

RADIO

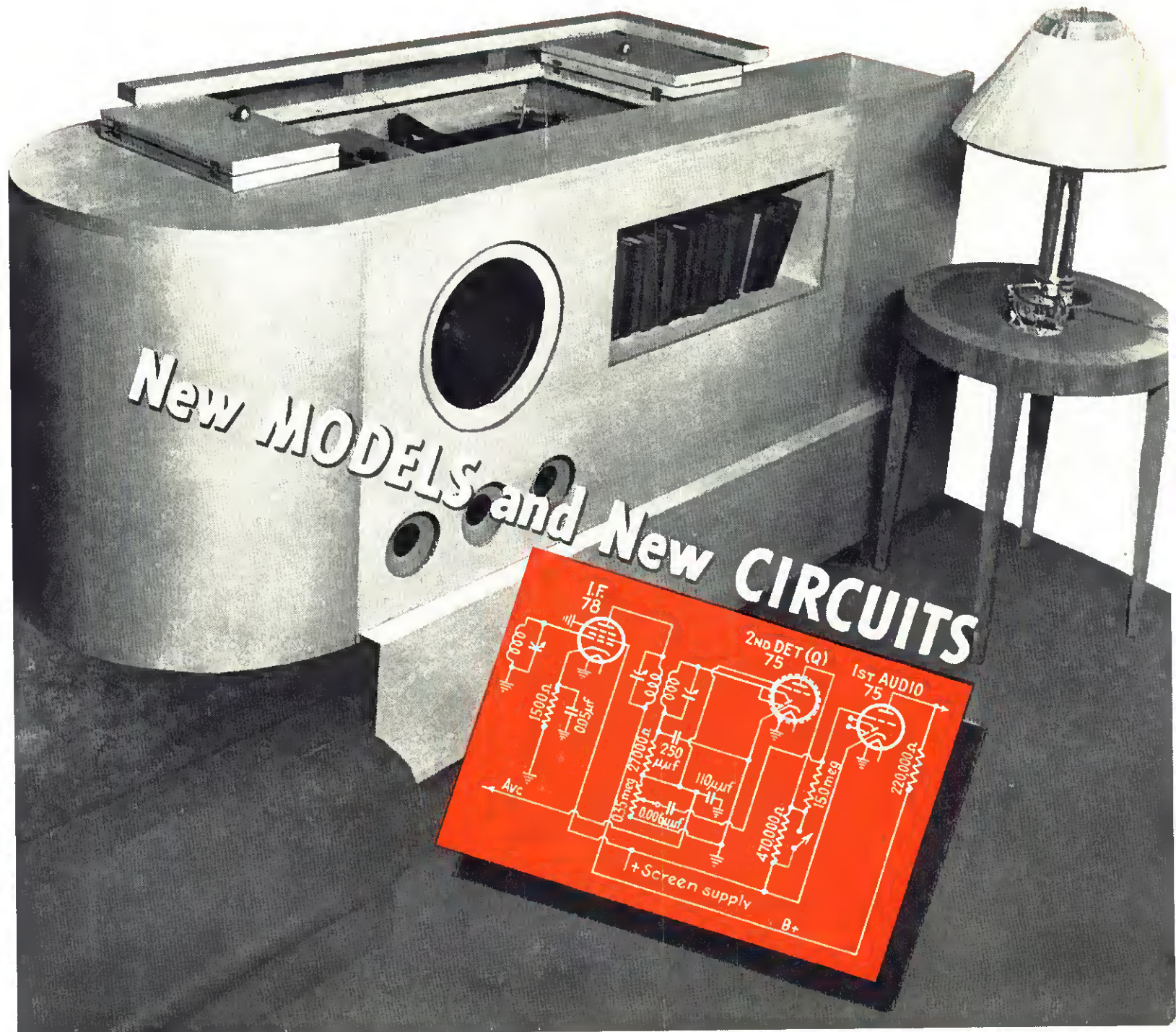
and
Television

RETAILING

JUNE • 1941

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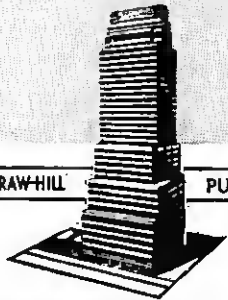
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RADIO

and Television RETAILING



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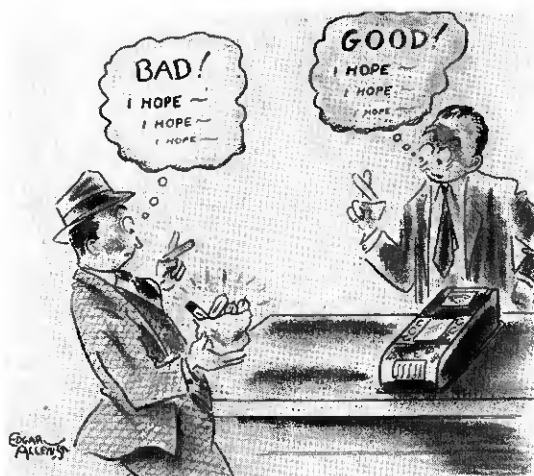
PUBLICATION

JUNE 1941

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SALES STATIC . . . (If trouble doesn't show up in this customer's tubes he'll have to have his inoperative receiver serviced, or maybe buy a new radio!)

McGRAW-HILL PUBLISHING CO., INC.

RADIO and Television RETAILING, June, 1941, Vol. 26, No. 6. Published monthly, price 20¢ copy. Allow at least ten days for change of address. All communications about subscriptions should be addressed to the Director of Circulation, 330 West 42nd Street, New York, N. Y.

Subscription rates—United States and possessions, Mexico and Central American countries \$1.00 for two years. Canada \$1.50 for two years. Great Britain and British Possessions 9 shillings for two years. All other countries \$1.50 for two years. Printed in U. S. A. Entered as Second Class Matter, April 29, 1939, at Post Office, Albany, N. Y., under the Act of March 3, 1879. Cable address "Mcgrawhill, New York." Member of A.P.B. Member of A.B.C. Copyright 1941 by McGraw-Hill Publishing Co., Inc., 330 West 42nd Street, New York, N. Y.

Branch Offices: 520 North Michigan Ave., Chicago; 68 Post St., San Francisco; Aldwych House, Aldwych, London, W.C.2; Washington; Philadelphia; Cleveland, Detroit; St. Louis; Boston; Atlanta, Ga.

JAMES H. MCGRAW
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Publication Office
 99-129 North Broadway, Albany, N. Y.

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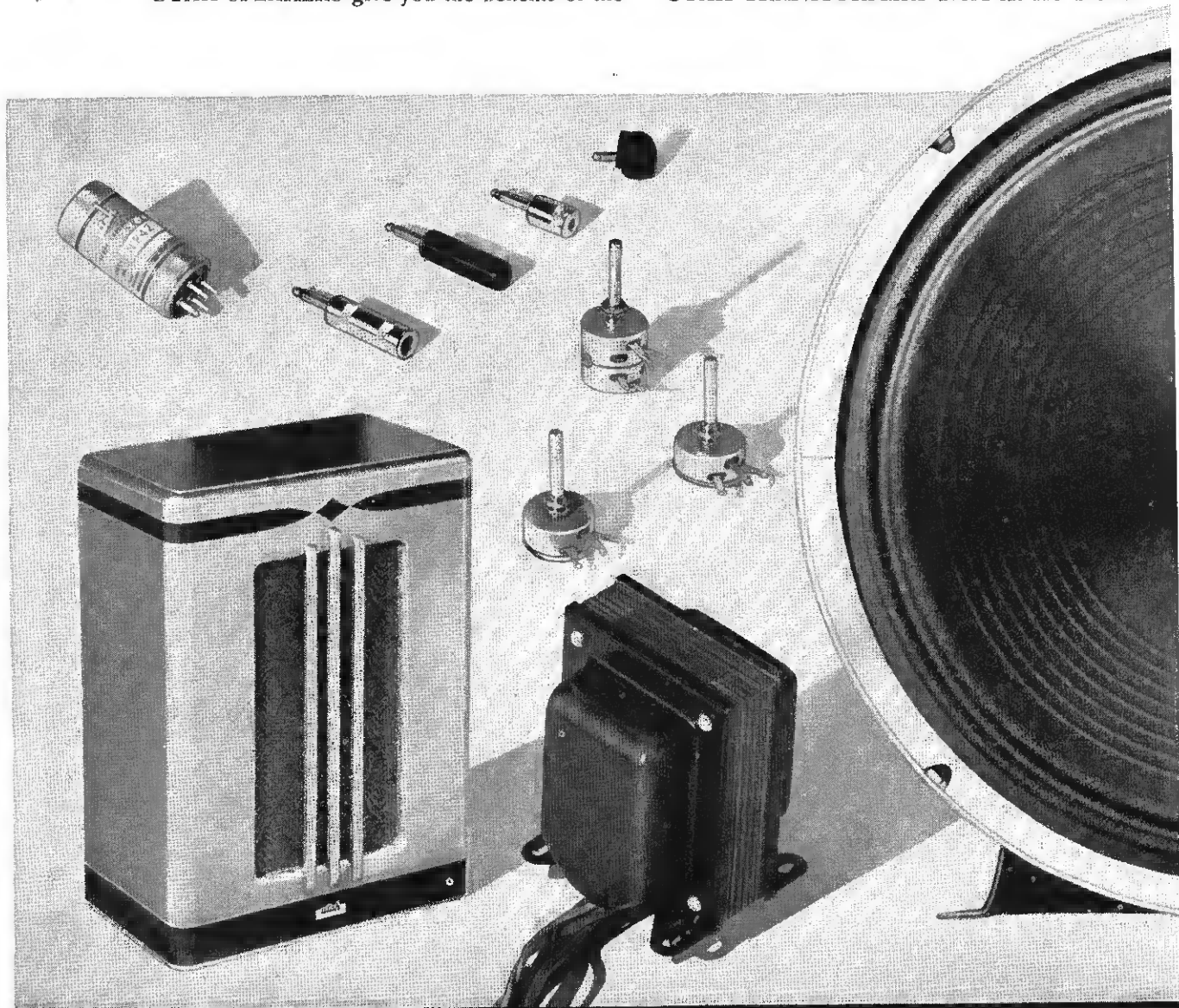
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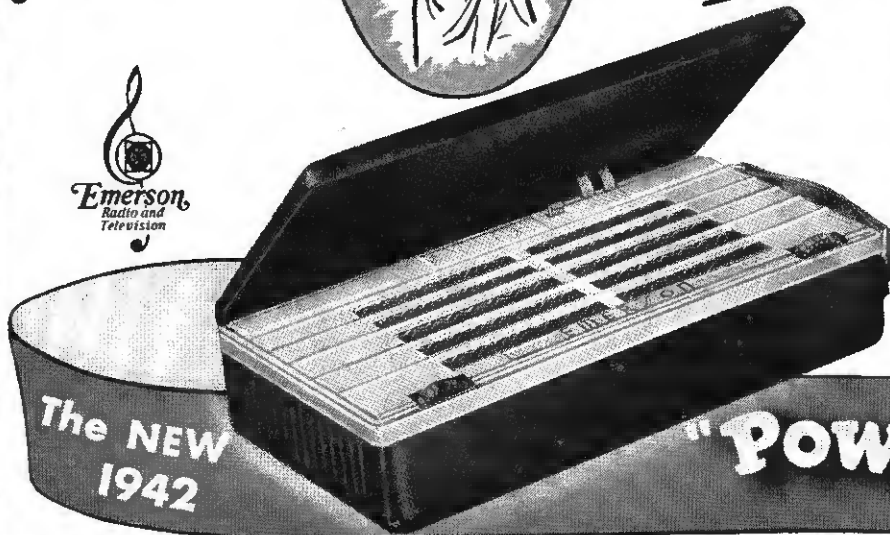
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WORLD'S SMALLEST AND LIGHTEST
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MAKE	WEIGHT LBS.	THICKNESS	CUBIC SIZE
Emerson	3.	2 Inches	70 Cubic Inches
Set A.	4.2	3 Inches	100 Cubic Inches
Set B.	4.2	3 Inches	99 Cubic Inches
Set C.	4.8	3½ Inches	113 Cubic Inches
Set D.	4.2	4 Inches	142 Cubic Inches
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RAYTHEON RADIO TUBES WERE CHOSEN AS STANDARD EQUIPMENT THROUGHOUT THE STEVENS because tube efficiency and dependability is an important part of the service.

RAYTHEONS always deliver efficient service no matter what type of task they are required to perform. Back of them are the years of expert engineering experience... the constant pioneering in tube design and construction to anticipate future requirements in the radio circuit field.

Remember RAYTHEONS with all their extra advantages **COST NO MORE!** Insist on RAYTHEONS for your next tube order.

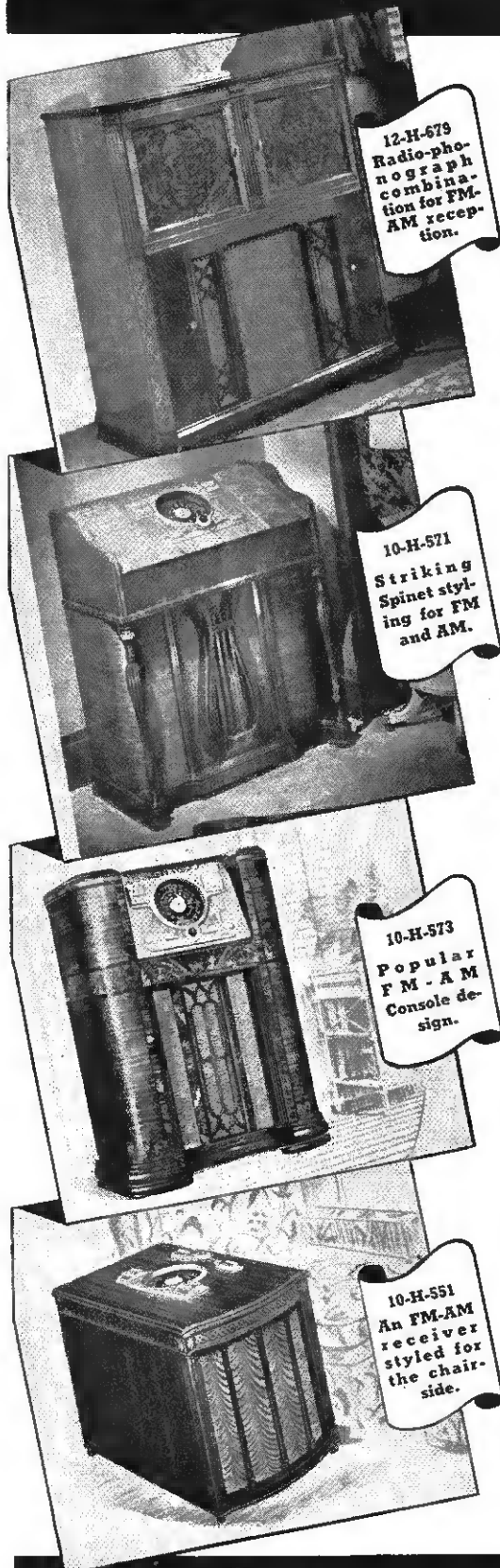


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- 5 Zenith Double Limiter—a double check on outside noise.
- 6 Zenith Between Stations Silencer—quiet—even between stations.
- 7 Zenith Discriminator—an ingenious watchman. Lets F.M. in—keeps undesirable interference OUT!
- 8 Zenith Special Pantonomic High Fidelity Speaker—made to reproduce as many as 15,000 cycles high fidelity!
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- 10 Greater Sensitivity—again on F.M. as always on all Zeniths.
- 11 Tuned Circuits—Temperature and Humidity Compensated.
- 12 Zenith Cylinder Construction F.M. Manual Tuning—Difficult to describe but improved immensely and simplifies F.M. tuning.
- 13 All F.M. Parts Spring and Rubber Floated.
- 14 Beautiful F.M. Cabinets Acoustically Designed—Plus Radiorgan and dozens of other Regular famous Zenith features.
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COAXIAL
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*Speech
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★ These are only a few of the many distinguished products in the complete Jensen line. Write for new Condensed Catalog No. 125 for further information.

