for the cameraman who gets the assignment—you might wind up with a layout of several pictures. If he's feeling particularly mellow and there's no big news breaking around town that day, he might even send a reporter along to get the story. The reporter will like the Menu too.

Be on hand to guide the reporter around and explain things to him. While we're on that point, that goes for ham conventions or any other big event you expect reporters to be covering.

Your advance story for Field Day could start like this:

"Hometown amateur radio operators will take their portable radio equipment to a country location Saturday to participate with thousands of hams throughout the country in their annual Field Day test.

"The Field Day program is designed to give the amateur operators practical experience in setting up and operating radio communication equipment under emergency conditions.

"The Hometown hams, members of the (name your club), will start setting up transmitters, receivers, antennas, generators and other equipment early Saturday at (location of Field Day site). The 24-hour Field Day program will continue through the night, ending late Sunday afternoon. Operators will work in shifts to keep several transmitters going constantly. Wives of the hams will operate a field kitchen, supplying meals through the night and day.

"During the test period, the local hams will make contacts with other amateur groups conducting Field Day exercises in all parts of the country.

"All equipment will be powered by portable generators or batteries, simulating disaster conditions under which normal power lines might be knocked out."

Any other information you think necessary should be included. List names of the club president, the Field Day chairman and committee, any Civil Defense or other officials who will attend.

A word here about names.

Newspapermen worry more about getting people's names spelled right than they do about almost anything else. Nothing makes people unhappier than to have their names garbled in a newspaper story.

So give the paper full names, correctly spelled and complete with middle initials. I don't know why this is so important, but a city editor will darn near go berserk if a reporter leaves out somebody's middle initial.

No nicknames. Say "Alfred J. Woomph," not "Al." Don't write "Jerry" if the guy's name is Jerome, Jeremiah, Gerard or Gerald. Spell out first names. Editors have an aversion to lists of names like "J. C. Higgins, R. Z. Jones, L. M. Smith."

Skip the "Misters," but specify whether it's "Mrs." or "Miss."

Give home addresses wherever you think necessary. Certainly indicate the city, town or village each person comes from, if they're not all from Hometown.

Don't use technical terms. The editor won't understand them, so how can you expect the readers to know what they mean? Stick to simple stuff, like receiver, transmitter, radio waves, short waves, etc.

Don't use abbreviations like TVI, SET, MARS, QLF, AREC, UHF, VHF, etc., without first spelling them out in full, capitalized.

Be accurate.

You may not think so, but newspapermen sweat blood making sure of their facts. News-



papers strive to be as accurate as possible under the hectic conditions of gathering and editing the news.

They have every right to expect your publicity releases to be 100 per cent accurate, down to every date and hour, every name and address.

Nothing will queer you and your club with the paper so easily as giving it inaccurate information.

Type everything you send in—double spaced. It shouldn't be necessary to mention this, but it is. Day after day, editors get dozens of handwritten notices so badly scrawled they're almost impossible to decipher. The natural impulse is to chuck them in the wastebasket—and editors are creatures of impulse.

Be brief.

Don't send the paper 2,000 well-chosen words about something you could tell in a couple of paragraphs. Brevity is a virtue in newspaper writing. Whatever you send in will be cut down to size, anyway.

Lincoln had plenty to say at Gettysburg, but he managed to say it in 266 words. Moses told his people how to live in 297 words. The Declaration of Independence required only a few hundred words.

Keep the five "W's" of newspaper writing in mind. Tell WHO, WHAT, WHERE, WHEN, and WHY. Also HOW. If your release covers all those points you've told your story. Try to get the five "W's" in your lead paragraph, newspaper style.

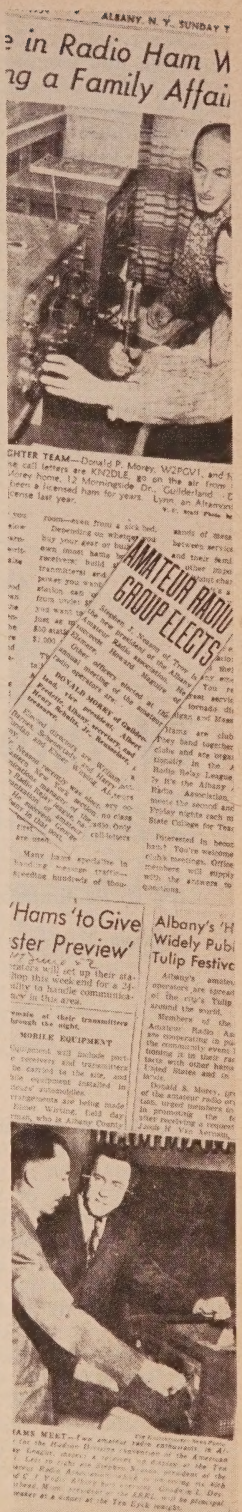
Don't think you must be a professional writer to handle publicity. Just tell your story simply and clearly. Avoid any attempt at "fancy" writing. Anything you send in, no matter how well written, will be re-written to suit the newspaper's style. Study similar stories in your home town newspaper and pattern yours after them.

Exceptions to the above are small town dailies and weeklies that print anything that comes in as-is, because the editor has no staff to rewrite it—and besides he's probably doubling in brass and is out trying to sell a couple of ads.

Get your release in the mail several days before the day you'd like it to be published. Certainly well ahead of the event you're publicizing. Too many releases arrive at city desks too late. Postal service has been erratic of late; letters sometimes take a couple of days for delivery in the same city.

Specify the day you would like to have the story run, but don't go in for the "release date" business unless it is absolutely necessary.

It might be necessary in the case of a surprise award your club is presenting on, say, a Friday night. To be sure the story makes Saturday's morning and evening papers, you send it in a few days in advance. At the top of the page, in big capital letters, put: "DO NOT RELEASE BEFORE 7 P. M. FRIDAY, MAR. 14," for example, or "FOR A. M. RELEASE SATURDAY, MAR. 15."



Send copies to all papers in your area, both morning and evening. The Saturday morning paper will be first to carry the story, of course, but the evening paper editor may not like having to rewrite it from his competitor. Do him the courtesy of sending him the release, too.

Send copies of releases to ALL papers whenever you have a story, except in the case of a special feature you have suggested to a particular city editor. It won't make him happy to put a reporter to work on it, only to pick up the opposition sheet and read the story there first.

Start your "release date" story with a "dateline," like this:

"HOMETOWN, N. Y., FRIDAY MAR. 14 —Joseph W. Ham of 123 Main St., Hometown, an amateur radio operator for 30 years, was honored for his contributions to amateur radio tonight at a dinner of the Hometown Amateur Radio Association at the Palace Hotel.

"Ham, founder of the association 25 years ago, was awarded the organization's annual 'Gimmick,' a gold-plated radio tube given for outstanding service to amateur radio." Etc., etc.

Give details of his work on behalf of the club and amateur radio, his occupation and any of his accomplishments in other fields. Tell who presented the award.

The story will be changed around by the city desk; "last night" will be substituted for "tonight," and the dateline eliminated.

Don't forget to call up the city editors ahead of time to request picture coverage.

Having a ham convention in your city? Send a story to the papers as soon as you know the convention dates. Follow up right to the opening day with individual stories about speakers, program events, committee appointments, number of hams expected and where from, auxiliary meetings and programs. Space out the stories so the paper doesn't receive too many too close together. Send pictures with stories about speakers.

See each city editor a couple of days before the convention. Supply him with a complete roundup of the convention program; he'll probably want such a story just before the convention gets under way.

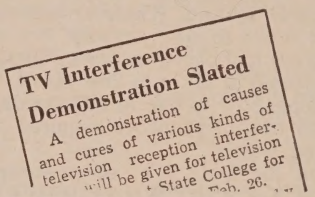
Tell him you'll be on hand to assist reporters and photographers. Be prepared to explain technical addresses and demonstrations to reporters, in case they seem interested. You may have to miss some of the convention fun and you may find the paper wants you to phone in the story or come down to the office with it, but that's your job.

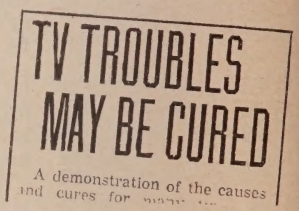
Don't pass up opportunities to "sell" amateur radio. In your releases, give some background on amateur radio activities and organization. Things like how many hams there are in your county and state, how hams serve in emergencies, what the ARRL is, how hams get their licenses and call letters from the FCC. The papers won't use this information in every story, but it keeps the editor aware of the importance of ham radio—and you never know when some of it may get in the published story.

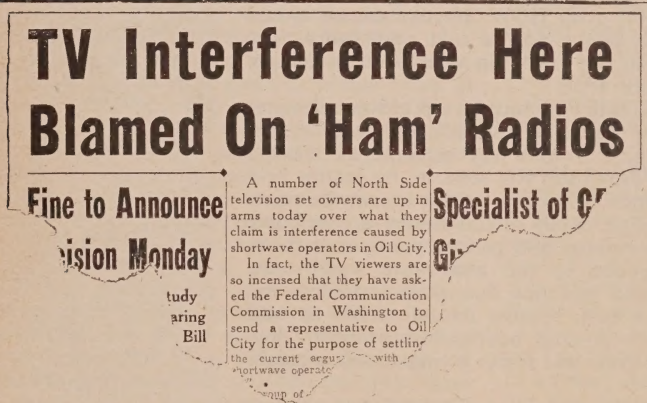
Try some of these story and feature ideas:

Youngest ham in town; schoolboy gets license.

Shut-in ham keeps touch with world via


TV Interference
Demonstration Slated
A demonstration of causes and cures of various kinds of television reception interfer-
will be given for television
State College for
Feb. 26.


TV TROUBLES
MAY BE CURED
A demonstration of the causes
and cures for


TV Interference Here
Blamed On 'Ham' Radios
Fine to Announce
ision Monday
tudy
aring
Bill
A number of North Side television set owners are up in arms today over what they claim is interference caused by shortwave operators in Oil City.
In fact, the TV viewers are so incensed that they have asked the Federal Communication Commission in Washington to send a representative to Oil City for the purpose of settling the current argu with shortwave operato roup of
Specialist of C
Gi

The above publicity can counteract "Bad" Publicity from ever reaching print. Headlines like that at the left show a lack of Ham public relations with local newspapers.

radio.

Father-daughter (or son) ham combination. Maybe there's a family of hams in your area.

Women hams. (Try this on the paper's women's editor, if it has one. She and the city editor work in different worlds.)

Ham club starts radio class for veterans hospital patients; plan station at hospital. (Good club project, it was done at Albany, N. Y., Veterans Hospital.)

Individual ham or radio club gets high score in DX Contest, Sweepstakes, or other competition.

Local ham gets unusual gift or request from a ham contact in faraway land.

Local celebrity, prominent business executive or government official is a ham, or becomes one. (Nothing surprising to you in this, but it makes a good hobby feature for the paper.)

Club station gets new gear.

Feature on "Ham Radio As A Hobby" for the Sunday paper. (See the paper's Sunday or feature editor.)

Local amateur has article in national radio magazine.

Area ham invents electronic gadget.

Hidden transmitter search to highlight local hamfest.

Radio engineer explains television interference due to many causes; how to eliminate.

Local ham's station pictured in CQ.

Mobiles assist house-to-house canvass in community fund drive.

When you set up a station at the local home show or other exposition, suggest a reporter dictate his story from the show via radio to a portable set up in the newspaper office where another reporter can copy it. Good for pictures at both ends. Points up the value of radio when other communications fail. This one calls for arrangements well in advance.

Try the same idea with mobiles at a big outdoor event.

This could go on and on, but you should have the general idea by now.

A thing to remember is that the size of a city and its papers determine their evaluation of news. A meeting notice will get more space in a small-town paper than it will in a big city daily, where your stories are competing for space with bigger and more important news.

A few more words of warning:

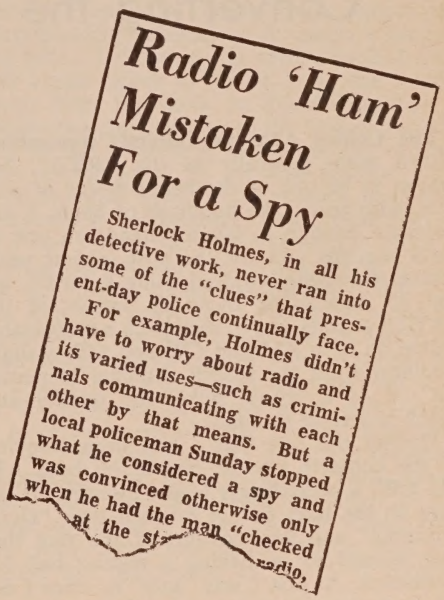
Don't make the mistake of thinking you have a "right" to space in the paper. You don't "put" things in the paper; you submit them to the editor for his judgment of their news value. He's there to decide what's news and what isn't.

Don't call up and complain because your story wasn't in the paper. Either it wasn't considered news-worthy or—more likely—it simply was left out for lack of space.

Don't tell the editor you are a subscriber and your father before you and you don't see why he can't put something in the paper for you. His obligation is not to individuals, it is to the thousands of people who read the paper—the public. Stories and pictures are published to inform, enlighten, interest and entertain, not to please or promote individuals.

DON'T, for Pete's sake, give the editor the old "I'm a big advertiser in your paper" threat. If you advertise your business, you get the space you pay for. News columns of a newspaper are not for sale. Pull this on an editor and forever after you're a nasty phrase in his book.

DO call up and say "Thank you." Tell the editor the story was fine, swell pictures, etc. This is done so seldom the city editor will think very kindly of you.


Radio 'Ham' Mistaken For a Spy

Sherlock Holmes, in all his detective work, never ran into some of the "clues" that present-day police continually face. For example, Holmes didn't have to worry about radio and its varied uses—such as criminals communicating with each other by that means. But a local policeman Sunday stopped what he considered a spy and was convinced otherwise only when he had the man "checked at the st... radio.

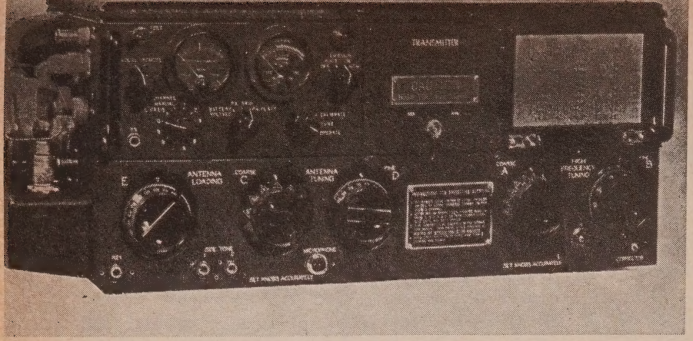
This can and does happen in one form or another too often. Publicity will prevent it.

Here's one last suggestion, saved as a sort of reward for having stuck with it this far. The solution to all your radio club publicity problems, it sometimes is known as the "We-got-a-man-in-City-Hall" method. It's sneaky but neat.

Get a newspaper reporter interested in ham radio. Start him learning code and theory, do everything you can to help him get his license. Sign him up as a member of the club.

It's fore-ordained that the club president will appoint him publicity chairman—and he'll never be able to get out of the job.

I know. It happened to me. ■



The author's ART-13

George W. Kindt, W3VYY
133 Marlyn Ave.
Bryn Mawr, Pa.

Converting the ART-13 to SSB

The Collins Auto-tune aircraft transmitter, known more generally as the ART-13, has proven to be one of the better pieces of surplus radio gear. Like hundreds of hams, I was fortunate enough to lay my hands on one of these beauties and for the past several years I have thoroughly enjoyed using it on 80, 40, and 20 meters. As most all owners of the ART-13 already know, they pack a respectable wallop on both AM and CW and with a slight modification of the speech amplifier to permit the use of a crystal mike, the quality and punch is second to none.

Despite the fact that I had been enjoying all the contacts I could handle on both AM and CW, I nevertheless began listening to the guys on the high end of 80 with their "Duck Quacking" and was envious of the fact that they seemed to be having a regular ball for themselves. At first I was "agin" it, since I did not have the equipment and it looked like an expensive proposition. About that time a few of my friends began to give me the needle with such quips as, "You're behind the times," "It's the coming thing," etc., etc. It worked; I knew I had to get on SSB and now I had to figure *how*. I read all the ads and looked over all the available equipment on the market. An ad by *Barker & Williamson* describing their new *51SB Single Side Band Generator* struck a happy note since it appeared it could be used successfully with the good old ART-13. A short talk with the *B&W* engineers developed that the *51SB* was a natural for use with the ART-13. Here we already had a good stable VFO, frequency multipliers, and an ideal final tube. The job of converting appeared to be relatively simple.

After ten minutes of studying the circuit diagram of the ART-13 and taking a quick look at the actual location of the parts and space involved, it was clear that the conversion was going to be easy. Actually, the entire conversion required slightly less than three hours, not counting the time spent dressing up the works with a few decals. As a matter of fact, I was truthfully surprised at the ease with which this conversion was made and even more surprised with the marvelous reports and unexpected increase in power. The pictures of both front and rear of the ART-13 are pretty much self-explanatory, but for the hundreds of owners of ART-13's who might want to get on SSB the easy way here is how it's done.

The 51SB plus eight small parts did the entire job. Required are: two *Amphenol* #83-1R fittings, two *Amphenol* #83-1SP fittings, one small 15 $\mu\mu$fd. 600 volt ceramic condenser, one 8-50 ceramic trimmer condenser, one *Jones* plug and thirty six inches of RG-65U. Since you will want to retain the AM-CW properties of the transmitter you will also need one DPDT toggle switch. This toggle switch is installed in the center of the blank panel which is used to replace the low frequency oscillator. The result is that with one switch on the 51SB and the newly installed AM-SSB switch on the transmitter we accomplish the change-over from SSB to AM or vice versa.

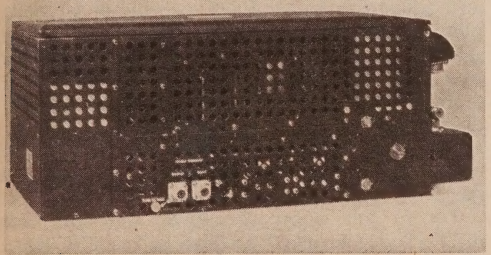
Figure 1 is the original circuit diagram of the grid and grid metering system. The resistor shown in dotted lines will be found in some models of the ART-13, while in others the circuit will be exactly as shown in hard lines. This is one of the few differences in the several models of the ART-13 which were pro-

duced for the Armed Services, but it has nothing whatever to do with our conversion. It has been shown merely to eliminate possible questions later on. Should your transmitter have such a resistor leave it alone. If it doesn't, just forget we even mentioned it.

Do It Yourself

Figure 2 is the circuit diagram of the entire modification. That is all there is to it. The toggle switch shown in this diagram is the one which we installed on the front panel as mentioned above. This could just as well be located on the rear apron if you are reluctant to alter the appearance of the front panel. A few decals will make the switch look very much a part of the panel layout.

Now, with the transmitter upside down on the bench and with the bottom cover removed, you will find the grid choke *L107* staring you in the face. It is mounted on a small terminal



Rear view of complete conversion

board which is bolted to the 813 socket. Don't remove any parts, merely snip the short piece of wire that runs from the grid choke to the coupling condenser *C116* in the multiplier stage. The next move is to mount the two *Amphenol* 83-1R fittings on the rear apron immediately adjacent to the 813 socket. The vent holes in the rear apron are just the right size for the screw in a *Greenlee* punch, so drilling is confined to the four small holes for the mounting screws in each fitting. We used the second row of holes up from the bottom since this placed the fittings in a position which gave us the very shortest possible leads.

Next, install the 8-50 trimmer in another of the vent holes right next to the appropriate coax fitting. Here again no drilling was necessary since the hole was just the right size for the twenty five cent variety trimmer which we used. Connecting the two coax fittings and the two small condensers as shown in *Fig. 2* is now a simple procedure.

Decisions, Decisions!

At this point you have to decide where the toggle switch will be mounted. Whether it is placed on the front panel or on the rear apron makes little difference since very low voltages

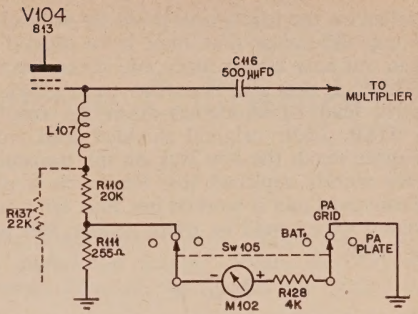
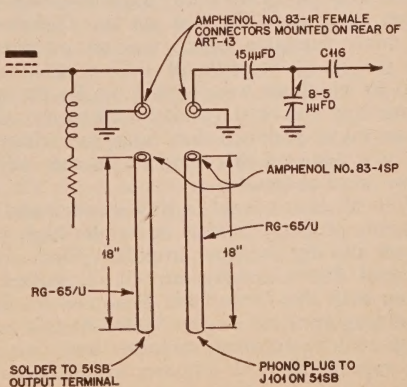


Fig. 1. Original grid diagram

are involved. Turn the transmitter right side up and alter the metering circuit as shown in *Figure 2*. This involves lifting the end of the grid metering resistor *R111* which is now grounded and also lifting from ground the corresponding terminal on the meter switch in the ART-13. Connect the newly installed AM-SSB toggle switch as shown. Note that it performs three functions: In the SSB position it applies the external bias to the grid of the 813 and at the same time shorts out the original bias resistor *R110*. In the AM position it returns the grid circuit to its original condition. Incidentally, it is necessary to short the original grid bias resistor for SSB operation in order to prevent the grid varying should you drive into the grid region under modulation peaks. The last step in converting our ART-13 is the installation of the *Jones* plug through which the bias voltage will be carried. Here again the job of drilling is at a minimum since the vent holes fit the two terminal *Jones* plugs very nicely.

In order to permit side by side installation of the 51SB and our ART-13 it was necessary to lengthen the RG-65U leads. Those which came with the 51SB were too short so we made up two new pieces each 18 inches long. We were concerned about this at first but found that adjustment of the 8-50 trimmer



Make up of new RF connector leads

installed on the rear apron made up very nicely for any difference that may have existed between our new longer leads and those supplied by *B&W*. It was also necessary to lengthen the control lead which comes from the front of the 51SB. Their original shielded lead would not quite reach the key jack on the transmitter so we merely replaced this lead with a piece of lamp cord and it worked just fine. Of course, shielded wire would be more proper, but none was handy.

Tune It

Tune up procedure is a very easy matter once the conversion and installation is completed. The instruction manual supplied with the 51SB is very explicit and should be studied carefully before any voltage is applied to either it or the transmitter. Most owners of ART-13s

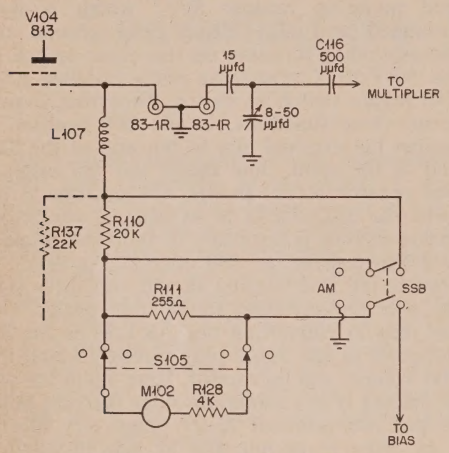


Fig. 2. Entire conversion for SSB

already know the tuning procedure for the transmitter, but for the record here's how we did it. The emission switch on the ART-13 was set on *CW*, the Tune-Operate switch set on *Tune* and our newly installed SSB-AM switch set on *AM*. The Balance-Unbalance switch on the 51-SB was set on *Unbalance*, the meter function switch was set on *Output* and the Band Selector of course set to the band on which we were tuning up. By the way, let me urge you to start out on 20 meters since it was my experience that once the trimming etc., was done on this band no further adjustments were necessary.

With all controls set in this manner and the filaments properly heated throw the high voltage on and dip the final amplifier. Then check the grid drive, making sure it is peaked by tuning both the *Driver* and *Balanced Modulator* tuning controls on the 51SB. At this point things will be running smoothly and you can now repeak the 8-50 trimmer installed on the rear of the transmitter for maximum grid drive. Also, it is now a good idea to repeak the output trimmer in the 51SB. This is identified by *B&W* as *C122* and is located on the r-f chassis near *V103*. When adjusting this trimmer for maximum grid drive be sure to rock the *Driver Tuning* control so that you will be sure of getting maximum output from your 51SB. You can always reduce the grid drive later on by backing off slightly on the *Driver Tuning* control. As a matter of fact, this will more than likely be necessary when operating on 80 meters and is a very nice feature not available with the ART-13 in its original state.

Assuming the transmitter is now tuned up and working nicely in the *AM* position, it is now time to adjust it for SSB operation. After turning off the high voltage, set the newly installed switch on the ART-13 to *SSB*. Push the Balance-Unbalance switch on the 51-SB to *Balance* and turn on the high voltage. It is assumed you will have connected bias voltage to the new Jones plug and it is suggested that you start with about 90 volts. Note the idling current on the plate meter of the transmitter and adjust the bias voltage to provide a resting plate current of between 35 to 40 ma. In my case, I run 1600 volts to the final tube and the bias is set to provide a resting current of exactly 40 ma. which seems to be just about optimum. Once this bias adjustment has been accomplished it is time to balance out the carrier in accordance with instructions given in the 51SB manual.

Up to this point you have adjusted your ART-13 in the usual fashion in the *CW* position, loaded to approximately 100 to 120 ma. Now comes the nice part, you can now throw your two switches back to the "carrier" or *AM* position and, leaving the Emission switch in the *CW* position, load on up to at least 190 or 200 ma. Don't for heavens' sake, leave it in that position too long with carrier, but once it is tuned to that amount of current you are all set to "knock em dead" with SSB. The 813 easily handles this kind of current on SSB and the quality of the signal will bring very flattering reports. You will find that under normal SSB operation the plate meter will appear to kick up to only about 150 ma. but this is only because the meter is damped and does not actually record the instantaneously reached peaks.

When returning to AM or CW operation it is obviously necessary that you either retune because of the excessive plate current or use another channel. The nice part of the ART-13 is having those other channels to use as well as the fact that we now can go from SSB to AM by merely flicking two toggle switches. Incidentally, it is neither necessary nor desirable to disconnect the 51SB when going back to either AM or CW. It gives you a perfect control of your grid drive and improves the entire operation. Personally, I am delighted with the performance of my newly improved ART-13. ■

for Oscilloscopes . . .

a Built-in Voltage Calibrator

Charles Erwin Cohn
7720 Marquette Ave.
Chicago 49, Ill.

At the present time, the voltage calibrator has become a very popular oscilloscope accessory. The main reason for this is that it allows quantitative as well as qualitative information to be obtained from the waveform, i.e. a measurement of its peak amplitude as well as a knowledge of its shape.

A majority of the calibrators on the market are sold as separate units which are cumbersome to handle, especially when portability of the oscilloscope is required; and their connections introduce long leads in the vertical input circuit, which would be detrimental to wideband operation. To eliminate these disadvantages, it would be desirable to have the calibrator built into the scope itself.

One of the best calibrator circuits available is that of the Heathkit VC-2, and I shall use that as a basis. However, when adapting the circuit for built-in use it is possible to eliminate a number of parts which are required in a separate unit, and thus achieve greater simplicity and economy. The modified circuit is shown in the diagram below.

Here the double diode V1 serves as a clipper to convert sine waves to square waves, which are displayed on the scope screen as a calibration signal. The AC voltage input for this clipper is to be obtained by connecting the free end of R1 to one side of the high-voltage winding on the power transformer. This must be the winding which supplies the B voltage, and *not* the one supplying high voltage to the cathode ray tube.

Bias for the clipper is obtained from the voltage drop across the VR tube V2. Since this sets the peak-to-peak amplitude of the square waves, the calibration is stabilized and will be independent of line voltage variations. If a VR tube other than the VR105 is used, or if the B voltage is different from 250 volts, R2 must be chosen so as to put about 20 ma. thru the VR tube. These connections eliminate the separate transformer and rectifier required in the original VC-2 circuit.

The square waves generated by the clipper pass thru the network made up of resistors R3 thru R8, which determine the calibration voltage to be applied to the scope amplifier. R3 serves for initial setting of the circuit, and should be a screwdriver setting. C2 serves merely to isolate the divider network from the bias voltage on the clipper, and must be that large in order to avoid tilt in the square waves.

R4 is the main control, which serves to set the calibration voltage. When the circuit is properly adjusted, it will vary the square wave

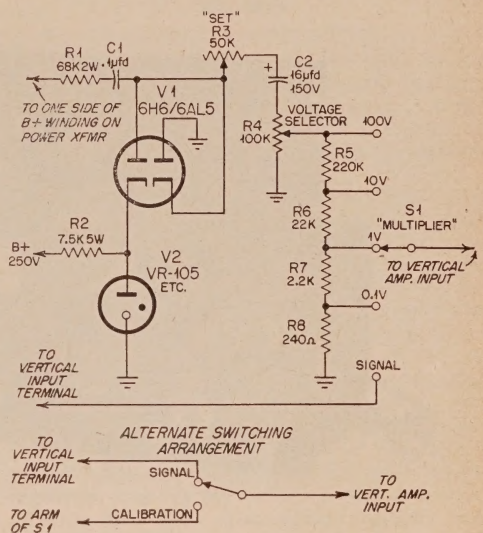


Diagram of Voltage Calibrator

peak-to-peak amplitude from zero up to the maximum value given by the setting of the multiplier S1. It should be a high-quality linear-taper pot, and should be equipped with an accurate 0-100 dial scale, from which volts can be read directly. The resistors R5 thru R8 which form the multiplier chain should be good 1% tolerance precision units.

In incorporating this circuit into an oscilloscope, the best procedure is to place the two tubes, as well as R1, R2, R3, C1, and C2 on the power supply chassis. Then R4 and S1 can be mounted on the front panel, with R5 thru R8 wired on the switch. In order to maintain short leads in the signal circuit S1 should be very close to the vertical input terminal. If this is not possible a toggle switch S2 should be placed close to that terminal and wired as shown in the inset. In order to be able to use the calibrator the scope must be equipped with a graph screen, if it does not already have one.

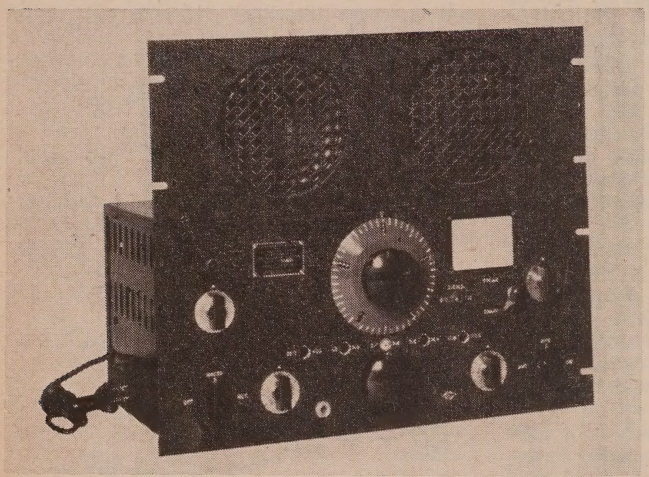
[*Continued on page 118*]

More Bandspread

on National

Military Models

Robert J. Murray, W1FSN
60 Main Street
Saugus, Massachusetts



RCK and speaker

There are many different military receiver models of *National Company* manufacture that are currently in use by hams and would-be hams throughout this country and (thanks to Uncle Sam) abroad.

Unfortunately for the amateur the ham bands are crowded into a space of what seems to be about 10 divisions on a 500 division scale.

There is one bright spot for most of the owners of receivers in this category and that is that *National* in the majority of cases designed the receiver so that the high frequency edge of each general coverage range was also the high frequency edge of an amateur band.

The military models in this class include the following:

Table I	**Table II**
NC-100 A	NC-100
NC-100XA	NC-100 X
NC-100ASC	RCK
NC-100ASD	RCL
RAO	RBJ
RAO 2 to 8	RAS
NC-240	HRO-JR.
NC-240 C	HRO-W
NC-156	HRO-M
	HRO-5

In practically every instance the manufacturer cannot supply bandspread coils for the receivers due to design problems and the relatively high cost of small production runs. The HRO series bandspread coils may or may not be available and here again the price is high because of the necessity for the manufacturer to purchase obsolete material in small lots, much of which is essentially custom made.

The average short wave listener does not miss the bandspread features of his particular receiver until he receives his Novice or amateur General Class license, then he casts about trying to find some way economically and simply to provide himself with a greater spread on the amateur frequencies.

This can be done without a great deal of time or expense if the operator has access to a few simple tools, parts and test equipment. The receivers in *Table I* have dials that are directly calibrated in frequency, and if the owner desires his receiver to be calibrated the same way, when converted to bandspread, he will have to make a hand calibrated scale which will be cemented over the present scale on the receiver. The receivers in *Table II* have the old reliable PW dial and in this case

charts or graphs must be made to show the dial settings versus frequency.

The 80 meter amateur band was used as a criterion when converting the various receivers for bandspread operation. When this band is set up properly the 3.5 mc to 4.0 mc range is covered by 80% of the tuning capacitor's total rotation; the 7.0 mc to 7.3 mc range by 13%; the 14.0 mc to 14.4 mc range by 20% and the 27.2 mc to 30 mc range by 54%.

Assuming that all of the receivers have the same tuning ratio as the HRO receiver (which most of them do) this means that we shall obtain 400 divisions of bandspread on 80 meters, 65 divisions on 40 meters, 100 divisions on 20 meters, and 270 divisions on 11 to 10 meters; this, out of a possible maximum of 500 divisions.

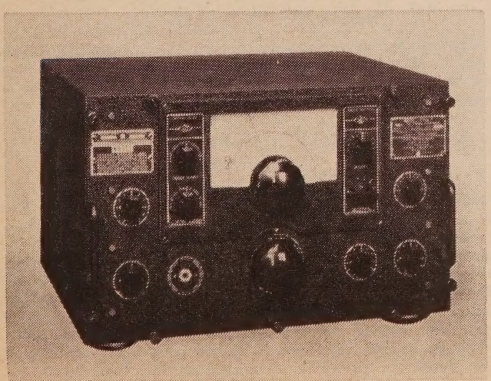
The method used is quite simple. All of the receivers listed in *Tables I* and *II* have the main tuning capacitor mounted above the chassis. Each section of this capacitor is wired to a brushboard of one type or another.

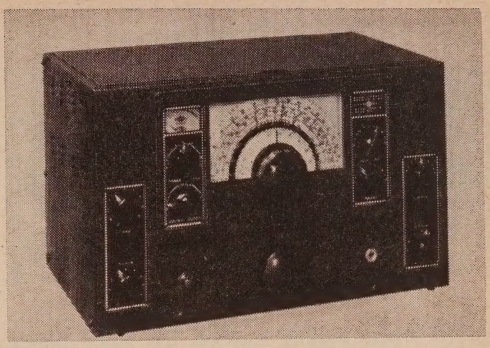
It is merely necessary to cut the bus wire connecting the *stator* of each section to the brushboard and insert either a fixed ceramic capacitor in series with the stator to brushboard or a small variable capacitor suitably mounted connected in the same manner, i.e., in series with the stator of the main tuning capacitor and its original connection to the brushboard. The value of this capacitor will vary slightly from receiver to receiver but will be between 30 and 35 $\mu\mu$fd.

If fixed ceramic capacitors are used, the capacity chosen should be a slight bit higher than indicated above as it is possible to adjust most types when the alignment is to be performed.

After the 30 to 35 $\mu\mu$fd. capacitors have been installed in series with all of the stators and the brushboards, and are soldered rigidly in place it will be necessary to touch up the r-f alignment of the front end of the receiver for maximum performance. An accurately calibrated signal source or 100-1000 kc oscillator is necessary for this task.

Below: RAO-7





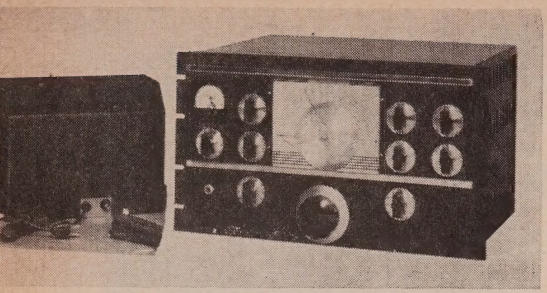
NC-100XA

Set the receiver dial so that the main tuning capacitor is 10% in from minimum capacity (450 on PW dial) on the "D" range, or the range which corresponds to the D range on receivers which may differ slightly in nomenclature.

With the signal generator set at 4.0 mc trim the high frequency oscillator trimmer which is mounted on the coil assembly itself so that the 4.0 mc signal is heard. Adjust the mixer, 2nd r.f. and 1st r.f. trimmers (also on the coil aseemblies) for maximum signal strength as indicated by the "S" meter or an output meter connected to the output terminals of the receiver. Now tune the main tuning capacitor to 90% of maximum capacity (50 on PW dial) and set the signal generator to 3.5 mc.

This signal should be heard in the vicinity of this capacitor setting. If the main tuning capacitor tunes in the 3.5 mc signal at a point of more than 90% of maximum capacity (less than 50 on PW) it indicates that more series capacity is required. This means that an additional capacitor of a few $\mu\mu$fd. will have to be added in parallel to the present capacitor. If the main tuning capacitor tunes in the 3.5 mc signal at a point of less than 90% of maximum capacity (more than 50 on the PW) the series capacitance must be reduced. Where fixed ceramics are used this can be accomplished by chipping off a little of the long end of the capacitor a little at a time until desired capacity is reached. It is usually a good idea to re-trim the high frequency end of the range after any change has been made in the series capacitor. Where variable series capacitors are used the above holds true except that it is much easier to increase or decrease the capacity by merely turning the rotor one way or another.

The tracking of the mixer and r.f. stages should be checked at 3.5 mc by slightly pressing in or pulling out on the rotor plates of the main tuning capacitor to determine whether the series capacitor needs more or less capacity for proper tracking. If an increase in background noise is noted when pressing in on the rotor plates, more series capacity is indicated. If an increase in background noise is



NC-240 and power pack

noted when pulling out on the rotor plates, less capacity is needed. The series capacitors should be adjusted accordingly.

The "C" range coils are now inserted or engaged and the main tuning capacitor is set at 10% in from minimum capacity (450 on PW) and the high frequency oscillator trimmer (on coil assembly) is trimmed so that 7.3 mc is heard. The mixer, and r.f. stages are trimmed for maximum signal strength. 7.0 mc should fall at approximately ¼ capacity of the main tuning capacitor (385 on PW). No further adjustment of the series capacitors is necessary.

Engage "B" range. Trim high frequency oscillator to 14.4 mc with main tuning capacitor at 10% in from minimum capacity. Trim mixer and r.f. stages for maximum signal strength. 14.0 mc should fall at about 30% capacity of the main tuning capacitor (350 on PW).

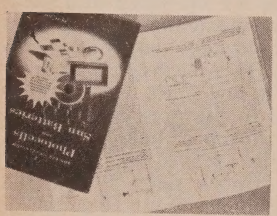
Engage "A" range. Trim high frequency oscillator to 30.0 mc with main tuning capacitor at 10% in from minimum capacity. Trim mixer and r.f. stages for maximum signal strength. 27.2 mc should fall at about 46% of maximum capacity (270 on PW) of the main tuning capacitor.

More or less bandspread may be had on any one particular band by decreasing or increasing the size of the series padders and retrimming at the high end of each range accordingly.



HRO-W-M

If at any time it is desired to return the receiver to its original condition, you merely remove the series padders and reconnect the bus bar wires from the stators of the main tuning capacitor to the brushboard and retrim the high frequency ends of each range. ■



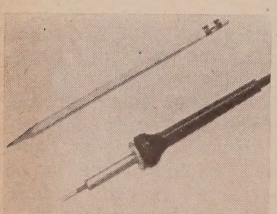
Free! Zeus Juice

Say, have you been wondering, too, about the new breed of sun-worshippers you see pictured occasionally in the radio magazines? You know, draped head and shoulders with miniature electronic equipment and standing out in the middle of a field waiting for the sun to come out? Well, we've discovered one of their information sources. A new booklet, "The Use of Selenium Photocells and Sun Batteries," has just been published by International Rectifier Corporation, primarily for engineers and amateur experimenters. 58 pages, with illustrations and diagrams describing in detail many ways in which sun batteries and other photocell products are employed, including some you never thought of, I'll bet. Available locally or from International Rectifier Corp. Product Information Dept., El Segundo, Calif., for $1.50.



Nibbler

Square Holes in Round Chassis or vice versa with this *Nibbler*, vended by Harrison Radio in New York. All it takes is a small starting hole and you can cut just about any shape hole you want. Harrison will send you information free or a *Nibbler* for $4.10, take your choice. Once you try it you'll have to own one.