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H-M-M-M-M- WILCOX-GAY'S DONE IT AGAIN!

THAT '42 RECORDING IS SURE GETTIN' THE NOD.

WILCOX-GAY'S CABINETS ARE GORGEOUS!

ZOWIE-THIS INSTA-MATIC RECORD CHANGER IS A DARB! CAN'T CROSS IT UP-IT'S JAM-PROOF!

THIS TILT FRONT IS SO CONVENIENT

NOW THERE'S TONE!

20 MINUTES OF RECORDING ON A TEN-INCH DISC? S-A-AY THIS DUAL SPEED IS SOMETHING!

HUSH! RECORDIO HAS ALL THREE

I WANTA RADIO!

YOU DEALERS BETTER GET ON THE RECORDIO BANDWAGON

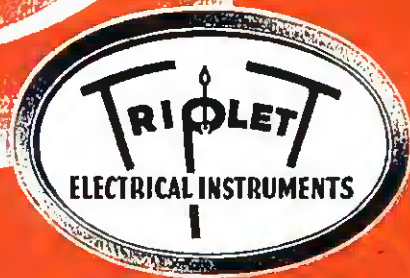
I WANTA RECORDER

I WANTA PHONOGRAPH

WILCOX-GAY RECORDIO

Steps out IN '42

TRIPLETT



**CHECK THESE
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**10,000 OHMS DC
PER VOLT**

**5,000 VOLT FULL
SCALE AC-DC**

**11,000 VOLTS BREAKDOWN
TEST**

**CARTRIDGE-LOADING
BATTERIES**

The Model 625-T Volt-Ohm-Ammeter

DC VOLTS—0-2.5-10-50-250-1000-5000 at 10,000 Ohms per Volt.
AC VOLTS—0-2.5-10-50-250-1000-5000 at 1,000 Ohms per Volt.
DIRECT CURRENT—0-100 Microamperes; 0-10-100 Milliamperes; 0-1-10 Amperes.

RESISTANCE 0-400 Ohms (shunt type circuit); 0-400,000 Ohms and 0-40 Megohms (series type circuit). Self-contained batteries for all resistance ranges. COMPLETE INSULATION for high voltage testing provided by attractive black molded case and panel. Case size is 6" x 5½" x 2½". Sturdy leather strap handle is removable. RED • DOT LIFETIME GUARANTEED INSTRUMENT—rectifier type. Guaranteed for all time against defects in materials or workmanship. Instrument has extra-long 4.58" readable scales, with contrasting colors for AC and DC markings. CARTRIDGE-LOADING BATTERY COMPARTMENT with snap-on cap makes changing batteries a simple procedure—easier than in a flash-

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MODEL 1200-C

Volt-Ohm-Milliammeter . . .
Ranges: DC—0-10-50-250-1000-5000 at 5000 Ohms per Volt; 0-250 Microamperes; 0-1-10-50-250 Milliamperes; 0-10 Amperes. AC—0-10-50-250-1000-5000, 0-1-10-25 AC Amperes. Dealer Net Price \$36.00

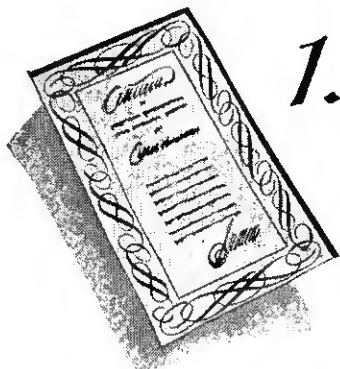


MODEL 1200-E

Volt-Ohm-Milliammeter . . .
Ranges: DC—0-10-50-250-500-1000 at 25,000 ohms per volt; 0-50 Microamperes; 0-1-10-50-250 Milliamperes; Low Ohms ½ to 1000; 40,000 Ohms, 4 and 40 Megohms. AC 0-10-50-250-500-1000 Volts. Dealer Net Price . . . \$32.00

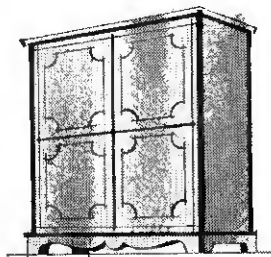


3 reasons why other dealers envy the man who handles **STROMBERG- CARLSON**



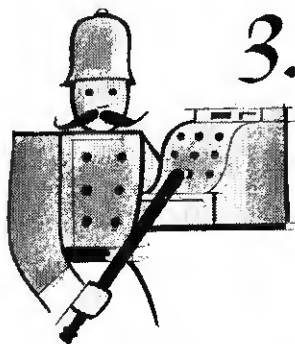
1. THE FRANCHISE:

The Stromberg-Carlson franchise is a document whose value is jealously guarded. To obtain it a dealer must prove himself worthy to represent this pioneer line of high-fidelity radio receivers and radio-phonographs. One fact alone enables you to judge how this policy of careful selection and controlled distribution protects the individual dealer—more men today want the Stromberg-Carlson franchise than ever before.



2. A HIGH UNIT OF SALE:

The Stromberg-Carlson line is deliberately planned for selling up. Each chassis series—in progression—has all the features of the preceding series, plus certain specific and demonstrable added features. When you realize the importance of a high unit of sale, you realize it means that you sell fewer sets, but make far more net profit. The larger the sales unit—the more dollars come in and the fewer sets to uncrate, deliver, install, service, and the fewer trade-ins and finance problems. The Stromberg-Carlson line provides just that—since its average unit of sale is high; yet the line is completely competitive.



3. PROFIT PROTECTION:

Because Stromberg-Carlson hand picks its dealer and controls distribution, the franchise holder's profits are better protected. A Stromberg-Carlson is not a "shopping" item. As a result the dealer works within a more stable price structure. Not only this, but he reaps the benefit of Stromberg-Carlson's great national advertising campaign, with fewer dealers to share the active prospects it creates.

TO TOP OFF THESE BENEFITS, a Stromberg-Carlson dealer has the rich opportunity of growing with a firm that for 47 years has blazed the trail in voice transmission and reception . . . that leads the way in FM, with more field experience than any other manufacturer . . . and that today has its FM-AM sets in more homes than all other makes combined! See the new 1942 line at your local distributor's showing and you'll agree, "*There is nothing finer than a Stromberg-Carlson.*"

STROMBERG-CARLSON

ROCHESTER, NEW YORK

THE FINEST RADIO FOR STANDARD PROGRAMS • THE ONLY RADIO FOR FM AT ITS BEST

DEFENSE Comes *First*

Radio Industry Will Make Money In Spite of Its Patriotic Sacrifices

THE RADIO INDUSTRY will make money in 1941.

This does not mean that it will necessarily sell as many sets as in 1940. Nor does it imply that business will be conducted precisely "as usual."

Rather, it expresses a conviction that in spite of production facility shifts to defense items, some labor losses to other plants engaged in such work and shortages of certain critical materials, ways of making profits at least equal to those enjoyed by comparable fields will be found.

ALREADY it is becoming clear that one possible path to profits involves thinking in terms of quality rather than quantity.

Increasing costs already point in this direction insofar as merchandise itself is concerned. The average price of at least bottom-bracket sets is certainly due for a substantial rise. Addition of a few refinements with which to cushion the shock is anticipated. So, while fewer units may be sold, the industry has a chance to hold dollar volume up and, what is more important, to increase the net per sale.

The trend toward quality applies to distribution as well as to merchandise. Factories will surely take care of their best accounts first when pressed for deliveries. Those with foresight may also utilize this "seller's market" to improve their marketing channels, leaning more heavily upon fewer but stronger reeds during the emergency while at the same time quietly cultivating goodwill among similarly robust accounts in competitive ranks. Thus they might insure a safety-factor to cover possible early contingencies and also leave the door open for expansion along sound lines when the shooting eventually ends.

MANUFACTURERS, aware that defense production must come first yet also convinced that defense costs must indirectly be financed by continuance of profitable though perhaps reduced

domestic business, are working on both in this order.

They have in many instances already limited or postponed the usual variety of new models. A few have gone all out, to the extreme of continuing existing lines with little or no sweetening, in order to completely release engineering personnel for emergency equipment design.

They are collectively cooperating with the government in connection with priorities affecting essential materials. More significant, they have agreed among themselves to concentrate supplies of critical metals available to radio in those particular branches of the industry that have not so far found satisfactory substitutes.

The latter move cannot be lauded too highly.

DISTRIBUTORS AND DEALERS now have a similar cooperative job to do, first for sheer patriotism and, next, in the interest of their business.

They can anticipate legitimate merchandise needs farther ahead, order as early as is consistent with sound credit and so help manufacturers minimize economically costly production peaks and valleys.

They can take unavoidable delivery delays and even occasional substitutions in a true democratic spirit, and so avoid giving suppliers who are doing their level best for their country and their business unnecessary "jitters."

This is little enough for the trade to contribute to the all-important defense program and it will be forthcoming from men who believe, as we do, that the difficulties of the coming season will be appreciable.

But not insurmountable.

W Mac Donald

Editor

MOST CRITICAL METAL

In 1940 the Radio Industry used this ALUMINUM:*

2,000,000 lbs. in variable condensers

1,000,000 lbs. in electrolytic condensers

1,000,000 lbs. in tube and coil shield-cans

400,000 lbs. in p.m. speaker magnets

Expects to get along on less than 30 per cent by shunting this allotment along largely to fabricators who must have it for capacitor foil.

* Recording blanks used another 1,000,000 lbs.

About

but it would be over-optimistic to assume that these can quickly become complete cure-alls. To begin with, it is obvious that unusual demands for materials such as copper, zinc and even plastics considered manufacturing's ace-in-the-hole could at least temporarily swamp suppliers. Then, too, there are certain mechanical and electrical obstacles to be overcome in the design of many radio products before such substitutes can be effectively used.

Take variable condensers, for instance. Steel might be used in rotors as well as stators if it were not for the fact that magnetic metals in both sets of plates requires expensive circuit and layout modifications to avoid electrical troubles, not to mention the mechanical difficulty of avoiding "feathering" at plate edges when these are stamped. Brass might be used but its extra weight as against aluminum puts an abnormal strain on bearings and today's dial mechanisms.

Fixed capacitors and particularly those of the electrolytic type might use copper or zinc foils but, to date, engineers have not to our knowledge succeeded in avoiding undesirable chemical reactions, have had to content themselves with elimination of aluminum for casings or reduction in the sizes of such containers.

Given time, American ingenuity will get around such difficulties.

Already it is reported that a number of factories are guarding against a day when solid metals of any kind may be difficult to obtain in sufficient quantity for shielding, working with metalized paper. Aluminum has long been recognized as a most desirable base for acetate-coated recordings and yet several manufacturers are now claiming comparable results with paper, plastics and even glass, materials which have heretofore baffled technicians because of their tendency to warp, raise surface-noise, permit coatings to peel away or introduce prohibitive fabrication problems. (At least one disc manufacturer is

THE PROBABILITY of more raw material rationing at present virtually monopolizes conversation among radio equipment manufacturers and some, using large quantities of metals placed on initial "critical" lists or working from hand-to-mouth with respect to supplies, are already suffering from delivery delays. Most factories have sufficient stocks on hand, however, to handle normal business during the next 60 to 90 days and a few think they can stretch these over the remainder of the year.

This much is clear following analysis of confidential reports reaching *Radio Retailing* from leaders in the industry: The material situation is admittedly awkward insofar as future planning is concerned but not nearly so serious an immediate threat as rumor makes it out to be.

Industry Cooperation Partial Answer

First metal of major importance in the production of domestic radios to be placed on the government's defense priority list was aluminum, limiting May supplies to 30 per cent of what this industry used in that month a year before. The Radio Manufacturers Association promptly adopted a plan intended to assure future use of this metal primarily in such parts as electrolytic capacitors, informing makers of variable tuning condensers that beginning July 1 such units must utilize steel or some other substitute in at least their stators, simultaneously expressing intention to

discontinue use of aluminum at the earliest possible moment in the fabrication of such less critical parts as coil, can and tube shields.

How long it may be before the government is in a position to relax the present limitation is an open question. It is our opinion that there will be no such relaxation within a period with which we can be immediately concerned despite the fact that suppliers hope to increase productive capacity 50 per cent this year and 200 per cent or more next year. (Radio used only .04 per cent of the country's aluminum production in 1940.)

Another critical metal necessarily doled out to the radio industry at least temporarily is nickel. In order to make the most of available supplies the RMA has asked all set makers to refrain from purchasing permanent magnet speakers using nickel alloyed with other metals except for installation in battery sets of the farm and portable types.

There are, of course, imminent shortages of other metals and raw materials. Some are actual and some "sympathetic." Except perhaps for OPM officials in Washington, few men are at this time adequately informed to speculate concerning such things as stainless and magnet steels, tungsten and tin, relatively rare materials normally used in the making of tubes.

Substitutes Help Tide Over

Substitute materials represent one hope for production of all the merchandise the market can absorb

MATERIALS

attempting to continue with aluminum right up to the last possible gasp by buying back used discs from the consumer.)

Painted instead of plated chassis appear due for an increase in number. Impregnated woods and compositions are not beyond possibility. One bright spot in an otherwise not-too-clear sky is the certainty that the nation's manufacturers will emerge from the present emergency with new materials which might not otherwise have seen the light of day for many years.