New Pencil Iron

Surprise! A pencil-type soldering iron that's actually the size of a pencil! Far from being a toy, too, the new Wall Pencil Iron utilizes an exclusive new thermostatic control principle to assure that the iron will be here today and here tomorrow. Weighing one ounce, 7½" long, with a ⅛" tip, but designed for "production line punishment," this new "Pencil" is ideal for precision work (printed circuiteers, rejoice!). "Thermostatic Brain" action without fragile thermostats controls heat perfectly to eliminate fusing and tip-burning. Heats four times faster than irons of equal tip size, but has a cool "chimney"-type handle. Meets govt. specs plus UL and Canadian Standards. Want one? They'll send you a catalog if you'll divulge your name & address in legible form. Wall Mfg. Co., Grove City, Pa.

Improved Keying for the DX-100

John Abbott, W6ZOL
4707 Burnet Ave.
Sherman Oaks, Calif.

If your DX-100 chirps or clicks on 10 and 15 c.w. this article may interest you. The reason for the chirp is obvious—oscillator keying. The solution is also obvious—driver keying. The method described here permits a selection of either oscillator or driver keying on any band. Oscillator keying can be used for break-in below 20 meters while driver keying can be used on all bands. A vacuum tube keyer may be used for driver keying and L-C circuits for oscillator keying to eliminate clicks. No holes are drilled anywhere to make the change.

The parts needed are: 3—0.005 μfd ceramic capacitors, 1—small 2.5 mh RFC (*National* #R-50), and 1—1.00 ohm 1% resistor, at a total cost of less than $2.00. A little patience is also required. The soldering must be done with a pencil iron to work in the small space around the driver stage. Care should be taken not to damage any components.

When the job is finished your efforts will be well rewarded with chirpless T9x reports on 10 c.w. The conversion steps (as per the form in the manual) are as follows:

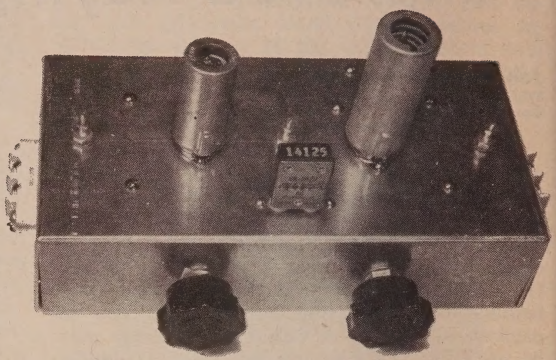
Refer to the manual and the accompanying diagrams.

( ) With the chassis horizontal unsolder the yellow wire at pin 6 of the meter switch.
( ) Now set the rig so that it is resting on its back. The high voltage section will then be on your right.
( ) Push the yellow wire through its feed hole until it is entirely under the chassis.
( ) Remove the yellow wire from its cable by pulling it out of one binding loop at a time, working back towards the 5763 socket. Do this carefully so as not to damage the cable.
( ) Remove the yellow wire and the 1.00 ohm 1% resistor from pin 7 of the 5763 socket. It is useless to try and salvage the 1.00 ohm resistor so break it off where it is soldered to ground, being careful not to damage the nearby RFC.
( ) Now connect a 0.005 μfd ceramic from pin 7 (NS) of the 5763 to ground lug 3 (S) where the other two ceramics are already connected.
( ) Place the capacitor down against the chassis.
( ) Cut the leads of the small 2.5mh RFC (Nat. #R-50) to 1″ in length and cover with ⅞″ of spaghetti.
( ) Connect one end to pin 7 (S) and the other to pin 2 (NS) of the 5763 socket.
( ) Connect a 0.005μfd capacitor from pin 2 (NS) to ground lug 2 (S) on the 5763 socket.
( ) Now strip the ends of a 24″ yellow wire. Run it close to the chassis and under the lead from the capacitor to pin 1 of the 5763 socket.
( ) Connect one end to pin 2 (S).
( ) Run the wire horizontally to the right along the base of the driver shield. Then go upward along the base of the right partition of the RF section and through the hole provided for tightening the VFO switch. Leave the end of the wire free.
( ) Bend the RFC forward towards the front panel so as to clear all components.
( ) Now unsolder the blue wire on pin 1 of the plate switch.
( ) Unsolder its other end at pin 7 of the 'phone-cw switch and remove it.
( ) Unsolder the blue wire on pin 8 of the 'phone-cw switch and connect it to pin 1 of the plate switch (S).
( ) Remove the key jack from the front panel. Bend it outwards by holding the 'phone-c.w. switch side of the choke coil so as not to damage the switch.
( ) Unsolder the side of the 0.005μfd capacitor which goes through the shorting switch and ground contacts on the key jack.
( ) Place a piece of spaghetti over this end of the capacitor and connect to the ground contact (NS).
( ) Connect a 1.00 ohm 1% resistor from the shorting switch contact (NS) to the ground contact (S).
( ) Connect a 4″ blue wire to the shorting switch contact on the key jack (S).
( ) Now re-install the key jack in the same manner it was removed.
( ) Cut the blue wire to length and connect to pin 7 (NS) of the 'phone-c.w. switch.
( ) Thread a 24″ yellow wire through the chassis hole to the left of the high voltage compartment, across the RF compartment, and out the hole in the top of the chassis to the meter switch.
( ) Connect to pin 6 of the meter switch (S). Connect the other end to pin 7 of the 'phone-c.w. switch (S).

[*Continued on page 112*]

10 Meter Converter

Frank Biloon—K2ECY
60 Elizabeth Drive
Bethpage, L.I., N.Y.



The complete converter

Like a good many other amateurs, the author possesses a war-surplus receiver, in this case an old super-pro model BC-779A. It's a sensitive one and has always given me satisfactory service but it does not tune above 20 megacycles. Not desiring to part with the cash at the moment to buy a comparable receiver that would tune the higher ranges, I decided to try my hand at building a converter to go with "old Faithful".

My requirements for design were:

1. Fixed tuning for ease of operation.
2. Simple construction with non-critical layout.
3. An r-f stage ahead of the converter to isolate the oscillator from the antenna and to provide an r-f gain increase.
4. An oscillator stage which would require no separate tube or coil.

With the above requirements in mind I set about building such a piece of equipment to operate on the ten-meter band. The circuit as shown is straightforward enough, consisting of a high-gain pentode r-f amplifier (6AU6) followed by a pentagrid converter (6BA7) with a grid-plate xtal oscillator. The difference frequency between the amplified 28 Mc. input signals coming in on *grid 3* and 14 Mc. xtal oscillator frequency on *grid 1* is electron coupled to the output tank of the converter tube. The antenna input coil primary matches the impedance of my antenna tuner while the converter output secondary matches the antenna input coil of the receiver.

Slug-tuned ceramic coil forms were used throughout and lend themselves nicely to ease of tune-up. The adjustable type of coils were selected so as to compensate for the stray capacitances which could only be estimated in the design stage.

Converter tune-up is very easily accomplished with any available signal source such as an oscillating grid-dip meter or an RF signal generator having a harmonic in the pass band of the converter. The author used his transmitter VFO with no direct coupling except for the three foot space separating the VFO from the converter on the operating desk. More than ample signal was immediately detected in the receiver.

With the converter connected between the antenna and the receiver and with the signal generator in operation, the receiver is tuned carefully through the converter pass-band until the signal voltage is detected. Preferably the signal source should be tuned to the center of the pass-band. The three coil slugs are then tuned in turn to achieve maximum output as noted by ear or on an output meter connected across the speaker terminals. If the receiver has an "S" meter it will serve admirably for this purpose. Be sure to reduce the receiver sensitivity control so as not to overload the receiver.

Should any one of the coils fail to tune through resonance, a slight adjustment in the amount of shunt capacitance across the coil will correct this fault. For instance, if it is not possible to draw the slug far enough out of the coil, a small amount of capacitance, say 5 $\mu\mu$f., should be removed. On the other hand, if the slug is completely moved into the coil form without achieving resonance a small increase in shunt capacitance is needed.

The converter itself goes together very quickly and after the initial five minute tuneup does not require any further adjustment during operation other than an occasional peaking of the output tuning capacitor. All that is necessary is to tune the dial of the receiver. It is exceptionally quiet in operation, has no noticeable drift, has a calculated voltage gain of 1450, and a sensitivity when used with the author's BC-779A considerably greater than expected. Ground wave signals from approximately 50 miles air-line distance have been copied with no difficulty using this converter.

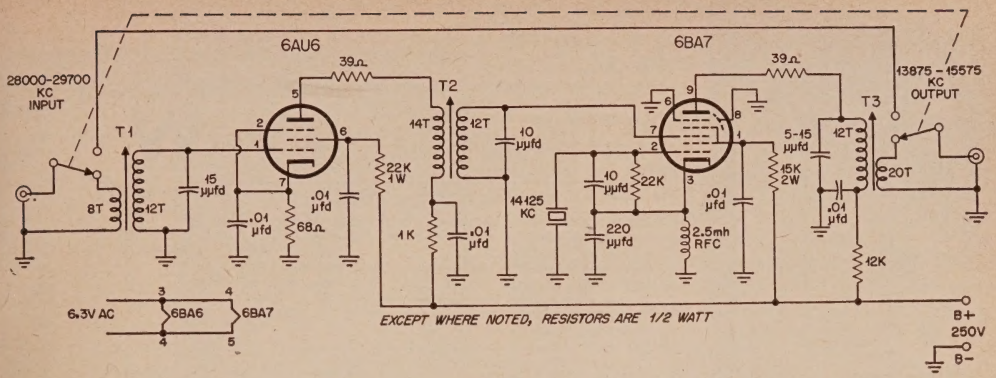


Diagram of Converter

Notes:

1. Pass-band requirements were computed in the following manner.

$$\frac{\text{Resonant Frequency}}{\text{Pass-band between 3db down points}} = \text{Q of the coil.}$$

i.e. $\frac{30\text{Mc.}}{.5\text{Mc.}} = 60$

A 1/2 watt resistor in the order of 10,000 ohms connected across T1 and T2 secondaries will increase or broaden the pass band if desired although this will reduce the overall gain somewhat.

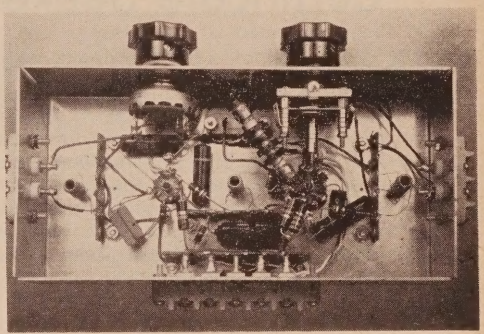
2. T1 primary and T2 secondary were both matched to 100 ohms impedance.

$X_L = 2\pi fL$ with X_L as 100 ohms

These coils may be recomputed for matching to a widely different impedance.

3. The primary of T2 was designed to be resonant at 1.35 times the secondary resonant frequency which resulted in essentially flat voltage gain throughout the pass-band.

4. All coils wound on ceramic coil forms such as Miller or Caddell-Burns with .265" diameter. Each coil length is 1/8" layer wound with 1/8" spacing between primary and secondary windings. Coils are wound as closely to the end of the form as good practice will permit so as to allow maximum slug travel. Number 7/41 *Nylvar* litz wire was used in all cases.

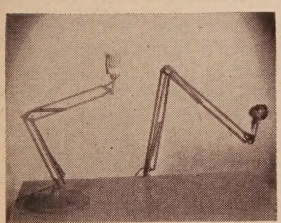


Under chassis view

Turns Table

	T1	T2	T3
Primary	8	14	12
Secondary	12	12	20

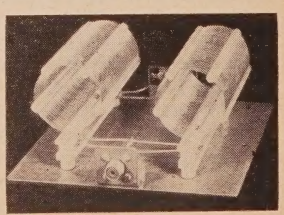
5. Design center frequency was chosen as 28700 kc.



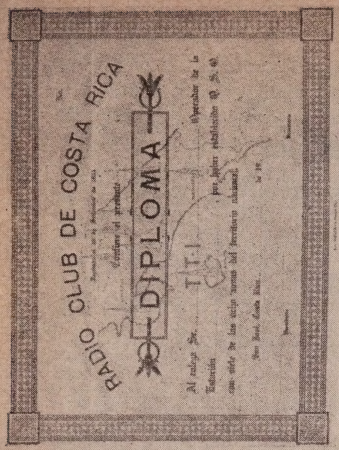
?

Don't startle, now. Wait for an explanation. These are not the threatening arms of an atomic-age robot or a do-it-yourself home dentistry kit, but a friendly and useful device name of Luxo, and it holds your mike for you, whether you're slouched back in your chair, slouched forward in your chair with your chin on the table, standing on your head on top of your receiver, or lying flat on the floor locked in the embrace of an unbled filted condenser. The Luxo Mike Arm is available in several different models, with just about every imaginable type of mounting bracket or base, and in different lengths and colors. Why not drop a line to Luxo and precipitate a barrage of cleverly-contrived arguments in favor of this labor-saving device? Write Luxo Lamp Corp., Tuckahoe, N. Y.

Air Dux Baluns



Come on, now. Balanced lines (to balanced antennas) mean more power, less interference. How long are you going to limp along feeding that coaxial-output rig directly to a folded dipole? Your last feeble excuses are ground asunder as Illumitronic announces the addition of this nifty Air Dux Balun to its line of high-quality air-wound inductors. The usual pair of bifilar-wound coils permit impedance matching in both transmitters and receivers (*don't* forget the importance of *receiver* input matching) from 10 thru 80, without adjustment. Matches 75 ohms unbalanced to either 75 or 300 ohms balanced, at power outputs of up to 200 watts. A card to Illumitronic Engineering Co., 680 E. Taylor Ave., Sunnyvale, Calif., will net you brochures and a free inductance calculation chart.



CERTIFICADO T-T I (TRABAJADO TI)

1- Se otorga el certificado T-TI a todo aficionado titular del exterior de estación oficialmente reconocida, que compruebe QSO's con 7 de las 8 zonas de Costa Rica.
2- Podrán utilizarse todas las bandas autorizadas, en CW o en telefonía.
3- Los QSO's deberán ser posteriores al 20 de Noviembre de 1945, fecha del levantamiento del QRT en Costa Rica.
4- Para obtener este certificado deberán remitirse los QSL's al "Radio Club de Costa Rica", apartado 535, San José, C. R.
5- Las zonas de Costa Rica son las siguientes:

TI-2 San José	TI-6 Limón
TI-3 Cartago	TI-7 Guanacaste
TI-4 Heredia	TI-8 Puntarenas
TI-5 Alajuela	TI-9 Isla del Coco

T-TI CERTIFICATE (Worked TI)

1- The T-TI certificate is granted to every foreign amateur holding a license of an officially recognized station, proving QSO's with 7 of the 8 zones of Costa Rica.
2- Every autorized amateur band, CW or Phone, may be used.
3- QSO's must be dated after November 20th, 1945, date on which amateur comunications were re-established in C. R.
4- To obtain the award QSL's must be sent to the "Radio Club of Costa Rica," P. O. Box 535, San José, C. R.
5- The zones of Costa Rica are the following:

TI-2 San Jose	TI-6 Limon
TI-3 Cartago	TI-7 Guanacaste
TI-4 Heredia	TI-8 Puntarenas
TI-5 Alajuela	TI-9 Cocos Island.

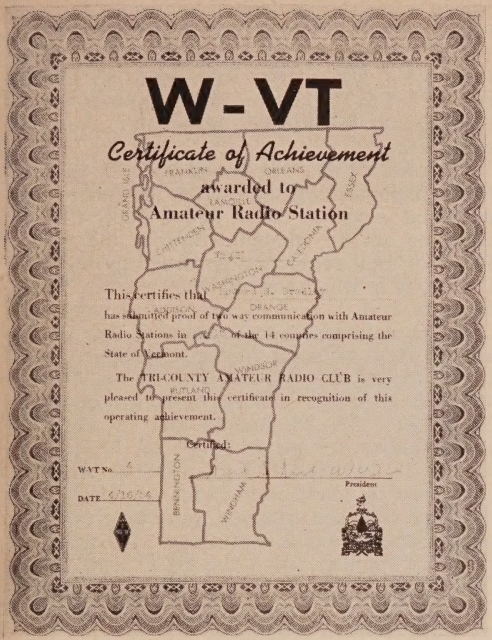
Certificate Seeker's Directory, PART III

My proposals relative to the use of unused foreign stamps as against that of International Reply Coupons, in obtaining dx QSLs, appear to have aroused considerable interest amongst dx men and various points, pro and con have been tendered by members of the fraternity. It was not my purpose to represent unused stamps as a cure-all for one's QSL seeking problems, but merely to suggest them as a helpful means to this end, especially in cases where others, like myself have encountered difficulties with IRC's! Nor did I mean to condemn IRC's as totally useless, for they are accepted in perhaps the majority of countries. They would not, however, be of use in countries non-members of the Universal Postal Union ,and they are *not* accepted in many countries that are Union members. Further, in many instances I have found that individual local post offices in dx spots refuse to honor IRC's at all! This holds true more often than not in places where there is but one or a limited number of hams in a rather rare spot, resulting in a considerable accumulation of IRC's which probably presents a problem in redemption to such offices, and a consequent tie-up in local postal funds.

In any event, the exchange of an IRC for stamps still represents an inconvenience for a dx amateur and anything that one can do to relieve the pressure of our demands upon him should, I believe, be practiced. In addition, residents of the USA and outlying possessions need not utilize IRC's in trying to obtain cards from any amateur whose mail is handled thru an APO or FPO as postal rates in those spots are the same as for domestic service and the use of unused US stamps would be found cheaper than that of IRC's in these instances.

On the reverse side of the ledger we also encounter difficulties in the use of stamps for reply postage, as, in many countries the validity of some postage issues is of a limited nature, often a matter of but a few days (in the USA one might use any postage stamp issued since the first general set of 1847 and it would be accepted for postal duty, provided that one were foolish enough to use such philatelic items for postage)! With the above in mind, it is usually best to obtain general postage issues rather than special commemorative issues from abroad. This has been pointed up to us especially by HE9RDX who has had wide experience with QSL affairs dx-wise, in handling the cards for the 3A2AD, F8FW/FC and 3A2BH DXpeditions! He also makes a special plea that dx men use GMT as their standard in filling out all cards, to make easier the dx man's task of checking logs that often may contain several hundreds of contacts for a single day's operation—a task that becomes impossible when one submits a card bearing a time unspecified as to time-zone. Errors increase, also with irregular use of sum-time time, etc., which one may not think to correct to his own standard time. Further, use of complete month name in place of a numeral should always be practiced, since, in dx locations, usually the month is represented by the middle numeral, and, in the USA, by the first, and much confusion in back-checking logs can result therefrom.

Many inquiries have been received regarding the possible source of obtaining unusued foreign stamps. Only occasionally may one find the desired items on general approval selections. It would be our suggestion that, if interested, you subscribe to a regular stamp paper, several of which are in publication. I make use of "Linn's Weekly Stamp News" issued from Sidney, Ohio at a subscription cost of only $1.00 per year. In the columns of such publications one will find numerous ads from



stamp dealers who specialize in offering newly-issued items from all countries. You may thereby select one or more dealers in your own area and order stamps from countries in which you are interested, as they are offered, from these respective ads. There may be a question as to how many stamps to use on a single letter for reply and this can often be judged only approximately. It is best to add a few extra stamps to a reply envelope which you wish handled by surface mail, and, if thereby you include enough for airmail service, so much the better! Make note of postage values received on various dx mail, for future reference. Rates won't remain static by any means, but you will have some basis for determining what to use. Whether it be stamps or IRC's I trust that the foregoing will be found helpful in obtaining the cards necessary for the many awards that have heretofore been described and the crop of new ones with which I will attempt to keep up.

With each passing day there appears somewhere along the line a new certificate offered for varying achievement in amateur radio communication. Some will appeal to "W's," others to more distant dx'ers; take your pick and when the "going" get too rough on real choice dx take some measure of pride and satisfaction in recording your progress toward one of these lesser goals. For my own part many months often elapse between addition of a new country to my totals, but the contacting of a new KP4, a new YL, a new "MM," or a new KZ5 makes the day's operation a complete success! I am therefore glad to record all certificate material that comes to my attention, together with rule changes on others that have previously been listed.

Alaska. The Anchorage Amateur Radio Club now sponsors the "ADXC" (Alaskan DX Certificate) in order to stimulate world-wide interest in KL7 contacts. Ten QSLs, from four different geographical areas of the country and including a minimum of 4 Anchorage club-member contacts, all since January 1, 1955, are required. At least one QSL must represent contact with these areas:

1. Southeastern Alaska or that portion adjacent to British Columbia (VE7).
2. Northern Alaska or all area north of the Arctic Circle.
3. Aleutian Islands—Starting with Kodiak, cutting across the Alaskan peninsula and including the entire Aleutian chain.
4. Central Alaska or the remaining not included in the above 3 areas.

Any question as to boundaries will be decided upon by the Anchorage Club Committee whose address is Box 211, Anchorage, Alaska. Return postage must be sent for the return of all cards.

Australia. WAVKCA (Worked all VK Call Areas) is issued by the W.I.A., Box 2611W, Melbourne, C1, Vic., for a total of 21 VK qsls as follows:

1 card from Australian Antarctic, Cocos, Heard or Macquarie (VK1).
3 cards each from VK2, 3, 4, 5, 6, and 7 areas.
1 card from VK5, Northern Territory.
1 card from Admiralty Is, Bougainville, New Britain, New Guinea, New Ireland, Papua or Norfolk Island (VK9).

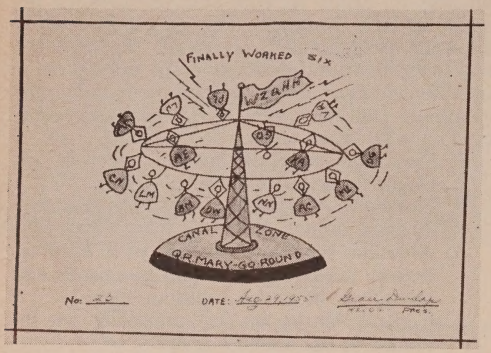
Applicants must be a member of a national society affiliated with the IARU and should remit RC's sufficient for return postage.

The Brisbane DX Club (VK4) offers a certificate for those working 5 of the 12 active members. If your VK4 contact proves to be a club member, get his name, and to the 5th such station, give details of previous contacts, which serve as basis for one's application.

Belgium. The Antwerp branch (OSA) of the Belgian Amateur group (UBA) offers a novel award to amateurs and listeners of the world, in the form of an old print picturing the river Scheldt, Antwerp and its harbour, from about 1520. All contacts or reports must date from January 1, 1954 and, in all cases QSLs must be sent to the Belgian stations. Fone and cw may be mixed, with minimum reports of 45 or 448 and log extracts with 20 Francs, 4 Belgas or 5 RC's should be sent with the list to ON4QX, Dr. L. Th. Berge, 33 Everdystreet, Antwerp, Belgium. Minimum totals required for WOSA (Worked) or HOSA (Heard Only Stations in Antwerp) are as follows:

1. 5 Antwerp stations for applicants outside Europe.

2. 6 Antwerp stations for applicants in Europe.
3. 8 Antwerp stations for applicants in ON, PA and LX.
4. 10 Antwerp stations for listeners.



Canal Zone. Contact with at least 6 "QRMarys" (as the KZ5 YLs are known), earns a novel hand-drawn certificate picturing the "Q R Mary-Go-Round." Some of the KZ5 YLs, not all of whom may be currently active, include: AC, AE, BM, CN, DG, DW, KA, LJ, LM, ML, NN, PL and VR. Grace of KZ5DG will take good care of your application for this one!

Colombia. Sr. Galo Dugand, HK1DZ, of the Radio Club del Atlantico, Barranquilla, requests that we again list data on the award granted for working 10 stations in the Colombian first district. QSLs, or certification by your own radio club should be sent to HK1DZ, P.O. Box 59, Barranquilla, Colombia.

A new award, known as "Certificado Colombia" is earned by working each of the 8 call areas comprising this country. Contacts should date after July 23, 1947 and cards go to the L. C. R. A., Apartado 584, Bogota, Colombia. This info courtesy W4RKJ's "DX Log of Awards."

Costa Rica. Contact with 7 of the 8 call area of TI land, after Nov. 20, 1945 is the requirement for "T-TI" (Trabajado TI). QSLs should be addressed to the Radio Club of Costa Rica, P. O. Box 535, San Jose, Costa Rica. The respective TI zones follow:

TI2 San Jose
TI3 Cartago
TI4 Heredia
TI5 Alajuela
TI6 Limon
TI7 Guanacaste
TI8 Puntarenas
TI9 Cocos Island

Cuba. The Radio Club of Cuba issues three new awards, two based upon contacts with Cuban stations and the third a 'Worked West Indies" (WWI). The latter requires 24 cards as follows: 1-CO1; 5-CO2, 3 or 4; 1-CO5; 1-CO6; 1-CO7; 1-CO8; and 1 each from KG4, KP4, KS4, KV4, VP2, VP4, VP5, VP6, VP7, HH, HI, FG7, FM7, PJ. Non-RCC members should remit $1.00 for the certificate and return of cards, etc.

Diploma "Cuba" is issued as a reward to those distinguishing themselves in Cuban contacts and serves to create added interest along that line among amateurs thruout the world. Basis for total contacts is governed by the "CQ DX" zone in which the applicant resides. Those in zones 2, 4, 5, 6, 7, 8 and 9 must work 100 CM/CO stations; those in zones 3, 10, 11, 12 and 13 need 80 such contacts; those in zones 1, 14, 15, 29, 30, 31, 32, 33, 35, 36, 38 and 40 must have 60 Cubans; those in zones 20, 21, 24, 25, 27, 28, 34, 37 and 39 need 40 confirmations; stations in zones 16, 17, 18, 19, 23 and 26 need but 20 Cuban QSLs. All contacts must be made after January 1, 1953 and the same station worked on more than one frequency band counts but once. In order to minimize mailing costs, the RCC will accept QSLs from 50% of one's necessary totals, and the balance to be covered by a QSO-list bearing full details of remaining contacts, but they reserve the right to demand 100% QSLs in the event of any question regarding same. Return of cards and the award will be made by first class mail and paid for by the RCC. Each year an outstanding amateur and winner of the "Cuba" award will also be issued a special "Gold Medal" citation.

The third Cuban certificate involves working stations thruout the nation, in a most extensive manner. For this purpose, Cuba is divided into 25 zones and at least one station must be worked in each zone (since November 1945) to complete "ZCT" (Zonas Cubanas Trabajado or Cuban Zones Worked). An appendix will list the 25 zones and the cities located in each. Applications for the 3 foregoing should be sent to the RCC, Lealtad 660, bajos, Habana, Cuba. Thanks to KP4KD and KP4WD for QSP of the foregoing.

Czechoslovakia. OK1KPI, via W4ML reports three new awards being issued by the Central Radio Club, Postbox 69, Praha I, Czechoslovakia. The first, known as "S6S" is the counterpart of WAC, requiring a card from each of the 6 continental areas of the world, and is available in 12 different forms as follows. 1 or 2; All bands mixed on cw, or all bands mixed on fone. 3 or 4; All 80m cw or 80m fone. 5 or 6; All 40m cw or 40m fone. 7 or 8; All 20m cw or 20m fone. 9 or 10; All 15m cw or 15m fone. 11 and 12; All 10m cw or 10m fone. Six reply coupons are needed for each certificate sought. Contacts must all be dated after January 1950.

A second certificate, known as "ZMT" gives comprehensive coverage of the "Iron Cur-

tain" countries, requiring a total of 36 cards, thus: One each from OK1, OK2, OK3, UA1, UA2, UA3, UA4, UA6, UA9, UAØ, UB5, UC2, UD6, UF6, UG6, UH8, UI8, UJ8, UL7, UM8, UN1, UO5, UP2, UQ2, UR2, HA, LZ, plus 3 from SP (in 3 of the 9 numerical districts), 3 from YO (in 3 of 8 districts), and 3 from DM in 3 different districts (the last letter of the call giving this indication, rather than the numeral). All contacts must have been made since April 1949.

The third award, the exact title or designation of which we do not have, is granted for contact with 100 different OK stations.



Denmark. Danish contacts are encouraged by the OZCCA award based on QSO's with OZ stations since August 1, 1947. Each contact on 80, 40, 20, 15 and 10 m counts one point and those made on 2 metres, 2 points each. Other minimum requirements, based on one's location are as follows:

A. Amateurs in Scandiavia — *Class 2* — QSLs for contacts in 15 districts and a total of 60 points. 12 contacts per district are allowed on 80 and 40, and 3 each on the other bands in compiling final score. *Class 1*—25 districts and 75 points.

B. Amateurs in other European countries—cards from all call-sign numerals OZ1-9 and 2 contacts per band with each number at 1 point per contact (2 points each for 2 meter QSOs) for a total of 60 points.

C. Amateurs elsewhere in the world—3 contacts per band with each call-sign numeral for a total of 50 points.

A certification from your national radio Society, with 5 reply coupons should be forwarded to the Traffic Manager, E. D. R., P. O. Box 335, Aalborg, Denmark.

Finland. OH2YV, the Awards Manager of the SRAL, Box 306, Helsinki, sends details on the new OHA (OH Award) now being issued for proof of contacts after June 10, 1947. Applicants in LA, SM and OZ must work at least 50 OH stations including at least 8 call areas on one band, plus 8 call areas on other bands combined. Other Europeans must work 20 OH stations in at least 7 OH call areas. Maximum number per band is 15, so that at least two bands must be utilized. Non-European dx applicants must prove having worked 15 OH stations, in at least 5 call areas, and any contacts will count as 2, if effected on 3.5mc. Fone and cw work may be combined, with minimum reports of 334 or 338 required, and no maritime mobiles shall be credited. Five reply coupons should be sent with an application to the above-listed QTH.

The Amateur Radio Club of Tampere requests log extracts on QSOs with 5 member stations since May 1, 1955 in qualifying an applicant for "WDT." It is necessary that the applicant's QSL be, in all cases received by the OH3 club member and 4 IRC's should accompany the QSO list. Address: **T. R. A., r y., Tampere pr. Finland.** Club membership list currently includes the following OH3's: NM, OE, OL, OZ, PB, QE, RH, RJ, RP, RT, RY, SC, SE, SO, SR, SU, SY, TH, TT, TY, UG.

France. A new REF diploma is now given for contacts since Jan. 1, 1955 with the 16th REF Section ("Picardie") comprising the areas of Aisne, Oise and Somme. Amateurs in zones 14 and 15 must work a total of 16 such stations, with at least 4 in each of the 3 areas of Picardie. Those in other zones of the world need a total of 6 stations, with at least 2 in each of the same 3 areas. Applicants should remit 5 reply coupons to F8BO, Pierre Herbet, Authie, Somme, France. A list of REF members in the respective areas is hereby given as an aid in attaining "Picardie 16":

Aisne — F3AP, AU, GG, IO, KU, LA, YV
F8EB, HX, LV, MR, TQ, VJ, WE, WW.
F9DH, LF, XU.
Oise — F3NM, PY, WN, WO, XJ.
F8GH, QL, RA.
F9DQ, FK, JQ, TV.
Somme — F3IC, LB, NG, PG, RC, XI, XK, XR, YL.
F8BO, EO, JV, UO, WO, XB.
F9AC, DI, MB, NC, UW.

French Morocco. Details on the new A. A. E. M. diploma have been relayed through courtesy of KP4KD. Amateurs in Germany,

Andorra, Austria, Belgium, Spain (EA1-9 inclusive), France, Algeria, Tunisia, Corsica, Senegal, French West Africa, Great Britain, Italy (including Sicily and Sardinia), Luxembourg, Monaco, Portugal (including Madeira and the Azores), and Switzerland must work 30 CN8's on one band, or 25 on 2 bands, 20 if on 3 bands, or 15 if more than 3-band communication is effected. Amateurs elsewhere must work 15 CN8's on 1 band, or 12 on 2 bands, or a total of only 8 if 3 or more bands are used. All contacts must have been made after January 1, 1954 and only the CN8A, CN8B, CN8C (and, I believe, CN8D) plus CN8M—stations will be credited. It is therefore apparent that contact with U. S. personnel stationed there does not count for this award. Cards, together with 5 IRC's for applicants in France and its colonies, or 3 IRC's from those in other countries, should be sent to the A. A. E. M., Box 2060, Casablanca, French Morocco.



Germany. Additional minor changes have been effected in the rules for "WAE." Contrary to our previous belief, 7 reply coupons are required for WAE-II, while the "substitute" country list replacing USSR countries, may be used for 7, 14 and 28mc contacts from December 1, 1951 and for 3.5 and 21mc contacts from Dec. 1, 1952.

Great Britain. Since "WABC," granted for working a minimum of 60 British counties, is limited solely to 160 meter operation, it precluded much chance of attainment by anyone but amateurs in Great Britain itself. Therefore a new award, known as "WBC" (Worked British Counties) has been instituted for working at least 50 different counties (within England, Wales, Scotland, Northern Ireland, Channel Islands and the Isle of Man). *For complete list see appendix.* Stickers may be added when county totals of 60, 70, 80 and 90 have been reached. Only amateurs outside of the U. K. and Eire may apply, QSLs to be sent to: "DX Commentary," Short Wave Magazine, 55 Victoria St., London, S. W. I.

Another S. W. Magazine award "WNACA" (Worked North American Call Areas) is given for proof of contacting 22 call areas of North America, namely W1 thru WØ, VE1 thru VE8 (both Yukon and Northwest Territories), KL7, VO (1-5) and VO6. This one is not available to W, VE, VO, or KL7 amateurs. QSLs and check-list should be submitted to the S. W. M. at the address given in the previous paragraph.

Hawaii. Word via W6ZZ informs us that the Hilo certificate which requires 15 club member contacts for KH6 amateurs, may be acquired by proof of only 5 such contacts by those outside Hawaii. He also reports the "KH6 Century Club" certificate for working 100 postwar Hawaiian stations, with stickers for each additional 25. QSOs with the same op under different calls (i.e. KH6IJ and K6CGK) count only once. QSLs, together with an alphabetical list and return postage should be sent to Jack Wada, KH6LG, Box 1428, Lihue, Kauai, T.H.

Israel. Latest word on the "4x4" award indicates that QSLs are not necessary for this one, but rather a list bearing data on contact with 16 different 4x4's, with at least four different bands being represented. Unused stamps of philatelic value may be sent in place of reply coupons to cover cost of mailing the certificate. 4x4BX is suggested as a source of confirmation of further details on the above.

Italy. In our previous notes on the Mediterranean award "CDM" issued by the A. R. I. Via S. Paolo 10, Milano, Italy, we inadvertently neglected to mention that all contacts for same must be after June 1, 1952.

Japan. The FEARL (U. S. Military), Box 111, APO 500, c/o P. M., San Francisco, California, USA now issues WFKAS (Worked Five KA Stations) replacing the former WFJS and WSKAD (Worked Seven KA Districts) to supplant the former WAJAD awards. A letter of certification from a recognized radio league or club will be accepted in place of the QSLs on applications. Certificates will be mailed postpaid by the FEARL, but postage should be sent for return of QSLs in the event that these are submitted. It should be noted that JA contacts are no longer acceptable toward the above.

The J. A. R. L. is reported to be issuing several certificates, among them AJD (All Japan Districts) for proof of contact with the 10 JA call areas JA1 thru JAØ, and WAJA (Worked all Japan) for working 46 Japanese prefectures. Inquiry of the JARL will bring further details.

The Japan DX Radio Club, Box 7, Nerima, Tokyo, Japan, grants a certificate for contact with 5 of its members, since Sept. 1, 1952. QSO list with 5 IRC's will suffice. The JDXRC roster includes the following amateurs: JA1AAW, AB, AF, AQ, BK, CC, CJ, CO, CR, EA, EM, FR, HE, JM, KF, LC, LL, NP, PG, PQ, QV, TD, VP, JA2AW, BL, LC, JA3IW, JA5AB, JA6AD, AE, AO, JA7CS, JA8AA, AR, JA9ABB, AC, BE, CW, JAØAAY, BR, CA.

The Suginami Radio Club (JA1) issues S10, S20 and S30 awards for contact with 2, 4 and 6 members respectively. This news from JA1UY via W6ZZ.

Kenya. The Radio Society of East Africa thru its Awards Manager, VQ4RF, relays to us via KV4AA, the details on its new WAVQA (Worked all VQ Areas) award which requires the following confirmations: 1 from VQ1,10 from VQ2,5 from VQ3,20 from VQ4,5 from VQ5, and one each from VQ6, VQ8, VQ8C and VQ9, for a total of 45 QSLs. An additional 5 QSLs from any VQ area may be subtituted for a single missing card in another VQ area. Contacts may have been made on any band from 3.5 thru 30mc since November 1945, with minimum "R" report of 3 and QRI of T8 being acceptable. Only fone to fone and cw to cw contacts are allowed and certificates will be endorsed accordingly. No maritime mobile or aeronautical mobile contacts will be accredited and all VQ stations must be worked by the applicant from a single country. Confirmations should be sent via registered mail to VQ4RF, Box 264, Nakuru, Kenya, East Africa with a remittance of 6 shillings English or $1.00 U. S. currency or 20 IRC's. This fee will cover the cost of returning cards via the same medium. A certification by one's national radio club secretary together with a detailed check-list of all claimed contacts may be submitted in place of the actual QSL cards.

Malaya. The M. A. R. T. S. is reported to grant "Worked All Malaya" for working a VS1 and six VS2's, all in different States or Settlements from the following: Selangor, Johore, Kedah, Penang, Malacca, Perak, Negri Sembilan, Pahang, Kelantan, Trengganu and Perlis. QSL's with coupons for their return should be sent to Box 600, Penang, Malaya.

Netherlands. PJ2AA reports to us on a new award DDXC (Dutch DX Certificate) available from the URZA, Box 190, Groningen for working 25 PAØ's 2 PJ2A, 2 PJ2C and one PZ station.

The VERON also issues PACC (PA Century Certificate?) for proof of contact with at least 100 different PA's and sponsors an annual PACC contest to assist dx amateurs in obtaining the requirements for same. The VERON or PAØVB will be found helpful in clearing up any question pertaining to PACC.

New Zealand. In addition to WAP, the NZART now offers a "WAZL" certificate for contact with at least 35 of the 51 Society Branch areas. Address Box 489, Wellington, N. Z.


"RUBEN DARIO"

"GLORIA DE NICARAGUA"

"CLUB DE RADIO EXPERIMENTADORES DE NICARAGUA"

Concede este DIPLOMA "RUBEN DARIO" a YN1RI - U.S.A. No. 22 como premio a su esfuerzo en pro de la Radio Experimentación al haber hecho contacto con los CINCO PAISES DE AMERICA CENTRAL, logrando con ello verdadero acercamiento y amistad continental.

Managua, D. N., Nicaragua, C. A. el 25 de Enero de 1954

EL PRESIDENTE
Guillermo Silva Díaz (YN1LD)

EL SECRETARIO
Rigoberto Argeñal (YN1RA)

Diploma No. 91- Registrado fo. 49 L/D.

Nicaragua. The Radio Club of Nicaragua sponsors two awards, one "Ruben Dario" for QSLs from the 5 central American republics of Nicaragua, Guatamala, El Salvador, Honduras and Costa Rica. The second is for proof of QSO 7 of the 9 radio districts of Nicaragua. A fee of $1 (U. S.) is required for each, this to cover cost of returning cards and certificates via registered mail. YN1RA is currently the club secretary.

Panama. The Liga Panamena de Radio Aficionadas continues to award what we understand is "WHP" for proof of QSO with at least 20 different HP stations. Cards should be submitted to the LPRA, Apartado 1622, Panama City, R. P. Thanks to HP1BR for squaring us away on the details.

Spain. *"D. F. V."* (Diploma Fallas Valencia) is issued annually for contacts with Valencia EA5's from November 1-January 31, the number required being based as follows:

Zone 1 — Iberian Peninsula—9 contacts
Zone 2 — Europe, North Africa, Azores, Maderia, Canary and Balearic Islands—6 contacts
Zone 3 — Asia, Oceania and Pacific — 2 contacts
Zone 4 — The remainder of the world — 3 contacts

From our translation of the rules received thru the kindness of KP4HV via KP4KD, we gather that a fone contact and a cw contact with the same station count as two different, provided that 30 minutes elapse between the two QSOs. In addition to the diploma, the highest yearly scorer in each zone, and the world high will also receive special citations, the honors to be bestowed as part of the celebration "Great Week Fallera de Valencia" from the 12th to the 19th of March. Awards will be sent via registered mail to those not able to be present at the festival.

Sweden. Latest word from both the Gothenburg and Vasteras radio clubs indicates new requirements for their respective certificates, based upon one's location. For "WAV" (Worked All Vasteras), applicants in LA, OH, OZ and SM must work 20 stations, while other Europeans must work 10 and non-Europeans but two; All contacts after December 31, 1953. It is possible that a Vasteras station worked on more than one band counts as a different station; stickers are available for either fone or cw "WAV" altho the two may be combined if desired. QSLs and 4 IRC's should be submitted to SM5WI, Emausgatan 45E, Vasteras, Sweden.

The Gothenburg Society of Amateurs has set up similar required totals from respective applicants for their "WGSA" award and contacts dating from December 31, 1952 are acceptable. Any contact effected on a band above 30mc will be credited as two. Cards, with a list of QSO data and 3 IRC's should be sent to WGSA manager SM61D, Karl Friden, Smorbollsgatan 1-A Gothenberg H, Sweden. This information was received thanks to VO6AE and W4ML.

Union of South Africa. Contact with 10 YL ops from the Union of South Africa is the basis for the certificate which ZS1NQ reports via W6BIL and W6PCA. QSOs must have been since January 1, 1952. We are as yet not certain as to whether the SARL sponsors "WAYL" or not. Interested amateurs might well inquire of ZSINQ.

Wales. The "Tops Club" (GW8WJ, Secretary), in honor of its tenth anniversary now offers "WAWC" (Worked All Welsh Counties) for anyone proving contact with each of the 13 Welsh counties as follows: Anglesey, Brecon (Brecknock), Cardigan, Carmarthen, Caernarvon, Denbigh, Flintshire, Glamorgan, Montgomery, Merioneth, Monmouth, Pembroke and Radnor. United Kingdom amateurs must effect their contacts solely on 160 meters, while others may use any bands. Contacts since August 1946 are believed to be valid, and while the award was originally set up to expire at the end of 1956, it is believed that it will by popular demand, be maintained as a permanent affair. Non-Tops members should remit 2/6 or 8 IRC's ("W's" may send an equivalent in unused stamps) in applying to GW8WJ,2, Fforddd Ty Newydd, Meliden, Flintshire, N. Wales. CW or fone, but not a combination may be used in seeking "WAWC" and it should be noted that, in Monmotuh both "G" and "GW" prefixes are active and either will be accepted for this county.

Yugoslavia. The S. R. J., Postbox 48, Belgrade, now issues "WAYUR" (Worked All Yugoslavian Republics) for contact with the 6 Federal Republics comprising YU land, namely: YU1—Serbia; YU2—Croatia; YU3—Slovenia; YU4—Bosnia and Herzegovina; YU5—Macedonia; and YU6—Montenegro. Amateurs outside Europe must work 2 stations in each republic, on two different bands for a total of 12 QSLs. European stations must work 3 in each republic, on at least 2 bands, all after February 1, 1950. "WAYUR" is issued for cw only, or fone only, with no combination of the modes allowed, and 10 IRC's are required with the application.

A second YU award about which we have no great detail, is known as "YU-100" for contacting at least 100 different YU stations, since January 1, 1950. Further information on this one is desired.

USA-SPONSORED AWARDS

Arizona. Previous information on the award for working all Arizona counties appears to have been misleading in that the title should have been referred to merely as "Worked All Arizona". Further, it is being sponsored by all Arizona amateurs as a group and the cards proving contact with the 14 counties should be sent to W7LVR, the SCM for the Arizona section rather than the Old Pueblo Radio Club of Tucson. The latter club does, however, offer a certificate, "W. A. T." for working 15 stations in Tucson and a detailed QSO-list serves as application for same. Repeated inquiry from several sources brought the above info via W6ZZ.

California. The Delano Amateur Radio Club, Box 552, Delano, California offers a certificate for proof of contact with 5 club members any time after February 1, 1953.

Florida. The "Flamingo" net centered in the Miami area served to maintain interest in ten meters during the recent "lean" years and now continues to operate on a wider scale since the return of more favorable conditions at this frequency. A QSO-list covering data on contact with 10 "Flamingo" members (on 10 meters only) may be submitted to W4SDI or W4MVR for a special certificate. K4ELA informs us that the net itself meets on Fridays, 7:30 pm, EST on 29044kc and those seeking

contacts with net members are invited to report in at this time.

The Orlando Amateur Radio Club, Box 2067, Orlando, Fla. will certify anyone working 10 Orange "county" amateurs, regardless of band. QSO-lists may, again, be sent in place of cards, and a gift of fruit, if in season will also accompany the certificate according to K4AKQ.

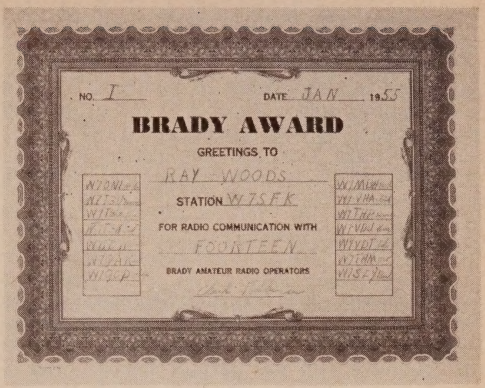
Georgia. The "Tobacco Road" certificate pictured in a previous article but not described, is being awarded by the Camp Gordon Radio Club for working 25 of its members. Applications should be sent in c/o K4WAR the Headquarters station.

Hi-Plains. The Hi-Plains Amateur Radio Club which includes membership in Southwestern Kansas, Oklahoma and the Texas Panhandle (WØNIQ, Secretary) now issues an award for contacting its "culprits". USA amateurs must work 9, while those outside the continental USA have to work but 4, and a list which contains the calls, dates, handles, time and band of operation is acceptable. Club members include the following: WØAQD, WØAW, KØBAJ, KØCJL, KØGFU, WØGID, WØGIH, WØJFP, WØNIO, WØNIQ, WØRHN, WØRNR, WØULJ, W5's BIG, HGH, IFO, JUK, PHM, VVW, ZTW and W9WAC. Thanks to Zelma, WØNIQ for supplying the foregoing data.

Maine. The Portland Amateur Wireless Association, 97 State St., Portland, Maine now certifies anyone proving contact with each of the 16 counties of this state, after January 1, 1955. Contacts must be made from one fixed location (or fixed home residences no two of which are more than 25 miles apart), to a similar fixed Maine QTH. Portable operation counts only if effected in Maine QSO parties, ARRL Field Day, or in the case of non-residents having a fixed seasonal location of at least 4 weeks duration, each year. Three different seals may be earned for addition to the certificate for all-cw, all-fone, or for contacts combining both modes. QSO-party log entries or QSLs should be submitted with return postage for same to the above-listed address. Following is a list of 16 counties comprising the state of Maine:

Androscoggin	Oxford
Aroostock	Penobscot
Cumberland	Piscataquis
Franklin	Sagadahoc
Hancock	Somerset
Kennebec	Waldo
Knox	Washington
Lincoln	York

Massachusetts. Contact, on ten meters with 9 "Dimlighters" with a list reporting said details to WIKJD, Braintree, Mass qualifies one for the "Dimlight" certificate. The name is said



to be derived from the fact that all stations in the group operate mobile and consequently are prone to have batteries that show a tendency toward under-charge! Among the Dimlighter group are WI's: ACB, CNG, DXQ, GFO, JKQ, KJD, MPT, RES, SSA, TAA, VMU, VTH, YKB, YMV, ZHX, ZPI, ZSU, ZSX, ZSZ and ZYV, the latter now operating as KG4AV.

Michigan. A Detroit group of 10 meter specialists knows as the "Coffee Dunkers" thru W8MPZ, issue an award for contacting 4 of its members on that band. K6EXQ the first YL to attain this certificate, kindly supplies this info.

Missouri. QSO with at least 5 members of the Southwest Missouri Amateur Radio Club earns one an Honorary Hillbilly Certificate and various accompanying privileges such as "going barefoot, chawing tobacco, singing hillbilly songs, distilling and drinking moonshine, taking pot shots at revenooers and feuding with one's neighbors"! QSO-list for local check should be sent to the SMARC, Box 328, Springfield, Mo. Details thanks to WØTWL from whom a club membership list is also available. Hillbilly ops are especially active on 15 meter fone.



Montana. The Brady Award originated and sponsored by W7SFK has been approved and accepted by the entire group of the Brady Amateur Club numbering 16 members. Western USA stations must contact 9 of this group and stations east of the Mississippi (and all dx stations) must work 7. Application is to be made via any Brady club member and QSLs are not necessary. Club members include: W7APV, MBH, ONI, QAK, QCP, SFK, SZY, TDW, TGG, TGU, THM, THP, VDT, VDU, VHA.

New Jersey. K2CSY, the Secretary of the Night Owl Net of Northern New Jersey informs us that 10 meter fone contact with 10 net members (on the part of locals), and 5 members by amateurs situated outside the immediate area, qualifies one for a Night Owl Net Certificate. QSL cards must, in all cases be exchanged with the members contacted, and all QSOs must take place at times aside from the actual net session nights. Confirmations should be sent either to K2BLS or K2CSY.

New York. The Binghamton Amateur Radio Association (W2JMF award chairman) has instituted "WACONYS" (Worked All Counties of New York State) for proof of contacting each of the 62 counties in the state of New York. Cards should be sent, together with sufficient postage for their return, to W2JMF the BARA secretary.

North America. W4ML, (Rt. 1, Box 310, Norfolk 2, Va.) originated and will issue an NAA (North America Award) to any amateur who may prove contact with at least 50 of 55 designated areas of the continent, all to have been made since November 1945. Applicants from the USA and possessions are asked to remit a fee of 50¢ and dx amateurs, 13 IRC's to cover cost of the certificate, handling of same and return of all cards to the owners. The 55 areas recognized for NAA are listed below:

1. Alaska (KL7)
2. Bahamas (VP7)
3. Barbabos (VP6)
4. Bermuda (VP9)
5/12 Canada (VE1-VE8)
13. Canal Zone (KZ5)
14. Cayman (VP5)
15. Clipperton (FO7)
16. Cocos (TI9)
17. Costa Rica (TI)
18. Cuba (CM/CO)
19. Dominican Rep. (HI)
20. Greenland (OX)
21. Guadeloupe (FG7)
22. Guantanamo Bay (KG4)
23. Guatemala (TG)
24. Haiti (HH)
25. Honduras (HR)
26. Honduras, Brit (VP1)
27. Jamaica (VP5)
28. Labrador (VO6)
29. Leeward (VP2)
30. Martinique (FM7)
31. Mexico (XE)
32. Navassa (KC4)
33. Newfoundland (VO)
34. Nicaragua (YN)
35. Panama (HP)
36. Puerto Rico (KP4)
37. Salvador (YS)
38. San Andres (HKØ)
39. St. Pierre Miquelon (FP8)
40. St. Martin (Dutch) (PJ2M)
41. St. Martin (Fr.) (FS7)
42. Swan Is. (KS4)
43. Turks and Caicos (VP5)

44/53 USA W1 thru WØ

54. Virgin Is. (KV4)
55. Windward Is. (VP2)

North Carolina. A special "Skunk" certificate (we wonder if this supplants the now-exinct "Polecat" award!) is granted, for 7 member contacts among this net native to the state of North Carolina. K6EXQ informs us that this is also a 10m group, and that reports on contacts go c/o W4UJR.

Ohio. "Worked All Ohio counties" has for some time been available for anyone making contact with a station (fixed or mobile) in each of the 88 Ohio counties. Cards and a list, complete as to county, call, date, time and frequency band, should be sent to W8EQN, Springfield, Ohio for this award. Our thanks to W8HUX for this information.

The Toledo Radio Club sponsors "Worked Toledo Ohio" (WTO) for contact with at least 15 amateurs in the Toledo area. Holland, Maumee, Perrysburg, Sylvania, Curtice, Moline, Wallbridge, Trillby and Rossford are included in this region. QSLs should be addressed c/o W8HHF, 5514 Roan Rd, Sylvania, Ohio.

Pennsylvania. The "Worked All Pennsylvania Counties" award is being sponsored by the Western Pennsylvania Amateur Radio Council for proof of contact with each of Pennsylvania's 67 counties. Contacts must be made from one location, same being defined as within the limits of the same and original county. Log summary on all contacts is required in lieu of QSLs and this list should be submitted to W3KWL, Ernest J. Hlinsky, Farrell, Pa.

The CAR-LE Radio Club will certify any amateur's achievement in working 10 club members from the following: W3AES, AIW, AMC, BBS, BCA, BNR, COW, HA, KJJ, LGZ, NHJ, OWP, PBY, RQK, RZV, SEB, SNZ, TCC, UES, UEU, UQL, WJM, WJY, YBI, ZGW, ZRQ, ZXF. Present address is c/o W3AIW (Sec), 234 South 2nd St., Lehighton, Pa. and the cards, together with certificate will be returned postpaid.

In commemoration of its 25th anniversary, the Frankford Radio Club (Box 400, Bala-Cynwyd, Pa) now issues "WFRC" (Worked

Frankford Radio Club) for contact with a required number of its members as follows:

1. Frankford Club Members - 50 contacts
2. USA and Canadian Amateurs - 25 contacts
3. U. S. Possessions - 15 contacts
4. Other dx amateurs - 15 contacts

Stickers are made available for additional blocks of contacts (i.e. 25, 50, 75, 100). All contact must have been made since January 1, 1946, from a single state, U. S. possession, Canadian province, or country in case of foreign amateurs. Maritime or Aeronautical mobile stations may qualify provided contacts are all made from a single ship or aircraft. Applicants should remit their own QSL together with a complete list of QSO data on all contacts, to the Awards Manager from whom a complete membership list may be secured. No fee is required for WFRC.

Rhode Island. The newly organized Rhode Island YL Club of which W1VXC is the first secretary has decided to confer a diploma upon those who offer confirmation of QSO with at least 10 YLs from this state. This should become easier of accomplishment as time passes, what with a prospective new crop of Novice YLs now awaiting call assignments. Remit QSL's to W1WED.

Tennessee. The Bays Mountain Radio Club and Kingsport Amateur Radio Club both of Kingsport, Tennessee have cooperated in issuing a Hillbilly Net Certificate for contact with 10 different members (this may include the club stations W4TRC or W4ZJA regardless of who may have been operating said stations). Application with log data on QSOs should be made thru any net member or direct to the net secretary W4VUA.

The Old Hickory net centered in Nashville asks that data on 10m contact with 5 of its members be sent to W4DMU as qualification for the "Old Hickory" diploma. Thanks to K6EXQ once again.

Texas. "Worked All El Paso" is sponsored by the El Paso Amateur Radio Association (W5HYG secretary) for contact with at least 15 different El Paso stations, according to our information received thanks to W6ZZ. QSLs must be submitted.

Any dx station "having been interviewed in QSO by 25 members" and "found to meet the high ethical standards required" will be tendered a "DX Ranger" certificate, attesting that said station, "demonstrating exceptional operating proficiency and at all times observing the highest standards of operating practices", is qualified to "discharge the duties of a DX Ranger by riding herd on the dx bands, branding strays, befriending mavericks, and clearing the dx bands of outlaws." Nominations and certifications for the award are apparently taken care of by the members of the West Coast DX Club without application by the dx station.

Y. L. R. L. A new set of formal rules has been drawn up for "WAC/YL" and, after some seven years, 3 other stations—ZL1BY, G4ZU and CE5AW—have joined W2QHH as holders of this award. Contacts must be made with duly licensed YL operators on the 6 continents, all from one location (or places no two of which are more than 25 miles removed). Cards, with postage for their return by first class mail should be sent to W6PCA, Opal Jones, Rt. 1, Box 180, Esparto, Calif.

W4SGD, Katherine Johnson, Box 666, Fuquay Springs, N. C. has been appointed as new custodian of YLCC. Special attention is called to the ruling whereby lists bearing the YLs' full names, alphabetically arranged, together with date/time data on all contacts, must be submitted with an application for YLCC. Gold endorsement stickers, are provided for each additional 50 YLs above the original 100, while silver stickers may be added for each block of 50YLs worked provided that the certificate-holder moves from his original location.

In conclusion may we express our sincere thanks to the many amateurs who have helped to supply the foregoing and invite your further comments on matters pertaining to certificates, new or old.

Zones of Cuba for "Z. C. T."

Zone 1
La Fe
Guane
Martinica
San Juan Martinez
Minas de Matahambre
Vinales
San Vicente
La Esperanza

Zone 2
Pinar del Rio
San Luis
La Coloma
Puerta del Golpe
Consolacion del Sur
Santiago de los Banos
La Palma
La Mulata
Los Palacios
Taco-Taco

Zone 3
San Cristobal
Candelaria
Bahia Honda
Cabanas
Quiebra Hacha
Mariel
Artemisa
Guanajay

Zone 4
Caimito del Guayabal
Vereda Nueva
San Antonio de los Banos
Alquizar
Guira del Melena
Bauta
Punta Brava
Arroyo Arenas
Playa de Santa Fe

Zone 5
City of Habana

Zone 6
Marianao con sus Repartos
Central Toledo

Zone 7
Regla
Guanabacoa
Casa Blanca

Zone 8
Cotorro
Bejucal
La Salud
Quivican
San Felipe
Santiago de las Vegas
Santa Maria del Rosario
San Francisco de Paula
Rancho Boyeros
Cojimar

Zone 9
San Jose de las Lajas
Guines
Melena del Sur
San Nicolas
Nueva Paz
Los Palos
Hershey
Jaruco
Catalina de Guines
Madruga
Aguacate
Playa de Guanabo
Santa Cruz del Norte
Jibacao

Batabano
Surgidero de Batabano

Zone 10
Isla de Pinos

Zone 11
Ceiba Mocha
Cabezas
Alacranes
Union de Reyes
Bolondron
Matanzas
Varadero
Cidra
Limonar
Coliseo
San Miguel de los Banos

Zone 12
Cardenas
Carlos Rojas
Jovellanos
Pedro Betancourt
Jaguey Grande
Agramonte
Central San Ignacio
Central Maximo Gomez

Manacas
Central Washington
Santo Domingo
Jicotea
Santa Clara
Santa Isabel de las Lajas
Ranchelo
SanJuan de los Yeres
Placetas

Zone 16
Central Covadonga
Aguada de Pasajeros
Rodas
Abreus
Central Constancia
Palmira
Cruces
Cumanayagua
Trinidad
Fomento
Santi Spiritus
Cabaiguan
Zaza del Medio
Central Tuinucu

Zone 17
Ciudad de Cienfuegos



Zone 13
Marti
Colon
Banaguises
San Jose de los Ramos
Manguito
Calimete
Los Arabos
Perico

Zone 14
Rancho Veloz
Quemados de Guines
Sagua la Grande
La Isabela
Cifuentes
Calabazar de Segua
Encrucijada
Camajuani
Remedios
Caibarien
Zulueta
Yaguajay
Meneses
Mayajigua

Zone 15
Cascajal
Mordazo

Zone 18
Jatibonico
Chambas
Central Punta Alegre
Moron
Central Moro (Pina)
Ciego de Avila
Central Stewart
Juacaro

Zone 19
Cunagua
Central Jaronu
Central Baragua
Central Agramonte
Vertientes
La Esmeralda
Florida
Central Violeta

Zone 20
Agramonte
Camaguey
Nuevitas
Minas
Sabanicu
Cascorro
Guaimaro
Central Elia
Santa Cruz del Sur
Central San Francisco

Zone 21
Central Jobabo
Central Manati
Puerto Padre
Victoria de las Tunas
Central Delecias
Central Chaparra

Zone 22
Hologuin
Bayamo
Jiguani
Baire
Cantramaestre
Gibara
Central Santa Lucia
Banes
Cueto
Manzanillo
Niquero
Campechuela
Yara
Veguita
Antilla

Alto Cedro

Zone 23
Central Preston
Guaro
Mayari
Central Miranda
Central Palma
Candonga
Alto Songo
Palma Soriano
El Cobre

Zone 24
City of Santiago de Cuba

Zone 25
Central Tanamo
Sagua de Tanamo
Cayo Mambi
Guantanamo
Caimanera
Baracoa

British Counties as used for scoring in WABC and WBC

"Courtesy of G6QB"

England (41)
Bedfordshire
Berkshire
Buckinghamshire
Cambridgeshire
Cheshire
Cornwall
Cumberland
Derbyshire
Devonshire
Dorsetshire
Durham
Essex
Gloucestershire
Hampshire (including I.O.W.)
Herefordshire
Hertfordshire
Huntingdonshire
Kent
Lancashire
Leicestershire
Lincolnshire
London
Middlesex
Norfolk
Northamptonshire
Northumberland
Nottinghamshire
Oxfordshire
Rutland
Scilly Islands
Shropshire
Somerset
Staffordshire
Suffolk
Surrey
Sussex
Warwickshire
Westmorland
Wiltshire
Worcestershire
Yorkshire

Northern Ireland (6)
Antrim
Armagh
Down
Fermanagh
Londonderry
Tyrone

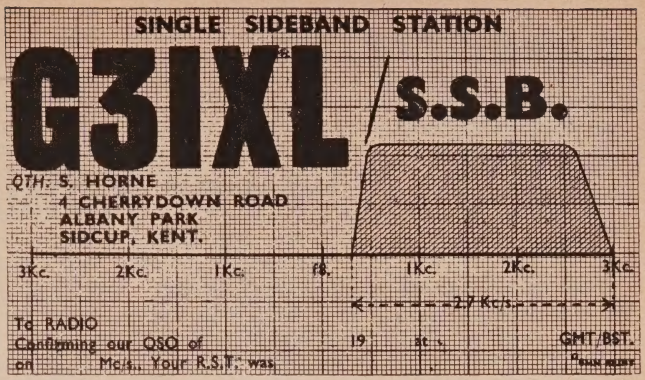
Isle of Man (1)

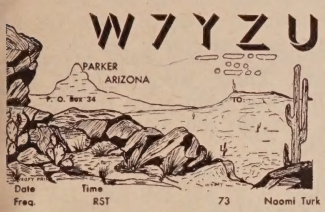
Scotland (33)
Aberdeen
Angus (Forfar)
Argyll
Ayr
Banff
Berwick
Bute (Rothesay)
Caithness
Clackmannan
Dumbarton
Dumfries
East Lothian
Elgin (Moray)
Fife
Inverness
Kincardine
Kinross
Kirkcudbright
Lanark
Midlothian
Nairn
Orkney
Peebles
Perth
Renfrew
Ross and Cromarty
Roxburgh
Selkirk
Shetland
Stirling
Sutherland
West Lothian
Wigtown

Wales (13)
Anglesey
Brecknock (Brecon?)
Caernarvon
Cardigan
Carmarthen
Denbigh
Flint
Glamorgan
Merioneth
Monmouth
Montgomery
Pembroke
Radnor

Channel Islands (4)
Alderney
Guernsey
Jersey
Sark











WINNER

CQ QSL Contest

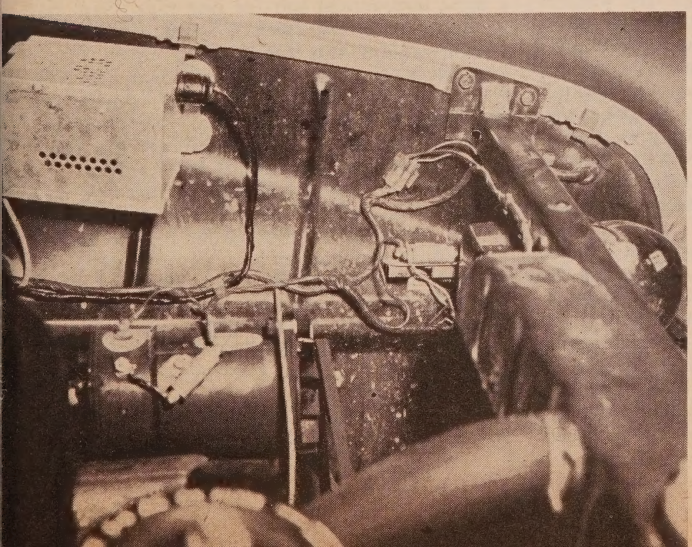
Come on gang, send in those losers. We need about 100 losers a month to go through to pick out the winners such as you see here. The monthly winner has to accept a two year subscription to *CQ*. *That* ought to dull your enthusiasm. Runners up are rewarded hamsomely by the thrill of seeing their card appear in microscopic size.

MOBILE W2MPT

[*from page 27*]

ble spot. As an added precaution on our part, static collectors were installed inside the wheel hub caps, these effectively grounded the wheel to the axle so as to prevent accumulation of wheel static. Bonding with fairly heavy braid was made between the exhaust pipe and muffler. The engine block and firewall were also bonded to the chassis frame. These latter precautions paid good dividends and should not be overlooked.

All said and done was the effort worth it? Well, like the guy said, "Ask the man who owns one." So, join the fun. Broadcast listening on a long trip may be entertaining, but for my money I'll take the whistles and groans, how about you? ■



Placement of power supply under hood.

Helen Harris, W1HOY

Tower Raising

Then there was the tower-raising episode. We had recently moved to a hill-top in the country (with no close neighbors of course). A number of the projects on the "must be done" list, included: building our house, getting on the air, and putting together and raising the giant tower which the O.M. had been lucky enough to have given him.

When we moved, we moved into the same house as Sam's people and Sam immediately began building our house. Up to this time he had always insisted that he absolutely could not drive a nail, hang a door straight, or fix a light plug. I had doubted his word concerning these things but it had never been important enough to find out by some devious way if it was the truth. Now he was found out. Maybe he never before had done these things, but now he began doing them.

The new house was to be situated about five hundred yards from mother's, so it was very handy for night work, etc. The first draw-back was that we really had moved to the country: no electricity within two miles, no plumbing (of course), but we did have a nice neat little house "out back".

First . . . $

Before starting on the first big project, the house, we had to go through a fifteen year collection of radio parts to see what could be used to good account and what we might be able to palm off on some other poor unsuspecting ham (who thought he couldn't live without it) to our financial benefit. We had to get a generator so that Sam could work nights and run the power tools which he hoped to purchase with the money from the radio gear. It worked! After a few weeks we purchased an army surplus generator and I for one will admit that it was the means of supplying us with so-oo-o much entertainment in different ways that it was one of our best investments. More about the generator later.

Sam swore that he was going to do absolutely no work on the tower or ham radio until the house was completed and we were living in it. I didn't really blame him much when he started using a little of his evening time just to sort out the jig-saw tower that had been given him. It was a hundred footer which had been used by a commercial radio station until they changed location and bought a new antenna. The tower had been dismantled and had been laying in a field for years. There were actually two towers, but we had just been given one, so the first job was to sort out the parts for one of the hundred footers.

Sam did this, fairly accurately, then rented a truck and hauled it to our hill top. He had to lay the darned thing out on the ground to make sure that he had four of this size, eight of that size and sixteen of the other size (pieces of angle-iron). This was no small job, especially as he had started to do it in the middle of a snow-storm and in the dark. (Have you ever seen it fail?) Of course the reason given for starting on the lay-out of the tower was because it was too cold to work on the house!

Came the Spring

Spring came along and with it the first section of the tower went up. (The ground was still frozen too hard for the basement digging.) It was twenty feet high (with a very gradual slope) and twenty-four feet square at the base.

Unfortunately the weather increased in summeriness and Sam just had to get started on the house. After a couple of weeks of house-building, even I got lonesome for the tower, so we decided to split our time with the tower. After all, we were living in a decent house with Sam's people, and while we were slightly crowded as yet we hadn't started clawing each other's throats, so why not enjoy our work by splitting the jobs.

The tower had gotten to the point of being a most impractical job for one man. Sam had to climb the twenty feet of tower, arrange the equipment on top for hauling up a fifteen foot piece of angle, then run down and raise the piece by means of the Jeep, winch, and block tackle. (Now I knew why we purchased the Jeep.) Anyway, Sam went up the tower and worked up there while I hauled away with the Jeep with him screaming instructions. This was a much easier way of constructing the tower, although a little harder on the larynx. One trouble popped up here too: the higher the tower went, the harder it was for me to hear the instructions over the noise of the Jeep's motor. Came the point of almost no return.

It was at the sixty-six foot level. That I will never forget. The noise of the Jeep won out over all, and I didn't hear Sam's screamed "Stop! Stop!" I blithely kept backing up, hauling the six-inch angle, fifteen foot long piece of

steel higher and higher. I finally decided that the cable by now must be extended to its limit and that Sam must not have been paying attention at the top of the tower. I was quite put out about it. After all, I could be in the house doing something else if that was all he needed my help. Looking up, prepared to tell him off, I was electrified (?) to see my spouse dangling high above the tower swinging merrily back and forth in the air and holding desperately to the steel I was raising. Of course right then and there my mind stopped functioning and I had to turn off the motor and get out of the Jeep to scream for further instructions. I've heard of many reasons for couples separating, but can you think of a better one? He told me later that he was prepared for just such an incident, so with malice aforethought, had paid up his insurance, thus insuring himself against accident.

We finally got the house and tower to the "almost ready" stage and were most anxious to get them both finished so we could move into the house and get on the air before winter set in again.

And Summer

The last twenty-foot section of the tower Sam decided to put together on the ground so he could raise the whole thing in one piece, figuring that with one, or at the most, two of the fellows to help him guide the thing into place it would be a much easier job.

He was right except for one thing. The air is practically never calm when you are a hundred feet up in the air. After waiting about six weeks for the weather to "still" way up thar, Jerry, Harkey and Sam could wait no longer. That was one of the days that I kept my eyes on the ground, prepared to pick up the pieces. It was most uncomfortable to sit on the ground sweltering on a super-hot day in September, then look up and see the two of them at the top of the tower with their trousers ballooning and flapping so hard in the wind that it was almost impossible for them to stay attached to the tower.

They finally got the tower firmly bolted in place. By then they weren't quite sure they could make it to the ground. It's a good thing that I had previously made it very clear that I had no intention of going up the tower, otherwise I'm afraid I'd have had to take coffee up top to hasten their recovery. The boys must have been working up there for three or four hours without a break. They had to rest close to an hour before they dared trust their legs to get them down on the good old earth. Very odd, but you know none of them wanted to go back up again for more than a week. (Most of the time they were up top, the boys were just holding on to the section of tower, waiting for a break in the wind.)

Another "Tower" event was the beautiful fall day when each and every ham we knew decided that this would be the last nice Sunday of the season, so they'd better go out and see Old Sam. I just love having the gang come and appreciate it most when they arrive unexpectedly. Then, if I don't feed them fancy they have nothing they can complain about. I can always promise coffee, coffee and more coffee, but there have been times when I've been caught short as far as the food situation is concerned. Of course at that location we had our own garden (my aching back) and had a very full freezer come the fall of the year.

About eleven in the morning they began to arrive. Who? Who else but hams? First a family with one child, then a family with three children, then another gang with five kids (by this time it was kids), then back to two. I lost count by the time I had thirty-some baking potatoes in the oven, so when another car arrived I just popped a few more spuds in the oven.

As the number of people kept increasing, of a certainty the hubbub increased. Get about fourteen or more kids together, seven or eight hams and their wives, each group carrying on at least three different conversations, and to say the least there is a bit of confusion. It finally drove the boys outdoors where Sam had escaped earlier to do some work on the tower. I don't know just what it was he was doing, but he wasn't going to let the gang put him off the job.

We gals sent the children outdoors too, so that we could get something together to eat besides baked potatoes. When food was ready and we were just about to call the gang to chow another car pulled in. A man, woman and little boy came in the yard and stood watching the fellows working on the tower. I went out, saw that I hadn't met them previously, and introduced myself. I asked the man if he wanted to go up the tower to talk to Sam 'cause I knew that Sam wasn't going to come down, but the fellow said "No, didn't have anything special to talk over with Sam."

Then I invited them into the house to see the rig, etc. We were talking for several minutes and I knew that the dinner would be ruined if we didn't eat, so naturally I invited them to eat with us. They refused, said they must be on their way, hadn't intended to stop in at all. We went out to the car to see them off and I asked the fellow what his call was, so that I could let Sam know that he had been out to see us. The poor man didn't know what I was talking about. "Call?" What did I mean?

Then I found out that these people had been driving past the house, seen the crowd of cars and what looked like mobs of people around with a lot of men climbing up, down and around the tower, so they decided that a carnival, fair or something of the sort was going on. They had just come in to watch the proceedings. I'm sure they still didn't know what was going on by the time they left. Did I hear someone say that *hams* were a "little odd"? WHAT ABOUT THE OTHER GUY? ■

SSB

As reported by
Bob Adams, K2DW
245 Revere Road,
Roslyn Heights, N. Y.

It has been very gratifying to receive so many wonderful letters from our readers congratulating us on our SSB column.

Jim, W7UKA sent the following information:

The Second Annual Breakfast of the Sliced Ham Fraternity (SSB) was held May 6 at the Eugene Hotel in Eugene, Oregon. It was attended by 62 members and interested amateurs who were present at the 19th Annual Oregon Convention.

The group was addressed by Buddy Alvernaz, W6DMN who spoke on linear amplifiers. He was assisted by Paul Barton W6JAT. Both are from Jennings Radio Co.

"Sideband Susies" (the Oscar of the Sliced Hams) were presented to Art Collins, WØCXX of Collins Radio and Jo Jennings, W6EI of Jennings Radio. As neither was able to be present the awards were accepted by Ted Klages, W6IPE and Paul Barton, W6JAT, respectively. The first "Susie" was presented to Wesly Schum W9DYV at the first meeting in 1955. "Susie" is a gold statuette and is awarded by the fraternity for outstanding contributions in the field of SSB techniques.

During the meeting the following officers were elected: Pres.: Don Johnson W7RFV, V. Pres.: Wally Shurtliff W7CZ, Sec'y.: Jim Robertson W7UKA. Retiring from the same offices were Wes Eckhardt W7BBK, Karl Urquhart W7OZN and Don Johnson W7RFV.

The Sliced Ham Fraternity was organized in 1955 during the Oregon Convention. Although incorporated in Oregon, members live in Oregon, California, Washington, and Illinois. Applications have been received from Montana, Idaho, and Alaska, also. We welcome these applications and any inquiries regarding membership.

"Slim", W4WQT who was one of the first 200 to go SSB has broken down the original "Roster of Active SSSC Phone Stations" compiled by W2SHN, W3ASW, W9DYV and W3KPP to show the number of SSB in each district as of September 17, 1952.

W1-23, W2-55, W3-28, W4-30, W5-5, W6-10, W7-14, W8-26, W9-34, WØ-12, VE1-2, VE2-1, VE3-12, VE5-1, VE7-1, and KH6-1, a total of 255. What a phenomenal growth in SSB ranks in a few short years! Slim also advises that the "Poke Sallet Eaters Net" welcomes SSB stations on 3850 kc every day at 1700 CST.

Earl, W4DGW, operating maritime-mobile on the SS Del Campo, took time out on his 37th birthday to write a three page letter of news of the SSB gang in Africa and South America. He has been a regular ambassador of good will to many of the SSB gang at his many "ports of call". Earl, who has a Liberian call, operated as ELØA on 20 and gave many SSB hams a new country. Several CR6's have SSB gear and are expected to be on soon. A stable receiver is their chief problem. Earl reports PY2JU contacted W9YSM on 15, but is QRX while he is building a 500 watt linear. Look out for a big signal from Sao Paulo, Brazil.

Total countries on SSB now number 55. We will print a "Countries Worked" for SSB soon.

Many new stations are coming on the air each day, with considerable activity on 15. Your suggestions are invited, and news is earnestly solicited so we can give you the kind of column you want.

73, Bob, K2DW

Do Your Own DX Forecasting

C. M. Stanbury II
Box 218
Crystal Beach, Ontario

The prediction of radio propagation involves a number of factors and requires a good deal of calculation. Because of this, most of us do not have the time to make our own detailed DX forecasts and have found it far more practical to rely on the fine DX forecasts appearing in *CQ*.

However, amateur radio has always been one of the greatest "Do it Yourself" fields and unquestionably there are many who have wished that forecasting was not an exception. Well, this article is for you. But don't jump to conclusions. If you want a detailed forecast there are still those many factors and calculations. Only the process of making a general forecast can be simplified. For this type of prediction, the factors can be reduced to one and the calculation becomes simple.

Radio communications are for the most part subject to three cycles: The 11 year sunspot cycle, the variations which come with the changing of season and the *day to day* variations which are dependent upon the sunspot structure on the Earthward face of the Sun. The first two are of comparatively long duration, so in making a general forecast for day to day conditions we need only concern ourselves with the latter cycle.

As you may know, the Sun makes one rotation upon its axis every 27 days. Let us say that on June 1st side A of the Sun is toward the Earth. On June 28th side A will again be toward the Earth. It is true that in 27 days, the sunspot structure will have undergone a change, but usually not enough to make much change in radio conditions. Thus communication conditions on June 28th bear a marked resemblance to those of June 1st. The prediction chart shown is based upon this principle.

At twenty and fifty minutes past each hour, WWV broadcasts in c.w. a number which indicates what trans-Atlantic conditions will be for the next twelve hours. The meaning of each number is as follows: 9-excellent, 8-very good, 7-good, 6-fair to good, 5-fair, 4-fair to poor, 3-poor, 2-very poor, 1-impossible. It is these figures which appear on the prediction charts. They were always taken from WWV between 1200 and 1800 EST. WWV changes its propagation bulletin at 0600, 1200, 1800 and 2400. For accurate prediction, it is important to take numbers each day from a similar bulletin.

While these figures are intended to indicate trans-Atlantic reception only, they are a fair indication of what communications with northern stations will be generally. On the other hand when communications with northern stations is poor, the signal strengths of tropical stations are usually unchanged. Under conditions where northern QRM is reduced, communications with lower latitude stations is much improved. Thus these figures have somewhat of a converse meaning for tropical stations particularly on the lower bands.

Chart—compares two adjoining cycles during the winter of 1954-55. As you can see, the difference in the condition number for the same day in these adjoining cycles does not exceed 1. This will be true 95 percent of the time.

Following this rule we are able to predict general radio conditions 27 days in advance as shown in *chart 2*. The numbers in brackets are the actual conditions.

If you are on the air or listening nearly every day, you may wish to compile the chart from your own observations as well as those of WWV.

One final note: this method will be more accurate in winter and summer than during the equinox periods when conditions are often quite erratic. ■

Day of Cycle	CYCLE 1 Winter	WWV	CYCLE 2 1954-55	WWV
1	Nov 19	7	Dec 16	7
2	Nov 20	5	Dec 17	6
3	Nov 21	6	Dec 18	6
4	Nov 22	6	Dec 19	6
5	Nov 23	5	Dec 20	6
6	Nov 24	7	Dec 21	6
7	Nov 25	6	Dec 22	6
8	Nov 26	6	Dec 23	6
9	Nov 27	7	Dec 24	6
10	Nov 28	6	Dec 25	6
11	Nov 29	5	Dec 26	6
12	Nov 30	6	Dec 27	5
13	Dec 1	7	Dec 28	6
14	Dec 2	6	Dec 29	7
15	Dec 3	6	Dec 30	7
16	Dec 4	7	Dec 31	7
			1955	
17	Dec 5	6	Jan 1	7
18	Dec 6	7	Jan 2	6
19	Dec 7	7	Jan 3	7
20	Dec 8	7	Jan 4	7
21	Dec 9	7	Jan 5	7
22	Dec 10	7	Jan 6	7
23	Dec 11	7	Jan 7	6
24	Dec 12	7	Jan 8	6
25	Dec 13	7	Jan 9	6
26	Dec 14	7	Jan 10	7
27	Dec 15	7	Jan 11	6

CHART #1

Day of Cycle	CYCLE 1 1955	WWV	CYCLE 2 1955	WWV	Predictions
1	Nov 6	7	Dec 3	6-8	(?)
2	Nov 7	7	Dec 4	6-8	(6)
3	Nov 8	7	Dec 5	6-8	(6)
4	Nov 9	7	Dec 6	6-8	(7)
5	Nov 10	7	Dec 7	6-8	(7)
6	Nov 11	7	Dec 8	6-8	(7)
7	Nov 12	7	Dec 9	6-8	(7)
8	Nov 13	7	Dec 10	6-8	(7)
9	Nov 14	7	Dec 11	6-8	(7)
10	Nov 15	6	Dec 12	5-7	(7)
11	Nov 16	6	Dec 13	5-7	(7)
12	Nov 17	7	Dec 14	6-8	(7)
13	Nov 18	6	Dec 15	5-7	(7)
14	Nov 19	4	Dec 16	3-5	(7)
15	Nov 20	6	Dec 17	5-7	(7)
16	Nov 21	6	Dec 18	5-7	(6)
17	Nov 22	6	Dec 19	5-7	(7)
18	Nov 23	7	Dec 20	5-8	(7)
19	Nov 24	7	Dec 21	6-8	(7)
20	Nov 25	7	Dec 22	6-8	(7)
21	Nov 26	7	Dec 23	6-8	(6)
22	Nov 27	7	Dec 24	6-8	(7)
23	Nov 28	7	Dec 25	6-8	(6)
24	Nov 29	7	Dec 26	6-8	(7)
25	Nov 30	6	Dec 27	5-7	(7)
26	Dec 1	6	Dec 28	5-7	(7)
27	Dec 2	7	Dec 29	6-8	(7)

CHART #2

PROPAGATION

Last minute forecast for August

Based upon the 27 day recurrence tendency of certain ionospheric disturbances, a radio storm is likely to occur during the period August 17-21. For the remainder of the month, the ionosphere is expected to be seasonally stable and generally normal shortwave propagation conditions should prevail . . . .

Forecasts by:
George Jacobs, W3ASK/W2PAJ
607 Beacon Road
Silver Spring, Md.