Prices Certain To Rise

While some substitute materials may be cheaper than those which they replace most will cost manufacturers more money, or increase assembly expense to a point which amounts to the same thing. Thus price rises on finished radio products are certain and may be substantial as soon as such substitutes

STOCKS ON HAND reasonably protect majority of manufacturers for next two or three months. Last quarter production depends upon trend of defense demand, expansion among basic commodity suppliers and availability of suitable substitutes

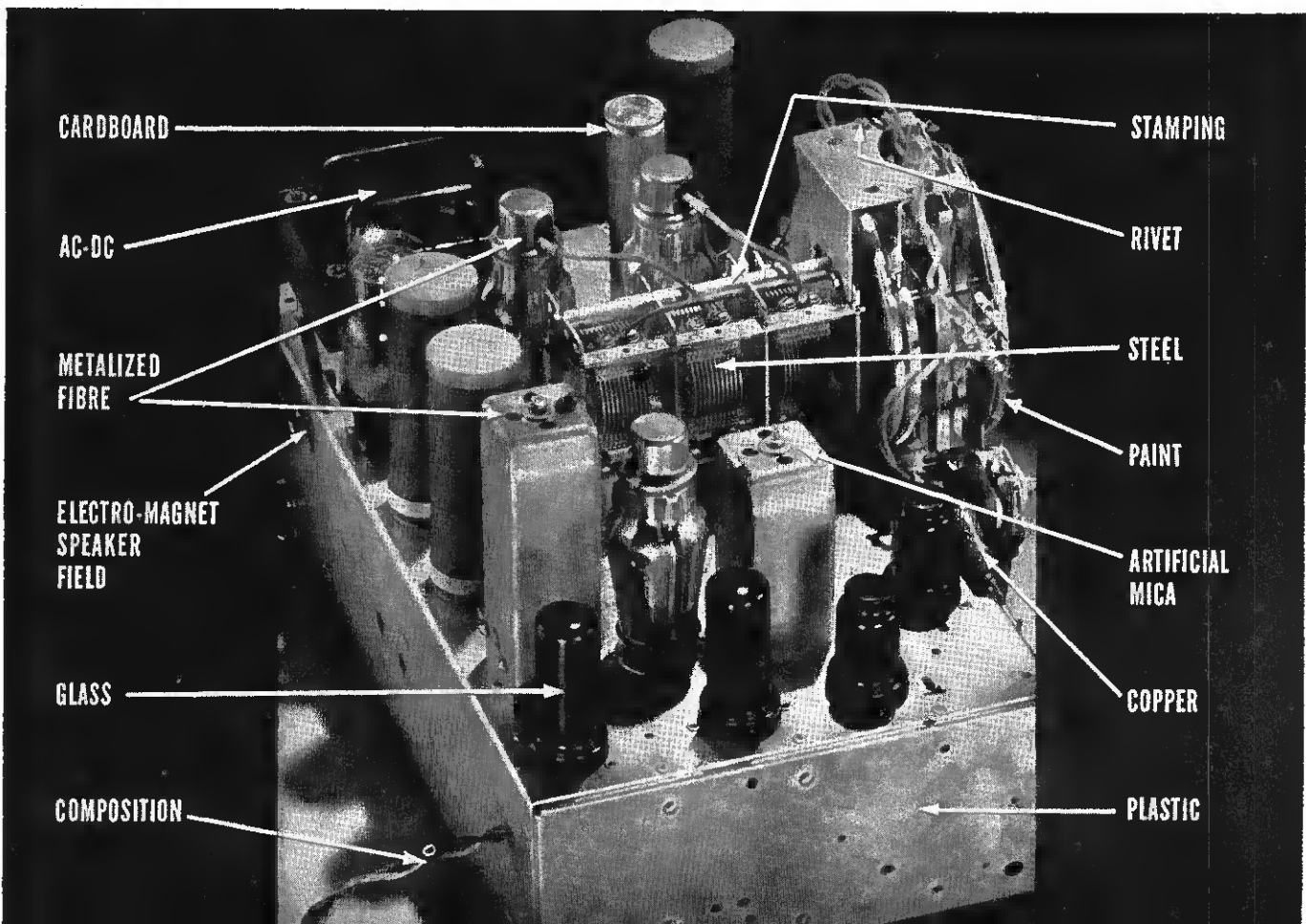
come into actual use. The fact that prices on many radio products have not already moved upward merely indicates that manufacturers with reserve stocks on hand have so far steered laudably clear of profiteering. But these stocks cannot last forever.

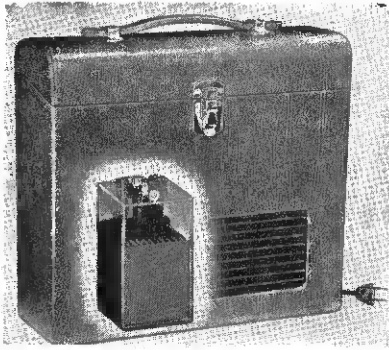
It seems likely, for this reason, that before the season is over \$12.95 rather than \$9.95 will represent the average low level for standard compacts and that sets in the higher brackets, while they will probably not increase so much pro-

portionately, must carry higher lists too. Substitute material costs alone will have this effect, not to mention increasing labor payrolls caused by threatened shifts to defense industries as well as higher rates necessarily paid workers turning out emergency materials within the radio factories themselves. (The Electronic industry is reported to have \$140,000,000 worth of defense contracts on hand at this writing . . . \$46,000,000 worth of it for electronic devices and the balance

(Continued on page 66)

TYPICAL CHASSIS IF WE GO "ALL-OUT?"





Preview of NEW

PORTABLES ▶▶▶

GENERALLY sufficiently complete by this time to permit the Editors to give the trade a good overall picture of what it will have to sell during the season ahead, radio lines this year are "trickling" onto the market in easy stages. Portables, farm sets and certain table models lead the preliminary announcement list, with larger consoles and combinations in most instances failing to make the grade insofar as this preview is concerned and some manufacturers preferring to withhold all new model data until July.

The following highlighting of models actually ready will, nevertheless, provide a useful foretaste of 1942 merchandise:

B "Rejuvenator"

Automatic Radio's 1942 line, virtually complete at this writing, includes a total of 25 models. Seven compacts in conventional cabinets list between \$12.95 and \$29.95, with two combination bedlamp-radios adding novelty to this group at \$19.95 and \$24.95. The console bracket is covered by a set for \$44.95 and a "bookcase" style sell-



Non-spillable storage battery made by Willard, vibrator B-pack and copper-oxide rectifier provide a new approach to indoor-outdoor operation in GE's LB530

ing for \$39.95. Record-playing is catered to with a particularly wide selection of equipment types, including four table type combinations between \$19.95 and \$49.95, a compact combination with automatic changer at \$69.50, a radio-record player-recorder-sound system, two compact phonographs at \$19.95 and \$29.95, two more straight phonos with automatic changers (one at \$39.95 and the other not yet priced). A new car radio sells for \$24.95. Particularly featured by this company is its novel "Tom Thumb" 4-in-1 personal listing at \$24.95 and incorporating a "built-in rejuvenator which recharges both A and B batteries to permit from two to five times more battery life," a larger portable at \$29.95 utilizing the same feature and another portable for \$24.95.



New *Sentinel* 262P has loop and also "Sen-Tenna"

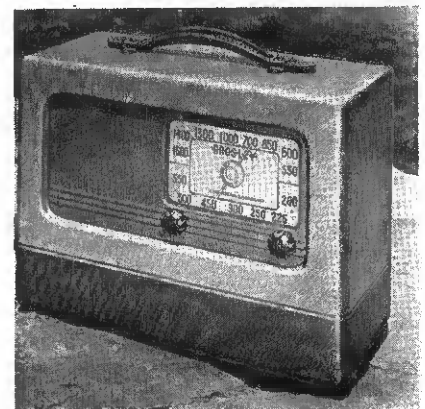
This latest *Crosley* features a one-piece battery pack

Battery Conversion Stunt

Planning to announce a more complete line later this month, *Continental* had at presstime released four "Admiral" portables (two airplane luggage styles and one leather with "Lucite" escutcheons plus an all-Bakelite model) and two personal portables. Also ready were four compact battery models for rural use, one noteworthy for its large cabinet space housing a 250-hour battery pack

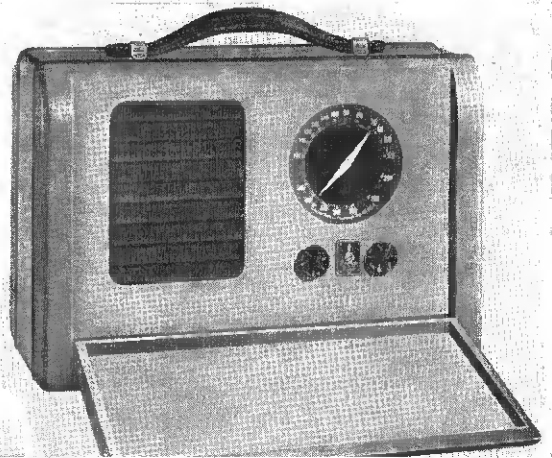
Significant TREND

NOTED is a tendency among manufacturers to "feel their way" into the market, spreading new numbers over several months and so retaining flexibility of action in tune with the times

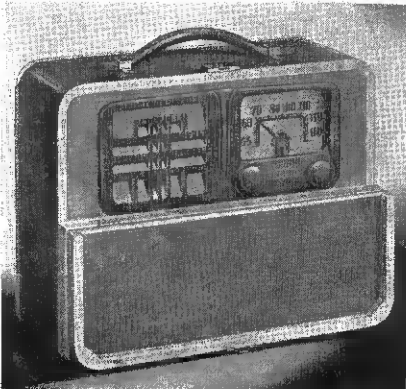


MODELS

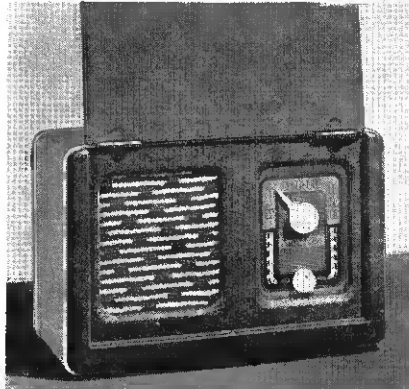
PORTABLES . . . FARM SETS . . . TABLE TYPES
get early spotlight as 1942 lines start to shape up



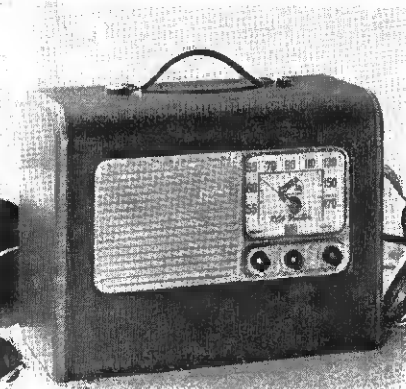
Emerson's 3-way 428 includes an r.f., noise-reducing amplifier



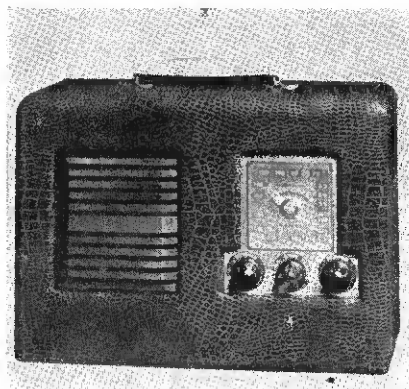
One-piece "Lucite" escutcheon dresses up 6-tube Admiral 78P6



Detachable loop in lid distinguishes 3-way Motorola "Playmate"

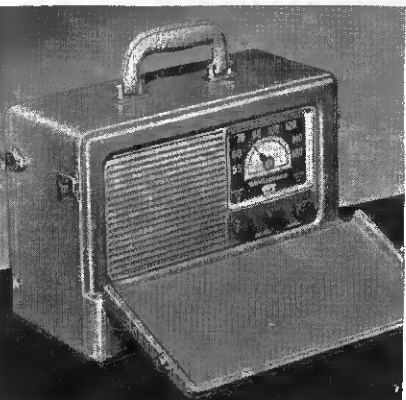


Coverage of a police band is included in RCA 25BP "Pick-Me-Up"



Dry-battery "rejuvenator" is built within Automatic's P60

Westinghouse 62K2 boasts "Stratoscope" antenna with extra pickup



Delco's R1407 model features a removable front



and the other quite novel in that it "can be instantly converted into an ac-dc set by the addition of an 117Z6GT rectifier tube."

Crosley, spreading announcement of 35 to 40 new models over the three months of May, June and July, starts the ball rolling with seven. Three are inexpensive two-band table types covering the 19-meter band through the 49-meter band as well as broadcasting. Another is a table type phono-combination. Remaining models are portables, all 3-way units and one a deluxe job in a weather-proof cowhide-grained case with built-in "Magna-Loop" antenna. Larger sets are to be shown for the first time at sectional meetings held in New York, Chicago, San Francisco, Atlanta and Dallas.

Two new Delco portables of luggage type construction operate on ac, dc or batteries. One is in a closed style case with removable front cover and "was especially designed for maximum sensitivity and selectivity in remote areas."

Portable Phono-Amplifier

Three record players, complete with their own amplifiers and speakers but without radio tuners, are the first Detrola items to make their appearance as the season opens. Model 400 operates on ac, has a two-tube amplifier, dynamic speaker and self-starting motor plus "everlasting" needle, lists at \$14.95. Model 401, at \$16.95, is the same but in a hardwood veneer cabinet instead of Detrokoid. Model 402 is a portable ac-operated machine and amplifier in a weatherproof

Preview of NEW



The Westinghouse 42XI features good table-type styling at a price

Fourteen-tube, 4-band, automatic record-changing AM/FM job just released by Howard



phonograph, a closed-lid type, three automatic table type phonos and a portable table type phonograph in airplane luggage. Added, just before our deadline, were two large chassis (sold with or without console cabinets), one a 14-tube affair for AM and FM with 10 to 12 watts of pushpull output into a high-fidelity speaker and "tweeter" and the other an 11-tuber for AM and FM with single-ended, single speaker output. Bass and treble tone controls in both.

From *Fada* comes word that with the exception of three 3-way portables (P41, PD41 and PL41) just announced and fresh from the design board, policy with respect to 1942 models has not yet been determined, sets in the existing line continuing to be sold meanwhile.

Three new rural battery model compacts have been added as a second step in the *Farnsworth* program, numbers CT41, CT42 and CT43. (Portables were announced earlier this spring.) Also two additional portables, CT59 and 60.

COMBINATIONS

carrying case with compartment for discs.

DeWald has 34 sets newly cataloged. Five compacts in colored "Catalin" list at \$19.95. Twenty-two table types in plastic and wood range in price from \$9.95 to \$55, 3 being for ac operation, one for operation in rural areas on batteries or ac and the rest for ac or dc operation. Four table type combinations, two for ac and two for ac-dc use, are priced between \$34.95 and \$58.50. A large portable at \$24.95, a straight battery personal model and a personal 3-way, both at \$19.95, complete the list, part

new and part "holdover."

Latest *Emerson* is battery-operated personal portable type "Power-Mite" at \$19.95 complete. Two inches deep and weighing 3 lbs., the set is small and light enough to be carried in a man's suit pocket, has a case of black unbreakable "Tenite" plastic and a panel finished in satin chrome. Hinged cover operating "safety switch" contains loop.

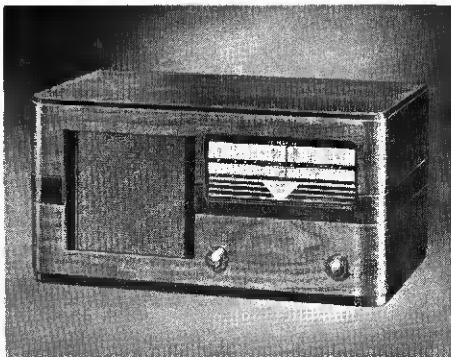
AM/FM Combinations

Espey has three deluxe compacts, mirror-covered, colored plastic and leather, an "open" model table type

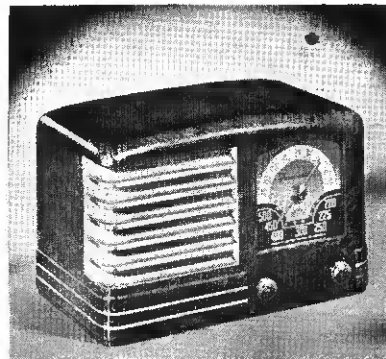
Non-Spillable Battery

GE has a new table model phono combination with automatic changer and 4 watts output, a table type radio with inclined dial and the widely discussed new portable with non-spillable storage battery. Latter set has built-in copper-oxide rectifier permitting battery to be charged from ac line or car battery with receiver itself on or off, 90-volt vibrator dispensing with B bat-

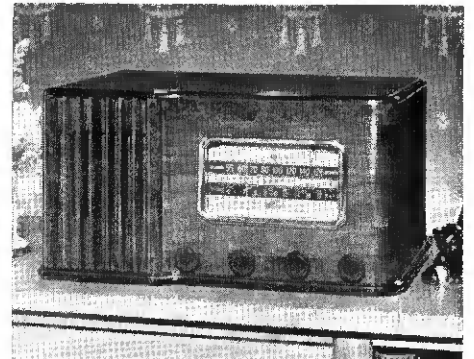
FARM SETS



Admiral's 80E4 does a job on batteries



CT43 by Farnsworth can be converted to ac-dc by adding one tube



"Top-dog" in RCA's rural radio line is the 25BT3

MODELS

teries. (Circuit and additional technical details elsewhere in this issue.)