General Shortwave Propagation Conditions: August

Typical summertime shortwave propagation conditions occur during August. During the summer months the sun reaches its highest point in the northern skies resulting in night time usable frequencies being at their highest values of the year. On the other hand, since the sun is farthest from the earth during the summer months, daytime usable frequencies are somewhat lower than during the winter and spring months. Nevertheless ionization will be strong enough to permit the 20 meter band to remain open around the clock, and the 15 meter band almost all day. A peak in the occurrence of sporadic-E propagation occurs during the summer months, permitting almost daily "short-skip" openings on frequencies as high as 30 megacycles, and on some days the 6 meter band may open as a result of this type of propagation. During the summer months there is also a considerable increase in atmospheric noise, or static, levels in the Northern Hemisphere. Most atmospheric noise is believed to have its origin in thunderstorms. The static level at a particular location can be caused by both local and far distant storms, with the noise impulses from the distant storm propagated by the ionosphere in much the same manner as the propagation of regular radio signals. A large majority of the world's thunderstorms occur in the equatorial weather front, or belt. In this area, thunderstorms are present for almost 50% of the time. During the summer months, this weather front shifts northwards from the equator and effects an increase in the atmospheric noise level observed in the Northern Hemisphere. A recent publication of the National Bureau of Standards* shows that this northward movement of the equatorial storm belt and the general increase in local thunderstorms throughout the United States results in an atmospheric noise increase of at least 6 db on the 80, 40 and 20 meter bands from winter month values. In a general way this means that during the summer months, signals have to be about twice as strong as they were during the winter months to achieve a fixed signal to atmospheric noise ratio. Ionospheric absorption also increases during the summer months, resulting in weaker signals during the daylight hours.

The following is an overall picture of band conditions forecast for August. It is intended to indicate qualitative changes in each amateur band from month to month. For specific times of band openings for a particular DX circuit, refer to the *CQ Propagation Charts* appearing on the opposite page. Beginning this month, all times in the *Charts* are given in AM and PM rather than in 24 hour time as previously.

6 Meters:

As a result of the seasonal peak in sporadic-E propagation, some openings are expected between skip distances of approximately 1000 to 1400 miles.

10 Meters:

World-wide DX should be possible on several days of the month, especially on north-south circuits. Peak conditions should occur during the late afternoon hours. The band is expected to open more frequently towards the end of the month and early September. Sporadic-E, short skip propagation, should be possible between distance of 500 and 1400 miles on at least 50% of the days of the month.

15 Meters:

World-wide DX should be possible from just after dawn until early evening. During several days of the month, the band will probably remain open through the night to South America. Signal levels will reach maximum during the late afternoon and early evening hours, and

ALL TIMES IN EST

EASTERN USA TO:	10 Meters	15 Meters	20 Meters	40/80 Meters
Western Europe	7A-1P (1) 1P-5P (2) 5P-7P (1)	6A-1P (2) 1P-5P (4) 5P-9P (3)	6A-1P (1) 1P-3P (3) 3P-8P (4) 10P-6A (2)	6P-8P (2) 8P-2A (3) 9P-M (2) *
Southern Europe & North Africa	7A-1P (1) 1P-6P (3) 6P-8P (1)	6A-1P (2) 1P-6P (4) 6P-10P (3)	6A-3P (1) 3P-5P (3) 5P-9P (4) 9P-6A (3)	6P-11P (3) 11P-3A (2) 9P-1A (2)*
Near & Middle East	11A-6P (1)	7A-11A (1) 11A-1P (2) 1P-6P (3) 6P-9P (2)	1P-4P (2) 4P-9P (4) 9P-11P (3) 11P-3A (2)	7P-11P (2) 8P-10P (1)*
Central & South Africa	6A-10A (1) 10A-3P (2) 3P-6P (3)	11A-1P (1) 1P-3P (2) 3P-6P (4) 6P-9P (3) 9P-11P (1)	N-3P (1) 3P-8P (4) 8P-1A (3)	7P-M (3) 8P-10P (2)*
South America	6A-1P (3) 1P-5P (4) 5P-7P (3)	9A-3P (2) 3P-11P (4) 11P-9A (3)	7A-5P (2) 5P-2A (5) 2A-7A (4)	7P-10P (2) 10P-6A (3) 9P - 3A (2)*
South East Asia	NIL	6A-9A (1) 1P-4P (1) 4P-9P (2)	6A-8A (2) 7P-M (2)	NIL
Australasia	5P-9P (1)	7A-10A (1) 5P-7P (2) 7P-10P (3)	1A-6A (2) 6A-8A (3) 8A-10A (2) 6P-10P (2) 10P-1A (3)	2A-7A (2) 3A-6A (1)*
Guam & Pacific	NIL	2P-5P (2) 5P-10P (3)	6A-8A (2) 7P-9P (2) 9P-2A (3)	10P-2A (1)
Japan & Far East	NIL	3P-6P (1) 6P-8P (2)	M-6A (2) 6A-8A (3) 4P-6P (2) 6P-M (3)	2A-6A (1)

ALL TIMES IN CST

CENTRAL USA TO:	10 Meters	15 Meters	20 Meters	40/80 Meters
Western Europe	N-4P (1) 4P-6P (2)	7A-11A (1) 11A-1P (2) 1P-3P (3) 3P-5P (4) 5P-7P (2)	4A-6A (2) 6A-1P (1) 1P-4P (2) 4P-8P (4) 8P-M (3)	6P-1A (2) 8P-M (1)*
Southern Europe & North Africa	6A-N (1) N-5P (2) 5P-7P (1)	7A-11A (1) 11A-2P (2) 2P-6P (4) 6P-8P (2)	4A-11A (1) 11A-4P (2) 4P-8P (4) 8P-4A (2)	6P-M (3) 8P-11P (2)*
Central & South America	8A-2P (3) 2P-6P (4) 6P-10P (3)	M-9A (3) 9A-2P (2) 2P-8P (5) 8P-M (4)	2A-8A (4) 8A-2P (1) 2P-5P (3) 5P-2A (5)	7P-4A (3) 4A-7A (2) 8P-3A (2)*
Japan & Far East	7P-9P (1)	10A-2P (1) 2P-6P (2) 6P-9P (3)	2A-6A (1) 6A-9A (2) 4P-7P (2) 7P-2A (3)	2A-6A (1)
South East Asia	6P-9P (1)	6A-8A (1) 10A-2P (1) 2P-6P (2) 6P-9P (3)	6A-9A (2) 5P-8P (1) 8P-1A (2)	NIL
Hawaii	11A-1P (1) 1P-6P (2) 6P-9P (3)	10A-2P (2) 2P-5P (3) 5P-10P (4) 10P-1A (2)	M-4A (3) 4A-8A (2) 8A-10A (3) 10A-5P (2) 5P-M (5)	10P-7A (4) 11P-6A (3)*
Australasia	4P-6P (1) 6P-9P (2)	7A-9A (1) 3P-6P (2) 6P-11P (3)	1A-6A (2) 6A-9A (3) 6P-9P (2) 9P-1A (4)	1A-7A (3) 2A-6A (2)*

ALL TIMES IN CST

CENTRAL USA TO:	10 Meters	15 Meters	20 Meters	40/80 Meters
Antarctica	1P-3P (1) 3P-5P (2) 5P-6P (1)	N-3P (1) 3P-5P (2) 5P-7P (3) 7P-8P (2)	11P-7A (3) 3P-5P (1) 5P-7P (2) 7P-9P (3) 9P-11P (2)	10P-5A (2) 11P-4A (1)*
Central & South Africa	6A-10A (1) 10A-2P (2) 2P-5P (3)	11A-1P (1) 1P-3P (2) 3P-5P (4) 5P-8P (3) 8P-10P (1)	N-3P (1) 3P-7P (4) 7P-11P (2) 11P-1A (3)	7P-11P (3) 8P-10P (2)*

ALL TIMES IN PST

WESTERN USA TO:	10 Meters	15 Meters	20 Meters	40/80 Meters
Europe & North Africa	NIL	7A-10A (1) 10A-N (2) N-3P (3) 3P-6P (1)	N-3P (1) 3P-6P (2) 6P-10P (3) 10P-M (2)	7P-10P (1) 8P-9P (1)*
Central & South Africa	10A-1P (1) 1P-6P (2)	7A-10A (1) 10A-2P (2) 2P-7P (3) 9P-11P (1)	11A-2P (1) 2P-6P (2) 6P-10P (4) 10P-1A (2)	6P-10P (3) 7P-9P (1)*
South America	6A-10A (2) 10A-4P (4) 4P-6P (2)	M-5A (2) 5A-7A (3) 7A-1P (2) 1P-6P (4) 6P-M (3)	M-5A (3) 5A-N (1) N-2P (2) 2P-4P (4) 4P-M (5)	7P-9P (2) 9P-4A (3) 8P-2A (2)*
Guam & Mariana Islands	7A-9A (2) 9A-N (1) N-6P (2) 6P-10P (3)	7A-N (4) N-8P (2) 8P-7A (3)	M-6A (4) 6A-10A (3) 10A-N (1) 8P-M (2)	M-6A (3) 1A-5A (2)*
Australasia	11A-6P (3) 6P-8P (4) 8P-M (3)	M-3A (3) 10A-8P (1) 8P-M (4)	4A-6A (2) 9P-4A (4)	10P-6A (3) M-5A (2)*
Japan, Okinawa & Far East	8A-N (1) N-7P (2) 7P-M (3)	2A-6A (2) 6A-N (3) N-8P (2) 8P-2A (4)	6A-10A (3) 10A-N (2) N-8P (1) 8P-6A (4)	M-6A (3) 1A-5A (2)*
Philippine Is. & East Indies	8A-10A (3) 10A-6P (1) 6P-M (2)	M-4A (3) 4A-6A (2) 6A-11A (4) 11A-2P (2) 8P-M (1)	1A-3A (2) 3A-7A (4) 7A-N (2)	3A-8A (1)
Malaya & South East Asia	8A-11A (3) 11A-2P (1) 2P-M (2)	M-4A (3) 4A-7A (2) 7A-10A (3) 10A-2P (2) 10P-M (1)	M-3A (2) 3A-6A (4) 6A-9A (2) 9A-2P (1)	2A-7A (1)
Hong, Kong, Macao & Formosa	8A-N (2) N-6P (1) 6P-M (3)	6A-8A (3) 8A-N (2) N-10P (1) 10P-6A (2)	1A-8A (4) 8A-N (2) 9P-1A (2)	2A-6A (3) 3A-5A (1)*

SYMBOLS FOR NUMBER OF DAYS CIRCUIT PREDICTED TO OPEN:

(1) 1-4 days (2) 5-11 days (3) 12-18 days (4) 19-26 days (5) over 26 days

* Indicates time of possible eighty-meter openings.

The CQ Propagation Charts are based upon a CW radiated power of 150 watts and are centered on Washington, D. C., St. Louis, Mo., and Sacramento, California. These forecasts are calculated from basic ionospheric data published by the CRPL of the National Bureau of Standards and are valid through September 15th, 1956.

Time Symbols:

A	A.M.	N	Noon
P	P.M.	M	Midnight

will be quite strong even for low power transmissions. A considerable increase in sporadic-E openings will occur with skip distances between approximately 250 and 1400 miles. Regular layer short-skip propagation, with the skip distance between 1300 and 2400 miles, should occur on several days between noon and midnight, *local standard time.*

20 Meters:

This will be the best all around band during August. It is expected to remain open for DX around the clock, with conditions peaking during the late afternoon and evening hours. Short-skip propagation will also be possible around the clock, with the skip distance as short as approximately 250 miles around noon time, and extending up to 2400 miles during the late afternoon and evening hours.

40 Meters:

Seasonal increases in ionospheric absorption and static levels will limit daytime propagation on this band

[*Continued on page 114*]

These 29 YLs met for the luncheon during the 6th Midwest YL Convention held at St. Paul, Minn. May 25-27. L. to r., seated: KØBTV, WØs UMK, QXA, IRJ, KJZ (convention chairman), MSW, KØBEA, QXF, W9s BCA and YWH. Standing: WØJMI, W9RUJ, W8ATB, W9AYX, WØQVQ, W9QXI, WØPIK, WØIRD, W9LDK, W9RTH, WØIXR, WØKFN, KNØ???, WØUAO, WØNZT, KN9CZQ, W9UON, W9IWP, W8EIR. The elephantine key which actually works, was made by Eva, WØVMK.



YL

Monitored by

Louisa B. Sandbo, W5RZJ

Jicarilla Apache School, Dulce, New Mexico

Bouquets to W8ATB, Esther, and OM W8QBO for fine work done during the recent tornado that struck Flint, Mich. W8QOM, Anna, tells us that although the storm hit the Stuewe's home, causing a blackout, loss of beam elements, etc., John started their generator and Esther went on the



A YL meeting during the O.A.R.A. convention at Eugene, Ore. May 5-6 brought together these YLs. L. to r., front row: W7s SBS, ZKY, UEL, QKU, HHH, ZLT, ENU, CPV, ITZ, SPC, CLV. Back row: W7s WTK, SPA, YHO, ZLS, FKS, K6CXZ, QWX, VLG, RAX, WN7DIC. Lena (awaiting call), SBX, CLY. Others at the convention were W7s NJS, NTT, SJW, AFV, WN7DLG.

big rig on 75. John went mobile on 10 and they both operated almost continuously for 40 hours handling messages to the Red Cross, Civilian Defense Hq. and to mobiles in the area.

YLs Meet

The Orlando, Fla. hamfest on April 8 brought together YLs W4s CWV, BWR, PIK, ZVW, TDK, BIL, BAV, WPD, HRC, SDI, UPT, ATV, AVA, W8ATB; KN4s ISB, EAC, DQG, EIJ, and several others who were awaiting calls. W4ZVW, Ellie, served an informal breakfast at her home for the YLs that morning.

Enjoying the YL forum at the Dayton Hamvention April 14 were WN8AXA, moderator, W3QPQ, W8s SPU, ATB, LGY, ORP, RZN, MBI, MDK, EOU, FPY, IZU, OTK, HVR; W9s RUJ, JUJ; KN8AEE, WN8s ABM, GPO; WN9CYP.

The 6th Midwest YL Convention at St. Paul, Minn. May 25-27 proved most successful (see photo). 35 YLs from 8 states attended and their Saturday night smorgasbord and entertainment drew 135, including YLs, OMs and SWs. W8ATB, Esther, invited the YLs to hold the next Midwest YL convention at Flint, Mich. in May, 1957.

Correction

Due to an untimely visit from the "printer's devil" the captions under the pictures on page 61 of CQ for May became transposed. Get out your copy and mark it—Katherine Johnson, W4SGD, YLCC Custodian, is the gal at the top of the page; Opal Jones, W6PCA, WAC/YL Custodian, is shown at the bottom of the page.

Congratulations

To W5APC, Kit, on arrival of a baby girl; proud grandmother is W5DEW, Mary. . . . To K6CYZ, Sister Patrice, and Brother Jerome, both members of the WKLF Fountain of the World, who became Mr. & Mrs. on March 29. . . . To W6GCW, Bill, for making YLCC ♯100—all contacts made on 40 CW running 60 watts or less.

Condolences to W6GQZ, Iva, whose OM, W6EXH, passed away in April. . . . Recent Silent Keys among the YLs include W9DXX, Alice Bourke, of Chicago, on May 3 at the age of 65. Alice was a real old-timer in Ham radio. . . . W2BTB, Jeanne Walker, of Fayetteville, N. Y. became an SK on March 17. The SW of W2ZOL, Jeanne was very active in handling traffic and in 1954 received the Edison Award honorable mention for outstanding public service.



These YLs enjoyed the hamfest at Eureka Springs, Ark. in mid-April. L. to r.: WØJDB, KN5DOT, WØOMM, K5BNQ, KN5AVS, KN5DKV.

Current officers of SPARC-YLs of St. Petersburg, Fla. are W4BIL, Fran, president; KN4EBQ, Minnie, VP; W4BAV, Catherine, secretary-treasurer. . . . Members of WAYLARC (Washington, D. C.) have resumed their club net with W3RXJ, Irene, as NCS, on 28.9 Mc. at 2100, the 2nd and 4th Wednesdays of each month.

W6QYL, Martha, expects to be in Lebanon with her OM for the next years. QTH: Mrs. Noel Edwards, Jr., c/o American Embassy, Beirut, Lebanon.

YLs in the news! W9GME, Grace, and Ham radio in general, had a fine write-up in MIDWEST, Sunday Magazine of the *Chicago Sun-Times,* on March 18. . . . W5DRA, Teev, and K5CCJ, Dell, had an FB write-up in several New Mexico newspapers May 31 describing how they became good friends via 10 meters when Dell was KH6TI in Hawaii, and are now even closer friends, living only 3 blocks apart in Las Cruces. . . . Your column editor was pleased to have an article, "I Married An American Indian," in EMPIRE, Sunday Magazine of the *Denver Post,* for June 17.

33, Louisa, W5RZJ

Southern Arizona

The annual Southern Arizona Hamfest will be held at Fort Huachuca, Arizona, September 1-3, 1956.

There will be two and one-half days of contests and entertainment.

Special attention has been given to entertainment for the XYL's, YL's and junior ops with nursery service for the children and a women's program sponsored by the Fort Huachuca Women's Club.

Plenty of merchandise available for door prizes and for the winners of the many contests scheduled for the OM, Novice, XYL, YL and junior ops. A swap and shop booth will be in operation.

Ticket prices will be $2.00 (half price for children under 12) for advance registration which will close August 26, 1956. Tickets will be twenty-five percent higher after that date. Advance registration may be mailed to: Secretary, Fort Huachuca Amateur Radio Club, P. O. Box 903, Fort Huachuca, Arizona.

W7SAI advises that tourist accommodations in the Fort Huachuca area are extremely limited and persons planning to attend the Hamfest should come prepared to camp out if prior commercial reservations are not confirmed.

Virginia

The Annual Hamfest of the Shenandoah Valley Amateur Radio Club will be held Sunday, August 5th at Dickey Ridge on the Beautiful Skyland Drive near Front Royal, Virginia.

There will be a Ham and Chicken dinner and prizes galore, with very little speaking. So everyone come and enjoy themselves and meet the operators of those amateur or MARS stations with whom you've talked. Plenty of room for the whole family.

Prices are just $1.25 for the dinner, and $1.00 for registration.

There will be lots of stations on the air to guide you in.

For further information, or maps, write to: Holmes Bayliss K4CYH, Secretary, Shenandoah Valley Amateur Radio Club, P. O. Box 139, Winchester, Virginia.

RTTY

As reported by

Byron H. Kretzman, W2JTP

9620 160th Ave., Howard Beach 14, N. Y.

Tape for traffic. That is the slogan that is being adopted by more and more traffic nets these days. Most of you know of the existence of the MARS RTTY traffc nets just outside of our regular ham bands. These were in operation even before it was legal for us to use FSK in our h-f bands. Today, many RTTY traffic nets are in operation all across the nation, across the Atlantic, and across the Pacific. The "big-three" are the California Net, the Midwest Net, and the Eastern Net. These are registered with the ARRL and all use v.h.f. (mostly 2 meters) for distribution of those messages received on FSK on the lower frequencies.

Local CD and RACES operations are also being handled with greater dispatch with tape-RTTY. The first known net of this type was implemented in 1954 by the City of Pasadena, California. Using v.h.f., "land-line" performance is obtained. Flexibility of operation permits patching normal CD wire-line teleprinter circuits directly into RTTY circuits and vice versa.

Why punched tape? Speed, simplification, and accuracy are the end results. Taped messages can be "racked-up" and transmitted in groups at the constant speed of approximately 60 words-per-minute. Message handling is simplified when you use tape gear. The incoming message is put on tape as it is received. Although it may be punched from a slow, manual, (hunt-and-peck) transmission it is immediately ready for re-transmission at the automatic 60-speed. Should there be any errors in the received tape, they can be easily corrected by making a new tape. The message, now restored to its original shape, can be sent on to the next station.

"This sounds wonderful," says the traffic-man with the glass arm, "but it's complicated, isn't it?" Not at all. Once a station has been in operation on RTTY for a short while, using the usual keyboard-printer, it is a very easy step (up) to tape gear. When accomplished, you wonder why the heck you didn't do it right away!

For the benefit of those of you reading this column for perhaps the first time, your RTTY column has, since the Jan. '56 issue of *CQ*, carried a section devoted to the newcomer or potential RTTYer. This month, the following section on tape equipment should give, we hope, some assistance when you take that next step. Much of the information has come from W2NSD, ye Editor, one of the pioneers in RTTY, by the way.

RTTY Principles & Practice

Part 2-d—Tape Equipment

An RTTY station set up for tape has, in addition to a regular page printer with keyboard, a Tape Transmitter, a Tape Perforator, and/or Reperforator, or better yet, but less likely, a Typing Reperforator.

The usual punched tape used on land-line and radioteletype circuits is a paper tape about 11/16" wide. *Fig. 1* illustrates the complete signal code used and also shows the corresponding perforations in the tape. The smaller FEED holes in the tape engage a sprocket in the tape transmitter which moves along the tape from character to character. Five "sensing" pins feel for the holes, and whenever one is encountered a contact is closed, thereby transmitting a *mark* through the associated distributor in proper sequence and at the correct speed.

In commercial practice, the Model 14 Transmitter-Distributor (TD) is probably most often found. As the name implies, the tape "feelers" and the distributor are combined as one compact unit. Since this unit is still in current production and use, very few of these TD's are found in ham shacks.

AMATEUR RADIOTELETYPE CHANNELS

National, FSK	(mark frequencies; space 850 cycles lower) 3620, 7140, 27,200, 29,160, 52,600 kc.
National, AFSK	(2125 cycles mark; 2975 cycles space) 27,200, 147,960 kc. calling & autostart 144,138 kc. repeater & duplex
California, AFSK	147,850 kc. calling & working
Washington, D.C., AFSK	147,960 kc. calling & autostart 147,495 kc. working
Chicago, AFSK (FM)	147,700 kc. calling & working
Detroit, AFSK (FM)	147,300 kc. calling & working
New York, AFSK	147,960 kc. calling & working

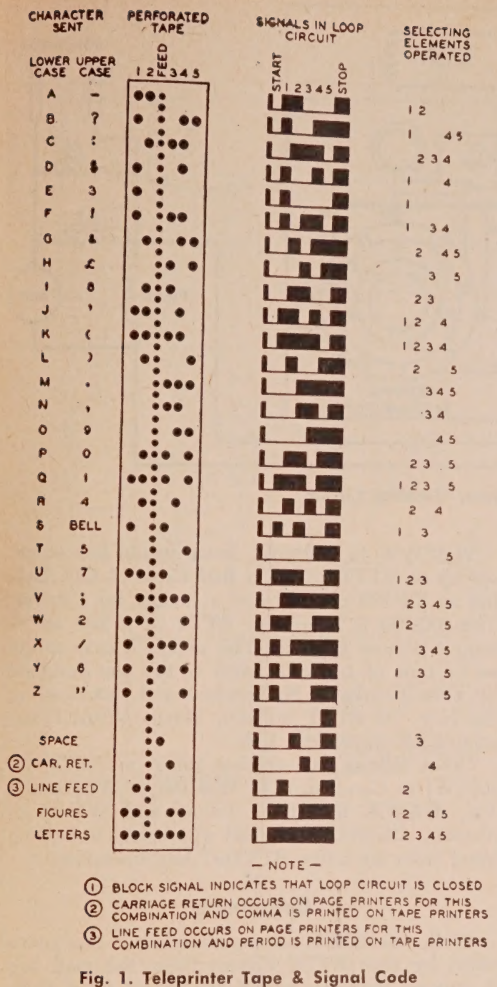


Fig. 1. Teleprinter Tape & Signal Code

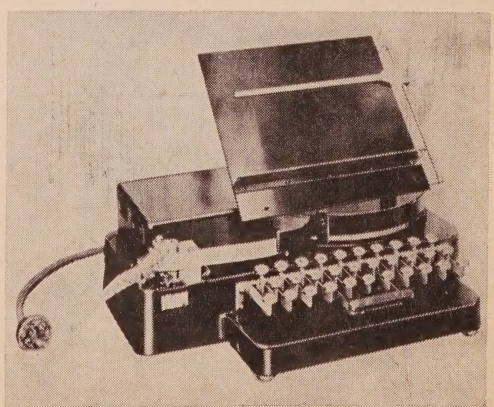
Most commonly found is the *WU* 1A Tape "Head" or transmitter. This is the sensing unit, alone. It requires that a separate sending distributor be used. *Fig.* 2 shows the schematic diagram of the 1A Tape Head and *Fig.* 3 shows the diagram of the *Morkrum* distributor. Another typical tape distributor diagram is shown on page 24 of the Nov. '54 issue of *CQ*.

A 1A Tape Transmitter has two controls on it. One, a switch, disconnects the tape advance magnet so that the transmitter will continue to send whatever character the sensing pins are feeling. This switch is at the bottom of the transmitter and is marked "on-off." The second control is the lever at the end of the transmitter marked "start-stop" which mechanically keeps the latch relay from advancing the tape, and also keeps the five pins from feeling the tape. When this lever is in the "stop" position the transmitter sends blanks (this rings the bell on Model 12's) and the tape does not advance. The metal plate under which the tape passes is hinged to permit quickly inserting or removing the tape. Adjustments of the 1A are touchy and should be avoided if possible. If an adjustment appears to be necessary, consult one of the expert old-timers that are on RTTY.

The Tape Perforator, sometimes called the Keyboard-Perforator, has its own keyboard and operates completely independent of the other equipment. The main idea is that you can punch a tape while the other equipment is sending or receiving. Secondly, this machine is relatively inexpensive.

The Reperforator has no keyboard of its own and it punches tape from any *incoming* signals. These signals, of course, could be from radio via the terminal unit (TD), or from a local in-the-shack d-c loop with your own machine supplying the signals. This unit, while not unavailable, brings a higher price than either the Tape Head or Tape Perforator.

The Typing Reperforator has a receiver selecting and typing mechanism employing type bars to print right on the tape. Perforation is simultaneous with printing, but six characters ahead. "Chadless" perforating permits printed and perforated characters to occupy the same part of the tape, as the punchings (chads) are not completely severed from the tape, but form lids attached at the leading edges. The selecting mechanism positions punch levers and a perforator blow is delivered from a cam on the main shaft of the unit. The Model 14 Typing Reperforator and Transmitter-Distributor are usually combined as a "set" on one table. Since an increasing number of the Model 14 Typing Reperforator units are coming into amateur hands, usually after being rebuilt from the Model 14 Sending-Receiving narrow-tape printers, we are presenting in *Fig.* 4 the schematic diagram of a complete Model 14 set-up. Shown in the diagram is a "connection box." A three-position power switch, and accompanying resistors, allow operation of the motors on various sources of power, and the jacks serve as a switchboard making it possible to arrange the equipment in a variety of combinations. Although the connection box may not be available, and is really



Keyboard Perforator

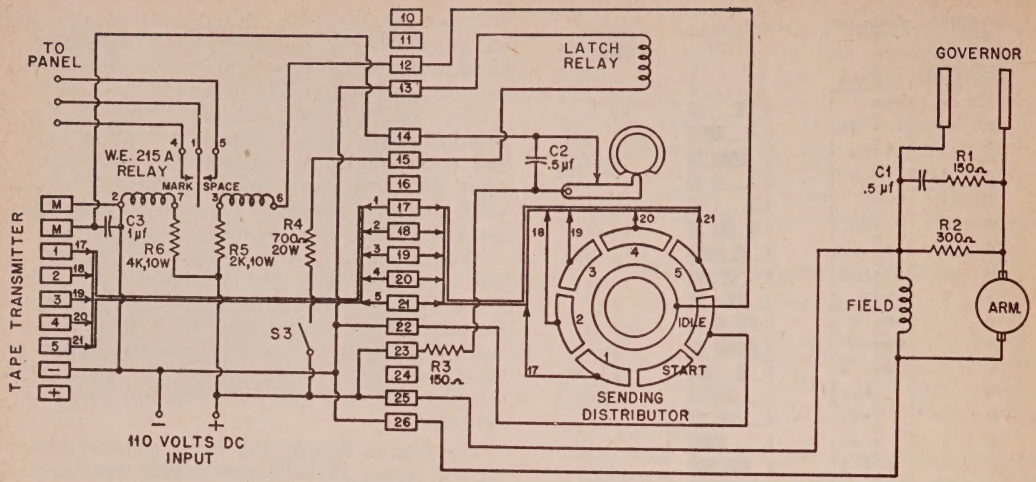


Fig. 3A. Morkrum Distributor—Sending Circuit

not essential for amateur RTTY operation, it is shown here as a matter of interest, mostly for the jacking facilities.

Next month this section on tape equipment will be continued, giving the inside dope on several miscellaneous pieces of narrow-tape equipment, such as the "midget" 21A printer and the Model 400.

Across the Nation

Ian Elliot, W7JMX, of Miles City, Montana, reports that he, W7DXQ, W7LUT, and W7SFK have received their Model 26's. Ian says that he has his ". . . fingers crossed if anything goes haywire with the mechanical end of the 26 and being caught without a manual and parts list." He also asks if parts are available from *Teletype*. The answer to that is yes, but *not* directly. If you need parts, contact one of those RTTYers who are specialists with the Model 26, such as W2ZKV, W3CRO, W6AEE, or W9GRW.

WØFWW in Griswold, Iowa, would like to get set up on RTTY with the Red Cross or CD. Lyle has an SX-100 receiver and a Ranger for a driver. The SX-100 is handy for RTTY as it has an i-f output jack on the rear. This makes it easy to use an i-f type of converter such as the one designed by Fritz Franke of Hallicrafters and described in the Nov. '54 *RTTY* bulletin. Maybe W6AEE has some back copies left, Lyle.

Other fellows just getting going on RTTY are K2CWJ in Camden, N.J.; W4EBH in Winchester, Va.; W5ACK in Cisco, Texas; and W7VIJ in Tucson, Arizona. All would appreciate a helping hand from an active RTTYer. Any volunteers?

Comments

Well, this RTTY column rounds out one year's effort by your RTTY Editor. From the mail bag it appears that you would like to see more technical RTTY information. This we have tried to

[*Continued on page 108*]



Model 14 Typing Reperforator

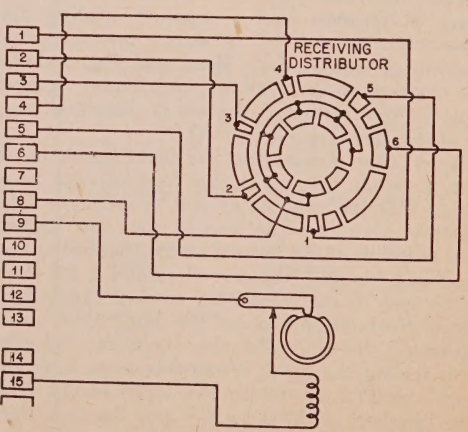


Fig. 3B. Morkrum Distributor—Receiving Circuit

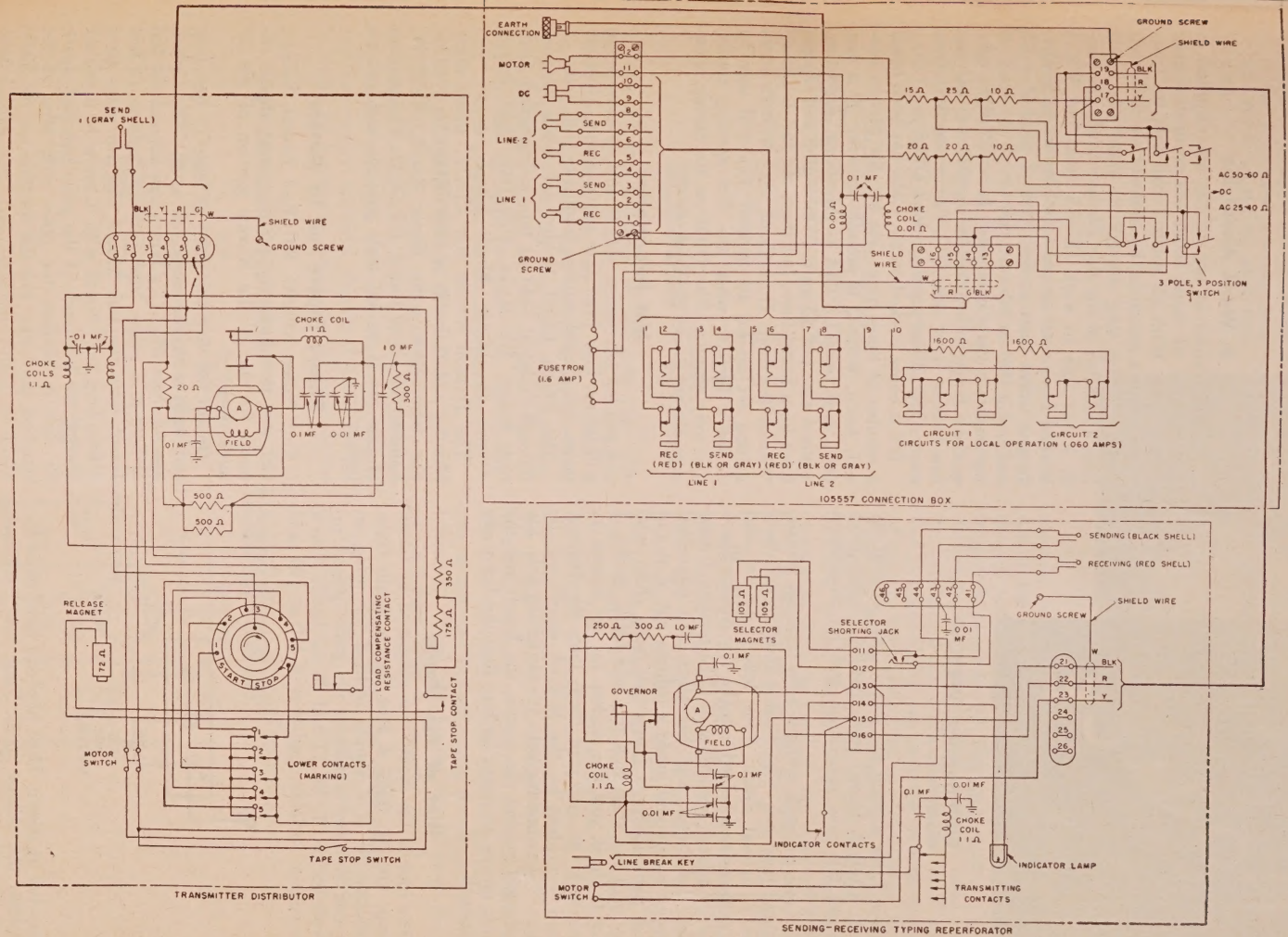


Fig. 4. Typing Reperforator & Transmitter-Distributor Set, Schematic Diagram

NOVICE

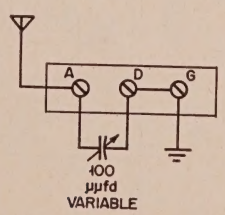
As reported by
Walt Burdine, W8ZCV
Waynesville, Ohio

Here I am starting my second year as your reporter. Golly it doesn't seem that long. I sure have enjoyed this new experience and my association with you.

No one succeeds without help from his friends. Without your help *The Novice Shack* would have died a natural death. Your letters, advice, and suggestions have helped to make *The Novice Shack* read by a large proportion of *CQ's* readers. I must thank the Editor who has taken this scrambled mess of words and made a column out of it and want particularly to thank the radio clubs who have sent me their bulletins and ideas. Mostly I want to thank you, the readers, for my success as a reporter. As you read these lines the summer slump is evident by the lack of signals on the bands. The swimming hole, the ole fishing pole, the pretty girl around the corner, the beach and the picnic groves are more inviting than the hot stuffy hamshack.

Hint of the Month

The hint of the month was submitted by Glenn Camp, K6LOP, 3257 A Post Street, South Gate, California. It is a simple method for using an antenna trimmer condenser on lower priced receivers for the 7, 14, 21 and 28 mc bands. Use a low voltage variable condenser of 100 or 140 $\mu\mu$fd



connected as shown. Most receivers have room for it within the cabinet itself. Tune this condenser for the maximum signal as shown by the S-meter.

Thank you Glenn, that's just what is needed for novice shack.

A Word About Six

A good number of my visitors are surprised to find that the six meter band has occupancy most of the time. With 20 watts I can talk to Texas twenty days a month in the summertime with each contact lasting long enough to make the Texas ham a member of the *Rag Chewer Club.* On June 5, I was able to work all call areas but W9. I worked from coast to coast and border to border. It was worse than contest time, I worked a K2 and had a WØ in Missouri call me off the back on my beam, it was a madhouse. Later 12 W6's were worked along with W7RUX in Arizona, and you can believe it or not, QSLs were received from every QSO. Who sez they don't QSL?

DX is being worked on six. Cuba has been heard a number of times here. Old Mr. Six Meters himself, Amos, W8INQ is proudly showing off a neat QSL card from LU9MA of Mendoza, Argentina, worked with just 45 watts. Washington and Oregon have been heard here, but there are just too many W8s calling them. How about more western states getting set up for six meters? You will sure be in for a surprise when the first opening comes, also very popular. The QRM on six during openings almost forces me back to 75.

Net Information

I will list all Novice nets in this column if you will let me hear from your net manager. Give net name, net control station, frequency and time.

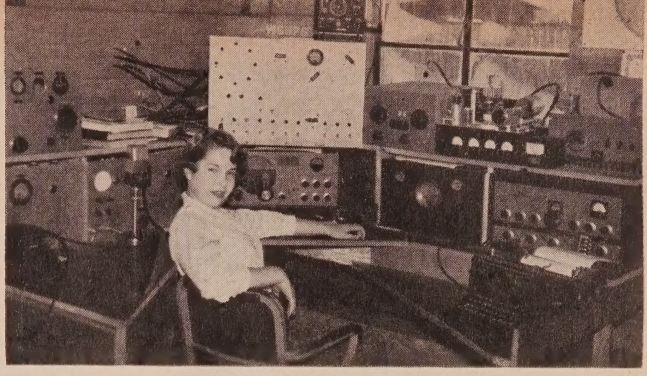
The Rhode Island Novice net meets Monday through Friday at 3743 kc, time not specified. Contact Robert W. Hicks, WN1JJW, 390 Potters Avenue, Providence, Rhode Island.

The Trenton Novice Net (TNN) meets every Monday and Thursday at 18:00 EDST on 3745 kc. For information write Steve Rusch, KN2PUV, Lambertville, New Jersey, R.F.D. #1. The purpose of this net is to aid code practice and net information.

Rotary Dipole for 15 Meters

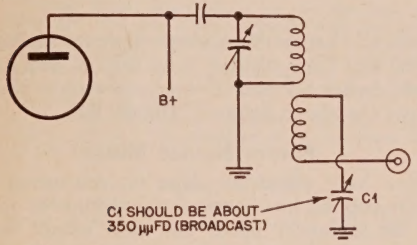
Kurt Bauer, K6LSG, 301 East Laural, Salings, Cal. sent us information for this rotary dipole antenna for use in the Novice portion of the 15 meter band.

Obtain two bamboo poles at least 12 feet long and wrap with aluminum foil as in *"The Catfish Special, Nov 55, CQ".* Wrap tape around the foil to hold it in place. Now cut each pole to 11 feet 1 inch with the foil. Mount the two poles on a 5 foot long 1x2" board with 4 screw-in insulators spacing the butt ends of the poles one inch apart. Be sure to insulate the poles with tape at the stand-off insulators. For the feedline use RK-59/U which is highly recommended. Put garden hose clamps on the inside ends of each pole. Clamp the center conductor of the feed line to one side of the antenna and the shield to the other side.



Dale Diane Ross, KN6MHC (14) 5468 East Grant, Fresno, California number one operator at W6JPS mostly works 40 meters but she can get the Viking I on 80 if that is the only band you can work her. She is on the air after 1600 P.S.T.

Loading of the antenna can be very tricky. If you are going to feed any antenna with the coax there is no need for an antenna coupler. Coax *will* couple into the pi-network of a transmitter such as the *Viking Adventurer*. When I tried to couple it to my AT-1 trouble was encountered until I inserted a variable capacitor in the output



to tune out the reactance of the coax line. The function of this condenser is covered in detail in "The Beam Handbook" by Bill Orr, W6SAI. I recommend this book very highly to anyone with beam antenna problems. Use your own ingenuity when making a mount for the antenna. This dipole can also be used to build "The Catfish Special." *Thank you Kurt for the information.*

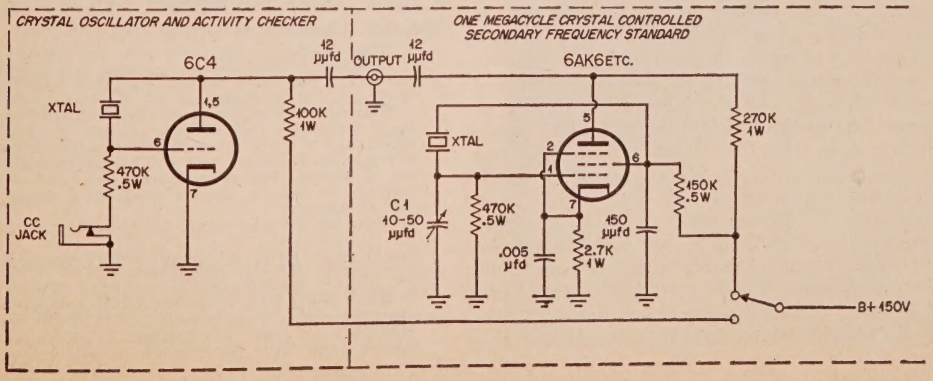
Crystal Check Oscillator

One of the more useful pieces of test equipment around the hamshack is a crystal controlled band edge marker generator. Such a unit is the one megacycle secondary standard described here. Simple to build, its harmonics will mark the edge of the amateur bands with a high degree of accuracy. All of the low frequency amateur bands except the 160 and the 11 meter bands begin at an exact megacycle multiple. Set the main tuning dial at the megacycle multiple of the desired band, with the bandspread dial fairly close to the band edge. The bandspread dial can generally now be depended upon to track fairly close in each amateur band. Harmonic output can be coupled to the receiver by placing a wire from the output terminal of the oscillator to the receiver antenna post, no direct connection need be made to the receiver. I was able to pick up the 30 mc harmonic on my *NC-183-D* receiver at 12 feet with a 16 inch antenna on the oscillator.