Slick stunt by *Hallicrafter* is mounting of three communication receivers in one steel rack, with auxiliary switch panel permitting use of one monitor speaker or separate cones. Complete unit tunes from 1.8 to 2,730 meters (110 kc. to 165 mc.) without a skip, sells for \$450.

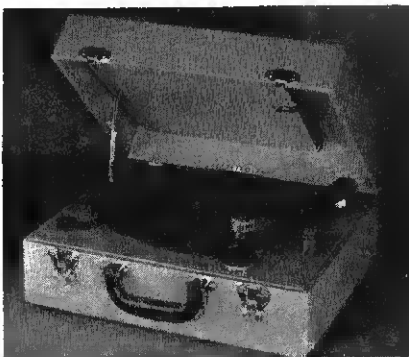
Howard has a 10-tube recorder-radio chassis with which it is possible to duplicate records, made primarily for semi-professional recording studios. Includes all-band tuner. Also announces an AM/FM phono-radio combination using 14-tubes, tuning 4-bands, housed in modern version of period Chippendale cabinet. Special 12" Jensen speaker and dual tone control for boosting bass or accentuating treble.

Cockpit "Interphone"

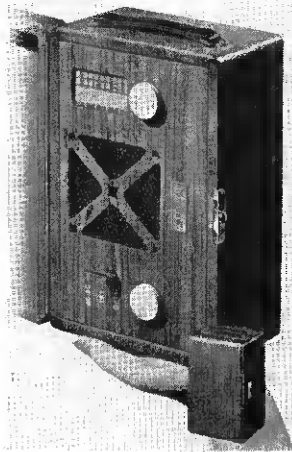
Lear offers a portable receiver designed expressly for Airways communications, with built in "Interphone," for ac, dc or dry cell operation. Covers broadcast as well as aeronautical bands. Has head-phone jack. Lists at \$44.95. "Interphone" feature consists of using the set as an amplifier, plugging in a mike to talk with adjacent cockpit of 'plane through prop and motor and wind noise.

Releasing the first half of its line this month, *Majestic* says it will include table models, portables, consoles, combinations and farm sets

PHONOGRAPH

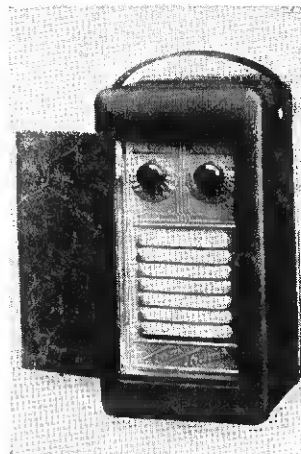


Built-in amplifier and speaker are found in *Detrol's* new 402



Sonora goes deluxe with a genuine cowhide version of an earlier model

"Tom Thumb" by *Automatic*, a three-way, gets a new season face-lifting



listing between \$9.95 and \$69.95. Seven-tube plastic goes for \$14.95. Table type automatic combinations are priced at \$39.95 and \$49.95. 7-tube, two-band console with t.r.f. lists at \$49.95. Balance of line, to be introduced in July, will cover higher-priced consoles and console combinations ranging in price from \$69.95 to \$169.95.

Our preview hits the trade just a little too early for a description of the *Motorola* line but we do know that one of the models shortly to be



PERSONALS

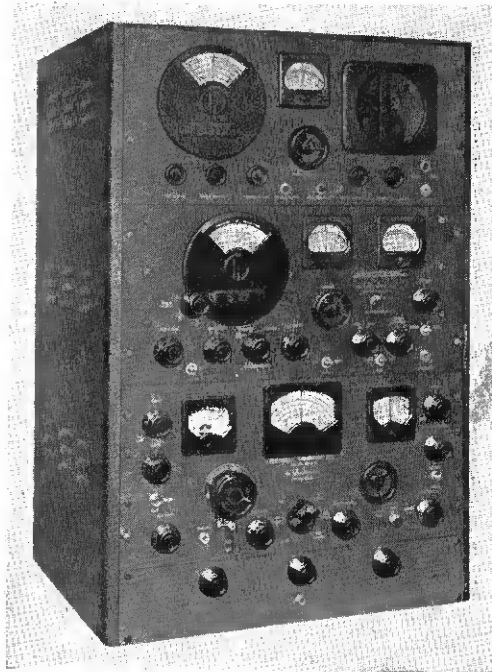
seen will be a new 3-power portable with detachable "X-Tenna" loop in lid. Other features are said to be vernier tuning, tuned r.f. stage, automatic switch for power change-over. Called the "Playmate."

Early information from *RCA* indicates that this company will start initially with four new table models and four new consoles, holding compacts under \$20 "as is" in the present line. New compacts will incorporate improvements in r.f. stages, shortwave bandspreading and speakers. Consoles will be called "Hollywood" series, featuring "Floodlight Tone" accomplished by the use of a new acoustical system, "Studio Controls" (controls in horizontal rather than vertical or angled plane). Has already released two farm type compacts and a new "Pick-Me-Up" portable.

"Studio-Tone"

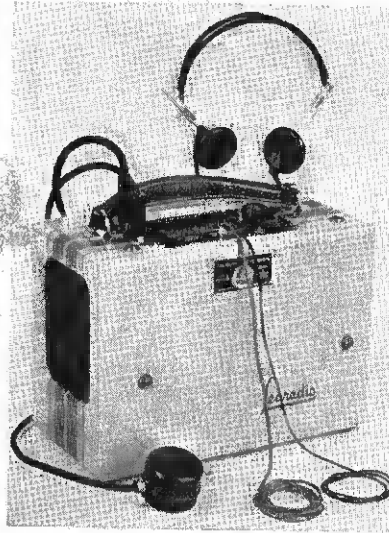
Sentinel's 1942 line will include 32 new models, featuring the slogan: "Sentinel Studio-Tone." Featured will be "top tuning" on a number of table models and a new super-sensitive r.f. stage. Battery sets

Preview of NEW MODELS



Neat idea by *Hallicrafters* is mounting of three sets in one rack

New *Lear* airplane receiver incorporates novel inter-cockpit mike



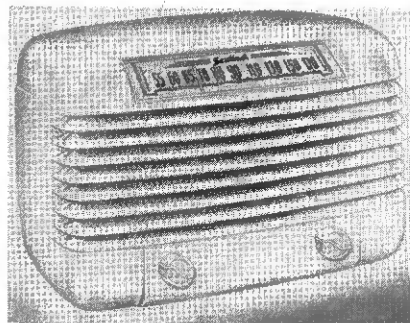
end-tables, in bookshelves or on bedside tables. And the popular 3-way "Candid" portable, re-styled in a deluxe case of top-grain cowhide, price \$29.95.

Twenty models will be found in the now complete *Stromberg-Carlson* line, including 3 table type ac-dc's covering standard broadcasting, 1 covering broadcasting and shortwaves, 1 broadcasting, shortwaves and FM and 1 for FM only with its own speaker plus provision for connecting console speaker. Six sets are straight radio consoles, one covering broadcasting and shortwave and the others broadcasting, shortwave, and FM. Then there are 6 automatic record-changing combinations tuning broadcasting, shortwaves and FM and 2 automatic combo covering just broadcasting and shortwaves. (A variety of cabinet woods and
(Continued on page 67)

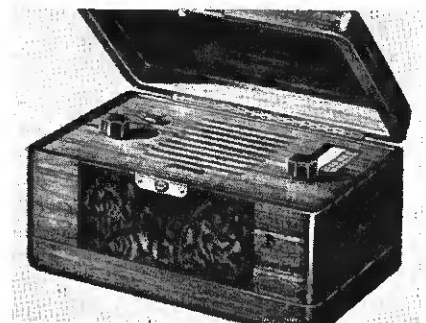
COMMUNICATIONS

feature built-in loop called "Sentenna-Scope," plus operating costs said to be as low as one-half cent per hour. Line complete with respect to portables, table types in colored plastic and wood, consoles and radio-phonographs in both compact and console styles.

Improvements in the new model 501 aviation receiver by *Setchell-Carlson* include two mike inputs and two phone jacks permitting the receiver to be used for inter-cockpit communication, a re-styled metal case. Lists at \$39.95 with batteries and one set of 'phones, with mikes \$5.95 extra. (Company now also manufacturing fluorescent lighting



Sentinel's 2631 features "top-tuning"



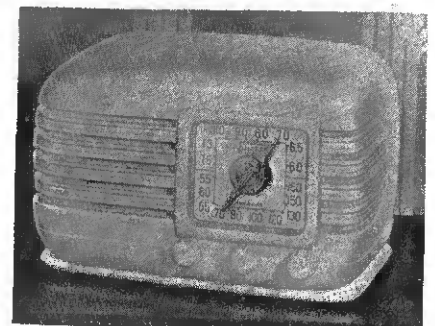
Another way of "skinning the compact cat," *Sonora's* "Jewel Box"

COMPACTS

fixtures for kitchens, commercial and industrial uses.)

Sonora has four brand-new items: A portable phono-radio at \$32.95, with self-starting rim-drive motor. A portable phono-radio-recorder featuring five-way entertainment at \$69.95, featuring heavy-duty rim-drive motor, crystal playback with lifetime needle, magnetic cutting head. An ac-dc compact at \$29.95 built within a "Jewel-Box" cabinet made of solid walnut with marquetry inlay trim, useful on desks,

Crosley's latest white plastic ac-dc set tunes two bands



CONTINUED Story

WHAT with our own early closing in order to distribute copies at the Chicago meetings and manufacturer inability or reticence to release complete line data before presstime, consoles are largely missing from this initial pictorial report although occasionally highlighted in the text. This feature, therefore, carries on in JULY

WHY YOU'LL FIND Westinghouse Radios So Salable

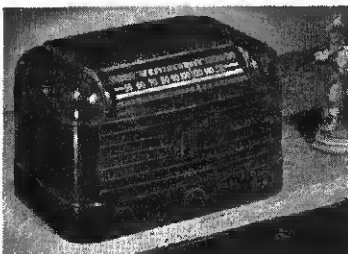
When you have a radio prospect hard to sell—one who demands sound reasons before he'll give up his money—it's possible to make your sales job easier by showing him a Westinghouse. There are good reasons why. Take for example the radio-phonograph combination shown at left.

This radio (Model WR-42X1) has a superheterodyne chassis, self-starting motor, crystal pick-up, built-in loop antenna, improved dynamic speaker. It will play either 10" or 12" records with the lid closed. It has 5 tubes, 2 being dual purpose, giving the effect of 7-tube performance. It offers beam power output with double power on the phonograph, automatic volume control, two position tone control and other features to help make your sales task easier.

Yet, it is one of the lowest priced combinations on the market!

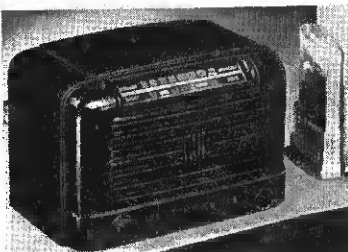
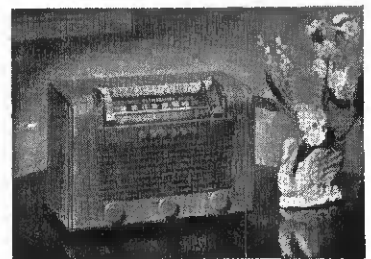
Your customer depends on you to advise him about radio values. Tell him the facts about the Westinghouse and he will make the sale for you.

Write or phone your Westinghouse distributor today.



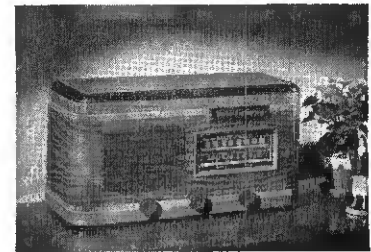
WESTINGHOUSE WR-12X10. Continental type in walnut grain plastic. 6-tube superheterodyne, AC-DC. Tone control. Automatic volume control. Dustproof dynamic speaker. Inclosed loop antenna.

WESTINGHOUSE WR-12X14. 6-tube superheterodyne, AC-DC. 5 push buttons. Tone control. Automatic volume control. Dustproof dynamic speaker. Inclosed loop antenna.



WESTINGHOUSE WR-12X8. Plastic continental type, walnut grain finish. 5-tube superheterodyne, AC-DC. Standard and Foreign bands. Electro dynamic speaker. Automatic volume control. Inclosed loop antenna.

WESTINGHOUSE WR-12X15. 6-tube superheterodyne, AC-DC. Standard and Foreign bands. 5 electrical push buttons. Automatic volume control, beam power. Dustproof dynamic speaker. Inclosed loop antenna.