Manufacturers usually supply circuit diagrams and information for their particular crystals and these can be used if you so desire. The circuit given worked the first time the B plus was applied and just happened to be zero beat with the 5 mc signal from *WWV*. The variable condenser, *C1*, provides a means of adjusting the frequency of the oscillator to exactly one megacycle. Adjust the oscillator so that the frequency is zero beat with the 5 mc signal from *WWV*. The signal from *WWV* is accurate to one part in 50,000,000 and the fifth harmonic of the one megacycle crystal can be adjusted to *very nearly* the same frequency tolerance. (Note: the human ear of most people can not hear down to the exact null.)

Adjusting The Frequency

The frequency can be adjusted to exactly 1 mc by making use of the one megacycle note of the



oscillator and beating it against the five megacycle (or other frequency) transmission of *WWV*. Tune in the *WWV* signal with the b.f.o. off and wait for the period during which the modulation is absent. Then switch on the 1 mc oscillator and adjust its frequency, by means of *C1*, until its harmonic is in zero beat with *WWV*. The exact setting is easily found by observing the slow pulsation in the background noise as the harmonic comes close to zero beat, and adjusting to where the pulsations disappear. For best results try to keep the signals from both sources at about the same amplitude. Do not attempt to set the oscillator to zero when the *WWV* signal is modulated, you might zero one of the sidebands of the modulation.

Construction

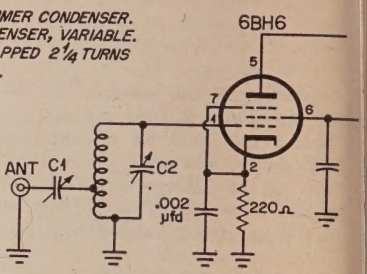
The construction of this unit is very simple and can be completed in one afternoon. The layout of all components can be discerned by observing the picture of the completed unit. The small cabinet is a 2¼x2¾x5 inch grey hammertone channel-lock box such as the *Bud CU-2104*. All parts fit very nicely in the box and make a neat and useful addition to the hamshack. If this little box of test equipment saves you from getting one pink slip from the FCC it will be cheap at twice the cost.

All wiring should be well soldered and as rigid as is possible to help keep the frequency tolerance as close to the set frequency as is mechanically and electrically possible. No special layout is necessary in order to get either oscillator to work correctly, just the usual good wiring practices need be followed. Good work pays off in better frequency stability, that is what you are striving for in the secondary standard. A small transformer power supply was constructed from one of the small TV booster transformers and a selenium rectifier. This power supply was built in the same size channel-lock box as the oscillator, making a neat unit. The diagram, specifications and pictures of this power supply will be in next month's *Novice Shack*. Other pieces of test equipment built in the same cabinet are scheduled for appearance in future issues. They will make you a nice layout of useful test equipment.

This crystal test oscillator can also be built to check those surplus crystals that you can buy for twenty cents up in the magazine ads. By using the standard and setting the bandspread dial as explained earlier, you will be able to approximate the frequency of an unknown crystal fairly closely. Do not trust this method of frequency checking too near the edges of the band. The activity of a crystal can be checked by plugging a 200 microampere meter into the closed circuit jack and measuring the rectified grid current of the oscillator. I find that most crystals will perform well if they have 75 microamperes activity, the higher frequency crystals will have less activity and the low frequency will probably drive the meter off-scale. Check some of your crystals that you know are in good operating condition to familiarize yourself with what to expect. You can use this unit to make those next door contacts, if you have a ham next door. These two oscillators are a handy thing to have around the hamshack. It is not necessary to have the meter to use this unit for checking crystal frequency.

Converter Improvements

A number of letters have been received concerning using the converter described by me in the November *CQ* with coax feed. Bod Hardie,



W5EUQ, Fort Smith, Arkansas has sent his method to me and I am sending it on to you. Bob says it works better for him if the front end is changed as per the above diagram. Thanks Bob.

Future Novice Shack

You have asked for dope on converting each of the popular low powered transmitters to operate on the six meter bands and next month *Novice Shack* will tell you how to convert the wonderful little *WRL Globe Scout 65-A* to operate on six meters. I have one operating here and am very well pleased with it. The cost of conversion will be less than six dollars and it will in no way impair the use of the other bands and it will still be band-switching. Get your soldering iron hot, boys.

Another article will appear soon on a power amplifier for all low powered transmitters. This amplifier will use the *National* Multi-band tuners and enable you to change bands in the amplifier quicker than you can get the receiver tuned up on that band. I have used these tuners in my station for about four years and like them.

What do you want to see in *Novice Shack?*

Letters

Louie Camp, WN8WBV, Loomis School, Windsor, Connecticut writes:

"Dear Walt:

"Because I went away to school I only operated for half a year as a Novice. I am now awaiting my Technician class license.

"During the time I was on the air I had 370 QSOs in 43 states. My best DX was Hawaii. The rig is an SX-71 and a *Globe Scout* running about 65 watts to a dipole on 40 meters and a "Cat-fish Special" beam on 15 meters. The beam works very well. I would suggest its use by anyone wanting a cheap beam for 15 meters.

"Keep up the good work. 73, Louie."

Joe Warner (13) KN4GWU, 200 Shady Circle Drive, Rocky Mount, North Carolina says:

"Dear Walt: Here is the KN4GWU progress report: about 28 states, 3 KN6s and a VE-2. The rig is a Hallicrafter's S-85 and a Heath-kit AT-1. I would like to know what the boys on 15 meters are using.

I have tried both a 40 and an 80 meter doublet with no success. Which will work better on 15 meters, a doublet or a dipole?

"I am one ham that likes the new *CQ*. Best of DX. Joe."

Joe, a coax fed 40M dipole works very well on 15.

Jerry McDonnell, W8VIV, 3814 Brookfield Drive, Milford, Michigan writes:

"Dear Walt: I'll make it short but to the point. I bought and converted the *TU-75-A*. A very nice rig for six and for the money it can't be beat. I have not applied any voltage to it because the five element beam is not up in the air yet, but I'm sure it will be all right when I do.

"I have been on 40 c.w. for a year and some phone but got interested in six after reading a few of your articles on six being a fine band. I also built a three tube converter for the same band. If in the near future you come across any new developments in the *TU-75-A* we would appreciate your putting it in *CQ* or direct by letter.

"The *TU-75-A* certainly is a dandy 40 watt rig for the money, especially for smallness of size and ease of conversion. The article you wrote was sufficiently written to cover most of the changes. It was quite well covered and the pictures helped.

"I will be listening for you on six meters in a few weeks. Keep up the good work. 73, Jerry."

Bill Smith, KNØCER, 811 Gaskill Drive, Ames, Iowa writes:

"Dear Walt: First off, a pat on the back for the fine job you are doing. Thanks also to those who have helped me verify my WAS and 12 countries in four continents. I will sked anyone needing Iowa for WAS. My favorite bands are 15 and 40 meters. I would like to hear from anyone using a 40 meter vertical on 15 meters.

The rig is a *Viking Adventurer* feeding a 40 meter folded dipole. The receiver is a *National NC-300*. 73 de KNØCER."

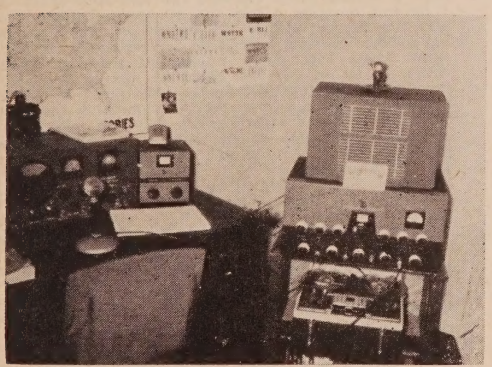
A card from Charles, KV4BK:

"Dear Walt. I am sorry to say the noise level has been so high on 40 meters that I have had to discontinue trying to QSO WN/KN stations. There is no indication that the noise will abate so in the future when the noise is down to the point where I can hear WN/KNs I'll get up in their band and call CQ, no longer of any use to listen for me outside the band. 73, Chas. KV4BK."

Note: Thanks Charles for the help you are giving the Novices in getting a new country. They sure appreciate your effort.



John Wentz, WN8HFK, West Liberty, Ohio uses a Globe Scout, an S-40-B and a QF-1 mostly on 80 but lately is on 40. His Dad is W8EEQ at Nelsonville, Ohio.



Michael Hunt WØYMW (16), Hoberly, Missouri not only makes music with the key at this nice station but also plays the organ at early Mass when he can get up on time after those long night sessions on the air.

Horace Hickox III, KN5BDZ, 11 DuPont Street, Phillips, Texas writes:

"Dear Walt: . . . I passed my Conditional class test but no license as yet. Believe it or not, the FCC sent me a letter stating that I had passed. When I first received the letter I thought I had failed, hi!

"The rig at present is an *AT-1* and an *S-38-C* with a Super Six for double conversion. I would like to



John M. McCormick, KNØBJG, 607 Clay, Topeka, Kansas gets that hangdog expression every time he misses a good piece of DX. Who has a picture of a real DX hog?



John C. Bury, WN7BAD (14), 5315 North 20th Street, Phoenix, Arizona has an NC-98, with a Q-multiplier and a Hart 75. He has 41 states, Alaska, Quebec and G6UT, since September.

have an *HQ-129-X* or an *HQ-140-X* if I could get one at a price that I can afford. I am going to get a *Heathkit DX-100* pretty soon.

"If anyone needs Texas for WAS I will be glad to make a sked. I will try to answer all letters and will QSL 100%.

"George, K5BMR and I are getting new prospects for Novices all the time. I am 14 and a freshman at Phillips High School. George is a junior. 73. Horace."

A letter from the Shenandoah Valley Amateur Radio Club, Inc., Post Office Box 139, Winchester, Virginia makes me feel that this last year's work writing this column has had some good effects on ham radio in general. It says,

"Dear Walt: I am writing in behalf of the SVARC to offer assistance to anyone in this area. We are at present holding c-w classes and giving help with the theory.

"I think you are doing a wonderful job of presenting material which will greatly help anyone studying for a license. It is very frequently used in our classes to help us present a subject to the students.

"So, if anyone from this area wants help and you know of them, please refer them to us. Have them write to: Holmes E. Bayless, K4CYH, Secretary, Shenandoah Valley Amateur Radio Club, Box 139, Winchester, Virginia.

"73. Bay."

Not all readers are Novices or Technicians, quite a few of them have had licenses for a long time and they are nice enough to take the time to sit down and write me a nice letter. Here is one from Warren Rosenlund, W1JGY, 27 Ingell Street, Taunton, Massachusetts.

"Dear Walt: I don't usually write to columnists, but it should be done occasionally, and I know that it makes the writer feel better if he is acknowledged.

"I enjoy the Novice column very much even though I'm an old timer (I got my ticket in 35—1935 that is).

"I notice that you do not very often use *P-IE* and *E-IR-E* in your column. As far as I can remember your column had this equation written up a long time ago, and I don't recall seeing it elsewhere. This equation is a help to our future and our futures, if you can remember it use your *P-IE* and *E-IR-E* and I believe it will get drummed in and will really help. Keep up the good work, maybe sometime I will work you on the air. . . 73. . Warren."

Going the other way, here is the kind of letter that I have been getting from toooooo many people and I think it is time we take some measures to see that I don't get letters like this and that you don't get those notices from the FCC. I took up the subject in *CQ* earlier this spring. Boys (and girls) let's clean up these signals and prove that we are all hams, study that old handbook and clean up your signals.

"Dear Walt: I work 20 meter CW almost exclusively and I have noticed in the last 6 months that a lot of Novices are putting out very fine signals on the 20 meter band. The majority of these Novices are KN2/WN8 and a few from the other districts. I believe that if you put a small paragraph in your column cautioning the fellows about checking the band-switch, tuning controls, etc., before calling CQ or whatever, it might save a lot of them from getting a pink ticket from the FCC.

"Also those guys that think they need a kw when they get their general, it is not necessary. I run a whole 35 watts to a doublet antenna 40 feet high on 20 meters and to date have worked and confirmed all 48 states and 31 countries and 5 continents (need Africa). 73. Carl. . ."

The above letter was received from Carl E. Smith, WØYFT, 3131 Delavan Avenue, Kansas City 4, Kansas. *Thank you Carl.*

From Smitty, W2NJD, Syosset, New York comes this little note.

"Dear Walt: Just a line to let you know that I built your little 6 meter transmitter described in the November '55 *CQ*. It sure is a honey for its size and power. I have worked all the bands from 420 mc to 160 meters and I think that 6 meters is FB. Keep up the good work and more articles about 6 will be welcome I am sure. I have been on the air for 20 years and I enjoy every contact. I will be looking for you next opening. 73. Smitty."

"Dear Walt: Alaska is now heard from! I have been a Novice since January '56 and sure enjoy it. I have a question about the 15 meter bands. Why was the Novice allotted the top 50 kc that we now have? The VE and KA2 QRM is terrific and I don't think those boys enjoy having us mess up their QSOs. A lot of Novices could be spared the price of a rock for that portion of the band—21.200 to 21.250. Not being an advocate of shortening the band (I want to live a little longer) why not take 50 kc from the other end—21.050 to 21.200? I know a few Generals might be unhappy, but a lot of VEs and Novices wouldn't be.

"About 75% of my QSOs on 15 meters are the first WL7 for them, I was surprised that the WL7 activity was not so hot. KL7BRZ is working 15 with me now. My frequency is 21.150 and 21.234 (when I can find a hole).

"The rig is a TBS-50 and an SX-71. The antenna coupler is out of the April '55 *QST* and the antenna is a Windom. It is a great little rig. I will sked. Best DX is KN2MVE. 73. Bob Bradley, WL7BSF, Box 363, Anchorage, Alaska."

Peter Wood, KN4GZX, R.F.D. #3, Chapel Hill, North Carolina writes:

"Dear Walt: I read *CQ* when I can get my hands on it and sure enjoy *Novice Shack*. I am 13 years old and have been on the air since December '55. In my first week on the air I worked 26 states, the best DX being California. The rig at that time was a BC-459 running 65 watts to a 66 foot Marconi antenna. The receiver was a *Knight* 'Ocean Hopper.'

"I took my General exam May 5th, I think I passed because it has been five weeks now.

"I now have a *Globe Scout 65-A* and a *Hallicrafters SX-18* ten tube receiver. Now I have 43 states and 4 WH-6s, 3 WP-4s, VE- 1-2-3-4, 38 KN-6s and 12 WN7s. All of this was done on 40 meters. I have a 15 words per minute code certificate and I am planning to get a 25 WPM certificate soon. Since getting the *Globe Scout* I have not heard a single signal on 15 meters, would someone please give me a buzz on 15 meters,

"I would like sked with Delaware, Idaho, Montana, Wyoming and Nevada. I will sked and QSL 100%. Thanks and BCNU. 73. Pete."

Lee Blake, KNØ???, Jamison, Nebraska sends a card.

"Dear Walt: I sure enjoy your articles in *CQ*. I have just taken my Novice test and the examiner says I can wait for the call. My rig is an *AT-1* feeding a 40 meter dipole and an *S-77* receiver. My receiver works fine on all bands except 15 meters, a hot Novice band. Could you give us Novices a diagram for a simple 15 meter converter? I think a lot of the fellows are in the same boat. The new *CQ* is great. 73. Lee."

Help Wanted

Those desirous of a little help from you are listed below. They are in need of help in guidance in obtaining aid in getting that little piece of paper that entitles them to operate a radio transmitter. Will you offer them a little helpful advice?

Jim Charipar, SWL, 701 7th Avenue, Iowa City, Iowa wants pen pals interested in ham radio and SWL club work.

Nelson Wittstock (18) 5202 West Pleasant Valley, Parma 29, Ohio needs help with code and theory. His phone number is VI-3-8911.

Louis Levy, 1662 Boston Road, Bronx 60, New York. Phone, LU-9-0345. Louis needs help in code and theory and some help in building a two meter station.

John Yehle, 1405 Highland, Durante, California. Phone: EL-9-1273. John would like to meet a local ham or someone interested in getting an amateur license.

Richard Lozeau (13), 41 Arlington Street, Nashua, New Hampshire needs help in code and theory, he has equipment for practice.

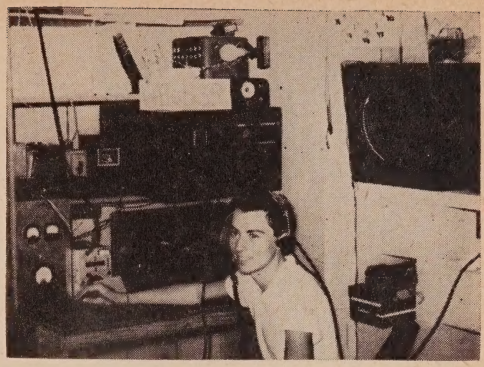
Danna Lee Noonan, 388 Roslyn Place, Minneapolis, Minnesota. Phone: LO-0081, needs help with code and theory.

Peter Magnuson, 19 Yoakum Avenue, Farmingdale, New York, needs help with code and theory.

Michael Drew, 20 Maple Street, Lisbon Falls, Maine needs help in setting up a ham station and in getting his license.



Kenny Kern, KN9BEH, R.R. #5, Bedford, Indiana is manager for the Bedford Municipal Airport and is on two meters, too, so he is on the air truly. He is hearing some good two meter stations quite consistently. Kenny informs me that the Hoosier Hills Radio Club is building some 25 of the six meter rigs from the November '55 CQ, good luck on them Ken. Watch for K9BOU on 6 and 2.



Charles R. Vest, WH6BSR, 45-420 Pua Makahala Street, Kaneohe, Hawaii runs parallel 807's to a 33 foot vertical and the receiver is an AR-88. DX on 40 meters is JA, KL7, KM6, KG6 and KN2. Charles will be on 15 meters by the time you read this, look for him.

Eddie Jones, R.F.D. #2, Excelsior Springs, Missouri would like help with setting up an amateur radio station.

John Globokar, (16) Box 333, Biwabik, Minnesota would like help with code and theory.

Louis Fournier (17), 283 Elm Street, Holyoke, Massachusetts needs help in getting his novice license.

Vincent Loria, 636 Logan Street, Brooklyn, New York needs help in code and with station equipment ideas.

Ted Newman, 104 Lee Avenue, Yonkers 5, New York wants help with code and theory.

Jeri Healy (13) R.F.D., Marshfield, Vermont needs help in code and theory.

Emil Vandevelde (15), Oswego Street, Oakland, New Jersey wants help with code and theory. He also wants some pen pals interested in ham radio.

Ken Johnston, c/o Jean Cattier, Locust Valley, New York needs help with code and theory and ideas about the right equipment.

Jeffrey Abbott, 31 Waltherly Avenue, Ridgewood, New Jersey wants help with code and theory and some foreign pen pals, preferably Spanish speaking countries.

Robert J. Emerich, R.F.D. #2, Popp Road, Fort Wayne, Indiana wants help with code and theory.

James Greenleaf, 33 Carter Street and Arthur Mcdonald, 29 Robinson Street, South Portland, Maine want help with code and theory.

Terry Weddleton (12), 39 Lowell Street, Lynn, Massachusetts. Telephone: LY-3-4053. Terry wants help with code and theory.

Ernest Lehman, M.D. (45) 2001 Avenue P, Brooklyn, New York would like some information on taking his exam and setting up a station. He would like to know of a local radio club.

[*Continued on page 115*]

VHF

As reported by

Sam Harris, W1FZJ
P. O. Box 2502, Medfield, Mass.

Contests or W.A.R.A. Does It Again

Just to prove that their last fall's score was no accident the boys from the Waltham Amateur Radio Association did it again in the June contest. Their final score of 31,400 points (28,600 last September) was the result of lots of planning and club effort.

The *two meter* effort was headed by Bob Rafuse (W1RUD). He was ably assisted by Paul Day (W1PYM), Southard (Sully) Lippincott (W1DDN), Pat Harris (WN1HIV) and yours truly (W1FZJ). Final equipment fielded consisted of a one kilowatt plate modulated transmitter feeding a 64 element colinear array. Receiver was 416-A preamp into a crystal controlled converter feeding a National NC183D. Set up was built into the rear end of a Willys Jeep. Ninety-five percent of the operating was done by Paul (W1PYM) and as the score attests he was in fine form. Final score for 2 meter section: 387 contacts in 18 ARRL sections.

Six Meters headed by Bill Coburn (W1ELP) with assistance from Norm (W1UMK), ran 300 watts input and a 4 element wide spaced beam. Equipment was located in the Fire Warden's cabin next to the cook stove. (This accounts for any odor accompanying the signal.) Final score for six Meters 204 contacts in 13 ARRL sections.

The *220-432 mc* efforts were as usual carried out single-handed by Bob Guba (W1QMN). His equipment consisted of 100 watts and a 16 element colinear on 220 and 50 watts and 32 driven elements in front of a screen on 432 mc.

Final score for 220 mc, 32 contacts in 11 ARRL sections.

Final score for 432 mc, 8 contacts in 7 ARRL sections.

A real club effort and a real first class score. As usual the cooperation of the New Hampshire Park authorities, personally handed out by Fire Warden Roy Finan contributed greatly to the over-all effort.

Meanwhile, while W1MHL/1 was doing its best on Pack Manadnock in New Hampshire, veteran contester W1UIZ was giving Mt. Equinox in Vermont a grand try. Operating single-handed George (W1UIZ) turned in an all band score of 13,176. This easily tops all previous records for single operator stations and established Mt. Equinox as a top VHF location.

Wayne Taft (W1WID) assisted in transportation and setting up.

Back at the ranch, poor Helen, struggling with a broken transmitter and 30 watts input managed a six-meter score of 170 contacts and 15 sections. Jack (W1FOS) using 220 mc for multipliers topped this with 130 contacts 13 sections on six and ?? contacts ?? sections on 220 mc for a final score of ???? points. Undoubtedly the top technician score for eastern Massachusetts if not for the country.

W1OOP kept the certificates coming in with a grand score of 6090 points for four bands.

Naturally Bill (W1FRU) kept the midnight oil burning and turned in over 10,000 points.

Sorry that additional contest scores didn't reach us in time for publication.

Six Meters

Six meters has been open for sporadic E skip so many times in the last month that it would be useless to list the dates. It might be worth mentioning that a "CQ DX" at 0100 on June 19th netted WØWVR in Wild Rose, North Dakota for W1HOY, making state Number 39 for Helen since April 15, 1956. State #40 (old Joe, W7LHK, Collins, Montana) answered a "CQ" at 0200 making a joyful occasion out of an otherwise dull evening at the Rhododendron Swamps. For those who are still sweating out North Dakota, Jalmer (WØWVR) operates on 50.17 Mc. Joe (W7LHK) appears at 50.24 Mc. for the Montana hunters.

Visits

Our last trip included more visits than we can give you in one column. The first leg of our journey took us to the home of W2UTH in Victor, New York. One look at the horizon from his back yard explains why Hank changed QTH from Rochester to Victor.

And what would we ever do without the XYL's. Harriet (Hank's XYL) practically greeted us with open arms when she'd never even laid eyes on us before, made us feel so-oo-o at home and fed us to the teeth, Helen even brought home a recipe of Harriet's. It turned out swell, Harriet. The children, three girls, were the best behaved children we've met up with in a long time and it was not "company manners" either.

After a brief visit from Paul (W1PYM) and Bob (W1RUD) who we caught mobilizing their way to the hamfest at Rochester, we all proceeded to the Hall where the R.A.R.A. were holding their annual get-together. Naturally the UTH's knew everybody and we knew practically nobody, but that didn't last long. We surely did meet a gang of people before we left that gathering. We soon found out why the R.A.R.A. hamfests are popular enough to draw over four hundred in attendance. Everything was run in a casual manner with all scheduled events taking place right on the dot. So much so, in fact, that Helen not knowing when the V.H.F. talk was scheduled, missed attending it because she happened to be upstairs for five minutes. When she arrived on the scene the doors were closed and the room was packed so that there was no more room anyway.

Then the banquet. What food! And lots of it too. Let's not go into that though, because then Helen would insist on more recipes.

Door-prizes, door-prizes and more prizes were given after dinner and both of us came up with one of the many.

The greater part of Sunday was spent in admiring Hank's location, eating and just plain gabbing. About 5:00 p.m. we finally left Victor to wend our way westward.

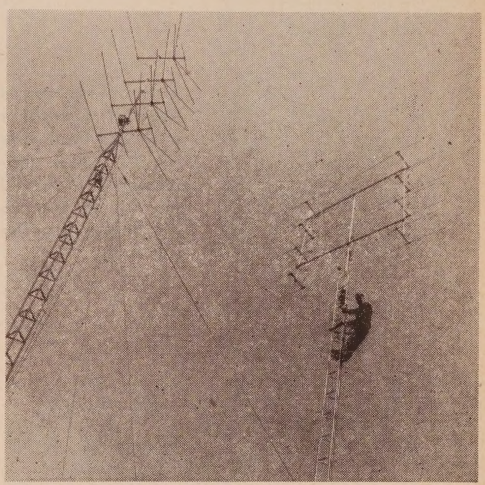
Bob (W1RUD) and Paul (W1PYM) showed up at the home QTH to talk over the contest. We convinced Bob that he should "Hold Forth" a bit about contests and contest-operating, so the following comments are his.

The June ARRL VHF Contest

W1RUD Viewpoint on W1MHL/1

Considering the amount of work put in on the equipment for the contest, the results, to say the least were somewhat gratifying. Many people (or at least it seems that way) seem to think we are giving ourselves an unfair advantage over the other multi-operator and single operator stations since we use, for example, a one kilowatt transmitter, sixty-four element colinear beam and 416-B receiver on two (not to mention a 2285 foot mountain for an antenna mast). But, have you ever put the effort into putting such a rig in semi-portable condition? It's work! The point is, the amount you get out of a contest is directly proportional to the amount of work you put in. We have operated two meters from Mt. Monadnoc for seven years in V.H.F. contests with rigs on two meters, starting from a 522 transmitter and receiver and six element, you should pardon the expression, "vertical" beam to the equipment now in use.

This expansion has taken place gradually and not all at once (as much as some people think so). Of course we can win the contest with low power, but this is now of secondary (or at least a weak primary) interest. There are those on two meters who can work anything within fifty miles with a Gonset and think that this is sufficient. Then there are those with KW's and big, big antennas who are fighting to extend their consistent workable range to four hundred or more miles. These are two different classes of hams. Neither class has the wrong outlook, only different ones. However, for those who wish to



New 32 going up at John's (KN8ATK) QTH in Mansfield, Ohio. This makes five 32 element two-meter beams in Mansfield. (Looks like they'll be heard from when the band opens.)

consistently improve both their operating and their rigs the way to improve a contest score when the operating is already good is to improve the rigs, Q.E.D.

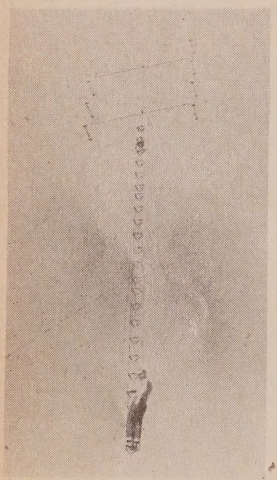
Take for instance, the two meter situation during the contests. Over the years we have climbed from one hundred contacts in eleven sections to three hundred and eighty-seven contacts in seventeen sections (once with 21 sections). Some of this is due to increased activity, but the majority is due to better equipment on both ends. With the band normal, we worked W8KAY, VE3DIR, and W8WXV during this contest, whereas, several years ago we wouldn't have dreamed of doing

this even during an opening. Once more, Q.E.D.

Therefore, this fall, much to the chagrin of several local people, we will probably put a KW and sixteen element beam on six meters, a band where fifteen hundred mile consistent scatter propagation is possible and aim for thirty sections and three hundred contacts on six. Fair warning to those with broad or easily overloaded six-meter receivers, Hi!

Also in consideration is a KW and at least sixty-four elements on 220 mc. (Any W8's need New Hampshire on 220?) Seems to me it is now worth the trouble on 220 mc in view of the increased activity.

So bigger and better scores from W1MHL/1 are in the offing. We are not trying to clobber the opposition. We welcome all comers, in fact, we wish wholeheartedly for more competition. (Sorta lonely in the 20,000 and above bracket.)



Just to prove that Al (W8WXV) is back on two, here he is with his 32 element. (We presume that Al will use this to aim his big beam when he gets it up.)

The point is, the VHF contest, to us, is a challenge to be met, the purpose is to work as many stations in as many sections as possible, with as many bands as possible. That's what we're trying to do, and it requires good operators, high power, big antennas, sensitive receivers, good locations and thick skins.

Rensselaer, Indiana Aurora comments from Bill (W9KLR):

"Have been reading your column in May "CQ" and I note that you hadn't heard of aurora being reported south of W4HHK. I imagine that April 26th and 27th changed your mind about that! There were twenty-two states coming through here through the S5 o S9 "rain-static" level! From New Hampshire, Connecticut, Massachusetts, North Carolina, Alabama, Mississippi, Missouri, Kansas, to a trace believed to be North Dakota (WØYSJ). Of course New York, New Jersey, Pennsylvania, Maryland, Virginia, Kentucky, Illinois, Indiana, Wisconsin, Iowa, Tennessee, Minnesota, Michigan and Ohio. I had lightning charges spitting across my coax balun here in the basement!! Otherwise, I'd have surely *worked* more. I only managed to make six contacts the evenng of April 26, and the evening of the 27th and 28th we also had thunderstorms! At least I sure learned that you have to check the band regardless of weather conditions! At any rate, March 3, March 30, April 26—each time better —indicates that we will *have* to check the band May 23, 24, 25!!!

"I'm running 600 watts now to the 4-125A's and the increased power seems to be worth while. (I get SWL reports now from 700 miles.)" *Oh, oh! Another good VHF man will now be glued to his receiver for the season.*

Dayton, Ohio Ron (W8ILC) sez:

"Hello from the Dayton gang. Sure enjoyed the CQ contest that the magazine sponsored, Sam. The turn-out was great in this area as you will see on the contest logs as they are turned in." *You're right Ron, we saw.*

Little Rock, Arkansas

"Wasn't last night's opening on six meters a honey?" Thus says Beau, (W5ZVF), and continues with: "Came home from work on May 7th, at 1645, turned on my receiver as usual, and darned near broke both arms flipping switches. Went on the air at 1655 and band was dead here at 2100—eighteen contacts in ten different states was the final tabulation. Boy oh boy, a big improvement over last year.

"Six meter band is checked each evening approximately 1730 to 2030 and welcome all calls. Band monitored 0600 to 0700 each A.M. This schedule holds for five days, Monday through Friday, so anyone wanting an Arkansas contact give a shout, phone or cw." *Fine Beau, lots of the fellows will be looking for you.*

Madison, New Jersey Bill and Maury (K2BKU and K2HBB) comment thusly:

"We can't tell you how much we enjoyed this contest. We might make one suggestion, and that is, that there be some sort of award next time for multiple band operation. I think this might get more of the guys out on different bands." *The summer contest is taking care of this, Bill.*

Brooklyn, New York Steve (KN2QDZ) from Brooklyn writes:

"I am writing to let you know that you have another convert on the way. After reading your VHF column for nine months, I have made up my mind to go VHF. By the time this is printed, I will be waiting for my technician license to go on six meters." *We'll be watching for you on six, Steve.*

New Jersey Harry (W2JJC) writes:

"Just a short note to advise you of additional SSB on 144. W2FWL, W2ZMG and WØETJ/2 have all been worked. So things are looking up on 144. Have been working into Washington, D. C. with good results. Main station down that way has been W3THI. He uses CW most times and I use SSB now that he has a new beam." *SSB sure is working its way around.*

Ottawa, Ontario Don (VE3CDP) sends this first report of TVI DX:

"Greetings, Sam, I wonder how the TVI DX record stands to date, During a nice 5-9 dx QSO with W9YLR, May 5, 50 Mc, he received a TVI report from a neighbor. That's not all, not only was he readable on ye olde one-eyed monster, but egad, so was I???" *Nice. going, Don. Keep up the good work and maybe you can make W.A.S. TVI.*

Columbus, Ohio From Ken (W8WRN) in the Buckeye State:

"Have new beams built for 50, 144, 220 and 432. The '6' is up and shooting sparks now. Still have some work to do on the tower—been pretty windy the past week or so, or it would have been done. See you Helen sometime on 6. Use 50.22 here." *Be looking for you, Ken.*

Pottsboro, Texas Sim (W5JXU) writes:

"Hi Helen and Sam: FZJ is always talking about how few States you have worked, just wanted to let you know that you were certainly 'blowing a hole in the ether' down this way this morning (4-15-56) from about 8:40 to 9:00 A.M.

"We had a very nice opening, starting about 8:00 A.M. to Canada (VE3), New York, Pennsylvania, Ohio, and you in Massachusetts. I called you at 8:43, 8:48 and 8:51 but I think your beam was headed towards Kansas." *Well it's pointed at you now, Sim. Where are you?*

Clearfield, Utah Report of six-meter conditions from Vic (W7QDJ):

"Tuesday, April 24. W7ILL, Big Piney, Wyoming hears WØ's but couldn't get transmitter going. W7VHS, Ogden, Utah, heard a few weak signals but no QSOs due to temporary antenna—30 ft. vertical. Thursday, April 26. W7DYZ, Ogden, Utah, worked W7ACD, Shelley, Idaho, at 1930 MST. Hissing sound, probably aurora. W7FEQ was heard here at 2230 MST calling W7RGS on cw.

"Some day last week at 1715 MST, W7BDB, Ely Nevada, worked PY2AA. He was tipped off by a neighbor's report of receiving Nova Scotia on Channel 2. W7BDB now using pair of 15Es at 100 watts to five element. 416B pre-amp ahead of xtal converter and NC-125." *Really appreciate your report, Vic.*

Lansing, Ontario After working Reg on six meter aurora, I have to agree that his following statements deserve some consideration:

"Enclosed herewith a list of calls of over a hundred people who do not agree with your statement in April 'CQ' that the six-meter boys are sadly lacking in the art of aurora work." These stations have all been logged with the beam north on aurora openings! *How many would you have heard if we hadn't needled them, Reg?*

Elizabethtown, Kentucky Shelby Ennis (W4WNH) writes:

"Just got my new 'CQ' this morning. Think it's a FB idea to continue the work of W4AO and W3GKP. Of course, my lil 100 watts, 32 el. beam, and 5 db noise won't be of much help to you, but I'll be listening, anyhow. Didn't think I could hear anything on meteor scatter either, you know!

What do you mean you can't get any new states via aurora? For the past few days, W2's, W3's and even a few W1's have been coming in regularly. I haven't heard many W1's, but Tom has heard several.

"That's the boy you will want to look for via moon. His 96 el is up and really working FB. He hasn't had much luck in the auroras because his Gonset final is out of commission at the moment, but he has picked up one new state and quite a few QSO's."

Beloit, Wisconsin W9GAB, Wisconsin's best (and my only Wisconsin two meter contact to date) passes along some good dope on converters:

"Just finished a 416 B converter like the one described in the April 'CQ' and also a pre-amp using a 416B followed by a 6BS8 cascode stage. They both work very fine, and am learning a few tricks about the tuning, etc. Now don't think I'm flush 'cause I've got the two 416B's, the converter is for W9SMU (SXU). The pre-amp goes up on the tower 85 ft. up between the bays of the two long yagis, that's two 13 el. 21 ft. with triagonal reflectors. It will be some improvement here from the present pre-amp with 4.3 db noise figure.

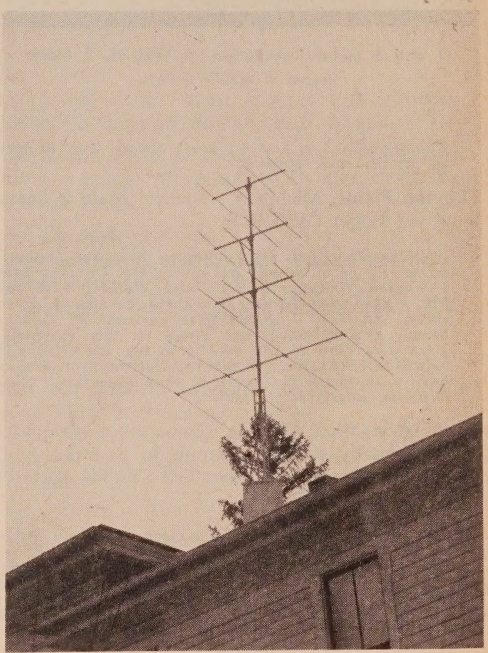
"The trick as we see it here is to match the input impedance of the 416B to the coaxial line. To match 75 ohm line we had to vary the impedance of the coax balun or transformer to somewhere around 100 to 125 ohms. To do this we took a piece of auto antenna lead wire about sixteen inches long, removed the center conductor which was about #30 wire and tried various wire sizes to get a good match. Also the tuning of the input coil seems to have quite an effect on the resulting noise figure. So the combination of the two seems to be the answer here. The noise figure here turned out to be about 1.51 db. . . .

"(The input coil came out to three turns of #18 silver wire, 7/16 inside dia. spaced about ½ inch long.) We had an excellent figure with a piece of RG62U, but when we added a ten foot piece of 15 ohm line between the converter and the noise generator, the figure went above 3 db. So that set us thinking on how to get the thing really matched to any length of line.

"Incidentally, to the fellows who are using 6BQ7's, BK7's, 6BZ7's in their converters can improve the noise figure by about 1.5 db, by inserting the new tube out by Westinghouse, the 6BS8. There seems to be very little if any returning needed to get this additional return noise figure."

Akron, Ohio "Tropospheric opening on Two" news comes from Art, (W8KAY):

"First tropo opening here this season: 5/3/56—0107 worked WØEIK, Joplin, Missouri (144,138 CW) 0140 heard W9UED (144,063 CW) calling WØZJB.



12 element 2 meter beam and 4 element six meter beam at W2UTH.

0147 worked KØDOK, St. Louis (144,067 CW). 0226 worked W5HXK, Watonga, Oklahoma, (144,012 to 014.5-drift during ten min. QSO). He using phone which I had trouble copying due to QSB. He reported solid copy on my cw but said he preferred to stay on phone in order to get the dope through faster. (Needless to say, the dope didn't all come through by any means, he was giving calls and frequencies of stations that he wanted me to look for.) Nil heard on band after end of 5HXK contact at 0237, pulled switch at 4:00 A.M. During this period, W8RMH and W8SFG were not hearing anything identifiable and due to the late hour there was very little activity."

St. Louis, Missouri Les (WØWEQ) sends us a bit of news concerning the annual picnic of the Mid West VHF Association of St. Louis:

"WØODI, WØWEQ and KØGEX were turning loops preparing for the hidden transmitter hunt when up drives a guy from New Jersey, gets out and introduces himself, Gene, K2GEX. He and his XYL were on vacation and just happened to stop by."



2 and 6 meter installation at W2UTH. 2 Meter beam is W3GV array.

Funny thing Les, how we hams always 'just happen by' at the right moment.

Drayton Plains, Michigan Another State is heard from via Roger (W8URO):

"Here are a few more notes on how well this low power rig of mine gets out on aurora. On May 24th I worked W8SFG, W9KLR and W4HJQ with my 522. I have now worked sixty-three stations in seven states and VE3. I should have my new 32 element beam on a fifty-five foot tower by this week-end. Next plans are to add 6AJ4's to my converter and to add a 5894A final to my 522 this summer. I may have a six-meter rig going in July sometime." *Fine business, Roger, keep a-goin'."*

Huntington, West Virginia News from West Virginia is finally coming through to us from Roy, (W8GLB), Secretary of the TRI-STATE RADIO AMATEUR CLUB:

"The Huntington area has sixteen active six meter stations engaging in a daily CD net at 1800 hours EST and not a single one of us is beneath 'breaking out of the fold' to engage in a little DX! So far, the majority of our gang have enjoyed nominal success on the openings which have occurred into the New England states, the middle west, Florida, and TEXAS. (I have capitalized Texas not because of its size and everything being big down there, but, because the skip has been mostly in that direction.)

"Since the 'gang' here are practically 100% beam users we would enjoy very much having it known that our activity is at its height between the hours of 1800 and 1900 EST and would like very much to hook up with some of our adjoining states (Kentucky, Ohio, Tennessee and Virginia), however, QSO's will be welcomed from any and all directions." *Glad to hear of the activity, Roy, I know the gang will enjoy Six Meters.*

Fairborn, Ohio Bill (W8SVI) sends a nice chatty letter:

"Bob (W1RUD) did a very fine business job in your behalf at the Dayton Hamvention. Was very interested in Bob's remarks on you and W6QKI's moon reflection experiments. You've hit me right between the eyes. I've been dreaming about the same thing for about six years. Been trying to get WØNWQ, a friend in Colorado, to join forces with me, but can't even get him on two-meters. *Some days you just can't make a nickel Bill.* I expect to get up an array of yagis in the next few weeks. Have a 416A which is going into a special converter for moon reflection work. I'll be in there listening on all your checks.

"The antenna array will be a rather crude affair for a while, but if things go well and I can manage it, maybe I can get up a super-duper!" *We'll be counting you in Bill, glad to know of your interest in the project.*

Alhambra, California From "Corky" (W6ORS) we received the following:

"I know you have heard of the San Bernardino Microwave Society, an organization here in the SoCal area (President, W6VIX, Bill Baird) and of its activities in the VHF contests of late. This year the club, K6OEE is again going to Sierra Peak near Colton, California, for the activities. A second group is heading for Pt. Arguella near Santa Barbara, California with some of the AHF (Awful high frequency) gear in the 1290 mc and 3370 mc bands. This gear will be a duplicate of the gear on Sierra Peak, and the two groups will try to establish communications. Two Meters will be the telephone circuit along with 220 mc for general operating. If everything goes well, there might be a couple of records broken." *Very, very interesting Corky, wonder how you made out.*

Ames, Iowa One of the Smith boys, Bill (KØCER) sends the following from Iowa:

"My Novice license is about to expire and I'm going to turn to six-meters, I think. My present station consists of a *Johnson* Viking Adventurer transmitter and a forty-meter folded dipole antenna. I don't think I should have any trouble hearing stations on six for I have a new *National* NC-300 receiver." *Nice to know you'll be on Six Bill, Helen will be looking for you.*

Boothbay Harbor, Maine Carl (W1LHA) sez:

"I have read your column for some time now and have never seen any information of the activities of the Maine gang on 144 mc. Herewith is all I can give you." *Well thank goodness for you Carl, we knew there were fellas on up there but just couldn't get much info.*

"There are quite a few fellows on two in Maine these days. W1LHA (myself) with 500 watts into a ten element long john. W1WRZ, Zipper hill, (15 miles east of Augusta) with 100 watts and a five element beam. W1YYW, Livermore Falls, 100 watts and a five over five. We have a 35 watt rig at the N.E.A.R.C. Boothbay Region radio club atop Soupbone Hill, Boothbay, using a flopper, V/H 5 elements, W1HNH, Phippsburg (near Bath) with 50 watts and a 4 element. These all built by yores truly, and all horizontally polarized.

"Also on, are W1RUO with a 522 in Augusta, W1ZLT, Randolph; W1FEE in Skowhegan; W1QCC in Bangor with 100 watts or a KW and a collinear array; W1CBU in Stockton Springs; W1FKH in Searsport; W1GQ in Castine working towards it as is W1JIS in Randolph. Also the old Portland standbys, W1DEO, W1JVU and several others. There are several fellows around Casco including W1VYA who is apparently the only horizontal as he is the only one we have heard and worked. A lot of the boys operate high up in the band on vertical and they get about as far as the highest hill.

"I have heard the Boston area stations a good many nights working each other and just can't seem to make them hear me, either they don't listen with their antennas up this way or they don't know we exist. I have also heard a station in Montauk and W2PWX in New Jersey. I stood in line one night to work W2PWX for two hours and my feet got so tired I gave it up for the Massachusetts QRM, etc.

"Hope this will start youze guys down south looking for the Maine stations a little more ofterner." *Well, it sure orta do that little thing, Carl, we got the info in print as quickly as we could.*

Collierville, Tennessee Paul (W4HHK) comes through with:

"At last Ihave worked a new state—North Carolina —for #29 (all confirmed by QSL) on two meters. It was via aurora, too, on May 24th. The long awaited repeat on the big April aurora put in its appearance on the 23rd and 24th. Distances covered and strength of signals was not up to that of the April affair, but that new state more than made up for it—for me. Here is a list of stations heard and/or

[*Continued on page 100*]

On the front cover is the antenna installation at W2GBK, Sherman, New York. Telephone pole is 60 feet. Entire array rotates on rear end of old automobile. That's Kay himself doing the waving.

C.Q. SUMMER V.H.F. CONTEST

What?

A V.H.F. contest aimed toward stimulating midsummer activity, and to take advantage of the excellent mountain top conditions enjoyed in late August.

When—To:

Contest starts at 8:00 P.M., local time, on August 18th and ends at 8:00 P.M., local time, August 19th.

How to:

Sally forth, equipment in hand, and work everyone you hear on as many V.H.F. bands as you can. If Sally isn't feeling so good, stay at home and do likewise.

You do:

Exchange message numbers, county, and State. Use same reporting forms as last *CQ* V.H.F. contest. Enter your contest report as either:

State or Province Winner Certificates go to highest single band scorer for each band in each state or province.

Multiband Winner Awards to highest multiband scorer in each state or province.

VHF Trophy is awarded to the highest multiband score. The V.H.F. Trophy to remain in the possession of the winner until one month before the next contest. Permanent possession to be the result of three consecutive wins.

Single Band Entry or Multiband Entry

Score 2 Points per contact

Multiply contact points by total counties worked on the band for which log is submitted.

County multipliers can only be accrued on the band for which the log is submitted. Contact points, however, may be picked up on any VHF band provided the station has not been worked before.

Score 2 Points per contact

Multiply contact points by total of counties worked on each band.

A given station may be worked once on each band for contact points and county multiplier.

Multiband entries must submit logs showing activity on three or more V.H.F. bands.

ALL entries must show band on which contacts are made, preferably with a separate log for each band.

You do not:

Fail to submit contest logs postmarked on or before September 10, 1956.

Forget the contest dates August 18th-19th.

Awards:

Certificate of achievement goes to highest single band scorer in each county from which ten or more logs are received.

Also, a *big cup* will be awarded to the *big winner,* if you don't think so take a gander at it on page 100. ■

Station_____ Total # Contacts_____

Band_____ Total # Counties_____

County_____ Total Score_____

State_____

Transmitter_____

Contest Information

Your Msge #	Station Worked	County	State	His Msge #	Date Time	Report His	Report Yours	New Counties As Worked

Total Contacts this sheet _____ New Counties this sheet _____

DX

Gathered and reported by
R. C. "Dick" Spenceley, KV4AA
Box 403, St. Thomas, Virgin Islands.

DX and Overseas News

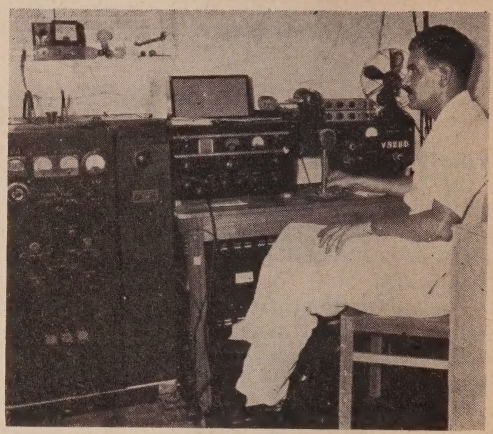
We welcome the following newcomers to CQ's HONOR ROLL:

DL6MK	38-160
W6YMH	36-145
K6EIV	36-139
W6UQQ	35-154
W7NFE/6	35-115

. . . . . .

Of major interest to the DX fraternity, on June 1st., was the lifting of the "WSEM Curtain" which again permitted Soviet hams to freely contact the outside world. Happily, stations manned by Vladimir, Alex, Kosta, Vitaley, Serge, Wasilij, Efim, Slava, Vanja, Michael, Sacha, Leo, Ivan, Fedor, Kozik, Boris, Wasilij, Vladislav, Alec, Vov, Heiki, Kazis, Vic and Edik appeared on the air renewing old friendships and losing no time in adding to their country totals. Almost forgotten QTH's of Kalinen, Kharkov, Gomel, Lvov, Baku, Stalino, Astrakhan, Tblisi, Stalinabad, Saratow, Kirov, Kaunas, Tallinn, Barnaul, Tagil, Minsk, Blagoveshchensk and Krasnoyarsk were again brought to our ears. We warmly welcome their return to the fold in the sure knowledge that friendship and understanding will be an inevitable result of the countless ham radio contacts which will follow. For WAZ seekers, so long stymied by the impossibility of contacts with zones 17, 18 and 19 (With a side glance at Tannu Tuva, Zone 23), the track is clear and all signals green—go to it!

SOROCCO IS., REVILLAGIGEDOS, XE4A: This expedition, signing XE4A, came on the air as scheduled on June 7th. The group consisted of Messrs. WØUQV, WØOJW, WØEIB, WØMAF and WØAIW. On June 9th, some 2000 QSO's later, a hurricane warning was received which, due to poor anchorage, necessitated an immediate return aboard ship which headed for the open sea. While this jaunt was unfortunately cut short an outstanding job was done during their short stay. Due to its distance west of the Mexican mainland we see no reason why this island group should not qualify as a separate country. They arrived San Diego June 15.



VS2BD—Ted is 21 mc. Phone man. His score in the 1955 CQ DX Contest was second highest for Asia. As can be seen, the lay-out includes a BC 610 and AR 88. Power input is limited to 150 watts. The antenna a 3 EL rotary. Ted and his ex-YL dropped in to say "hello" on a recent visit to New York.

SWAN ISLAND, KS4AS: This station will be active on Swan for four months (from June). 90 watts is run via PP 807's. QSL's should go to John Melicke, Swan Island, via Tampa, Fla. He is not to be confused with the old KS4AS. K4AMV/KS4 has now left the island.

YASME EXPEDITION VR1B etc.: Danny should have left Canton Island about June 21st with arrival at Nauru Island about July 6th. He has the necessary permission to visit Nauru and will sign VK9TW. He also has received official sanction to operate from Port Moresby, Papua, Darwin and Cocos Island using the same call (If a stop is made at Cocos the call might be VK1TW or VKØTW, or, WK9TW/Cocos/VKØ). License has not been obtained for VR4 operation as yet and if a stop is made at Christmas Island, ZC3, permission msut come from Malaya.

DX Notes

K6EWL reports VS5NN active from Brunei. QSL via VS2 Bureau . . . Gordon, ex-ZE1JG, now keys from VQ2GR . . . Jim, G6ZO, is now spending a



VK2GW—One of the "ole Timers" and Top scorer for Australia in the CW section of the 1955 CQ DX Contest. The transmitter runs 70 watts to an 813. The receiver is an AR8 plus a Q5er. The antenna farm consists of 3 EL beams on 28 and 21 mcs., 2 EL on 14 and 7 mcs. and a loaded vertical on 3.5 mc. A complete card index file helps Lyell keep track of the several thousand W contacts he has made since 1926.

couple of years in Chile and will soon appear with a CE3 call . . . W2HMJ QSO'ed one VB1A who claimed to be in Basutoland . . . W8PQQ nabbed UL7KBK, 14035, 1040 GMT plus a QSL from CR1ØAA . . . HB9CZ will be active as HB1CZ from the Swiss Canton of Valais (VS) from July 16th until August 4th. This is a rare one for the Helvetia-22 Certificate . . . FB8BR's return trip to the Comorros is again beset by licensing difficulties . . . FB8BI, Juan de Nova Island, will not be a separate country . . . K4AHA advises that LA2F and some other LA boys plan a DX'pedition to one of several spots yet to be determined . . . VR2BZ tells us that Adrian, FW8AB is catching the next boat out of Wallis Island. He will be replaced by another ham whom, we hope, will be more active . . . AP2M is W5LAK as was heard on 14083 around 2200 GMT . . . Via W9FJY and West Gulf Bulletin AC5PN reports that he will be on Saturdays and Sundays from 1330 to 1530 GMT 14045 (14090) . . . FR7ZC is active but, as yet, very QRP . . . VS9AN is on daily around 1400 GMT and VS9AS will soon have about 100 watts QRO . . . Via W6YY: Barri, ZD9AE, started up from Gough (rhymes with rough) Island on May 15th. 100 watts is run to a rhombic beamed on ZS. His four man expedition replaced the ZD9AD gang and they will be there one year. QSL via South African Bureau . . . VS9AN is on 14041 kc . . . W4IQG says that M1B hangs around 14098-14125 on phone. Also SV6FP, phone, Crete, has been heard on 14197 . . . BV1US has started up again on Formosa with a new bunch of operators and is heard Mondays, Wednesdays and Fridays on 14165, 1300/1500 GMT. They also use two other "standard" frequencies, 21,200 and 28,100 and can operate on 7 and 3.5 Mcs. They will be there for three years (Quite active on CW too) . . . ZS7D continues on CW, 14053, around 1400 GMT and later . . . KV4BK reported that W6ITH passed through St. Croix on June 12th bound for PJ2M- and FS7 with hopes of operating from both sides of St. Martin this trip . . . CEØAD is on CW again 14012 or 14040 around 0500 GMT . . . Bill, K6BFC, will be signing a KH6 call in August while his Dad, K6EAP, expects to be on as a KW6 this Winter . . . Here's a reminder that DL's 1CR, 3AO, 9CI and DJ1BP should show from LX-land on August 5th or 12th . . . VP5FH/Turks has been active and QSL's go via W6HNX . . . EA6AW, Balearic Islands, runs 32 watts to an 807 and may usually be found from 14000 to 14030. Arcadio is pushing for WAS and needs (at this date) N.D., S.D., N.M., Nev., Utah, Miss., Vt., Del., Mont., Wyo., and Ark . . . Cesar, EA9DF, Rio de Oro, promises to go to Ifni after he clears up his WAS with a S. Dak. QSO. He cannot understand why no QSL's have been forthcoming from Idaho, N. Dak., Nev., and Utah as he has sent out about 6000 of his own (please fellers!) . . . VS1CZ reports VS1BO is now operating from Sarawak as VS4BO . . . Via the LZ bureau and W2GT we hear that ACØAA is in Unamchi, Mongolia (?) . . . Via the South Calif. Bulletin we learn that two new CR9's are on the air, CR9AK and CR9AL, who will aid CR9AE, CR9AG (VS6AM), CR9AH and CR9AI in keeping Macau audible . . . ZS7H should be on phone now mostly on 15 . . . No activity from Gambia is expected until late this year when ZD3A and ZD3BFC return from vacations . . . Victor, CP3CD, is active around 14013 kc . . . VR3C, phone only, manages a copra plantation on Fanning and is not very active . . . Howie, KB6BA, should be active now with new DX-100 on 14 and 21, A1/A3 . . . W5EKK reports ban lifted on atomic proving grounds and KX6BU will now be heard from Eniwetok Island and KX6BQ on Parry Island. Both on 14/21/28 phone. W6PJ snagged Walt, KX6BP, on May 28th, which may be the first contact with Eniwetok. See QTH's . . . 5A2TP re-



The signal source of OK1FF, Vladimir Kott, Prague, may be seen above. Vlad holds WA and has 216 countries.

ports AP2BP, Pakistan, looking for SSB contacts with W's around 1500 GMT. He is on 14305 kc . . . 4S7MR says his trip to VU5 is off as he was unable to get permission from the VU government . . . 3W8AA (FCC ban?) is on daily 21,035 . . . SVØWU has been active from Rhodes, 0450 GMT, 14050 kc . . . SU1WW, 14098, runs 25 watts from Suez . . . VK7 advises that VK1RW, Cocos Islands, will be active. . . .

(Via W8IUA) VK1ALR, Len, Canberra, Capital Territory, Australia, reports that effective June first all Capital Territory Amateur Calls were changed from VK2 to VK1. He also reports that VKI's at outpost areas will become VKØ's by the end of the year. VK5's in Australia's Northern Territory will become VK8's. About 40 VK2's will become VK1's.

We quote a reply to W3TYW who, with W2EIK, was considering a DX'pedition to the following spots:

Dear Mr. Slutter,

Reference is made to your letter of April 30th, 1956 to Mr. Hoover concerning your desire to visit certain U.S. Possessions in the Caribbean Sea for the purpose of establishing an amateur radio station. The Department has consulted with the U.S. Coast Guard on this matter and it has advised the Department that it maintains navigation lights on Serrana Bank, Roncador Cay and Quita Sueno Bank which it services twice each year. All three of these locations are small reefs without vegetation and are from two to three feet above the normal high-water mark. Serranilla Bank is completely submerged at high tide. The Coast Guard would have no objection to your visiting these reefs provided no damage is done to the navigation lights. However, a Coast Guard officer who has been to these reefs on numerous occasions considers that such an understaking as you visualize could be extremely hazardous in the event that you should become stranded. Along this line, you may wish to consider the possibility of these reefs being awash in a hurricane, especially in September.

In view of this situation, the Department would not wish to encourage you in this project.

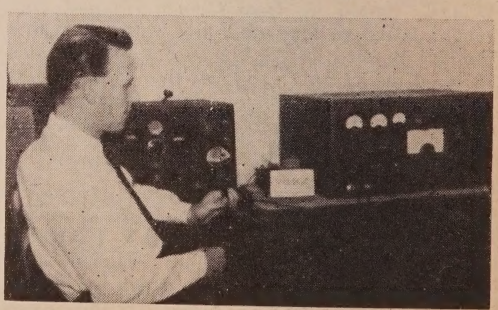
Sincerely yours,
John S. Cross, Acting Chief
Telecommunications Div.

(W1WPO's comment on this is "It would seem incongruous to classify a place which is not habitable as a 'country'.")

The above seems to rule these spots out as DX possibilities.

DX'ploits

A1, W8PQQ, leads off this month and goes to 259 with AC3SQ . . . Howie, W2AGW, made it 258 with XE4A and AC3SQ while Frank, W6MEK, also hit 258 thanks to VR1B, FB8BR/FB, LU3ZY and FS7RT . . . Glenn, W8KIA, was also helped to 258 with SVØWN (Crete) and AC3SQ as Bob, W5KUC, came up to date with such as KC4AB, FS7RT, FB8XX, FB8BR/FB and PJ2MA for 256 . . . Ed, W6DZZ, upped to 255 with YA1AM, LU3ZY, AC5PN and I5RAM while Art, W7AMX, also rested on 255 with ten additions . . . Another 255'er was the result of Jims, W8JIN, contact with FB8XX as Oscar, W3JNN, hit 255 with CR1ØAA and AC3SQ . . . VR1B helped Roger, W3EVW, to 253 while Ozzie, W9VND, upped to 252 with LA7QE/P (Jan Mayen) . . . Bill, W6SAI, reached 251 with ZD8SC, EAØAC, OY2Z and ZA1KAD as Lindy, W8BHW, with VR1B and FS7RT, made it 251 also . . . Dewey, W6VE, rose to 248 with AC5PN and ZS2MI while Luis, CE3AG, submitted new list with a 241 total . . . John, W7GUV, hit 241 thanks to SVØWN, VR6AC and VR1B as Horace, W6TI, slid to 240 with ZS2MI . . . Geo., W1GKK, also landed on 240 with SVØWN and MP4KDS while Van, W9HUZ, nabbed CR1ØAA and UJ8AF to reach 239 . . . Norm, W6NNV, submitted up to date list giving him 233 as Russ, W6SRF, added 34 for 232 . . . Guy, W6DLY,



VQ5GC, Nev Jackson, Entebbe, Uganda is another very popular catch. Nev hopes to DX'pedition to the Seychelles near the latter part of September.

hit 231 with ZD3A and MP4QAL while Art, W6SR, added 12 which include CR1ØAA, YA1AM, VR1B, HI8FB, FB8ZZ and ST2NG to reach 231 . . . Al, CE3DZ, goes to 231 with FU8AC, FB8BR, XE4A and VQ6LQ as Ray, WØDU, hit 227 thanks to LU3ZY, FS7RT, YJ1DL and EA9DF . . . Ed, W6LDD, upped to 218 with VR1B and F9RY/FC while Burt, W6EHV, hit 218 with F9RY/FC, AP2RH and ZS2MI . . .Vlad, OK1FF, presented a new list with a 216 tag and Don, W6LRU, pulled in MP4QAL for No. 213 . . . Keith, W6RLN, is 208 with VR1B and EA9DF while Shelley, W6BAM, goes to 197 with ZD6BX, EA9AP, VR3B and MP4QAL . . . Clay, W6LGD, ups to 208 thanks to MP4QAL, EA8BM and ZS2MI as Dan, W6PH, rests on 185 with LZ1VK, FY7YF, JZØPS, EA9DF, VQ6LQ, VP8BK and VP8BC . . . Vip, W6ID, made it 183 with ZS7H and VR1B while Bill, W5ASG, heads the 39 zoners with a 259 total after keying with CR1ØAA, AC5PN and AC3SQ . . . Dick, KV4AA, went to 256 with XE4A, UR2AK, UF6FB and UJ8AF as Ross, W9RBI, sent in 23 additions for an A1 total of 243 and an A3 score of 225 . . . John, W1BIH, adds FB8ZZ and YJ1RF to reach 242 while Weldon, W2NSZ, goes to 241 with VR1B . . . Howy, W2QHH, ups to 238 with YJ1AA as Joe, W8AUS, who recently got wiped out in a tornado, added YK1AK for 234 before being clobbered . . . Ray, W2BJ, snagged LU3ZY, FS7RT, KM6AX and FB8ZZ to climb to 229 while Gus, W2HMJ, is right behind with 228 with UAØAG for a new zone plus FB8ZZ . . . Ed, W3DRD, came up to date with 7 additions for 227 as Chas, W3DKT, moved to 220 with YA1AM, VR1B and VR3B . . . Chuck, W4LVV, rose to 220 with MP4KAC and FB8ZZ as Sergio, CO2SW, hit 219 with YJ1DL, 3A2BH, XW8AB, YA1AM, FS7RT and VR1B . . . Buzz, W9ABA, adds such as AC3SQ, I5RAM, ZS7D, YJ1RF, VQ5GC, FB8BR/FB and VR1B for a 217 total while Eric, OZ7BG, hit 212 with VT1EK, TG9AL, SVØWN, HI8FR, UJ8AF and UAØKFD . . . Bill, W8KPL, ups to 210 with AC5PN, VQ8CB, VR1B, OY5S, FS7RT, ZS7H and VS1GX as Pat, W2GVZ, pulled in UJ8AF and XE4A for 207 . . . Hal, W6TXL, came up with FB8BR/FB, MP4BBE, EA8BF, VR1B, HC8GI, HI6EC and EA6AW to reach 201 while Len, W6WO, smashed



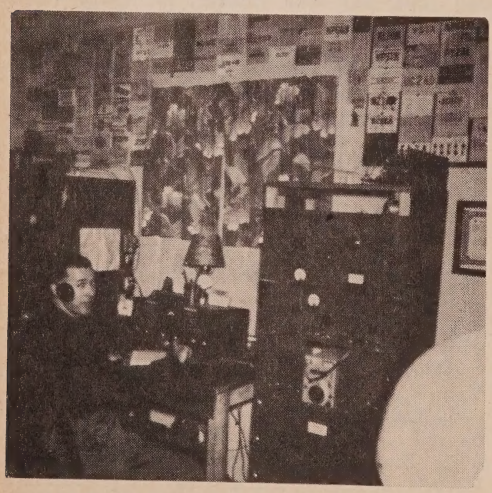
K2JZT, Bill McKinley, Hempstead, L.I., N. Y.



W6WO, Len Robinson, of Los Angeles, runs 1 KW on 14 mc to a three element beam. DX score is 39-201.

past the 200 mark with XW8AB, PZ1BS, LU3ZY, HI8FR, CT3AB, VQ5GC, YK1AB, FB8ZZ, VR1B and VQ6LQ for 201 as Bob, WØQVZ, hit 196 thanks to ZD3A, CEØAD, OD5LX, JZØPS, YJ1RF, VR1B and FS7RT . . . Paul, K2GFQ, rose to 190 with VS2DZ, W4IKC/KW6, AP2M and I5RAM while Bob, W6DBP, nabbed ZS8F, VQ3CF and AP2RH for 183 . . . Roy, ZL4BO, went to 176 with such as CT3AB, SVØWT, VS4BA, CS3AC, LZ1KPZ and VP5RR as Roger, F9AH, peaked 173 with ZD6RM, FB8ZZ and VQ5GC . . . Jim, WØRBA, went to 163 with KC4AB and VR1B while Larry, W9ALI, nicked such as VP8BK, MP4QAL, KC6AL, CR4AG, OD5BS and LZ1KDP for 160 . . . Eric, W6MUF, upped to 157 with ZD6RM, TF3MB, EA9AP, SP5AR, VP5DC, FM7WF and VP3YG as Charlie, W5KUJ, hit 210 with LU3ZY, KC6AL, OD5AB, FU8AC and 4S7MR . . . Fred, W8KML, went to 210 (201 A3) with EA9DF, MP4QAL, VR1B and FB8ZZ while Rip, W4EPA, shot 192 with the victims being KC6AL, FB8ZZ, YJ1AA, VQ8CB, OY7ML, VS2CP and VK1IJ . . . Eddy, W2SHZ, goes to 177 with FB8ZZ, VR1B, W4IKC/KW6 and FS7RT as Sam, W3AXT, rose to 183 with FB8ZZ and VQ8AG . . . Juan, KP4CC, passed the 200 barrier with YJ1AA, VR1B, FS7RT, MP4QAL and XE4A for a 205 total while Bob, K2GMO, adding 2 new zones with UAØVB and 4S7WP, slid to 184 with such as HI8FR, VK9XK, VK9RM, FB8ZZ, VR1B, VS1GX, YJ1RF and SVØWN . . . Gil, W1APA, made it 162 with SVØWO and SVØWN as Skip K6JQJ, submitted 32 quick additions for 152 . . . Mickey, W8YIN, goes to 199 with FG7XC, FB8ZZ and KC6AL while Vic, W1TYQ, snagged CR1ØAA and VQ8CB for a 187 total . . . Bud, W2HSZ, keyed with FB8ZZ, VR1B, W4IKC/KW6 and FS7RT for 177 as W6YMH and K6EIV joined the roll . . . George, W1DEP, added 20 to hit 180 while Tony, LU5AQ, rose to 166 with VQ6LQ, FN8AD, ZS8L, LU2ZY, KG1BO, DU7SV, FS7RT and VR1B . . . Bob, W9NN, nabbed ZB1ZR, 4X4DR, OD5LX and KB6BA for 161 as Rich, W1ODW, was putting VR1B, VR3B, KX6AF, VS6DE, ZK1BS and FS7RT under his belt for

164 . . . Miles, W6ZZ, went to 154 with such as EA9AP, VP2SI, FF8AP, SP1KAA, FS7RT, VQ5EK, OD5AV and VR1B while Aleta, K6ENL, pushed to 119 with ZD6RM, VQ2IM, KB6BA, ZS3Q, FB8ZZ, BV1US, VR1B and KC6AL . . . Bill, W2HAZ, added VR1B for 117 as Jim, K2QQO, went to 116 with CR9AH, VR1B, 3V8AN, VQ5GC, HH5GR and GC3EML . . . Willard, W1NWO, miked with VR1B, FK8AO, ZD8SC, VK9RH and SVØWM for a 218 phone total while Bill, W4ESP, A3'd to 172 with VK9DB, F9RY/FC, MP4KAC, HB1OP/HE and VE7ASL/VR3 . . . Ralph, W6CHV, miked with HZ2AEH, GD3GMH, FS7RT, VQ5GC and EA9AZ for 159 on phone as Gene, W7VY, made AC5PN his No. 261 . . . EA9DF completed WAS with WØSMV (So. Dak.) . . . Latest at K2JTS are YO3GY, CP3CC, SU1IC, CR6AI, HI8FR, UA9DN, EL12C and UA3KAB . . . New ones for Steve, K2CJN, were CR9AH, VQ5EK, CR5AC, FG7XB, KM6AX, KP6AK, MP4BBF, MP4KDS, VK1IJ, YI2AM, ZM6AS and ZK1BL all phone 14/21 . . . Don, K6IPV, operating mobile has worked 45 states and recently completed WAC (Phone) with KL7ALZ, CX5AF, ZI2ALZ, CR9AH, VQ4RF and DL4FI. He runs an Elmac AF-67 with whip antenna . . . Rod, KN5BGB, now K5BGB, has 38 worked with morsels like VU5BC, ZD1DR, ZP5HX, VQ2GW and DU7SV . . . Bill, W7DAA, hits 149 with KT1UX, FS7AA, FY7YE, F9QV/FC, VQ5GC, PZ1BS, ZS8D, ZS9G and VR1B . . . 15 CW treated Bob, W2LWI, to KG6AFY, JA3JM, VR1B, ZD1DR, CR6AI, ZE5JE and VK2FU . . . John, K4BAI, goes to 73 with OE2JZ, JA6AA, EA6AW, HP1EH, W4LCK/KS4, VR1B, EA9DF and VQ4BRM . . . John, K2GJJ, on 28 phone, made it 90 with KX6AF, CR7BB, VE7ASL/VR3, ET2FM and VQ5GC . . . VK4YP nabbed OY7ML on 21 for first OY/VK contact . . .



W6LGD runs 800 watts to a vertical Zepp. Clay's current score is 185 worked and 160 confirmed with WAZ and DXCC. His XYL, K6NEL (Aleta) has 35 zones with 118 countries worked.

VP4LW was No. 100 for K4GSS . . . 14 CW accounted for the following at DL4ZC: VS1HB, FE8AE, 3W8AA, HH3DL, FU8AA, CX8AO, AC5PN and ZD4CC. 21 yielded EL12P, UQ2KAO, VQ4EG and HE9LAB . . . Louie, W4GUV, goes to 118 with KM6AX, YS1O, 4S7MR, YO3RW, 3V8AN, VR1B, VR2BA, VR3B, EA9DF, OD5AV and FS7RT . . . Miles, W6ZZ, moves his 21 total to 111 with such as FF8AP, SP1KAA, VP2SI, VQ5EK and VR1B . . . Chas, W2AIW, ran through a 42 minute WAC with CR1ØAA, W2TQC, JA3BG, ZS6KK, FY7YE and HB9SC on April 14th . . . Lance, K6GSJ, came up with KX6ZB, VR2BC, DU6IV, KG6GX, KM6AX, KR6AX, KG6AFE, FS7RT, FK8AC and CR9AH all on 21 phone . . . WØBCI goes to 144 with FB8ZZ, YO3VA, YI2OT and VQ5GC.

Here and There

EA3GF was heard on May 24th broadcasting on SOS for the Steamship Costa Caribe which was afire at Long. 11.55 West. Lat. 30.5 North (off the West coast of Fr. Morocco). This info was relayed to the Canal Zone, via KZ5EM, and Mass. Coast Guard via W1ZW. Subsequently we learned that only two lives were lost. . . . VP9HH is on SSB from Bermuda. . . . G6YQ advises that QSL's in quantity should have now been received from JZØAG. If any missing contact VRZA, Box 190, Groningen, Holland. . . . G5RV spent some time in Barbados signing a QRP VP6RV. . . . A radio club has been formed by the Radio Amateurs of Lebanon, R.A.L. President OD5AH, Treas. OD5AC, Sec'y OD5AI, QSL Mgr. OD5BO, Tech. Advisor OD5AJ. QTH Box 3245, Beirut. . . . K2EDL, Warren, is now back in Pasadena with his old call, W6IBD. . . . DL7AH nabbed LA7PA/P, Spitzbergen, 2200 GMT., 7018 kc. . . . W2YW, Reeve, retires and will now be heard from N. C. (K4—?). . . . W5CAN reports a phoney FP8AN on 21 Mc. April 8th. . . . Ned, W1RAN is now DL4II. . . . XZ2OM reports via W4CYR that he has a backlog of W QSL's but be patient and all will be answered. Same goes for KV4AA. . . . KA2NY, Mike and Key Club, Box 73, Navy 3923 c/o PM SF., reports that Roger, KA2RK, was elected President and Editor of the FEARL News and Ted, KA2TR V.P. New calls are: KA2RK (W7ZZI), KA2LA (KH6BIA), KA2RM (W3CJJ). . . . Those missing an HH QSL will be sorry to know that W3VKD visited a prominent HH station whose desk was full of unopened QSL's. This character claims he has not time for such nonsense!! . . . We regret to report the passing of KA1JR, founder and first President of the Philippine Amateur Radio Association, he was 78. . . . Ted and Ginny, TI2BX, toured W4, W3, W9, W6, W7, XE, HR, TG and YN before returning to TI in Mid-July. Ted regrets to report the passing of W4GTH at Ft. Bragg.

FLASH! W6ITH has appeared SSB and CW as PJ2MC. . . . VP7BB (W4SON) plans Navassa trip in July. W6NJU may also go in August. . . . YVØAA came on as scheduled, June 17th. Accent seemed to be on phone operation. . . . The Quito

Radio Club, celebrating its 25th anniversary, will set up a station right on the Equator and was due to be on the air from 1700 GMT, July 14th to 2300 GMT, July 15th. The 6, 10, 15, 20, 40 and 80 meter bands will be used, phone and CW. The call used is HC1ARE. The first station to establish contact in each country will receive as a trophy a miniature of the Equatorial monument in silver on a base of Ecuadorian marble, suitably inscribed. The club will also place a bronze plaque on the monument itself with the names and call letters of these winners. QTH: Lat. 0-0-0, Long. 78-38-8 West, Altitude 8147 feet. 16 miles from Quito.

VK/ZL Contest 1956

TIME—1000 GMT, October 6th, to 1000 GMT, October 7th PHONE. 1000 GMT, October 13th, to 1000 GMT, October 14th CW.

SCORING—One point per QSO multiplied by total VK/ZL call areas worked on all bands.

SERIAL NUMBERS—569001, 579002 etc.

LOGS—Separate one for each band plus declaration that all rules were obeyed.

AWARDS—Attractive Certificates to high scorer in each country and USA call area.

Logs should be posted to reach NZART, Box 489, Wellington, N. Z. before January 21st, 1957.

88-JA8 Award

This will be given to any station submitting proof of contact with 88 stations in the JA8, Hokkaido, area. Contacts should date after July 31st, 1952. Contacts with the same station on different bands counts as a separate contact. Phone to CW, SSB to RTT etc. is OK. Contacts with mobile stations in the JA8 area is allowed for credit.

Another award the "88-JA8/2" is also available. The same rules apply but only 44 contacts are necessary. A list of contacts and 10 IRC's should accompany the QSL's.

Apply to: JARL, Hokkaido Branch, c/o Kenich Chiba, JA8AC, North 3rd Ave., East 3rd St., Sapporo, Hokkaido, Japan.

DX Contest Corrections

The logs of the following stations were received much too late to be judged in the 1955 CQ World Wide DX Contest. However since it was thru no fault of their own we feel that it is only fair that we at least make mention of their scores.

All Band CW	
DL7AA	122,003
DL7CW	88,408
DM2ABL	48,216
DJ1XC	45,144
DL1SO	42,952
DL9PU	30,195
DL1QO	135
CT1NT	10,679
28. mc CW	
DL1DX	18,146
3.5 mc CW	
DL1FF	10,246
All Band Phone	
DL3RW	46,200
DL1YY	11,760
DL1LH	2,016
I1CBZ	2,088
21. mc Phone	
DL6DE	1,575

This makes **DL1DX** high man on 10 and **DL1FF** on 80. Nice going boys. Thru a typographical error **W8FGX,** 7mc. CW Winner was listed as W8FXG. Sorry Jack.

W 1 W Y



VR3B, Deane Laws, of Fanning Island is doing a bang-up job meting out contacts from this rare QTH. Deane runs 100 watts to a pair of 807's with a folded dipole plus director.

We have been informed by DL7AA, the DARC DX Manager, that now that the USSR hams are allowed to work stations outside their boundaries, the substitute country list for WAE awards is deleted as of June 1st 1956. USSR cards will now be honored. Substitute cards may be submitted until May 31, 1957 for QSOs between Dec. 31, 1951 to May 31, 1956.

CR1ØAA

(in letter to W8PQQ)

Dili, Portuguese Timor

Dear OM,

Sorry for the delay but I was waiting for my new QSL cards which were just received yesterday. The call sign CR1ØAA was alloted some years ago to the station of my friend Cunha de Eqe who now lives in Lisbon. The old CR1ØAA was located at Baucau, near the post-office Radio Station, and not in Dili. My transmitter is running

about ten or fifteen watts input using a VFO followed by a VT-501-C British tetrode. The antenna is a half-wave off-center fed through a pi-section network. Power is supplied through a 6 volt vibrator, with selenium rectifier, which delivers about 250 volts at 70 ma. The RX is a homemade 8 tube super with 6 volt vibrator unit. I had a hard time getting this rig but it seems to work out OK and if I could get a 6 volt vibrator unit which would deliver 300 volts at 100 ma plus a 6L6 or 807 I could do much better. Timor is a poor country, destroyed during the last war, and not completely reorganized as yet. If you could help me with some hints about QRP equipment I would remain very thankful. Wishing you good luck and DX I am with 73

Ruy Trinidade, CR1ØAA

(Seems like Ruy could be helped to a better signal fairly reasonably—any takers?)

Addresses

BV1US (Formosa)....APO 63, Postmaster, San Francisco, Calif. (MARS Army Sec. SFAAT)
CN8JB .....P. O. Box 367, Casablanca, Fr. Morocco.
CO/CM Bureau.....(New QTH) Radio Club of Cuba, Ayestaran St. No. 629, Havana.
CR1ØAA .....Ruy Trinidade, c/o Post Office, Dili, Portuguese Timor.
CX3NR .....P. O. Box 37, Montevideo, Uruguay.
DL4 Bureau.....DL4BY/W8NUT, DL4 QSL Bureau, APO 757, PM, NY. (old DL4's send present QTH)
DL4YW (ex-KP6AB/KM6AP/KH6ADW) .....Bill Fells, Bendix Radio, c/o Personnel Div. 7100th Support Wing, APO 633, PM. N.Y.
EA6AW .....P. O. Box 313, Palma de Mallorca, Balearic Islands.
EL1A .....P. O. Box 27 c/o Radio Liberia, Monrovia, Liberia.
ET2LB .....Les Brown, COMMNIT 3, APO 843, PM., N.Y.
FB8BX .....P. O. Box 587, Tananarive, Madagascar.
FE8AE .....Marcel, P. O. Box 408, Duala, Fr. Cameroons, Africa.
FO8AK .....Rapa Island via Papeete, Tahiti, F. O.
HH2Y .....P. O. Box 428 Port-au-Prince, Haiti.
15RAM .....P. O. Box 179, Mogadiscio, Isomalia.
JZØPS .....Via W7PHO
KØCMU/VO2 .....Don Lehmkuhl, HQ SQ 64th Air Div. Pepperrell AFB, Newfoundland.
KØDXD/VE8 .....Roy Samuel, 920th ACW SQDN, APO 677, P.M., N. Y.
KA2YA .....M/Sgt Ray Domke, HQ-SQ Sec. 35th ABGp., APO 328, PM, SF, Calif.
KG1BO .....Thule Air Base, APO 23, PM., N. Y.
KG6NAA .....Navy 943, FPO, San Francisco, Calif.
KJ6BM .....Al Rice, Box 17, APO 105, San Francisco, Calif.
KS4AS .....John Melicke, Swan Island, Via Tampa, Fla.
KW6CD .....c/o C.A.A. Wake Island.
KX6AF .....1960th AACS SQ., F. P. O. Navy 824, PM., San Francisco.
KX6BP .....APO 187, c/o F5, PM., San Francisco.
LU7HB .....Alberto, La Escuela de Aviacion, Cordoba, Argentina.
OD5LJ .....Via W5DGV.
SVØ Bureau .....P. O. Box 564, Athens, Greece.
VP5WS .....Bill Swan, Cable and Wireless, Kingston, Jamaica.
VP7NQ .....Ev James, Eluethera Is., RCA c/o PAA. Patrick AFB, Fla.
VQ4KRL .....Box 3268, Nairobi, Kenya.
VR1B/VK9TW .....Via KV4AA.
VR2CS .....Box 334, Fiji Is.
VR3D .....Fanning Is. Via South Pacific Air-(ex-VE7ASL/VR3) ways, Int. Airport, Honolulu.
VS1HB .....Harry Acomb. R.A.F., Seletar, Singapore.
VS9AN .....C. C. Newman, Met. Office, R.A.F. Khormaksar, Aden.
W1LRK/VO4 .....61st FI Sqdn. Ernest Harmon AFB. APO 864, PM., N. Y.
W2/K2 Bureau .....E. F. Huberman, W2JIL, Box 746, GPO., Brooklyn 1, N. Y.
W3UIF/KG6 .....Box 70, Navy FPO 943, P.M., N. Y.
XE4A (Socorro Is.)..Via WØAIW.
YJ1RF .....Reg Frost, Port Vila, New Hebrides.
YNICAA .....U. S. Embassy, Managua, Nicaragua.
YK1AK .....P. O. Box 35, Damascus, Syria.
YVØAA (Aves Is.)..Box 2285, Caracas, Venezuela.
YV4AU .....Box 4573, Maracay, Venezuela.
ZC5SF .....Box 232, Sandakan, Br. North Borneo.
ZS2MI .....Via ZS6FN, Box 7243, Johannesburg, So. Africa (Enclose IRC).