Westinghouse Precision RADIO

Chicago SHOW Exhibitors

COMPANY	TRADEMARK	BOOTH	PRINCIPAL PRODUCTS
Aerovox Corp.	Aerovox	828	Capacitors. Resistors. Filters. Testers
Alliance Mfg. Co.	Even-Speed	728	Phono, recording tuning motors
Alpha Wire Corp.	Alpha	719	Radio wires and wire products
Amer. Lava Corp.	AlSiMag	1022	Ceramic insulators
Amer. Mic. Co., Inc.	Amer. Mic.	628	Microphones and accessories
Amer. Phenolic Corp.	Amphenol	418, 420	Socketts. Plugs. Connectors.
Amer. Radio Hdw. Co.	ARRCO	824	Hardware. Screw machine products
Amer. Tel & Radio Co.	ATR	731	Vibrators. Inverters. Eliminators.
Amperite Co.	Amperite	931	Microphones. Ballast tubes. Layers
Astatic Corp.	Astatic	422	Microphones. Pickups. Cutters.
Atlas Cond. Prod. Co.	Atlas	403	Capacitors
Atlas Sound Corp.	Atlas Sound	503	Speakers. Horns. Driver units
Audak Co., Inc.	Audak	3	P.A. systems. Pickups. Cutters.
Audio Devices, Inc.	Audio Devices	5	Recorders. Blanks. Styl. Handbooks
Belden Mfg. Co.	Belden	914, 916	Antenna systems. Wire. Multiple cables
Bell Sound Systems	Belfone	415	P.A. systems. Inter-coms. Recorders
Bliley Elec. Co.	Bliley	730	Quartz crystals. Holders. Ovens
Brush Development Co.	Brush	627	Microphones. Pickups. Cutters. Phones
Bud Radio, Inc.	Bud	715, 717	Variable & fixed capacitors. Coils. Parts
Burgess Battery Co.	Burgess	925, 927	Dry Batteries. Flashlights
Carron Mfg. Co.	Carron	830	Cones. Field coils. Tester kits. Rec. discs
Centralab	Centralab	108, 110	Resistors. Switches. Capacitors
Cinaudagraph Corp.	Cinaudagraph	623, 625	Speakers. Horns. Baffles
Claroastat Mfg. Co.	Claroastat	620, 622	Resistors. Ballasts. Testers
Continental Carbon	Cont. Carb.	218	Resistors. Capacitors. Filters.
Continental Elec. Co.	Cetron	301	Photo cells. Rectifiers
Cornell-Dublier Elec.	C-D	9, 11	Capacitors. Filters. Testers
Crowe Name Plate Co.	Crowe	417, 419	Dials. Escutcheons. Tuning units
David Bogen Co., Inc.	Bogen	918	P.A. systems. Recorders. Blanks. Speakers
DeJur-Amsco Corp.	DeJur	1011	Rheostats. Meters. Photo cells
Drake Elec. Works, Inc.	Drake	926, 928	Soldering irons. Accessories
Edw. I. Guthman & Co.	Guthman	405	Test equipment. Door chimes
E. F. Johnson Co.	E. F. Johnson	313	Coils. Transformers. Wire. Shields
Eicor, Inc.	Eicor	826	Transmitting equipment
Elec. Soldering Iron	Esico	631	Dynamotors. Motors. Generators. Plants
Electro-Voice Mfg. Co.	Electro-Voice	413	Soldering irons. Accessories
Electrovox Co., Inc.	Walco	1019	Microphones. Accessories
Garrard Sales Corp.	Garrard	1010	Recording discs. Needles
Gen'l Cement Mfg. Co.	General Cem.	102	Record changers. Phono Motors. Pickups
Gen'l Ceramics Co.	General Cer.	629	Cements. Finishes. Cables. Knobs
Gen'l Dry Batt., Inc.	General	1017	Insulators
Gen'l Industries Co.	G. I.	428	Dry batteries
Gen'l Transf. Corp.	GTC	1027	Phono motors. Changers. Rec. devices
Hallidorsen Co.	Hallidorsen	414	Fluorescent equip. Transformers. Packs
Hallcrafters, Inc.	Hallcrafters	615	Transformers
Hammarlund Mfg. Co.	Hammarlund	711, 713	Communication receivers. Transmitters
Hickok Elec. Instr. Co.	Hickok	924	Parts. Receivers. Transmitting equip.
Howard Radio Co.	Howard	619, 621	Test equipment
Hygrade Sylvania Corp.	Sylvania	409, 411	Communication receivers. Recording discs
Hytron Corp.	Hytron	18, 20	Receiving tubes
Indiana Steel Prod. Co.	Indiana Steel	104	Receiving, transmitting, hearing aid tubes
Insuline Corp. of Amer.	IGA	721, 723	Permanent magnets
Int'l Resistance Co.	IRC	724, 726	Auto antennas. Radio parts
Jackson Elec. Instr. Co.	Jackson	1021-23	Fixed and variable resistors
James Millen Mfg. Co.	James Millen	1025	Test equipment
Jensen Radio Mfg. Co.	Jensen	630	Communication receivers, parts
J. F. D. Mfg. Co.	J. F. D.	624, 626	Speakers, associated equip.
John F. Rider	Rider	404	Radio, auto radio accessories
John Meck Industries	John Meck	111	Radio manuals, text books
Kainer & Co.	Kainer	401	Sound systems
Ken-Rad Tube & Lamp	Ken-Rad	429	Horns. Baffles. Reflex trumpets
Les Logan Co.	Speed-X	1020	Vacuum tubes
McGraw-Hill Pab. Co.	McGraw-Hill	431	Telegraph keys
Meissner Mfg. Co.	Meissner	311	Radio Retailing
Million Radio & Tele.	Million	614, 616	Kits. Parts. Receivers. FM tuners
National Carbon Co.	Eveready	433	Test equipment. Sound systems
National Co. Inc.	National	727, 729	Dry batteries. Air-cell
Ohmite Mfg. Co.	Ohmite	912	Communication receivers, parts
Operadio Mfg. Co.	Operadio	929	Resistors. Switches. R. F. Chokes
Oxford Tartak Radio	Oxford Tartak	930	Amplifiers. Speakers. Inter-coms.
Park Metalware Co.	Xcelite	829	Speakers. Exponential horns
Par-Metal Prod. Corp.	Par-Metal	618	Tools. Testers. Aerial connectors
Permo Prod. Corp.	Permo Point	402	Metal cabinets. Chassis. Panels. Racks
Pioneer Gen-E-Motor	Pincor	407	Playback, cutting needles
Precision Appar. Co.	Precision	210	Dynamotors. Motor-generators. Light plants
Premax Products	Premax	208	Test equipment
Presto Recording Corp.	Presto	425	Antennas, accessories
P. R. Mallory & Co.	Mallory-Yaxley	430, 432	Recording equipment, accessories
Quam-Nichols Co.	Quam-Nichols	821, 823	Condensers. Vibrators. Rectifiers. Switches
Racon Elec. Co. Inc.	Racon	216	Speakers and equipment
Radiart Corp.	Radiart	406	Speakers. Horns. Units
Radio City Prod. Co.	RCP	116, 118	Vibrators. Packs. Aerials
Raytheon Prod. Corp.	Raytheon	1012	Test equipment, accessories
RCA Mfg. Co.	RCA	617	Tubes
Readrite Meter Works	Readrite	13, 15	Tubes. Parts. Test equip. Amateur equip.
RecordDisc Corp.	RecordDisc	725	Test equipment
Rek-O-Kut Corp.	Rek-O-Kut	1015	Recording blanks
Rola Co.	Rola	505	Recording equipment, accessories
Shure Brothers	Shure	910	Speakers
Simpson Elec. Co.	Simpson	212, 214	Microphones. Pickups. Cutters
Solar Mfg. Corp.	Solar	421, 423	Test equipment
Specialties Mfg. Co.	Specialties	115	Condensers. Testers. Filters
Sprague Prod. Co.	Sprague	408	Relays. Radio wires
Standard Transf. Corp.	Stancor	921, 923	Condensers. Resistors. Testers
Supreme Instru. Corp.	Supreme	117, 119	Transformers. Packs. Kits
Talk-A-Phone Mfg. Co.	Talk-A-Phone	825, 827	Test equipment
Thordarson Elec. Mfg.	Thordarson	319	Record players. Recorders. Intercoms
Transf. Corp. of Amer.	Clarion	920, 922	Amplifiers. Transformers. Transmitters
Trav-Ler Karenola	Trav-Ler Kar.	16	P. A. systems. Recorders. Intercoms
Trimmm Mfg. Co. Ltd.	Trimmm	1013	Recorders. Players. Automatic changers
Triplet Elec. Instr.	Triplet	720, 722	Headphones. Phone plugs. Amplifiers
Tung-Sol Lamp Works	Tung-Sol	410, 412	Test equipment
Turner Co.	Turner	1029-31	Tubes. Dial lamps. Car signal flashers
United Transf. Corp.	UTC	1	Microphones. Vibrators
University Labs.	University	831	Transformers. Reactors. Regulators. Kits
Utah Radio Prod. Co.	Utah	1016-18	Speakers. Reflectors. Baffles. Drivers
Vaco Prod. Co.	Amberyl	1014	Speakers. Vibrators. Resistors. Transf's
Vasco Elec. Mfg. Co.	Vasco	325	Tools
Vulcan Elec. Co.	Vulcan	501	Soldering irons
Walter L. Schott Co.	Walsco	426	Soldering irons. Resistor tubes. Lamp bulbs
Ward Leonard Elec. Co.	Ward Leonard	109	Staple driver. Dial cables. Chemicals
Ward Products Corp.	Ward Products	820, 822	Resistors. Relays. Control devices
Webster-Chicago Corp.	Webster-Chgo	112, 114	Antennas
Webster Elec. Co.	Webster Elec.	317	Sound sys. Changers. Motors. Intercoms
Wilcox-Gay Corp.	Recordio	6	Sound sys. Pickups. Cutters. Intercoms
Wm. Brand & Co.	Wirt	424	Recording equipment. Blanks
Wirt Co.	Wirt	416	Tubing. Varnished cloths. Papers. Tapes
Worner Products	Worner	416	Fixed & variable resistors. Switches
		435	Photo-electric devices

More

EDITORIAL ROUNDUP of new product details continuing right up to presstime for this special pre-view resulted in the receipt of much data here presented at least simultaneously with first trade showings.

Some manufacturers had designs near ready for release, regretted their inability to supply final technical details or photos before we printed and said they hoped to make our regular new merchandise columns next month. Others passed along a few hints.

Trick Tube Socket

Alpha Wire, for instance, intrigued us by saying it would have several new types of wire that "jobbers can readily sell but to which they have given little thought in the past."

American Microphone has a new crystal mike with a coupling sys-

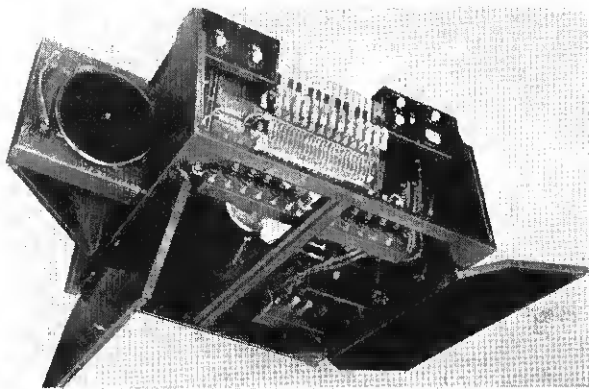
STATION CALL LETTERS					
Michigan, Ohio 1949					
MI	WASH	W8CM	W8CP	W8DJ	WELL
WEAL	WFOF	WGRB	WHAL	WHDF	WHLS
WIBM	WJBK	WJMS	WJIM	WJR	WKAR
WKBZ	WKZO	WLAV	WMBG	WMFC	WOOD
WSAM	WSDO	WTCM	WWJ	WXTZ	
OH	WADC	W4KR	WBNS	WCKY	WCLE
WCOL	WCPO	WFMJ	WGAR	WHBC	WHIO
WHIZ	WHX	WHXC	WICA	WING	WIZE
WJW	WWSN	WKRC	WLOK	WLW	WMAN
WMBN	WOSU	WPRY	WSAF	WSPD	WSTV
WTAM	WTOL	W3GO			

BUTTON TABS—They are cleverly grouped by States, come complete with cutting guide

tem between diaphragm and element said to double usual output and further smooth out response, supplied in 200 and 500 ohm types.

NEW MERCHANDISE

PARTS . . . TESTERS . . . SOUND . . . RECORDERS
 . . . TOOLS . . . ACCESSORIES and ALLIED
 PRODUCTS to meet today's Sales and Service Needs



AMPLIFIED CARILLON—Its chimes are harmonic-tuned within 1/5000th of 1 per cent

Also a new dynamic in which double units are employed to provide an over-all range from 25 to above 10,000 c.p.s., with a selector switch so that high or low units may be used separately.

Among other things, *American Phenolic* has a trick new tube socket which fastens to a chassis without the use of screws or rivets. Soft metal flanges not unlike those used in the construction of certain types of toys are bent with the fingers into slots cut by a special punch when the chassis hole is knocked out. Also announces a line of connectors made in accordance with Army and Navy specs, comprising 18 different sizes carrying from 1 to 42 contacts, with 72 possible combinations available. A variety of conduit fittings are also new.

A vibrator-operated B eliminator refined in recent months by *American Television & Radio* delivers 90 volts d.c. at 10 ma., operating from

NEW MICAS—Both companies whose latest types are pictured report de-



rechargeable flashlight cells, ordinary flashligh cells or from a car storage battery, is smaller than equivalent B's and weighs about one-third less.

Amperite thinks its type PG dynamic mike is particularly hot, says it is uni-directional, eliminates feedback and has flat response. "PG," in case you are interested,

mand for moulded, insulated-mount capacitors in high-voltage styles



stands for "pressure gradient." Output, 55 db. Two models, for speech and music, at \$25 and \$32 list (illustrated in these pages).

Straining every nerve to get new stuff out was *Atlas Sound*, reporting the addition of two specific items to its line. "Trigger" microphone stand scheme (illustrated) allowing one-hand adjustment of height. And the RC-1 speaker control for individual high-level adjustment in p.a. installations, built within a shielded flush-mounting box and handling up to 15 watts of audio.

Glass Base Discs

Glass-base recording discs caught our eye for obvious reasons in the line of *Audio Devices*. Firm feels pretty proud of its design job keeping the stuff thin, flat, smooth, free from spring or warp and congenial toward acetate coatings, says the real McCoy is its method of cutting

More New Merchandise

and drilling.

Bud has added three code-practice oscillators, one with a magnetic speaker, another with a dynamic and still another for 'phones.

Brush Development has a "number of new products" but says "nix" for publication this month.

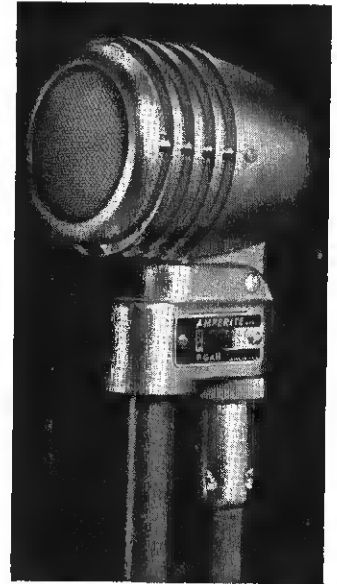
Featured among new *Continental Carbon* products are "Oilacon" hermetically sealed condensers, "Filternoys" units for fluorescent lighting units, blue vitreous enamel wire wound resistors with tinned copper wire leads, smaller wire wounds moulded in Bakelite, flexible wire wounds and moulded types with axial leads.

Cornell-Dubilier releases type 7 moulded Bakelite capacitor, says a type 8 will be available shortly. First unit seen is of insulated mounting hole type (illustrated) with 1½-inch spacing, usual tinned metal lugs. Standards are brown, special low-lossers yellow.

Heavy duty rheostats and potentiometers, meters, have been given a general "face-lifting" in the *DeJur-Amsco* line and the company is also making electrical instruments for aircraft use with superfine features such as temperature compensation, high torque.

Electro-Voice says its line of mikes is at present about the same as last season but that it is working on a few new designs for future release.

Erwood Sound has some new



STREAMLINED DYNAMIC—Uni-directional, it features freedom from feedback and flat response

TRIGGER ACTION — You just squeeze and then release to adjust microphone stand height

equipment but couldn't quite make the grade in time for this roundup.

Flexible Pushbutton Tabs

Interesting item in *General Cement's* still wet catalog was its sheets of pushbutton call-letter tabs, cleverly arranged by State groups, permitting servicemen to purchase just the ones they use and not dx (illustrated). Brown sheets with ivory letters, or translucent types, available. Also showed dial cord

dressing, dial cable racks and an improved "Felt-Koat" finish kit with flocks of uses. (Ed. Note: Please excuse pun.)

A new "Porta-Power" unit supplying 1½ volts A and 90 volts of B when connected to a 6 volt d.c. source is certain to be a popular item in *General Transformer's* line.

Hickok is getting ready to deliver new electronic volt-milliammeter for ac or dc measurements, is working on a 5-inch oscillograph. Definitely ready with an electronic bridge and a power analyzer instrument.

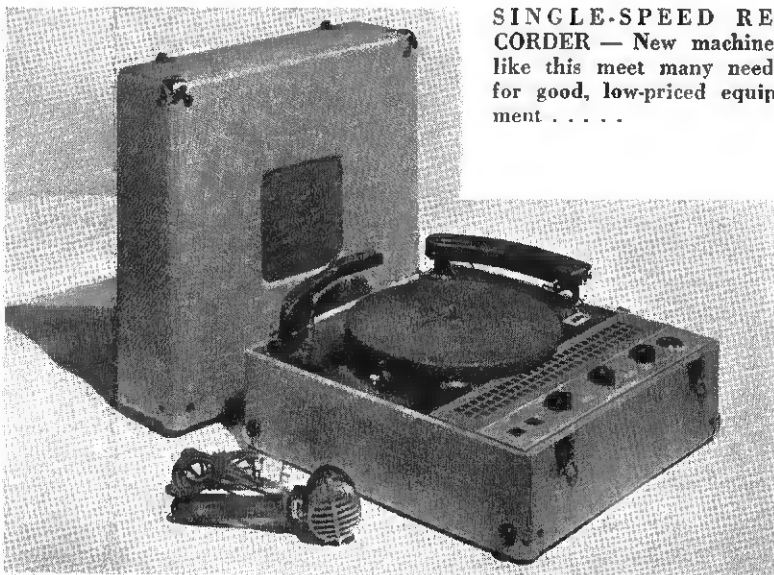
A recording disc in a 6½-inch "economy" size by *Howard* uses the same type C black coating used on this firm's metal-base discs and will list at 10¢.