(Thanks to South Calif. Bulletin, West Gulf Bulletin, K6DNH, W1APA, DL4ZC, W1ODW, W6PJ, K4CFB, WØMCX, K6JQJ, W4LYV, W5CFG, W9ABA, K2BU, CO2OM, K6GUV, W6DBP and Henry Kiernan, Jr.)

73, Dick, KV4AA

Honor Roll

(To June 14th, 1956)

Last complete HONOR ROLL appeared in the May issue.
Next HONOR ROLL will appear in the September issue.

W8PQQ	40-259	W6TI	40-240	W6BAM	40-197	CO2SW	39-219	W8KML	38-210	W9NN	35-161
W2AGW	40-258	WIGKK	40-240	W6LGD	40-188	W9ABA	39-217	W4EPA	38-192	WIODW	35-154
W6MEK	40-258	W9HUZ	40-239	W6PH	40-185	OZ7BG	39-212	W2SHZ	38-188	W6UQQ	35-154
W8KIA	40-258	W6NNV	40-233	W6ID	40-183	W8KPL	30-210	W3AXT	38-183	W6ZZ	35-154
W5KUC	40-256	W6SRF	40-232	W5ASG	39-259	W2GVZ	40-207	DL6MK	38-160	K6ENL	35-119
W6DZZ	40-255	W6DLY	40-231	KV4AA	39-256	W6TXL	39-201	KP4CC	37-205	W2HAZ	35-117
W7AMX	40-255	W6SR	40-231	W9RBI	39-243	W6WO	39-201	K2GMO	37-184	K2QQO	35-116
W8JIN	40-255	CE3DZ	40-231	WIBIH	39-242	WØQVZ	39-196	WIAPA	37-162	W7NFE/6	35-115
W3JNN	40-255	HB9J	40-228	W2NSZ	39-241	K2GFQ	39-190	K6JQJ	37-152	PHONE ONLY	
W3EVW	40-253	WØDU	40-227	W2QHH	39-238	W6DBP	39-188	W8YIN	36-199		
W9VND	40-252	W8WZ	40-223	W8UAS	39-234	ZL4BO	39-176	WITYQ	36-187	W9RBI	38-225
W6SAI	40-251	W6LDD	40-218	W2BJ	39-229	F9AH	39-173	W2HSZ	36-177	W8KML	37-201
W8BHW	40-251	W6EHV	40-218	W2HMJ	39-228	WØRBA	39-163	W6YMH	36-145	WINWO	36-218
W6VE	40-248	OKIFF	40-216	W3DRD	39-227	W9ALI	39-160	K6EIV	36-139	W4ESP	36-172
CE3AG	40-241	W6LRU	40-213	W3DKT	39-220	W6MUF	39-157	WIDEP	35-180	W6CHV	36-159
W7GUV	40-241	W6RLN	40-208	W4LVV	39-220	W5KUJ	38-210	LU5AQ	35-166	HB9J	35-172

Rules For The 1956

CQ World-Wide DX Contest

I. Contest Period:

PHONE SECTIONS: 0200 GMT October 20 to 0200 GMT October 22.
CW SECTION: 0200 GMT October 27 to 0200 GMT October 29.
(See time chart for local times and dates.)

II. Bands:

The contest activity will be in the 1.8, 3.5, 7., 14., 21., 27., and 28. mc amateur bands.

III. Type of competition:

1. Phone Section.
   a.) Single Operator.
   b.) Multi-operator.
2. CW Section.
   a.) Single Operaor.
   b.) Multi-operator.
   c.) Novice.
3. Inter-Club.

IV. Equipment:

There is no limit to the number of transmitters and receivers allowed, and competitors may use the maximum power permitted under the terms of their licenses.

V. Serial Numbers:

CW stations will exchange serial numbers consisting of five numerals, the first three being the RST report, and the last two being their own Zone number. Stations in Zones 1 through 9 will prefix their Zone number with Zero (01, 02, 03, etc.)
Phone stations will exchange serial numbers consisting of four numerals, the first two being the readability and strength report, and the last two being their own Zone number. Phone stations in Zone 1 through 9 will prefix their Zone number with zero (01, 02, 03, etc.)

VI. Points:

Contacts between amateur stations on different continents will count three points.
Contacts between amateur stations on the same continent, but not in the same country will count 1 point.
Contacts between stations in the same country, for the purpose of obtaining Zone and/or country multipliers, will be permitted, but no QSO points will be allowed. More than one contact between stations on each band will not be permitted.

All-Band Entry
Single-Band Entry (check one only)

Station Call Letters _____
Number of Operators _____

WORLD-WIDE DX CONTEST

BAND	QSO'S	ZONE MULTIPLIERS		COUNTRY MULTIPLIERS		POINTS		SCORE	BAND
1.8 MC.			+		X		=		1.8
3.5 MC.			+		X		=		3.5
7 MC			+		X		=		7
14 MC			+		X		=		14
21 MC			+		X		=		21
27/28 MC			+		X		=		27/28
TOTAL			+		X		=		ALL BANDS

INSTRUCTIONS: The total of the individual "Single Band" scores is NOT THE SAME as the "All Band" score. Each column with the heavy lines should be totaled. Stations may enter ALL BAND or SINGLE BAND class. Operation on more than one band IS PERMITTED with SEPARATE Single Band scores, but they MAY NOT BE TOTALED if station is participating in SINGLE BAND CLASS.

Transmitter Description and Power _____

Receiver _____

Antennas _____

Other Operating Aids _____

Remarks (Suggestions, Criticisms, and Comments) _____

Club Participation _____

This is to certify that in this contest I have operated my transmitter within the limitations of my license and observed fully the rules and regulations of the contest.

Date _____ Name _____ Call _____

Street and Number _____

City _____ Country _____

Submit Logs to CQ Magazine, 67 West 44th St., New York 36, N.Y.

Sample Log

VII. Multipliers:

Two types of multipliers will be used:
(1) a multiplier of 1 for each Zone contacted on each band.
(2) a multiplier of 1 for each country worked on each band.

VIII. Awards:

Certificates will be awarded in each section as follows:
1. To the highest scoring stations on each SINGLE BAND in the following areas:
   a.) Each call area of the U.S.A.

b.) Each licensing area of Canada and Australia.
c.) All other countries.

2. To the stations having the highest combined total of ALL BANDS (or more than one band) in the following areas:
   a.) Each call area of the U.S.A.
   b.) Each licensing area of Canada and Australia.
   c.) All other countries.

IX. Special Awards:

1. A cup will be awarded to the highest scoring Single Operator, All Band, Phone Station in the world.
2. A cup will also be awarded to the highest scoring Single Operator, All Band, CW Station in the world.
3. To promote Club entries, a plaque will be awarded to the DX Club submitting the highest aggregate score of the scores submitted by its members.
   a.) For a club to enter, an officer of the club must submit a list of its member participants and their scores.
   b.) This list may include scores of Single Operators and Multi-operator stations, both Phone and CW.
   c.) Stations that are members of a competing club must therefore indicate this fact on their report form.
4. Also such special awards as the DX Committee shall choose to make.
5. Contestants must show a minimum of 8 hours of operating time to be eligible for an award.

X. Scoring:

The contest score for each Single Band is the sum of the Zone and Country multipliers of each band, multiplied by the contact points of that band.

The total All Band score is the sum of the Zone and Country multipliers of all bands, multiplied by the total contact points on all bands.

1. Everyone who sends in a log for a single band is eligible for a Single Band award only. If more than one single band log is submitted, indicate which band is to be judged.
2. Those who submit logs for two or more bands will be eligible for the All Band award only.
3. No station is eligible for more than ONE award.

CALL 4X4RE COUNTRY Israel PHONE ☐ C. W. ☒

LOG FOR 14 MC. BAND (Use separate log for each band.)

CALL LETTERS OF OTHER OPERATORS NR. OPERATORS one

DATE (GMT)	TIME (GMT)	STATION	SERIAL NUMBERS		FILL IN ONLY WHEN QSO IS A MULTIPLIER		POINTS (1 or 3)
			SENT	RECEIVED	WAZ ZONE NR.	NAME OF COUNTRY	
Oct 30	0700	CE3AG	57920	57912	12	Chile	3
"	0703	HZ1KE	58920	58921	21	Saudi Arabia	1
"	0706	W4KFC	59920	58905	5	USA	3
"	0707	W3GRF	59920	58905			3
"	0708	4X4BX	59920	59920	20	Israel	
"	0710	CR5AC	56920	56935	35	Port. Guinea	3
TOTAL NUMBER ZONES, COUNTRIES, POINTS:					5	5	13

Important Note: Fill in Zone number and Country ONLY FIRST TIME it is contacted on each band.

XI. Zones and Continents:

To check your own Zone number and continent for scoring purposes, refer to the ARRL or CQ country list as well as the WAZ maps. For continental boundaries the same as used for WAC will be recognized. Should any question arise as to the positive location of any station, the official definitions will be final.

XII. Operating Suggestions:

1. Foreign amateurs; remember, scores are based on the greatest number of countries and Zones as well as stations worked. Therefore do not concentrate on working only U.S. stations. This is a World-Wide competition.

FIRST TIME EVER! BUY DIRECT & SAVE!

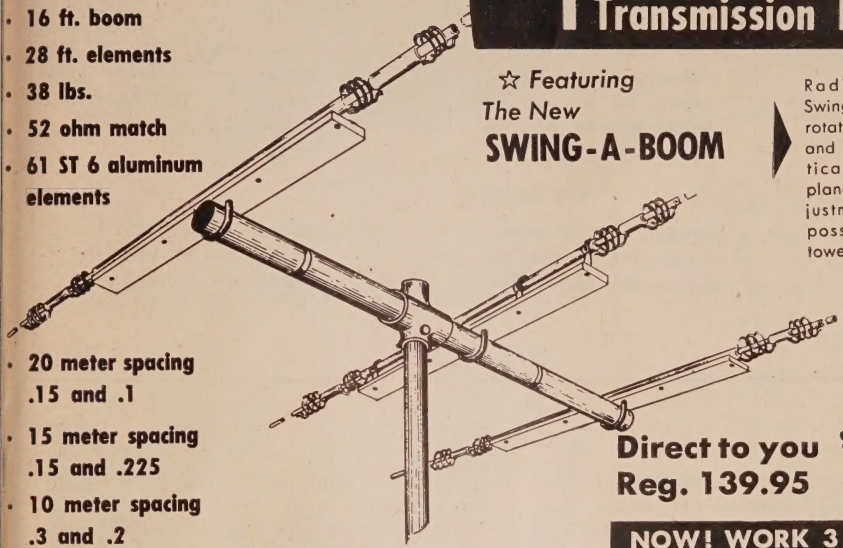
3 BANDER 20-15-10 Meters

1 Transmission Line

- 16 ft. boom
- 28 ft. elements
- 38 lbs.
- 52 ohm match
- 61 ST 6 aluminum elements

☆ *Featuring*
The New
SWING-A-BOOM

Radio Specialties Swing-A-Boom permits rotation of the boom and elements in vertical or horizontal planes so tuning adjustments are made possible from the tower.



- 20 meter spacing .15 and .1
- 15 meter spacing .15 and .225
- 10 meter spacing .3 and .2

Measured S.W.R.:
(a) 14200 – 1.3:1 (b) 21300 – 1.4:1 (c) 28750 – 1.3:1

Measured front-to-back:
(a) 14200–30 DB (b) 21300–25 DB (c) 28750–30 DB

Measured forward gain over full size Reference Dipole:
(a) 14200–7.8 DB (b) 21300–7.9 DB (c) 28750–8.1 DB

Direct to you $88
Reg. 139.95

NOW! WORK 3 BANDS . . .

—with Radio Specialties new 3 Bander. Most T.V. rotators can be used. Band switch in seconds. Tune your transmitter and receiver to either 20-15 or 10 meters and you are ready to operate. Swing-A-Boom permits rotation of the boom and elements in vertical or horizontal planes so tuning adjustments are made possible from the tower.

Convert Your Present 20 Meter Beam To A 3 Bander



Your present beam now can be modified to work on 20, 15 or 10 meters, with results equal to the 3 Bander. One transmission line is used. Complete set of coils, instructions and fittings supplied.

Direct to you— Reg. 39.95 $28

2 element beam kit — 28.00

3 element beam kit — 44.00

4 element beam kit — 54.00

5 element beam kit — 74.00

All prices F.O.B. New York City

FREE! Catalogue F-1 for 3 Bander or Conversion Kit.

RADIO SPECIALTIES INC.
652 UNION ST., BROOKLYN, N. Y.

Please send me the following:

_____ @ _____

_____ @ _____

☐ Enclosed find check or money order in full

☐ Enclosed find $10 deposit—balance C.O.D.

NAME _____

STREET _____

CITY _____ STATE _____

CQ World-Wide DX Contest Schedule

Phone Section

Time Zone	Starting Time	Ending Time
GMT	Saturday, Oct. 20, 0200	Monday, Oct. 22, 0200
EST (USA)	Friday, Oct. 19, 9:00 PM	Sunday, Oct. 21, 9:00 PM
PST (USA)	Friday, Oct. 19, 6:00 PM	Sunday, Oct. 21, 6:00 PM

CW Section

GMT	Saturday, Oct. 27, 0200	Monday, Oct. 29, 0200
EST (USA)	Friday, Oct. 26, 9:00 PM	Sunday, Oct. 28, 9:00 PM
PST (USA)	Friday, Oct. 26, 6:00 PM	Sunday, Oct. 28, 6:00 PM

2. Foreign amateurs: It is recommended that you give the call letters of the station you are working at the end of each transmission, instead of "BK" as this would prevent much QRM of stations piling on and calling you.
3. Overseas phone operators should indicate which end of the band they are tuning or which portion of the phone band (American or foreign) they intend to cover. This is extremely important on 21. and 28. mc.
4. CW stations would greatly reduce QRM and speed up contacts by working stations OFF their own frequency. Likewise U.S. stations should avoid calling "that rare one" on his own frequency.

XIII. Rule Changes:

1. Note the addition of 27. mc as a separate band this year. A chance to fatten up your multiplier.
2. Also note the addition of the Novice division. Listen for the boys on 3.5, 7. and 21. mc CW.
3. The minimum operating time has been increased to 8 hours.
4. Also note the addition of three Special Awards.

XIV. Log Instructions:

1. In keeping a contest log, fill in Zone number and Country ONLY FIRST TIME it is contacted on each band.
2. Use a separate sheet for each band.
3. Keep all times in GMT.
4. All contestants are expected to compute their scores. It is suggested that logs be checked for contact duplications and proper point credit before they are submitted.
5. Make sure name and address is clearly noted on each log.
6. Each contestant must sign the usual pledge. Note sample contest report form.
7. If official log forms are not available it is hoped that the contestant will make a duplicate form as illustrated. The size is 8½″ x 11″ with 52 contacts to the page.
8. Copies of the Country and Zone list and contest logs are available from CQ, address listed below, upon receipt of a stamped, self-addressed envelope, or in the case of overseas stations, unattached postage stamps. Please include sufficient postage and state how many sheets are needed.

XV. Deadlines:

All logs must be postmarked *no later* than December 1, 1956. Send logs direct to:

CQ Magazine
67 West 44th Street
New York 36, N.Y.
Att: Contest Committee

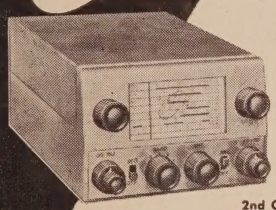
Goof

Correction on the Little Deamon on page 77 of July, 56 CQ. The first is the bypass condenser for the plate lead of the 829B is on the wrong side of the Z144 RF choke. The final will be as wild as a March Hare this way. The second mistake was the omission of a .001 μfd feedback condenser in the crystal oscillator lead from the bottom of L-1 to the bottom of the crystal. As now shown the crystal is connected direct to the high voltage. Wonder who is going to be the first to find out what will happen. . . .

HENRY HAS IT FIRST

YES HENRY HAS ALL THE NEW EQUIPMENT FIRST!

MULTI-ELMAC — **NEW**



PMR-7

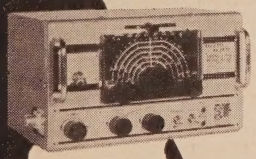
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Bob Henry, WØARA Butler, Mo.



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This is the Award that will be given to the winner of the CQ VHF contest from now on out. So see the details elsewhere in this issue for the dope on how to get one of these for your very own.

worked on two meters:
April 23rd: W8KAY, W8LPD, W8PT/8, W9WOK, W9LF, W9KLR, W9UED (tropo.) and W8WXV.
April 24th: W4LVA, W4BUZ, W8KAY, W8WXV, W8PT/8, W8BAX, W8LPD, W8HOH, W9AAG, W9WOK, W9QWT, W9YLY, W9REM, W9LKR, W9GAB, W9QKM, W9RXS, W9YDY (W9YLT???), W9JAQ (?), WØIHD (tropo.).
AND!!!

At approximately 1830 CST I copied and tape recorded the following: ". . . . K . . . . TU JEAN ANS 16 12 8 . . . . WE . . . . DE . . . . KI . . . . KIIC . . . . GH2 . . . . DE KOK KOK . . . ND PILOT. . ."

The foregoing was heard at approximately 1830 CST on May 24th. My 144 mc antenna was headed NW to NNW. The unstable signal was wandering around at the low end of two (between 144.0 and 144.5). It had the flutter of a two meter auroral signal. It was *not* repeat *not* present with the two meter converter disabled and the HRO-50 still operating. My maritime books show it to be a coastal station at Clearwater, California. As far as I was able to determine at the time, and since, my receiving equipment was operating properly. I have not been able to explain this reception except by what it seems to have been, i.e., a spurious signal radiated on the low end of 144 Mcs by KOK and propagated by aurora. If what appears to have happened, actually happened . . . a big IF . . . this looks like a new dx record for auroral propagation on 144 mc. It would be interesting if anyone else experienced the same thing. A letter to KOK might also enlighten us in the matter. A tape recording of this is available if you'd like to hear it and all the other auroral signals heard on April 23rd and 24th.

"My receiving setup is as follows: 6AJ4 cascode preamp (n.f. 4.1 db) coax coupled into the converter which has a stage of r.f. The oscillator is a 45.666 overtone crystal that triples to 137 mc for injection, producing an i.f. of 7-11 mc. The HRO-50T tunes 7-11 mc and has an i.f. of 455 kc. From this you can see what the image responses, etc., are in my setup." *This is all very, very interesting Paul, hope we're able to find out more about the whole deal.*

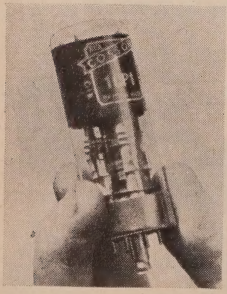
Shepard, Texas Bert (W5PDE) comes through for that state with the following:

"Activity as well as conditions is definitely on the upswing in East and South East Texas. W5AYX Splendora, Texas, W5JBL Lufkin, Texas are newcomers to six and I think W5PEG, Lufkin is also new on six.

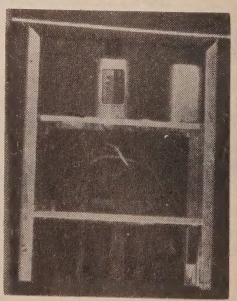
"On May 16 at 10:15 A.M., CST, I worked CO2ZX, Havana, Cuba; on May 12 I worked XE-GE near Mexico City; on May 11 I worked W8WRN, Columbus, Ohio, K8AIB Huntington, West Virginia, W4BDP La Grange, Kentucky and W8PUA Akron, Ohio. Also heard Arizona stations 7:00 P.M. on May 12th." *So conditions are good there too, eh Bert? Have at it, old boy, they'll be good for a while yet.*

Just an aside from Paul Wilson, W4HHK:

"Now that W5HEH, W. Memphis, Arkansas, has passed the crisis of becoming a proud papa . . . we can expect more signals on 144 mc from eastern Arkansas. Frequency usually 144.145 mc but he has other crystals."



Tired of looking at your 24-inch TV set? Well then, look at the short-persistence screen of this one-inch (!) self-focusing Cossor cathode ray tube! No foolin', this is the answer to any circuit requiring a small, compact CRT. Take a modulation indicator, for example. A miniaturized unit using this tube will just fill that empty corner of the desk. Or this little gem would make a good indicator for SSB two tone tests. The 1CP1 has a standard loctal base, and will perk at an anode potential of 500 volts. You can obtain the whole story on the Cossor answer to Jackie Gleason by writing to: Beam Instruments Corp., 350 Fifth Avenue, New York 1, N. Y. No box tops needed.



Somebody finally got tired of the haywire look of small items of test equipment that have been thrown together using a hammer and a dull Boy-Scout knife. A certain Instrumentation Devices Co., Box 319, Buchanan, N. Y. has come up with a unitized chassis-panel idea, as shown in the accompanying photograph. Circuits may be built on the shelves of the unit, and the shelves can be wired and tested before side plates are attached. The inter-shelf wiring can then be done, and the front panel affixed. Presto! A completely engineered package that looks neat and saves time. If you are Haywire Harry, this idea won't appeal to you. A smart ham will write to the above QTH for the full story. Right??



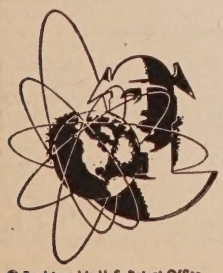
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Who Signs What!

Mr. Dan Beyersdorf
Lien Road
Madison 4, Wisconsin

Dear Sir:

This is in reply to your letter of March 26, 1956, regarding the proper identification of amateur stations engaged in a "round-table" communication, in particular at the required ten-minute intervals and at the time a station calls into, or signs out of, the round-table.

In regard to meeting the ten-minute requirement (Section 12.82(a)(1)(iv), Rules Governing Amateur Radio Service), the observed practice of a station calling another station in the round-table and signing: "W2DEF this is W1ABC," and then the second station calling a third and signing: "W3GHI this is W2DEF" and so on until all stations participating in the round-table have identified is acceptable. Also, calling "the net," "the group," the "round-table," or similar expressions indicating communication with more than one station, including the generally accepted name or other identification of the network or group if such exists, followed by "this is" and the transmitting station's call sign is considered acceptable during a round-table communication whenever identification is required, including the occasion of entering or leaving the round-table.

Section 12.82(d) permits the use of phonetic aids in transmitting station call signs, but does not specify any particular phonetic alphabet. Therefore, any phonetics which tend to facilitate the communications and are not intended to obscure the meaning may be used.

Very truly yours,

Mary Jane Morris
Secretary F.C.C.
Washington 25, D.C.

Gentlemen:

Enclosed is a photo taken of Uncledave Marks, W2APF, being congratulated by Sam Kaneshiro, President of the Honolulu Amateur Radio Club after being presented with his honorary membership in the club. Other officers, left to right, are: Augustine Perry, KH6APS; Fred James, KH6OB; Tom Hori, KH6OS; Richard Takemoto, KH6KC Abe Char, KH6AGH; George Stillman, KH6AN; Uncledave Marks, W2APF; Sam Lewbel, KH6AED (Hawaii SCM); Sam Kaneshiro and Bruce Hosmer, KH6AIW.



W2APF visited the clubs as part of his round the world tour, visiting hams the world over in the interest of amateur radio. Uncledave visited KH6AUP at the Leper Colony in Hawaii as part of his tour and brought the story of amateur radio to the attention of governments and peoples in all parts of the free world.

William C. Corbett

Helping Hand for Hams

Dear Wayne:

For some long time an idea had been smoldering in my mind that somehow the hams who lose their equipment in some sort of disaster should be helped back on the air if they were unable to restore their equipment through their own efforts. I was down in the Port Jervis area during the August floods and learned of an amateur, W3MAC, who had sacrificed his equipment for the welfare of his community, to top it off he is blind. Every ham knows what a great loss this lad has suffered and can understand how great was his unselfish sacrifice. One of many agencies will undoubtedly assist him in his daily necessities but to a lad like this, hamming is his life.

This experience sparked the fire and I talked about it on the air; promptly and without solicitation I received a check from the New York City Club and donations from several hams, also offers from other hams.

Well, obviously, this is not something I should handle as a ham distributor so I interested the Albany Amateur Radio Association who promptly organized a Welfare and Disaster Committee to administer these funds.

I have been appointed temporary chairman of this committee with Howard Maguire W2AAO as Treasurer, Al Fredette W2EOM as Secretary and Knute Barnes W2GM as Vice-chairman. I hope to gain the support of manufacturers and distributors of ham equipment to sell to the committee at no profit since no one can gain financially in such a project. Details of administration are yet to be completed but we expect to work through and with local radio clubs. We must carefully avoid misrepresentation and each case of restitution will be documented. These local clubs would seek out what we shall term hardship cases, all semblance of charity is to be avoided, rather it will be an invitation from other hams to rejoin the fraternity because we miss him on the air. Of great interest will be those who sacrifice their equipment but we *shall not* be limited to those alone, the needy and deserving ham who loses his gear in a disaster will be eligible for restoration.

I fondly hope and fully expect that many, many hams will welcome an opportunity to assist materially in this project, once they become aware of it, by contributing money when possible. The committee operates under the temporary title of Amateur Welfare, Disaster Committee of Albany Amateur Radio Association, Capital Station, Post Office Box 7154, Albany, New York.

Thank you once again for your interest and be assured of our appreciation for anything you can do for this project.

Yours truly,
David L. Marks, W2APF
904 Broadway, Albany, N. Y.

A fine idea Dave. Though it is obviously beyond the limitations of the Albany Amateur Radio Association to handle a nation-wide helping-hand affair which would distribute used ham equipment it would seem to me that something like that might possibly come out of this wonderful start. There are so many people who are unable to get the equipment to get on the air for one reason or another. Hardly a ham in the country has not at least one piece of good working equipment that he has no further use for and would like to see get a good home.

DX-100 Modification

Gentlemen,

In some DX-100's the 12BY7 Ocs-buffer runs too hot. This has nothing to do with the keying and the situation can be improved by changing its 27K ohm 2 W screen resistor to 33K ohms, 2W.

John Abbott, W6ZOL

160 Meters

Dear Sir:

During the past few weeks I have had many conversations with amateurs, both on and off the air, concerning the A.R.R.L. Bulletin, #547, dated May 23, 1956, concerning restrictions on the 160 meter amateur band. This letter is the result of my own thinking and that of perhaps 100 other amateurs in this area, who, without a single dissent, agree with the position set forth below.

Several questions arise, in this matter of new restrictions on the 160 meter band, which I will list here in an attempt to stimulate discussion and thinking among the amateur fraternity.

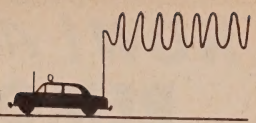
1. Why did the F.C.C. for the first time in many amateurs' memory, discriminate against the interests of the amateur service in favor of the commercial interests that use the Loran service? What type and how much pressure was exerted by the commercial interests on the F.C.C. to obtain such a radical change in viewpoint on the part of the F.C.C.?

2. Why has the Loran service not been forced to apply the same degree of technical accomplishment expected of the amateur by the F.C.C.? This question pertains to the great overmodulation of the Loran signals in the 1900 to 2000 kc range and the spreading of the Loran signal over the entire top portion of the amateur band at certain times.

3. Why has the F.C.C. not outlawed the Loran service at least two years ago, since several far more efficient means of accomplishing the same purpose are available, and this question is interesting since many foreign countries have outlawed the Loran type of navigational aid due to its inefficiency and interference to other services on adjacent bands?

4. What guarantee does the amateur using the 160 meter band have that this "temporary change in 160 meter privileges" will be any different than the promise

GOING MOBILE?



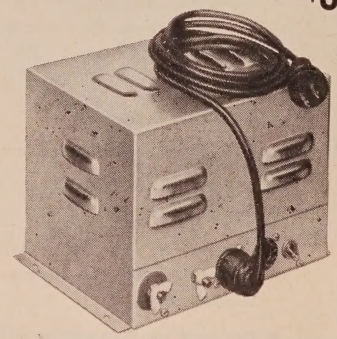
Then add the cost...

- Mobile Receiver Power Supply
- Mobile Transmitter Power Supply
- Dropping Resistor for Transmitter Low Voltage
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- Fixed station Power Supply

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JAMES Model C-1450 Power Supply complete for 6 or 12 volt D.C. operation or 117 volts A.C. With adapter plugs, vibrator, fuses, wired and tested..... **$69.95**

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JAMES Model C-1050, power supply complete for 6 or 12 volt D.C. operation. With fuses, vibrators, wired and tested. **$49.95**

JAMES Model C-1051, same as C-1050 except in kit form..... **$39.95**

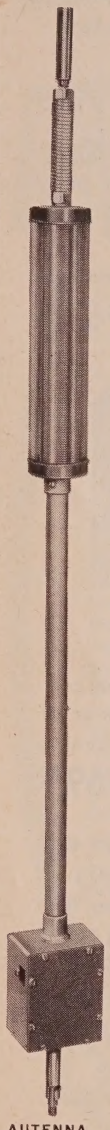
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AUTENNA Tunes Amateur Bands
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- Coil Wires Embedded in Polystyrene Rods
- Installed or Removed in Seconds with Kwik-On connectors for Trunk Storage
- Designed for Transmitters with Pi-Net Final—Will Handle up to 100 Watts
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Designed for use with 60" whip. Complete with Control Switch, two Kwik-On connectors, Whip Flexor Spring and Indicator Network. Calibrated Meter Scale for 2" 0-1 MA. Meter.

Meters available at additional cost
See Your Local Parts Jobber or Write to

AUTENNA
Pat. Applied for

RAFRED ENTERPRISES
Box 47725, Wagner Station
Los Angeles 47, Calif.

we received for complete restoration of the entire band shortly after the war?

In view of the fact that any infringement on amateur privileges effects all amateurs, regardless of their favorite band, and that it is much easier to fight a restriction of this type at the time it occurs than to get it removed later, I would like to suggest to the entire amateur fraternity that they consider the following course of action:

1. Every active amateur and every amateur radio club should write the following letters at once, in as strong a vein as possible:

a.) To all senators from the state of your residence, and to each congressman from your district, stating your opposition to this new restriction, your reasons, and your determination to restrict your vote to a representative who can do something about it.

b.) A letter to the A.R.R.L. stating your wishes in the matter, and it might provide a very refreshing outlook to the officers of the League to obtain an accurate cross-sectional opinion of the average amateur as to the effectiveness of the League in preventing or redressing just such a situation as this one.

c.) A letter to your state affiliation of Amateur Radio Clubs, in the same tenor as the other letters, but demanding that the state organization make representations to all pertinent authorities.

2. Every active amateur should sponsor a continuing discussion of this matter both on the air and off, so that the fires of indignation will burn ever brighter and not die down in apathy.

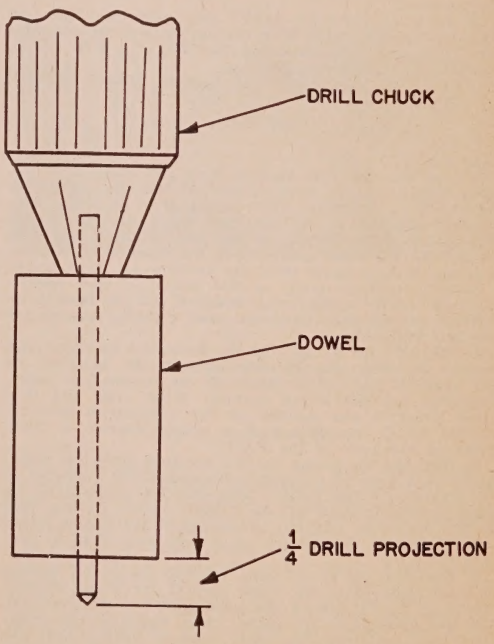
I would like to remind the entire amateur fraternity of their responsibilities to the service and to each other by paraphrasing a quotation from John Donne:—

"No man is an island, but rather a peninsula, part of the whole—when any man dies—send not to seek for whom the bell tolls—it tolls for thee".

Ronald L. Reed, K8AEC,
Route #3, Tiffin, Ohio

Dear Sir:

When building homemade gear it is often necessary to drill holes in the chassis or shielding when the project is nearly completed. The problem—how to make the holes without plunging the drill into the components as it suddenly penetrates the metal. Holding back the forward pressure sufficiently to prevent damage is difficult. To guarantee that no such damage will occur the following "ham hint" is one solution.



Usually no more than a quarter of an inch of the length of the drill is needed. So—obtain a wooden dowel

[*Continued on page 106*]

CQ Gets Busy and Tests

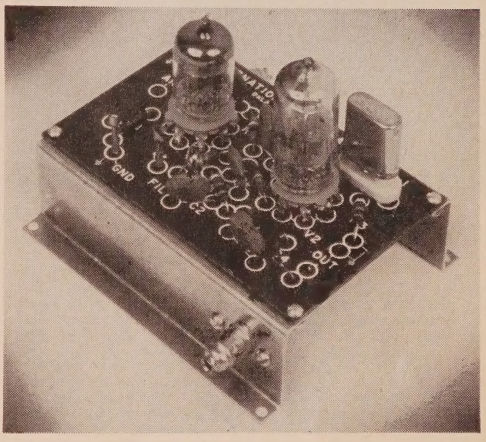
The International Crystal

Six Meter Converter

Quite a few eyes have been opened by the performance of this wee little converter. The darn thing sells for $15.95 by mail (thus irritating dealers who like to get their little 50% on deals like this). To make dealers happy we should report that it doesn't work. To make International Crystal happy we should say it outperforms anything else going. Actually the performance is good, pretty much the same as you get from all the other good converters. It was tested side by side with three other makes and there was no significant difference except in price. All of them do a fine job of letting you hear what's going on on Six.

This converter is made with a printed circuit. It is available in i-f outputs of either 7 mc or the broadcast band. My tests indicated better operation using the 7 mc output since this cut down on the number of strange signals which popped up from images. For mobile use this would do all right connected to the car b-c set.

If you want to save another $5.00 and also be able to say that you built it yourself you can order the converter in kit form and spend a few minutes soldering the parts to the printed circuit board.



The complete converter

Six is really going wild these days so you should get something set up to hear all the fracas. It only takes a couple minutes to connect this converter to a power supply and your regular station receiver. Well, get busy! ■

The Voice of America

The Voice of America broadcasts up to the minute propagation forecasts for radio amateurs and short wave listeners every weekday at approximately 1805 GMT (1:05 PM EST) on the following frequencies:

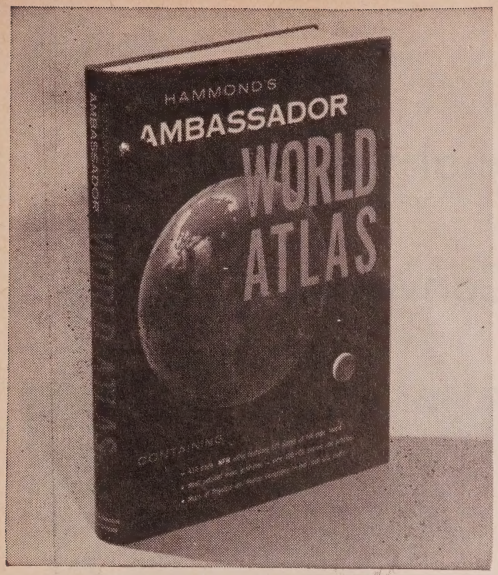
21650 kc, WLWO, Cinn.
21540 kc, WBOU, N. Y.
17830 kc, WDSI, N. Y.
17795 kc, WLWO, Cinn.
15270 kc, WDSI, N. Y.
15135 kc, Tangier Relay
9505 kc, Tangier Relay
7250 kc, Munich Relay

The forecasts are part of the English language transmission "Panorama USA."

Every Saturday, between 1845 to 1900 GMT (1:45 to 2:00 PM EST), the Voice of America devotes an entire 15 minute program to amateur radio.

The VOA amateur program is broadcast on the same frequencies as "Panorama USA" listed above. Reception reports and QSL's received from listeners to this program will be acknowledged with a distinctive VOA QSL card. Since shortwave frequency schedules are subject to frequent change, latest program schedules for this broadcast can be obtained from:

U. S. Information Agency
Washington 25, D. C.
Att.: IBS/RF



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CQ Magazine
67 W. 44 St.,
New York 36, N. Y.

CQ-8

Gentlemen:

Please send me (postpaid) the New Ambassador World Atlas plus a one year ☐ *new* ☐ *extension subscription to CQ. I enclose* ☐ *check* ☐ *money order for $12.50.*

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(city) *(zone)* *(state)*

N.Y.C. residents add 3% sales tax

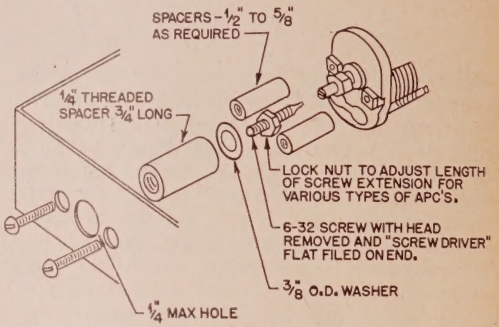
letters [*from page 104*]

(½" diameter should suffice) and cut a piece ¼" shorter than the drill, then drill completely through the center of the dowel, thus exposing only ¼" of the drill. It is obvious that the drill cannot penetrate deeply as the wooden dowel will act as a positive stop. Incidentally borrow a wooden clothespin from the XYL for need of a better dowel.

Edward J. White—W1NPL

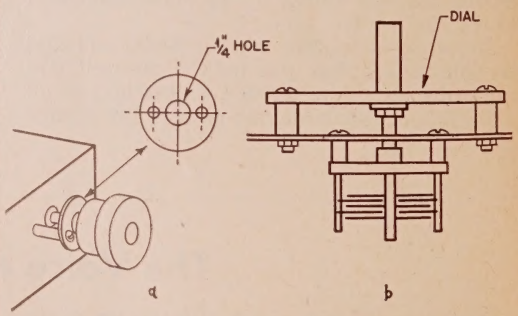
Gentlemen,

Illustrated is a shaft adaption system enabling the use of knobs on screw driver adjust APC variable condensers. The assembly is adjustable and may be used on practically all of the many makes and styles of APC type variables.



As shown in *Fig. 1*, above, all of the parts are standard radio hardware with exception of the screw driver portion of the shaft assembly. This is made from a ¾" 6-32 screw.

Adapting the capacitor this way stands it off the chassis or panel slightly. On equipment already built, or where space is a factor the adapter parts may be placed outside of the chassis with the addition of a small plate or washer drilled to conform with the panel mounting holes as in 'a' of *Fig. 2*. Better yet, a small fixed dial may be incorporated as this part as shown in 'b' of *Fig. 2*, below.



When the rotor of the capacitor is above ground in a circuit the ¼" shaft holes shown may be enlarged to accommodate an insulated shoulder washer. Just remember the shaft is *'hot'* in such cases and must not be exposed.

Douglas R. Schneider, W2ZVY

Increasing Tube Reliability

Gentlemen:

The following data is the result of recent research by *General Electric* and *Airinc*. It is confined to a limited quantity of tubes, all of the 5670 computer twin triode type, operated under Class A (no signal) laboratory conditions.

In particular, rash extrapolation of reduced heater voltage can lead to difficulty. Many circuits require full peak emission. In some tube types, reduced voltage *may* cause increased interface formation. The increased cathode "warm-up time" may be objectionable. Nevertheless, in many applications tube reliability can be increased.

Heater voltage greatly affects tube life. Three groups of type 5670 tubes were given a 5000 hour survival test.

Heater voltage	*Failure rate*
6.3	one in four
7.56	four in five
5.04	one in fifty

Glass temperature should be considered, since seal leaks, gas release and other ills may result from high temperatures. Two groups of 5670 tubes were given a 2000 hour test. The normal maximum for this type is 165° C.

Glass temperature	*Failure rate*
185° C.	one in ten
260° C.	more than four in ten

Plate dissipation heats not only the glass walls, but also the internal parts of tubes. Two groups of type 5670 tubes received a 5000 hour survival test. Normal plate dissipation is 1.65 watts.

Plate dissipation	*Failure rate*
1.67 watts	nearly six in ten
.5 watt	one in fifty

Lester Sade,
652 Second Avenue,
San Bruno, California

Dear Wayne,

T'other day I was talking to W4NJF about the mobile installation going into his new car, and mentioned that I was using a single "whip" antenna for broadcast reception as well as for mobile operation. A somewhat lengthy discussion got started on how the converter was modified, and W4NJF suggested, "Why not send this to *CQ*? I'm sure others would be interested."