A new type of "Speech-Master" reproducer has just been announced by *Jensen*. Comes in two models, one for desk or wall mounting and the other for panel mounting. Both are p.m. types employing the peridyamic principle, handle 5 watts and are especially designed for maximum speech intelligibility. Priced at \$9.95 and \$8.10.

Sound "Selector-Box"

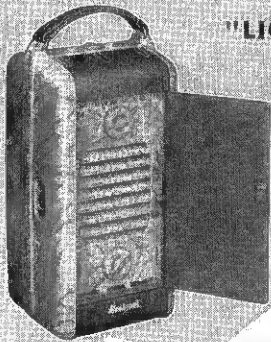
John Meck's latest catalog lists 10, 15, 25, 35 and 70-watt wide-range amplifiers, plus a 70-140 watt

SINGLE-SPEED RECORDER — New machines like this meet many needs for good, low-priced equipment



NOW DELIVERING!

The New Sentinel 1942 Line



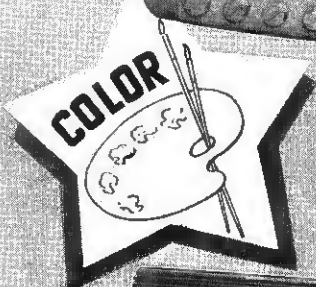
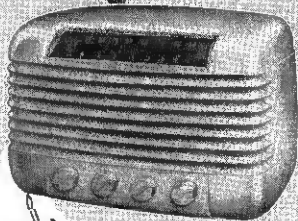
"LIGHTWEIGHT CHAMPION"

Amazing new Personal Portable with SEN-TEENNA extra loop antenna that permits reception anywhere — in cars, trains, planes. 3-Way AC, DC, Battery. Model 247-F.



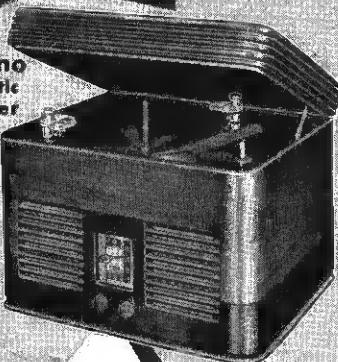
TOP-TUNING

Record-breaking value featuring new easy-to-read Top-Tuning and luxurious plaskon cabinet. A real sales and profit winner! Model 254-I.



Radio-Phono with Automatic Record Changer

Sensational Table Combination sure to make a hit with value-minded prospects. Plays 10" or 12" records automatically. Model 248-K.



*During the Show!
See Sentinel at
Blackstone Hotel
June 10, 11, 12, 13*

SEND COUPON FOR FULL DETAILS!

SENTINEL RADIO CORPORATION
2020 Ridge Ave. Dept. RR-6 Evanston, Illinois
Please send me full details on Sentinel's new 1942 line, including facts on Sentinel's all-out merchandising program.
Dealer's Name _____
Address _____
City _____ State _____

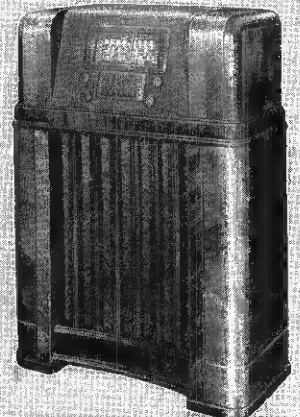
NO AERIAL! NO GROUND! On Battery Sets

Added value to clinch the rural market! New built-in loop eliminates outside aerial and ground. Self-contained power pack. Model 265-T.



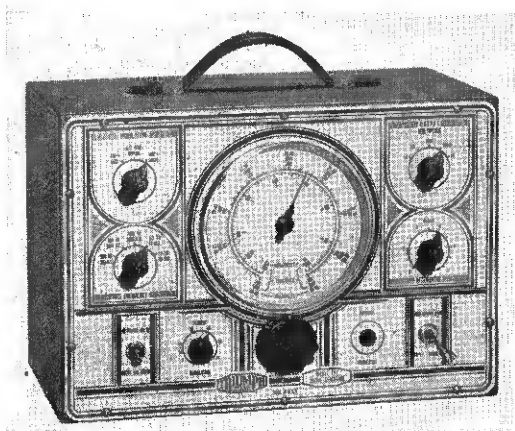
DE LUXE CONSOLE

9-Tube, 3 Band, AC. Win new customers with this new, beautiful model. Beats anything in its price class. Model 269-C.

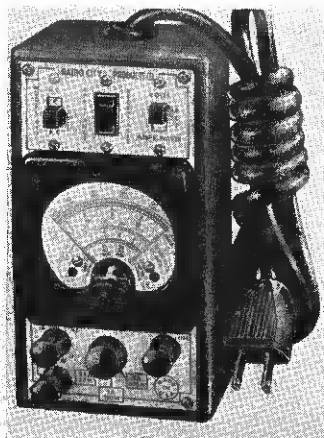


QUALITY RADIO SINCE 1920

More New MERCHANDISE



MODERN SIGNAL-GENERATOR — Lo, a large, dual-scale dial a man can really read



APPLIANCE TESTER — Pocket-size instrument reading, among other things, power consumption

duplex job and 15, 25 and 40-watters for 6-volt dc. operation. Also shows two multiple speaker systems, the "Audiograph" school system and special selector box which may be used as the basis of an industrial paging system.

Out at *Kato*, engineers have designed an electric plant turning out 4000 watts at 1800 r.p.m. or 2000 watts at 1200 r.p.m., standard 60-cycle 110-volt ac. And a job delivering 500 watts of ac plus 200 watts of 6-volt dc if desired. Both units gasoline engine driven.

Operadio reported that it was just about set with several new intercommunicators and paging models to market under the "Flexifone" trademark, had some new wrinkles to show in sound equipment for industrial use.

Called the most important item in *Presto's* new line was the K-8 recorder, low-priced 15-minute portable. Other new items included a 9-C recording turntable which also makes and reproduces 15-minute transcriptions and can be attached to motion picture projectors or radio sets. An 11-A turntable was also promised the trade, as were recording blanks with base material other than aluminum. Exact nature of base material not yet disclosed.

Midget Appliance Tester

A pocket-size tester for electrical appliances has just been released by *Radio City Products*, eighteen measurement ranges including ac and dc line voltages up

to 250, four dc ampere ranges to 25 amps and the same for ac, four dc watts ranges up to 3,000 with a similar circuit for ac. Direct-reading where line is 120 volts and power factor of the appliance under test unity. Curves and data supplied with instrument for other conditions (illustrated). Also has a new model 661 electronic multi-tester which combines in one instrument the functions of a vacuum-tube voltmeter for ac and dc., vacuum-tube ohmmeter and vacuum-tube capacity meter.

RCA has a new "pushmike" adapter and stand, an addition to this firm's line of microphone accessories. Switch type adapter is fitted with double-pole-double-throw mechanism operated by "push-to-talk" button that may be locked in the talk position, may be fitted to any stand with $\frac{5}{8}$ " 27 thread.

Solar intends to push its tiny dry

electrolytic capacitors (illustrated) trademarked "Red Cap." Also plays up dry electrolytics for twist-prong mounting.

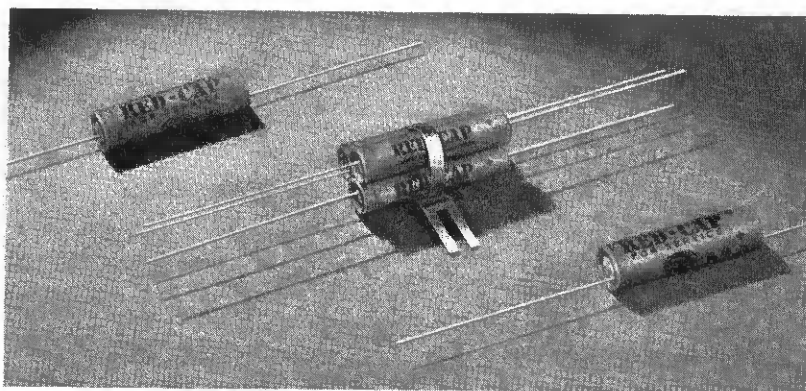
Sprague has added a line of new mica capacitors for 1,000, 2,500 and 5,000 volt work (illustrated). Says demand for EL type is rapidly increasing, hence a few additional listings on this item too. Using smaller aluminum cans on certain electrolytics following re-design in the interest of defense program, cutting older $1\frac{3}{8}$ -inch diameters down to 1-inch.

Micro-Tuneo Carillon

Just added to *Sundt Engineering's* musical tower equipment is a new micro-tuned carillon (illustrated). Outstanding feature, says firm, is tuning of chimes to average accuracy of 1/5000 of 1 per cent by means of a cathode-ray oscillograph. Tuning idea consists of picking off one of the higher harmonics and tuning to it rather than the fundamental tone. Another feature is obtained by picking up the fundamental of the chimes by means of magnetic pickups. Bell tones are full octave below the strike note ordinarily heard by ear.

Transformer Corporation is nearly ready with two new "Clarion" sound equipment lines, the "Streamliner" and "Superliner" series. First "Streamliner" seen is an economically priced system with three mike input channels, one phono channel, separate bass and treble controls, inverse feedback. First "Superliner" is a 30-watt job of the deluxe variety with four mike inputs, a low gain input, individual equalizer controls and an output meter calibrated in watts and db.

Triumph offers two new test
(Continued on page 67)



DRY ELECTROLYTICS—Smaller and equipped with leads and mounting lugs to speed up service

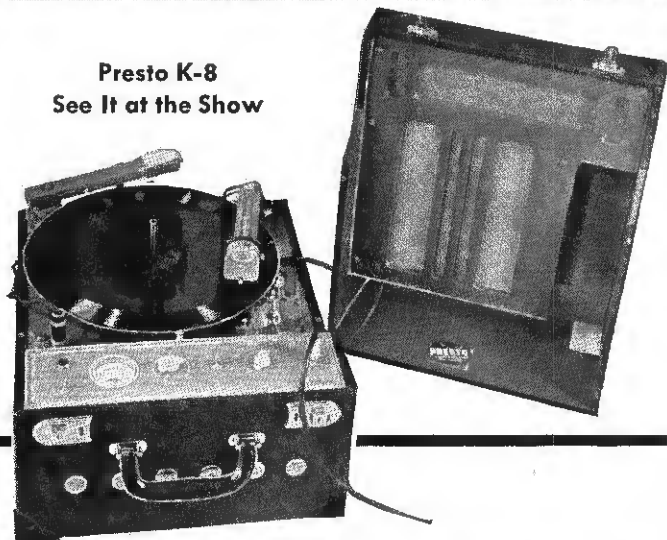
What's New at the Trade Show?

SEE PRESTO

BOOTHS 430-32

NEW PRESTO K-8 RECORDER

The smallest, lightest, lowest priced recorder on the market that will make and play a continuous 15 minute recording at 33 $\frac{1}{3}$ RPM. The newest "best seller" in the Presto line. Announced May 1st. Hundreds now in use. See it at the Show.



Presto K-8
See It at the Show



SEE
IT AT
THE SHOW

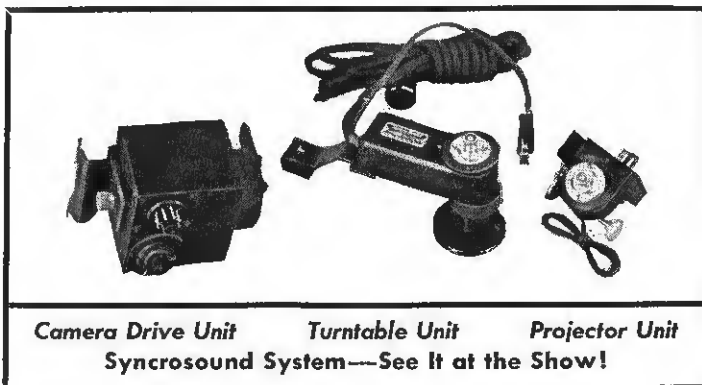
NEW PRESTO GLASS BASE DISC

Made in the new \$250,000 Presto disc plant. Better than the finest aluminum base disc. Smoother, flatter, thicker than metal base discs. Replaces the famous Presto Q disc for high fidelity recording in radio

stations and studios. Reasonably priced. Full distributor discounts. See it at the Show.

NEW PRESTO STEEL BASE DISC

For radio stations, schools, studios and home recording. The perfect recording medium for your customers who want something BETTER in recording blanks. Made in 6", 7", 8", 10", 12" and 16" sizes. Ask for a Presto steel base disc at our booth 430-32. Take it and compare it with other discs offered for general purpose recording. Decide to stock this new Presto moneymaker. See it at the Show.



Camera Drive Unit Turntable Unit Projector Unit
Syncrosound System—See It at the Show!

NEW PRESTO SYNCRO SOUND SYSTEM

Gives perfect lip synchronization of disc recordings with 8mm and 16mm movies. Makes 8mm talking pictures at home. Easily attached to any make of recorder, phonograph, projector or camera. On demonstration at booth 430-32. See it at the Show.

JUST RELEASED! New Presto Catalog and Distributor's Catalog Sheet. Send for Your Copies Today.

PRESTO
RECORDING CORP.
242 WEST 55th ST. N.Y.

In Other Cities, Phone . . . ATLANTA, Jack. 4372 • BOSTON, Bel. 4510
CHICAGO, Har. 4240 • CLEVELAND, Me. 1565 • DALLAS, 37093 • DENVER,
Ch. 4277 • DETROIT, Univ. 1-0180 • HOLLYWOOD, Hil. 9133 • KANSAS
CITY, Vic. 4631 • MINNEAPOLIS, Atlantic 4216 • MONTREAL, Wel. 4218
PHILADELPHIA, Penny. 0542 • ROCHESTER, CuL. 5548 • SAN FRANCISCO,
Yu. 0231 • SEATTLE, Sen. 2560 • WASHINGTON, D. C., Shep. 4003

World's Largest Manufacturers of Instantaneous Sound Recording Equipment and Discs

How to Pack



JERRY, CAT and CUSTOMER—He pushes two kinds of portables in New York's famed Greenwich Village

TYPERADIO Francis

NOVEL yet obviously practical is the merchandise combination offered denizens of New York City's famed Greenwich Village area by enterprising Jerry Francis, who specializes in the sale of portable typewriters and portable radios.

The "Village," you see, is liberally sprinkled with writers, people who copy or proofread or translate manuscripts for a living plus students. For all of them machines are necessary working tools. And compact sets provide inexpensive entertainment without cramping necessarily small studios.

The two portable items sell hand-in-hand. So, at least, Francis discovered shortly after he started to sell typewriters. Dozens of people asked if he repaired radios and, at first, such business was turned over to neighboring

stores. Then Jerry got smart, took on a line of receivers, sent out a hundred circulars about them to old typewriter customers and made radio a permanent part of his business when over twenty per cent expressed interest in replies.

Effective method of converting many radio repair requests into new merchandise sales (and one apparently a regular stock in trade among typewriter dealers) is the insidious Francis technique of pointing out to prospects the fact that it is frequently painless to the pocketbook to trade in the old set for a new one and duck cash outlay for repairs. Cash, it seems, is no more plentiful in the Village than elsewhere so time-payments with little or no "folding-money" down work wonders.

For typeradio dealer Francis this is the approach.

WHEN sound rental jobs are handled out in the "wide open spaces," with relatively long road runs between, it is extremely important that truck packing be compact and fastenings are essential to keep equipment from jouncing around. At the same time the system must be easy to remove and set up, as well as to take down and load again, otherwise the time consumed during such operations will be out of line and it may even be necessary to travel an extra man in order to meet schedule dates.

Out in Boise, Idaho, Haight's Radio Supply Company has such a problem and has solved it particularly well. One of the largest sound engineering and sales organizations in the far west, this firm does much rental business in sparsely settled areas and has worked out a truck packing system that admirably fills the bill.

Duplicate Speaker Fittings

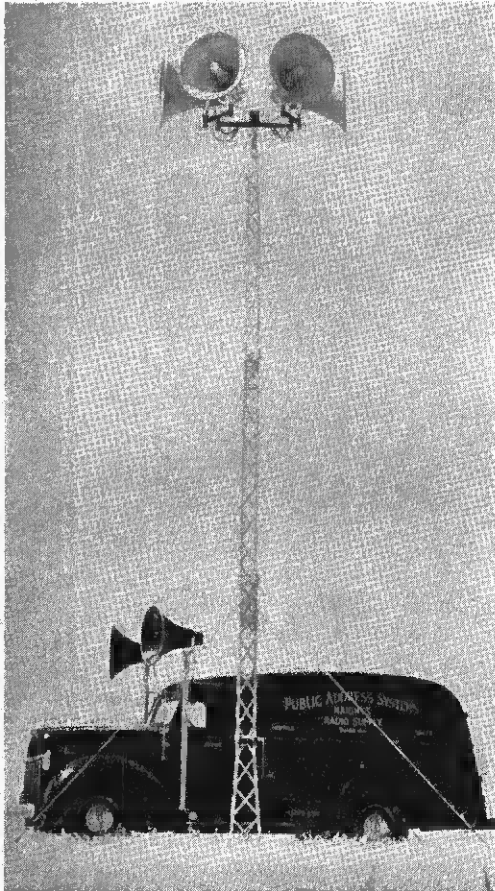
Each of the lightweight Haight sound trucks has a set of rugged shelves built within the body on the back of the partition dividing it from the driver's compartment. Amplifiers and tuners are held on these shelves without fastening by partitioning the shelves off so that such equipment fits compartments snugly.

Each truck is equipped with a 50-foot collapsible metal mast of the "latticework" variety and these masts slide into the truck bodies on wooden "cradles" which hold them securely in place. There is little length to spare in the truck bodies so the top of the masts are projected into a recess cut through the forward partition, beneath the shelving.

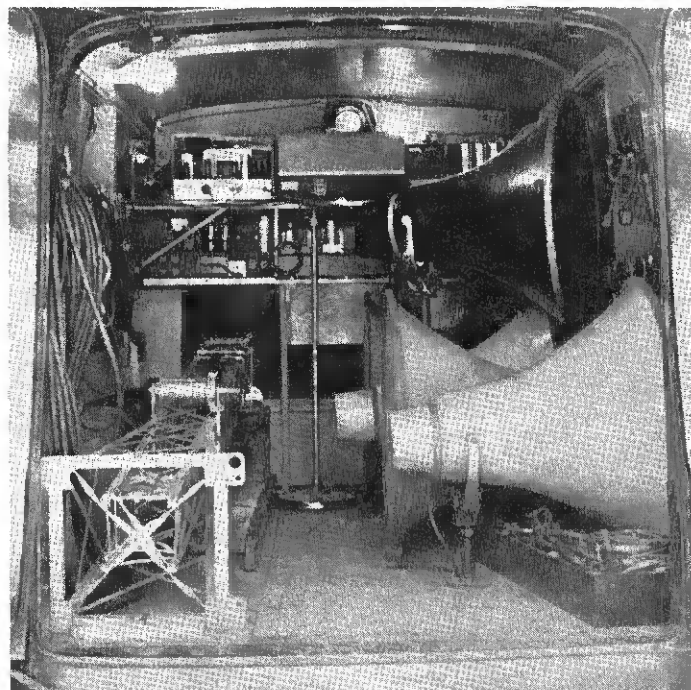
Six University model LH reflex air column trumpets with PAH

a SOUND Truck

RENTALS with long road runs between require compact loading schemes and equipment fastenings that "stay put." Yet systems must be easy to set up and take down



TRUCK IN USE—High cluster insures coverage while speakers mounted on the truck serve as auxiliaries. The latter may be raised, are here shown as used when truck is in motion

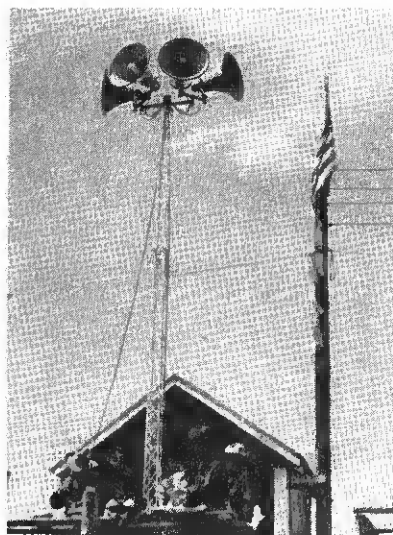


PACKED TRUCK—Speakers nest along one wall, are clamped in fittings bolted to the floor and never removed. 50-foot mast in place on wood cradle at left

permanent magnet dynamic driver units nest along one inside wall, four just off the floor and the other two between them and the roof. All six are securely mounted in fittings rigidly bolted to the floor and never removed from the trucks. These are precisely the same sort of fittings upon which the speakers are later mounted at the top of the masts but are a duplicate set.

One-Man Masts

Most setups are handled by mounting the two black speakers on top of tubular masts permanently mounted outside the trucks to the left and right of the corner windshield pillars, setting up the 50-foot mast with its four trumpets close to the truck. Skillful placing of guy wires and a built-in steel cable type



Lattice-work mast in use on a reviewing stand remote from the truck

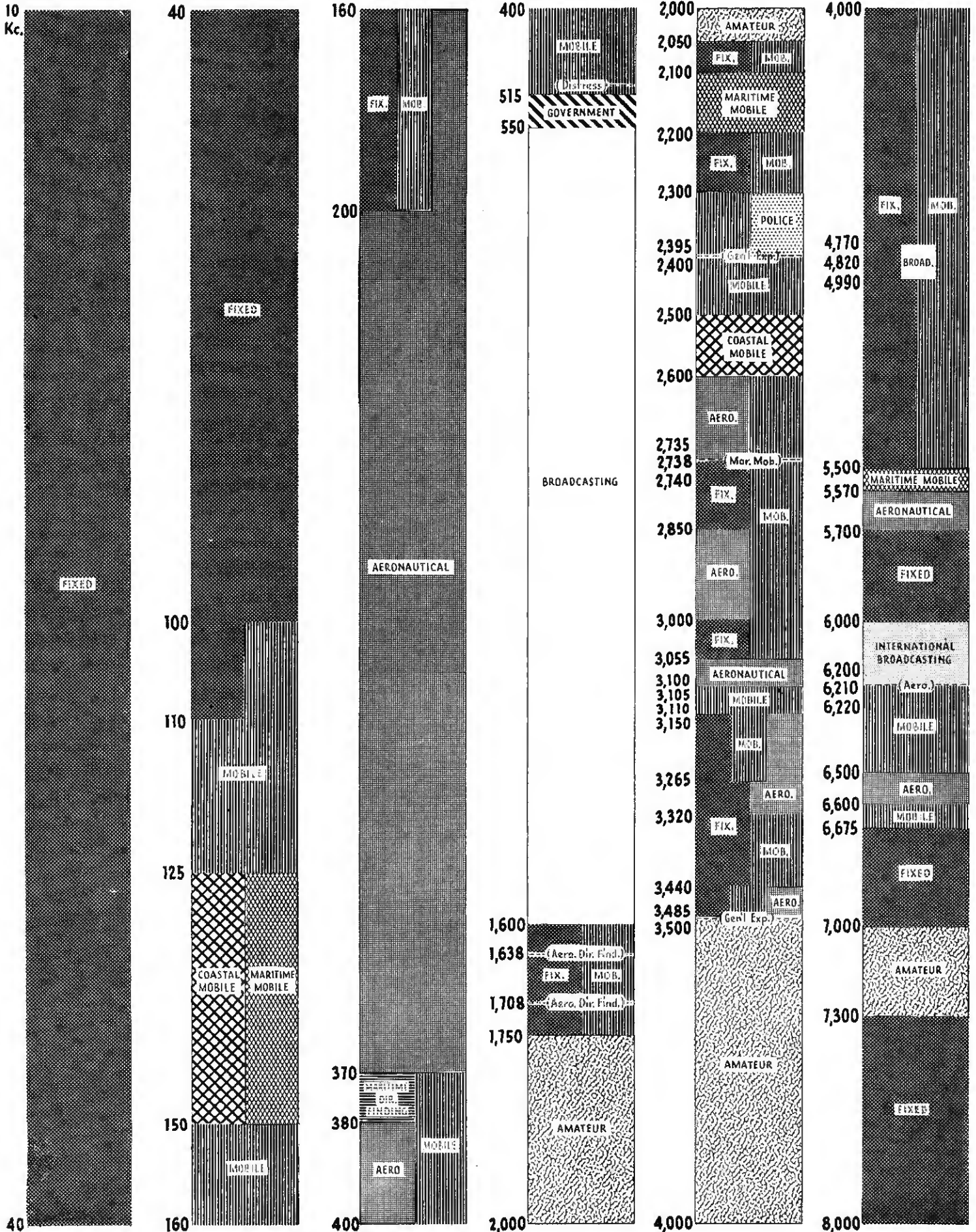
hand winch permits the big mast to be raised by one man.

Jobs of this type have frequently been ready to operate within 20 minutes after the driver applied his parking brake and half an hour is normal. Haight rarely sends more than one operator with a truck.

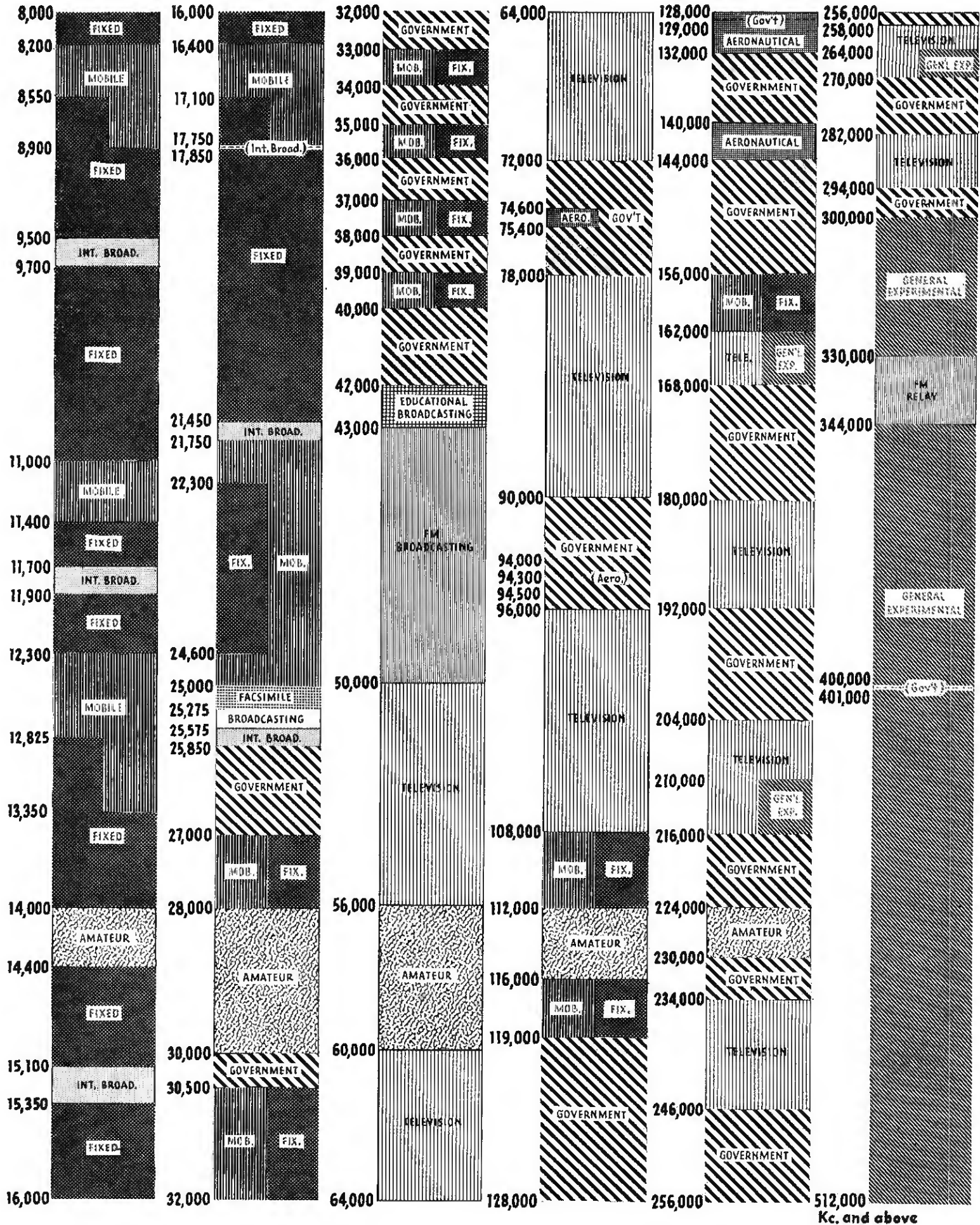
Speaker design plus ruggedness of the tubular masts makes it possible to operate the two car speakers, if this is desired, at any normal rate of speed while rolling over the roads. Telescoping in design, these two masts may be extended to 12 feet for fixed location coverage but they are never, of course, extended when a truck is in motion.

Power supply with which to operate the amplifiers and lights is, of course, provided but the system used is conventional and therefore requires no description.

Radio Frequency ALLOCATIONS



in the AMERICAS



Kc. and above

FM

Sales Ideas

IN WHAT WAY will the merchandising of FM receivers differ from AM? This is a question many dealers watching the new art develop in areas where there is adequate program service are at present studying.

Such dealers will find helpful information on the subject in the experiences of the following three New York retailers, already actively engaged in the sale of these sets.

Against Home Previews

JOHN J. SHANECK, Bronx, New York City, merchandising radios for past 20 years, finds it easy to interest his customers in an FM demonstration. Credit for this, he says, goes to fine promotional groundwork laid by FM industry over past year and step-up in program material. As he put it, the public is FM conscious now and wants to be informed about this new broadcasting art. Thinks the dealer with the best answers is certain to get the most business.

Shanek stages 99% of his FM demonstrations in the store, is dead-set against home previews on account of the antenna problem. Demonstrating in homes on any old antenna invites the possibility of noise and gives the prospect a chance to doubt its value in this respect. Shanek says: "When you



PROPER ANTENNA "OR ELSE"—Radio retailer John J. Shanek. He demonstrates on a store di-pole, refuses to hook FM to inadequate skywires in homes

actually make a sale come out flat-footed for an FM aerial installation."

Promotes customers for FM by circularizing best clientele. Watches out for customers who talk furniture, quality or noisy reception. They are definite prospects for frequency-modulation receivers.

Emphasizes Quality

QUEENSBORO RADIO SERVICE, Jamaica, Long Island, concentrates on quality reproduction. Emphasizes this feature to all customers who appreciate good music.

Finds the record counter a veritable gold mine for unearthing prospects. When a customer inquires about a classical number, salesmen give him "the works" on the new FM sets. In their opinion, these prospects are "naturals."

The serviceman, with his entry in the home, is another excellent source for snaring customers. Queensboro takes complete advantage of this angle. Technicians lead up to the new broadcasting develop-

ment and finish with an invitation to customer for a personal demonstration.