FIG. 1 ORIGINAL CIRCUIT

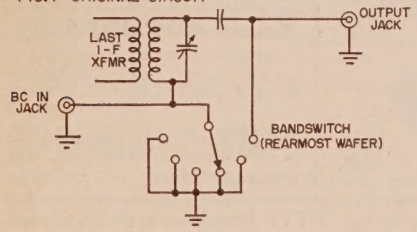


FIG. 2 REVISED CIRCUIT

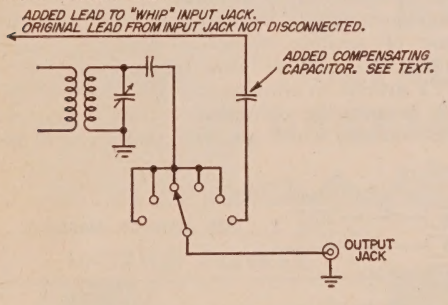
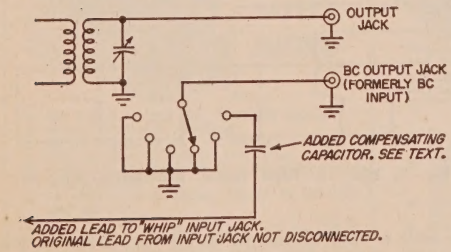


FIG. 3 "GOLD PLATED" REVISION



Hence this letter, and the following moderately-well, if not wisely, chosen words.

For those mobileers using the Morrow 5BR-1, -2, and -LN converters coupled into broadcast-band receivers, a few simple wiring changes and the addition of a small capacitor will permit the use of the mobile "whip" for broadcast reception, eliminating the need for a separate b-c antenna.

The changes required are few, and no degradation of amateur-band performance of the converter has been experienced at the "rolling shack" of K4IAV from having made them. Essentially, after making the changes shown in *Fig. 2*, the output jack selects, through the position the bandswitch rotor, either the i-f output of the converter or the direct signal picked up by the mobile antenna.

Fig. 1 shows the original connections in the affected portion of the converter. *Fig. 2* indicates the wiring changes made in this portion of the circuit.

The capacitor added in *Figs. 2* and *3* should be selected to permit the antenna trimmer capacitor (in the b-c receiver) to peak near the middle of the broadcast band. (200 $\mu\mu$f worked fine here, where the 10-meter whip is mounted on the "deck" just forward from the trunk lid, and fed with RG-8 from the under-dash rig location.)

Fig. 3 is included for the benefit of the really hairy rigs where a fixed-tuned "i.f." receiver is employed, and the b-c receiver is used for morale or XYL-pacifying purposes only.

LXXIII (with apologies if this is plagiarism, since I didn't check the files)

William L. Wornack, K4IAV

R-F Current Indicator

Gentlemen:

Many amateurs, especially those in the low power bracket, do not have r-f ammeters. As a result they are frequently at a loss to determine whether there is current flowing into an antenna or line, and whether the current being delivered is maximum for any given transmitter adjustment.

The actual current value is not as important as whether or not it is at a maximum. The device described here will serve quite satisfactorily as a check on loading efficiency.

It consists simply of a dial lamp with its contacts soldered to a pair of flexible leads about 2 inches long. For convenience each lead should be terminated at the free end with an alligator clip. A 60 ma. pink bead bulb will be satisfactory for most applications.

When this gadget is clipped along one leg of an antenna or transmission line some of the r.f. will detour through the lamp. How much goes through is determined largely by the actual current in the line or antenna, its frequency, the diameter of the conductor and the spacing of the clips.

How to use it can best be explained by describing a typical application. Suppose you wanted to determine whether maximum current was being delivered to a mobile antenna. Place the clips along the high current section of the antenna, using a spacing of about one inch. Now turn on the transmitter. If the lamp does not glow, increase the spacing of the clips. With a transmitter of about 25 watts input you should detect a healthy glow with somewhere between one and four inches between the clips. If not, suitable coupling and tuning adjustments should be made, taking care that with the clips widely spaced you do not overload the lamp and burn it out. However, once you have the lamp glowing, it is a simple matter to tune the rig for maximum brilliance, which means maximum current in the antenna. More precise adjustments can be made by reducing the clip spacing so that the lamp glows dimly. Under this condition, small changes in loading will be more evident. For higher power transmitters it may not be possible to place the clips close enough to each other to reduce lamp current satisfactorily. When this is the case, simply locate them at a lower current point along the antenna or use a dial bulb having a higher current rating.

Charles Younger, W2ND
River Edge, N. J.

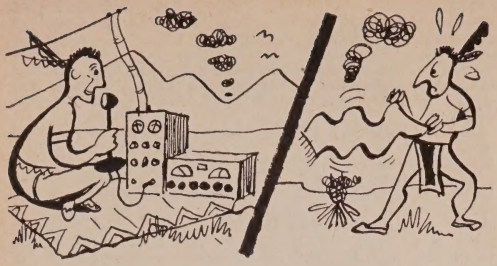
Population

Dear Mr. Greene:

Here is the count of licensed radio amateurs in the *Callbook* as of January 1, 1956. This is not to be considered as an official FCC count, but is fairly accurate as we keep up to date files on all radio amateur licenses.

UNITED STATES				FOREIGN
W1	10,899	W6	19,436	56,657
W2	18,931	W7	9,573	
W3	10,030	W8	12,151	**TOTAL**
W4	14,778	W9	12,512	
W5	13,450	WØ	12,689	191,106

Charles O. Stimpson, W9TRD
RADIO AMATEUR CALL BOOK



NO READUM SMOKE, OM —

Better Tradum Blanket at ALLIED!

Your blanket makum heap good T9X smoke signals OM, but wind blow smoke away and makum transmission hard to copy. Why you not tradum in blanket at ALLIED for up-to-minute ham station? ALLIED give you best trade-in offer in many moons. Save you much wampum and you no have to mortgage tepee or sellum squaw.

Be sure to use ALLIED's giant 324 page Catalog No. 150 as your buying guide to everything in Amateur equipment. ALLIED not only stocks the country's largest selection of Amateur equipment, but our Easy Payment Plan and big trade-in offers make it easy for you to keep your station up-to-date. If you don't already have our Catalog No. 150, be sure to get your free copy. Just drop a card to **ALLIED RADIO CORP., 100 N. Western Ave., Dept. 16-H-6, Chicago 80, Illinois.**

Bound Volumes

CQ in book form for the ham who wants to have a neat and attractive bookshelf. It is always worth a little extra to go first class and do things right. This will make your shack really look like a million dollars, and for only $7.95, a steal. Loose copies of magazines are OK for the workshop, but if you sport a good looking shack you will want bound volumes.

And don't try to send for one of these next year. We cleverly make up only a few of these volumes and usually run out of them way before the demand dies down. Send for yours right now.

Since we ran out of the bound volumes last year we are binding up a few more of the 1953 and 1954 volumes for those that missed them. There are only a limited number of these available so jump. Foreign purchasers will have to send $1.00 extra for postage.

CQ MAGAZINE
67 West 44th St., New York 36, N. Y.

Enclosed $.....For.....Bound Volumes
YEAR WANTED: ☐ 1953; ☐ 1954; ☐ 1955.

NAME.....CALL.....
ADDRESS.....
CITY.....ZONE.....STATE.....

Transmission Lines

Rider has just come out with another in their technical series, this one titled *R-F Transmission Lines*. This 72-pager sells for $1.25 and should be in your library, with the contents on file in your head. Why remain baffled by transmission lines?

Wanted: Radio Servicemen
no experience necessary

In Russia the government provides free training for any citizen who wants to become a radio serviceman. Upon completing his course, lasting from three to six months, the serviceman is sent to a community where he remains until otherwise transferred.

Classed as Professional, these workers receive expanded food ration cards and are assured of a comfortable home along with a salary considerably greater than many other workers. This is to assure all citizens access to a radio loud speaker at all times.

from the New Zealand Break In

RTTY

[*from page 75*]

give you in the "RTTY Principles & Practice" section, directed mainly towards the newcomer or fellow just getting interested in this fascinating phase of amateur radio. In case you haven't noticed, too, *CQ* has been running quite a few RTTY articles in addition. All this has been possible because the old-timers in RTTY have sent in information which we have passed on to you.

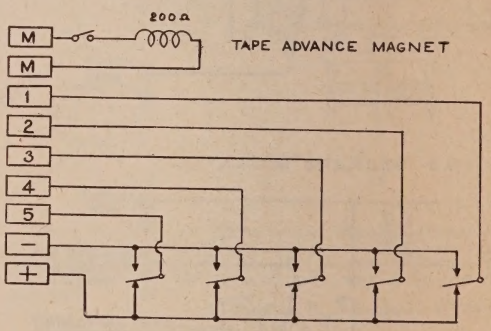


Fig. 2. WU 1A Tape Head, Schematic Diagram

We owe a vote of thanks to all those fellows who have shared and are continuing to share their knowledge with the rest of us. As big as *CQ* is getting, there still isn't room enough to list all those who have helped, so we will just say, TNX, fellows.

73, Byron, W2JTP

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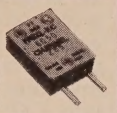
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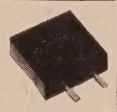
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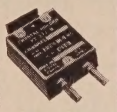
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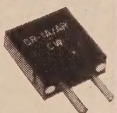
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376	397	420	491	513	537	444	466
377	398	422	492	514	538	445	469
379	401	424	493	515	540	446	470
380	402	425	494	516		447	472
381	403	426	495	518		448	473
383	404	427	496	519		450	474
384	405	431	497	520		451	475
385	406	433	498	522		452	476
386	407	435	501	523		453	477
387	408	436	502	525		455	479
388	409	438	503	526		457	480
390	411	481	504	527		458	
391	412	483	506	529		459	
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6522	7930	2105	2290	2442	3322	
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4280	5773	6350	7475	7766	8690
4330	5775	6373	7500	7773	
4340	5780	6375	7506	7775	
4397	5806	6400	7520	7800	
4445	5840	6406	7525	7806	
4490	5852	6425	7540	7825	
4495	5873	6673	7550	7840	
4840	5875	6675	7573	7841	
4852	5880	6700	7575	7850	
4930	5892	6706	7583	7873	
4950	5906	6725	7600	7875	
5030	5925	6740	7606	7900	
5327	5940	6750	7625	7906	
5360	5955	6773	7640	7925	
5385	5973	6775	7641	7940	
5397	6206	6800	7650	7950	
5437	6225	6825	7660	7975	
5485	6240	6850	7673	8250	
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6073	6473	6650	8173	8500	
6075	6475	7000	8175	8525	
6100	6500	7025	8200	8550	
6106	6506	7075	8225	8575	
6125	6525	7125	8275	8600	
6140	6540	7150	8280	8625	

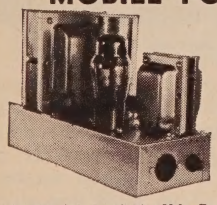
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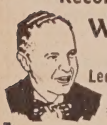
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Editorial [*from page 12*]

shoulders and tell them that those things happen, but since I was right down there in among them I had to have stronger medicine to take out the sting. That was the Pony Express 1956 article, you forgot it already?

The day that article came in Jim took one look and knew that it would be in print soon. He is firmly convinced that any article that has a picture of a horse in it will automatically be accepted. Well it isn't that bad, but I will admit to a certain prejudice. In general I try to keep my other interests from creeping too strongly into *CQ*. Other hobbies are something like children, they are of great interest to you but pretty much of a bore to everyone else. And I have more hobbies than most of you have children.

Mt. Greylock

Alright youse guys, this is fair warning: the *CQ* staff is heading for the top of Greylock in N.W. Massachusetts for the *CQ* Summer VHF Contest. On hand will be Sam with his portable (?) 2M kilowatt and 64 element beam, plus Jim, Art, and me with stuff for six and 220. I thought that I might mention this ahead



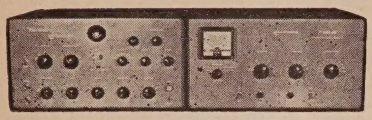
Myself and Jim last year.

of time since there are only just so many mountain tops available. I have always gotten a kick out of mountaintopping so it was only natural that I should push for *CQ* to have a VHF contest during the prime mountaintop season of August so that those of us with this strange yen could have lots of activity around when we made the effort.

Call Letter License Plates

Most of the states now have arranged for us to have 'em. A few states are dragging their heels. What we would like to have to finish up the deal is a copy of the bill that was passed for your state so we can furnish this information to the fellows that are still trying to get license plates. There are a lot of tricks that

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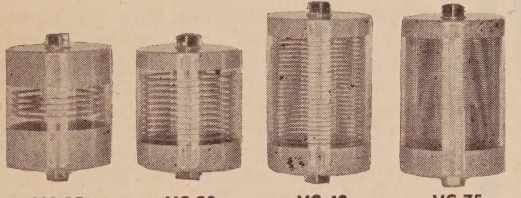
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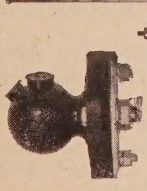
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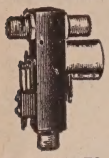
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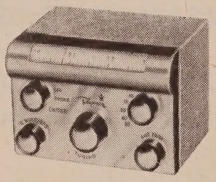
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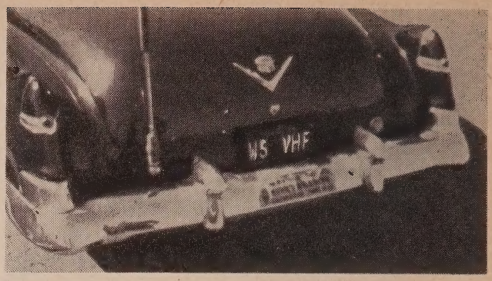
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help in the program to get such a bill passed. Art was telling me that out in Utah they whizzed the bill through in a few weeks. What they did was concentrate on the committee that had the bill and had local amateurs contact them and show them their mobile and home stations, handle traffic for them, etc. A team would make an appointment with the congress-

[*Continued on page 114*]

DX-100 [*from page 49*]

( ) Install a small ground lug under the nut on the outward side of the 'phone-c.w. switch.
( ) Now cut the yellow wire from the 5763 to an appropriate length.
( ) Connect the wire to pin 8 (NS) on the 'phone-c.w. switch.
( ) Connect a 0.005μfd capacitor from pin 8 (S) to the ground lug (S).

Conversion is now complete.

Operation

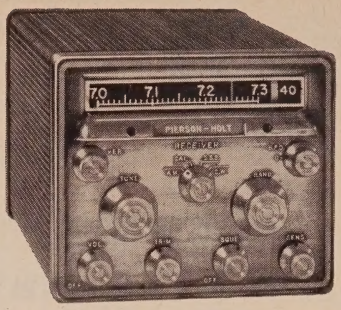
To key the driver stage, turn the 'phone-cw switch to the "c.w." position and insert the key in the front jack. To key the oscillator, remove the key from the jack and connect across pins 1 and 8 of the rear control plug and a plate switch across pins 3 and 4 of the same plug. The plate switch on the front panel is left "off." A vacuum tube keyer is recommended for keying the driver. (Consult the Radio Amateur Handbook for vacuum tube keyer and L-C filter circuits. Be sure to use a 6AS7 in the keyer.)

When using driver keying on 160, 80 and 40 meters it will be found that there is sufficient RF coupling through the driver from the running oscillator-buffer to excite the final with the key up. This is eliminated by detuning the driver by turning the "driver" control *clockwise* (turning counter-clockwise may resonate the driver at some harmonic) from the resonant point until the phenomenon ceases. More than sufficient drive can then be obtained by advancing the "drive" control.

And now you should have a signal that you can be proud of. See you on 10 c.w. ■

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Small, highly efficient, full fledged, 12 tube all-band or fixed station mobile receiver.



Extreme stability under shock and vibration, wide temperature excursions and wide power source voltage excursions. Fully capable of mobile in motion side band reception on all bands. Full automatic noise *SILENCER (not a limiter)*. Also effective sharp cut-off squelch circuit.

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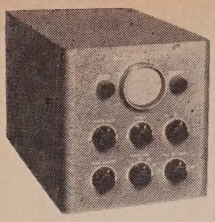
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CQ Magazine

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Editorial [*from page 112*]

man and ask for a half hour to show him what amateur radio was about. They then would pick him up at his home and whiz him through a half hour tour of mobile stations, shacks, etc., which would leave him amazed. A fast message from the sick mother of the head of the committee clinched it. When the bill came before the state senate they applied the same treatment to the whole body, with groups in various cities taking care of their local congressmen.

An array of ten to fifty mobiles will do far more toward getting the bill through than hundreds of letters.

Those of you who have already gotten your bills passed can help by sending us a copy of the bill to pass along to the others as a model.

[*Continued on page 116*]

Propagation [*from page 110*]

to one hop openings up to approximately 500 miles or so. As darkness approaches, ionospheric absorption decreases, and signal levels and skip increase. During the hours of darkness some DX openings are expected, but the band will be quite noisy.

80 Meters:

DX conditions will be generally poor during August, with infrequent night time openings characterized by weak signals and high noise levels. During the daylight hours, absorption will limit openings to about 200 miles, with the skip increasing to beyond 2400 miles during the hours of darkness.

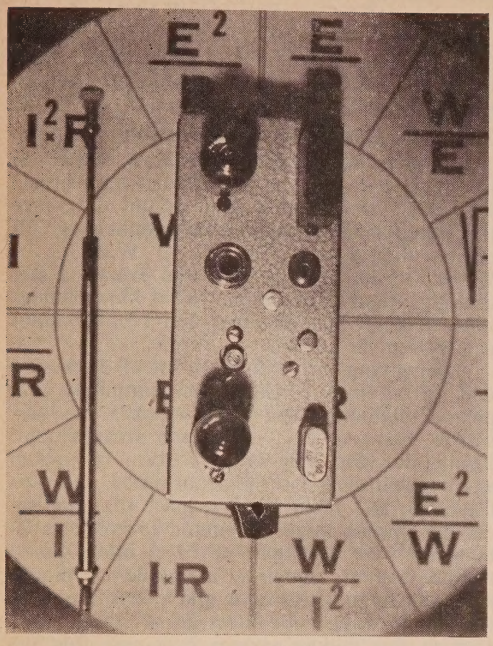
160 Meters:

During the daylight hours skywave propagation will not be possible because of excessive ionospheric absorption, and maximum range will be limited to about 25 miles or so. During the hours of darkness, as the ionospheric absorption decreases, skywave propagation up to approximately 1000 miles or so should be possible on most nights, and when static levels are exceptionally low, the skip may extend upwards to 2000 miles and beyond.

Sunspot Data

The Swiss Federal Solar Observatory reports that sunspot activity during May was higher than any month since November, 1949. The provisional sunspot number for May was 136, resulting in a twelve-month smoothed number of 72 centered on November, 1955. This month's forecast is based on a predicted smoothed sunspot number of 140

[*Continued on page 117*]



The completed x-tal checker/marker

Donald E. Simonsen (23) P. O. Box 155, Fairplay, Colorado says there is no ham in his county and he needs help with code and theory.

Help these prospective hams if you can and write me a letter once in a while. I cannot use all letters in the *Novice Shack* but pick out those letters and ideas that I think will interest you most. Until next month

73, Walt, W8ZCV



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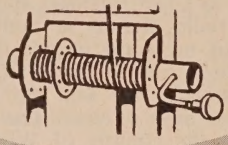
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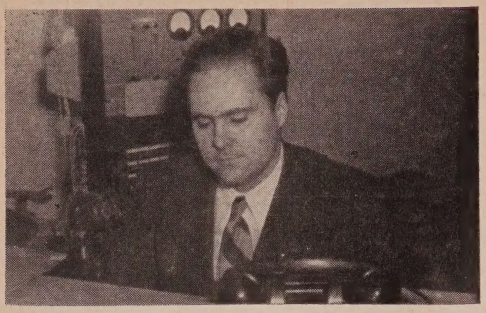
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Echoes from the Past

Some eight years ago I plunged from school into industry as Chief Engineer and Announcer at a small radio station in Southern Pines, N. C. One of my good friends there, Jimmy Lawson, turned out to be a *CQ* subscriber (CAP enthusiast). He sent up some snaps taken in those days of yore. The first picture shows me at the console of WEEB and the second shows me with Joe Warren in the middle of Route 1 doing a Man-In-The-Street-Interview parody. In the background is another announcer, Ed Cox, who is well known for his work in psychokinesis. A recent letter from Col. Burkhead, W4GTH, of Southern Pines reminded me again of the wonderful friendliness of those fine people.



Comes the Revolution

I hate to be an itch about this, but I still haven't gotten a manuscript describing a simple auto-call system. What a profound difference this could make in our hobby! Right now if I decide that I want to talk to W2OOG or W8ZCV I have to do just like everyone else and go in and phone them. What kind of nonsense is that? An effective and reliable auto-call system is needed.

After giving this problem a lot of discussion and taking into consideration simplicity, expense, reliability, and such matters the best starter seems to be a dual tone arrangement. Equipment-wise this would require two small audio oscillators for the transmitter and two filters for the receiver. I suspect that the receiving circuit might be made to work satisfactorily with a couple of FL-5 filters tuned to the desired channels, a couple of diodes across them to furnish d.c. and a sensitive relay to click in when both filters are working.

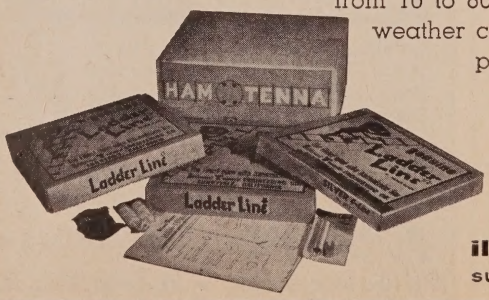
With this coding system I suspect that we would be able to get more auto-call stations on one frequency all with different tone combinations than time would allow. 400 stations all on one channel might get congested along about evening, particularly on weekends. The system can be left to work itself out, all I want to do is get the things started . . . bleep, bleep . . . hello, W2OOG?

[*Continued on page 126*]

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centered on August, 1956. Sunspot activity continues to increase at a rapid rate.

Several dozen letters have been received from all parts of the world in response to "The Sunspot Story: Cycle 19" which appeared in the March and June issues of CQ. Next month's column will be devoted to comments and questions raised in these letters.

New CRPL Propagation Forecast

The Central Radio Propagation Laboratory of the National Bureau of Standards has recently inaugurated a new series of radio propagation forecasts for the general shortwave radio user. The new forecasts are called the CRPL series Jb reports and are issued every Thursday from the CRPL laboratories at Boulder, Colorado. These new forecasts are based on up to the minute studies of magnetic variations, and on the appearance and development of activity on the sun, especially in the area of flares and sunspots. Data for these forecasts is also obtained from the "cosmic data" teletype network, over which once or twice a day summaries of solar, radio and other type observations are exchanged between several observatories throughout the world. Using recently developed techniques, powerful CRPL radio telescopes are also being utilized for accumulating data for the series Jb forecasts. These telescopes, located near Boulder, Colorado, pick up radio noise radiated from the sun in the VHF region. This data is especially useful as tips on solar activity and shortwave radio conditions, when visual observations of the sun cannot be made because of clouds. Each week, the radio forecasters at CRPL review this mass of data and assess the likelihood, in the series Jb reports, that this activity will reach the earth and produce significant disturbances, or radio storms, in the ionosphere. Specifically the series Jb reports include (1) a forecast of geomagnetic conditions, (2) the record of magnetic activity actually observed during the past week, (3) shortwave radio forecasts for the North Pacific and North Atlantic areas, and (4) a report of actual radio conditions observed for North Pacific and North Atlantic radio paths. These reports indicate both the chance that a radio storm will take place during the following week, and its severity. This serves to prepare the shortwave radio operator several days ahead for the conditions he may experience. Since the CRPL series Jb reports have been designed for the general shortwave radio user, they are available, *without charge,* to amateur radio operators upon request from:

CRPL Radio Warning Services, Series Jb
Central Radio Propagation Laboratory
National Bureau of Standards
Boulder, Colorado

73, George, W3ASK

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10M ANTENNA

[*from page 19*]

losses at these higher frequencies if a mismatched transmission line occurs. The smaller versions likewise would be even easier to construct.

On the lower frequencies simpler versions could be used. For example, a 60 foot length of 300 ohm ribbon worked against a good ground should theoretically perform satisfactorily on 75 meters, even if the entire radiating portion could not be supported vertically. However on the ten meter band and on the higher frequencies it is best to mount the antenna as high and in the clear as possible.

As for results, reports have been very good. DX from the East coast to Africa, Europe, South America and the Pacific has been worked, and stateside and local contacts have been easily made and maintained. The final tuning changes but little over the band and performance seems about equal for any portion of the band. It also works quite well on eleven meters. ■

Scope Calibrator

[*from page 45*]

Adjustment of the circuit is simple, requiring only an accurate voltmeter and a source of AC voltage. A 60 cycle voltage is fine unless the response of the scope amplifier droops at that frequency. In that case, a higher frequency, in the mid-frequency region of the amplifier's response, should be used instead. The voltage source should be connected to the scope vertical input and also to the voltmeter. Then the vertical gain and centering controls should be adjusted to place the pattern just between two lines on the graph screen, with S4 set to "signal." Be sure the amplifier is not overloaded, as this would cause inaccuracy. Then, leaving the gain control alone, the calibrator should be set for a voltage equal to the *peak-to-peak* amplitude of the AC voltage source. (Remember that peak-to-peak voltage is 2.82 times RMS voltage for a sine wave.) Then adjust R3 so that the calibration pattern is also just between the same two lines. If necessary, the vertical centering control can be adjusted to center the pattern properly. When this operation is complete the calibrator is ready for use. To get the peak-to-peak amplitude of any waveform, merely set the calibrator without disturbing the gain controls so that the calibrator pattern is the same height as the waveform under study, and read the voltage off the calibrator dials. If the waveform under study has any very low or very high frequency components, account should be taken of any droop in the response curve of the scope amplifier. ■



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(See Page 113 for subscription blank)

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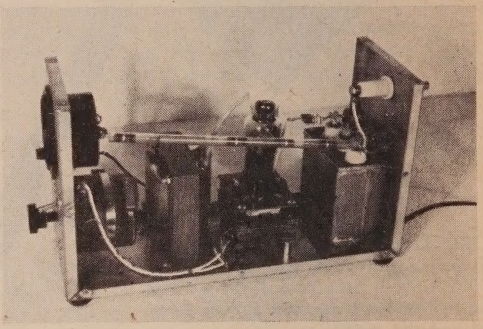
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HIGH VOLTAGE SUPPLY

[*from page 22*]

200 μA. for full scale deflection, but by some quirk required 40 megohms in series with it in order to give a full scale reading on 6kv. The meter in question must have actually had a 150 μA. movement. Four 10 megohm, 2 watt resistors were used as the meter multiplier. They actually measured 38 megohms; so an additional 2 megohms was added to bring them to the 40 megohms. This setup was checked against a model 260 *Simpson* V.O.M. up to 5000 volts with good agreement all along the line and reads 6000 volts full scale. All the resistors were placed inside a 5/16" I.D. plastic tube to help prevent corona leakage as well as support the long string between the back of the supply and the meter.



Side view of finished power supply

The type of chassis construction used was decided upon because of the type of parts involved, ease of construction, possible uses, and storage. Narrow, deep type equipment fits into the storage cabinets on hand and during use occupies much less panel space than any other shape. The U type construction allows all components to be in place and still provide easy access for wiring or repair; yet when the cover is on, it is completely enclosed and protected.

Many variations could be made in such a power supply to fill individual needs or to utilize parts on hand. This supply can be used to check filter and coupling capacitor voltage ratings except for electrolytics (destructive test), to check cathode ray tube emission, to aid in the design of oscilloscopes, or in oscilloscope trouble shooting. With a one megohm resistance in series with the hot lead, it can be used to check voltage breakdown of air dielectric variable capacitors or switches. The power supply described has already proved itself to be a valuable addition to the author's test equipment. No doubt many more uses will be found for such a power supply around the ham shack. ■

[*from page 21*]

saw off the mounting bracket and connecting strip to the desired length, and drill out the center rivet.

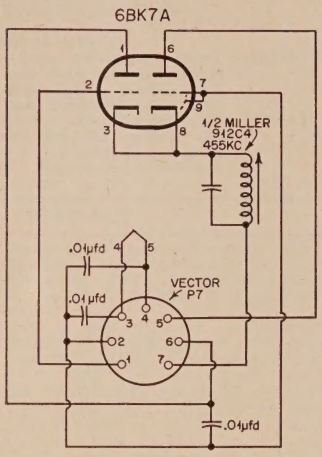


Fig. 3. Circuit of a plug-in adapter supplying an additional tuned I-F circuit.

Used in the first I-F stage of a National NC-88, this adapter had an insertion loss of about 1 S number, and narrowed the pass band, between the 6 d b points, approximately 8 percent. Tuning of the additional I-F circuit was not highly critical, and no trouble was experienced with instability.

Conclusions

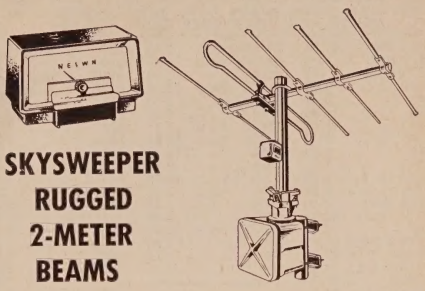
Tests of the S-9er as originally described by Canter, and as slightly modified to increase stability, increase lower frequency response, and eliminate avc from the first grid, show that it is a useful device for improving the signal-to-noise ratio at the higher frequencies. Its advantages are most apparent with very weak signals, which are commonly "lost in the noise"; and are not detectable with strong clear signals already coming in above S-9.

An electrically similar device, tuned to the intermediate frequency of the receiver, shows some promise as an I-F sharpener. Use of two tuned cathode circuits, coupled in any manner desired, in place of the common cathode tuning here shown, should lead to a greater sharpening of the I-F, but will be applicable to very few receivers because of "packing factor" troubles.

Appearance of the described adapters is shown in *Fig. 4*.

Because these devices are inexpensive, mechanically simple, and can be built in less than two hours each, they are worth a try unless your receiver has an integral low-noise front end and entirely adequate I-F sharpness. ■

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Will Pack and ship to highest bidder Johnson Viking II with Viking VFO as unit and NC-183D and speaker as unit and Central Slicer. All Perfect. W5FHU, Box 24, Buchanan Dam, Texas.

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SELL CQ, QST, Handbook, Radio-TV News, Radio Electronics 1950-55. U.S. Camera, Modern Photography 1952-55. W8UML.

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FOR SALE: Heathkit AT-1 Transmitter, $25.00. Heathkit AC-1 antenna coupler, $7.00; and Shure model 505 "Ranger" mobile mike $12.00; All in good condition. No C.O.D.'s. Craig Hummel, WN8GIH, 2516 Ralph Ave., Cleveland 9, Ohio.

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GEIGER COUNTER. "Nuclear Chicago" with Trimm headphones and batteries, $8.75. Command receivers 6.0 to 9.1 Mc. without tubes $1.75, plus 8 lbs. postage. Circuit breakers 50¢ each. ARC-5 transmitters good condition with tubes 4.0 to 5.3 mc. $3.75 plus 12 lbs. postage. Write for list on other material. R. E. Woods, 2142 Parkway Dr., El Monte, Calif.

DALLAS, TEXAS and vicinity. Equipment of late W5HGD for sale. Collins 75A1, Hammarlund 129X, Viking II, 1937 National 600 watt xmtr., lots of test equipment. Inspect and leave bid at Kern Chaney's, R-1, Anna, Texas.

FOR SALE: Central Electronics Model B Slicer with connecting cables. Unnecessary with new 75A4 $75. K2EOB, 16 East 48 St., Bayonne, N.J.

COLLINS 75A1 receiver, excellent condition, $189.50. Heathkit DX-35 transmitter, complete, brand new, $65.00. Heathkit VFO, ditto, $24.50. W2BE. IN 3-8291.

SX-28 Receiver, BC-348-R Receiver, VHF-152A Converter, Superior TV-50 Genometer Signal Generator. Robert Wolfe, W3HDT, 2506 E. Hoffman, Baltimore 13, Maryland.

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WANTED: BC-788 400 mc Trans-receiver, I-152 cathode ray indicator, R-101/ARN-6 receiver, AS-313 loop with glass cover, APS-13 Trans-Receiver. Cash or trade. George McCauley, Mineola, New York.

WANTED FOR CASH: Old radio receivers, crystal sets, old wireless parts, catalogs, books. Please write W6MEA, 2341 Ivyland, Arcadia, California.

$200.00 OR MORE for Tuning Units TN-54/APR-4 (2,000-4,000 Mc.). Also need parts, etc. Engineering Associates, 434 Patterson Road, Dayton 9, Ohio.

AN/APR-4 tuning units, ARC-3, ARC-1, good surplus and commercial laboratory items wanted. W8KTL, Far Hills Branch, Box 26, Dayton 9, Ohio.

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SWAP: Queenflex, Japanese Twin Lens Reflex Camera. Complete with flash, lightmeter, Built in timer, and case. Wanted: S4 OB or NC88. P. M. Mitchell, Navy 830, Box 14, FPO, San Francisco, California.

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HAMFESTS

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V.H.F. 2nd VHF Round-up, Syracuse, N. Y. in October.

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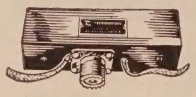
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Editorial [*from page 116*]

Texas

Getting back to Texas again, I just received some pictures of my fellow deputies and also one of W5YVJ's Rancho. The one with the donkey ? in it is the gang and me just after receiving my badge. ■



W5YVJ Rancho



Front center, Nick, W5GSL . . . in back W5RMX, Dick; W5LOF, Musty; W5YES, Dewey.



OHIO

The Findlay Radio Club Inc., will hold its annual hamfest on Saturday, September the 9th at Riverside Park in Findlay. Advanced registration $1.00 $1.50 at the gate. Mobiles listen for W8FT on 3812kc and 144.1 mc. A G-66, G-77, and many other fine prizes will be given. We will hold a swap shop and a mobile transmitter hunt. Bring your family and enjoy a nice picnic outing. Concessions will be open. For advanced registration or any other information, write Phil d. Predmore, 1200 Country Club Drive, Findlay, Ohio.

are used to peak the final when the 2E26 is to be used barefoot.

VFO

The VFO is lifted from an ARC-5 war surplus transmitter and placed on the chassis with few modifications. This oscillator has good output and stability and so it is well suited to this type of transmitter. A 3 plate 15 $\mu\mu f$ condenser is substituted for the original tuning condenser used in the ARC-5 circuit. This modification allows coverage of 4.200 to 4.400 kc or output frequency of 3.800 to 4.000 kc over 180° of the tuning condenser. A 6J5 is substituted for the 1626, and the B+ is regulated at 150 volts. The tertiary winding which was formerly connected to the grid of the 1625's serves as a link to be connected through the *C35* to the balanced modulator.

Drift is about 1500 cycles during the first 20 minutes and is negligible following warm-up. It should be part of operating procedure to warm up the VFO for a half hour prior to going on the air. Some amateurs leave the FVO filaments on continuously to keep drift down.

Construction

The entire exciter and power supply is located on a 17″ x 13″ x 3″ chassis. There is plenty of room to locate all the components. The voice control and audio section are packed into one quarter of the chassis. The power supply occupies another quarter. The remaining area contains the VFO mixer crystal oscillator, filter, balanced modulator, buffer and final.

The VFO is given plenty of air space to keep drift down. The coil and band set condenser are shielded on top of the chassis. It is desirable to make all leads around the filter and balanced modulator as short as possible so as to hold Q losses to a minimum. An extreme of this involves direct wiring of the crystal into the circuit, however this is by no means mandatory since good results are obtained with crystal sockets such as those made by Mosely which have silver plated contacts.

TVI

The author is blessed with living in a super fringe area where on a real good night a 20 microvolt TV signal can be seen on two or three channels. While the rig and I were busy with a good QSO, the XYL was enjoying the usual snowstorm without any apparent interference. No special precautions were taken outside of good shielding and the bypass condensers on the 110 volt input line. ■

QRU?

We are anxious to hear from any YLs who received their amateur licenses during the years 1934 and 1935 and have retained them since that time. If you were licensed in either of these years, won't you please drop your column editor a card or note?



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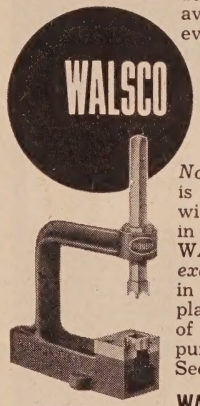
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SELECTIVITY?
SENSITIVITY?
STABILITY?
PRICE?

What makes the NC-300 a "dream receiver"?

First of all, we ran a contest to find out what features hams dream about in receivers. And we got entries from hams all over the world. Then we incorporated a lot of the suggestions in the design of the NC-300. And when we released it to distributors and customers, it was hailed the world over as a true "dream receiver".

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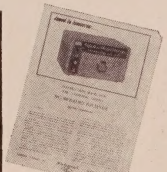
SENSITIVITY is a good example. The sensitivity of the NC-300 exceeds 1.5 microvolts using a 300 ohm dummy antenna for 10 db S/N ratio. And it's as sensitive as most receivers that sell for at least twice the price!

SELECTIVITY is another reason for the NC-300's acceptance as a "dream receiver" In the NC-300's IF system, a pair of switchable double-tuned networks offers a choice of three bandwidths — 500 cycles, 3500 cycles, or 8000 cycles. The second IF at 80 kc permits the use of these three widely different bandwidths, yet maintains a large rejection of the secondary image — a crystal filter is also provided to reject unwanted signals on phone operation . . . so you get the ultimate in selectivity in a receiver at the NC-300's price.

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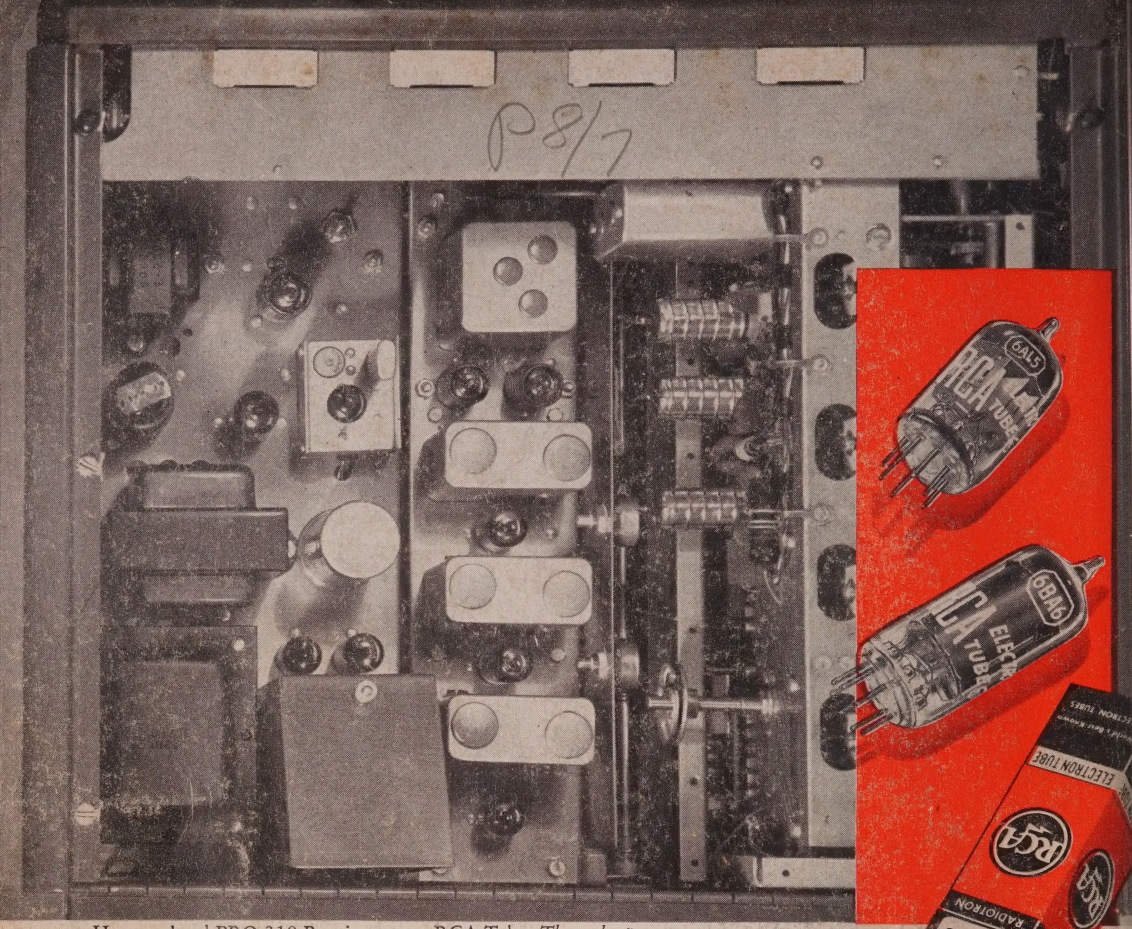
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