Queensboro contends that anyone buying a quality set today should insure his purchase with FM facilities.

Employs Direct Methods

MILTON and MOE SCHLEICHER, brothers and partners of Schleicher Radio, White Plains, N. Y., use simple, direct methods for merchandising FM receivers.

They say: "Find out what the prospect is particularly interested in, (high-fidelity, noise-free reception or furniture) and then concentrate your sales talk on that feature." It is their experience that when you try to cover too much ground it causes confusion and often spikes the sale.

Schleicher brothers advise that free FM concerts in churches, clubs are a big producer of prospects. Right now, this dealer is arranging to hold a number of free auditions in the leading clubs of his city.

ENTHUSIASM Needed

GENUINE ZEAL for the new service is a common characteristic of outstanding radio dealers doing the best early sales job



IF YOU attend the National Radio Parts Show in the Hotel Stevens, Chicago, June 10-13, you'll see the Sylvania radio tube line, including the new "Lock-In" tube, on display in the Sylvania booths 18-20. The entire brigade of hot Sylvania business getters, too, will be there for your inspection.

On hand to greet you will be Sylvania factory men who engineer Sylvania Tubes, editors of Sylvania News who interpret technical developments for you, and the men who are creating, planning and producing the sales and advertising material to help you sell.

Don't forget—Sylvania booths 18-20—to your right at the foot of the stairs as you enter the Convention Hall.

Sylvania Radio Tube Division

HYGRADE SYLVANIA CORPORATION

Emporium, Pa. • Salem, Mass. • St. Marys, Pa. • Ipswich, Mass. • Towanda, Pa.

Also makers of Hygrade Lamp Bulbs, Hygrade Fluorescent Lamps and Miratone Fluorescent Light Fixtures

PARTS JOBBERS

and Sidelines

TEMPTATION to step out of character is always just around the corner. There may be "gold in them thar hills" or, on the other hand, you may get your pants singed

By HAROLD F. JENKINS

Fred C. Harrison Co., Elmira, N. Y.

PARTS JOBBERS are frequently intrigued by the possibility of increasing profits through the addition of sidelines not part of the radio business.

Typical items include fluorescent lighting, photographic equipment, sporting goods and model airplane parts. And there are cases on record of profits made by radio parts jobbers with such sidelines. But results are more frequently disappointing and in some instances have been downright disastrous.

Trouble is usually due to purchasing heavily without considering actual demand, established competition, popularity of various brands and the tastes of a particular territory with sufficient care before taking the plunge.

Two Actual Experiences

Reporting of two actual experiences will help me make my point:

One jobber, located in a medium-sized city boasting three wholesale electrical supply houses, was dazzled by their sales of an electrical gadget of the "flash" variety or temporary novelty type. He neglected to consider that their retail contacts included many novelty stores and was surprised to find that he couldn't move the sideline in the radio trade while they continued to close sales just about the same as before.

These three electrical jobbers had for years been on the friendliest of

terms with the radio house and passed along much business in tubes and other allied products, keeping strictly out of the electronic picture themselves. Naturally, they discontinued this practice. So our friend really took a double licking because he failed to consider all the possible angles of the "flyer" in which he became hastily involved.

Then there is the jobber who greeted with open arms every factory representative who called on him with a distributing proposition, eventually falling for something completely outside his field because of the comparatively broad discounts.

He knew there was a healthy consumer demand for the type of product taken on, found out too late that old, established retailers in this field had long favored other brands. The one he bought was supported by little national advertising and would not move.

Aside from losing money on stock which quickly became obsolete, this jobber had to chalk up additional losses for extensive advertising and

HASTE Makes HEADACHES

BETTER READ the true stories reported here before you take the plunge

promotion and the cost of sales time expended among dealers not interested in radio parts.

Another Case

Even lines closely allied to the radio business can be expensive playthings. Much depends upon the nature of the territory.

A radio parts jobber operating in a comparatively small town, serving dealers in rural communities, recently took on an extensive line of phonograph records. Now, everybody knows that phonoplayers and combinations are going particularly well nationally and that discs are hot when the country is considered as a whole. But this jobber overlooked the fact that not many record playing machines had yet penetrated into his territory and stocked much too heavily.

Classical discs may be worked off the shelves eventually but popular numbers go out of date quickly and will probably represent a serious loss. Money is thus tied up which might better have been used in this particular case to increase stocks of condensers, resistors and other bread-and-butter items.

One Man's Meat . . .

All of the items mentioned make money under the right conditions. I believe, however, that in far too many cases parts jobbers plunge before giving sufficient consideration to the dependability of demand, potential volume in their particular territory and the probable effect of established competition.

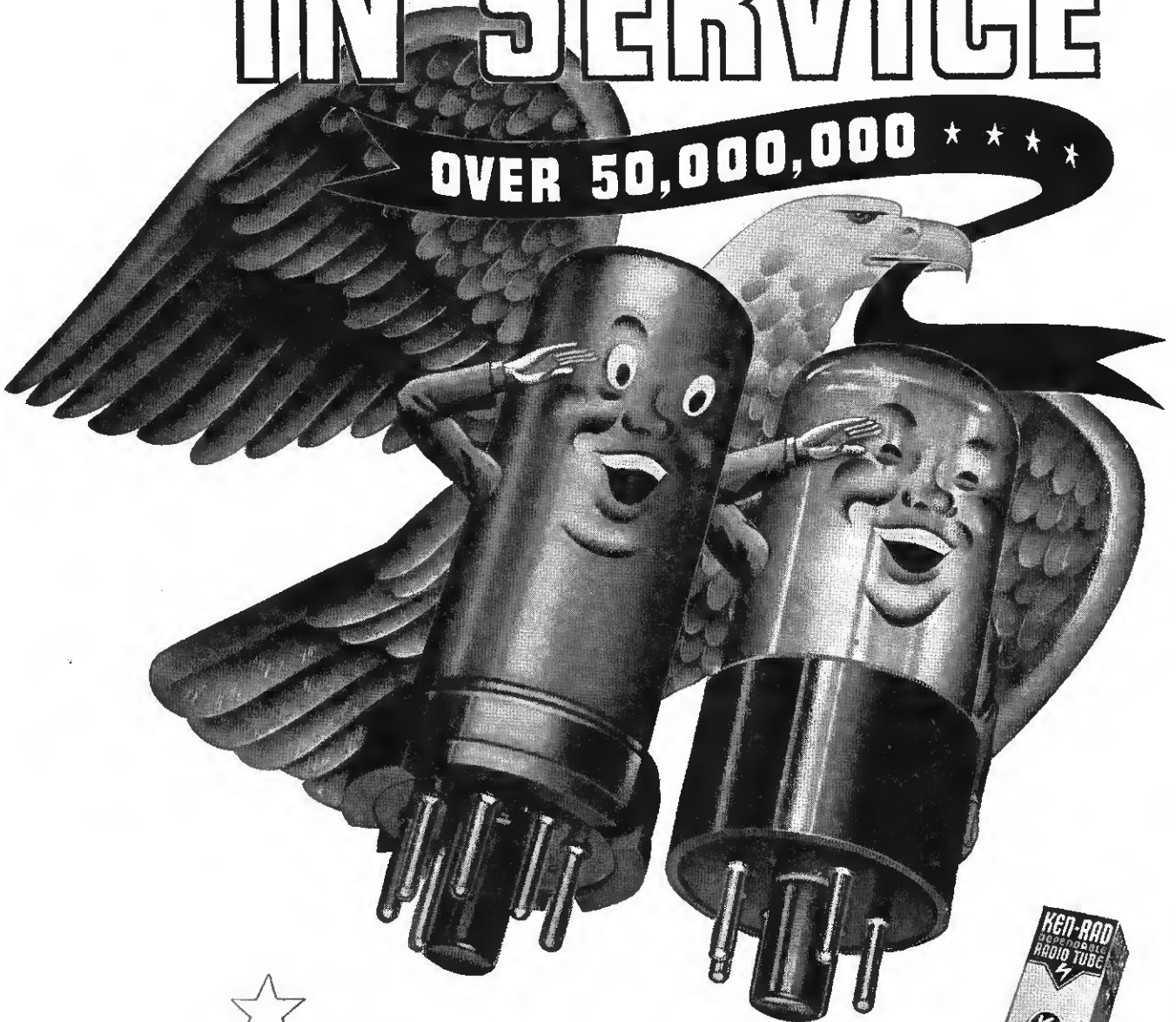
Parts jobbers contemplating the addition of sidelines, particularly sidelines not strictly part of the radio business, should note particularly the painstaking study of new lines by chains before such organizations take any step toward diversification.

Some sidelines can add dollars to any parts jobber's income but none of them will do it unless they are handled with foresight. Money may frequently be used to better advantage right within your own bailiwick.

Investigate carefully. Never invest in haste.

IN SERVICE

OVER 50,000,000 ★ ★ ★ ★



KEN-RAD

DEPENDABLE

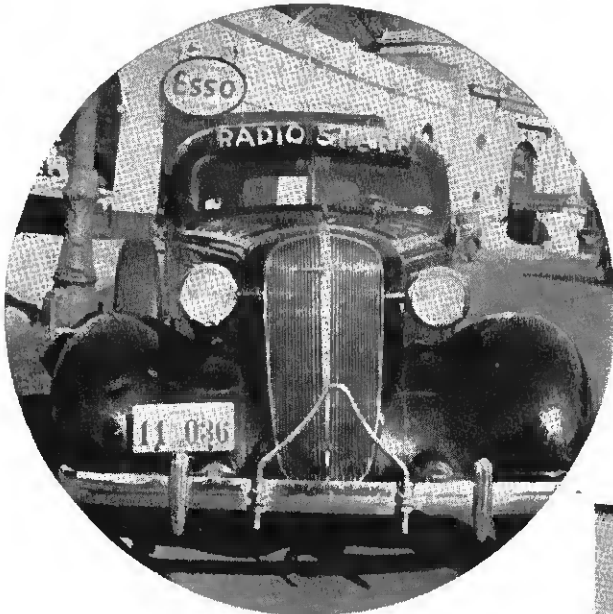
Radio Tubes

Here we are again—we replacements for the many manufacturers that used Ken-Rad better tubes for initial equipment last year. Stock us for quick turnover and added profits. For we assure you completely satis-

fied customers. As one writes: "I know that your tubes will give me full satisfaction as I have been using them in my sets for some time and do not believe that there are better tubes on the market."

KEN-RAD TUBE & LAMP CORPORATION, INC. • OWENSBORO, KY.

Makers of Ken-Rad Radio Tubes and Ken-Rad Electric Lamp Bulbs



ADVERTISING IMPORTANT—Trucks are light delivery type, topped with neon sign to flash name of service shop

VOLUME is one of the most important pillars of any service shop. To secure the profitable type of volume it is imperative that the entire business be conducted and laid out on a systematic basis.

The "Radio Sharp" service shop owned by Thomas D. Sharp of New Orleans is successfully meeting keen competition in his area by following a unique "route" plan without neglecting quality service.

Customer Assignment

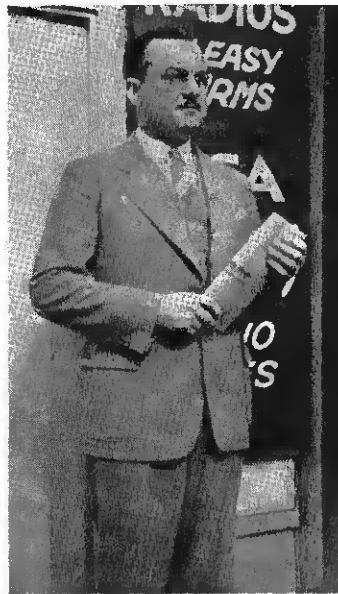
A big portion of this company's service work in the sales stage is handled by two delivery men who also act as salesmen. These men wear uniforms which are imprinted with the shop's name. Uniformed drivers instill confidence in the customer and dispel fear of misrepresentation.

Driver-salesmen call twice a day on their prescribed routes, making regular stops for collections and new contacts in answer to calls received in the office. These new calls are recorded on a white file card. Just before the driver starts on his route he is given a batch of these cards which include collection calls, recontacting and new inquiries. Each customer assignment is held by one particular driver throughout the period of contact between shop and customer. Some of the repair work is carried on time payments at one dollar a week, which means a call

ROUTE SERVICE

MEETS COMPETITION with volume, aided by system and organized personnel

By **DWIGHT ABBOTT**



PROPRIETOR SHARP—No detail too small for his attention

once a week from the driver-salesman.

This method helps the salesman to get acquainted with the customer and at the same time he is building up a following for the store. Personal contact is a big asset in the radio service business. The driver learns quickly how to sell service and the business has been increased many times over through these regular planned calls.

On a new call the driver picks up the receiver and delivers it to the shop where all estimating is done by a highly trained technician. The driver's white calling card and work ticket with the name, address, telephone number, make of radio, model and complaint properly filled in are turned in to the office. The next step is credit checking, followed by the technician filling in the estimate of parts and labor cost on the work ticket. This ticket is then returned to the office where the

estimating information is recorded on the calling card.

Sells the Job

The driver then makes a second visit to the customer, this time to sell the job. If the customer agrees to the charges he then returns the call card with the go-ahead signal. This system requires two calls and it may seem at first rather complicated but it keeps the office in control of all customer dealings and furnishes a fairly accurate quotation of the work required. This is supported by the fact that estimating is done in the shop where it can be properly accomplished. When the job is completed the repair ticket is returned to the office and the charges noted on the white-card. In the regular procedure this card goes to the driver for collection.

Operations in the Sharp radio shop are all directed toward the head technician. They believe it is poor business to hire a trained serviceman at a high salary and then cut in on his time with a lot of details which can be done by less experienced men. The technician is provided with a well equipped bench. He has assistants who can do all the ordinary radio servicing, under his direction. He is provided with a full time errand boy. Many stores squander a considerable amount of a serviceman's time by detailing him to pick up parts and handle phone calls foreign to his work.

The driver telephones the office every two hours for any new calls. Routes do not overlap as careful attention was paid to this end of the business. Service on a planned basis has provided "Radio Sharp" with adequate facilities to turn out approximately 40 repair units every 24 hours.

Company Attention-n-n!

Centralab VOLUME CONTROLS



Millions of CENTRALAB Volume Controls are marshalled to meet the "listening" needs of the nation.

For more than a decade Centralab Controls reflect the superb engineering skill . . . the meticulous care in manufacture and the precision perfection of every tiny part.

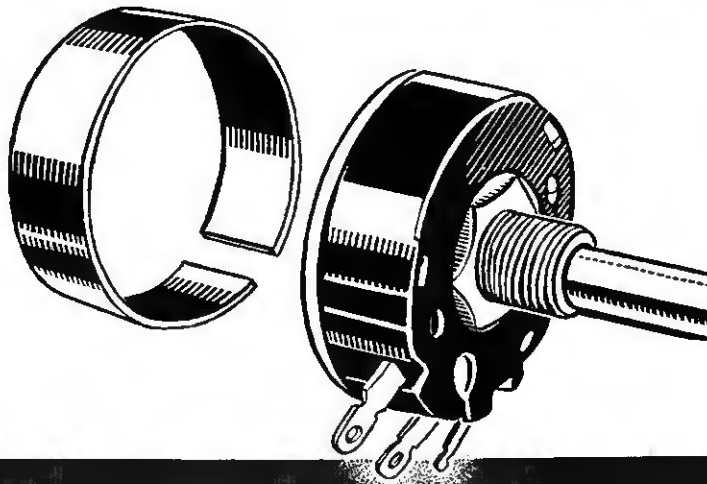
Whatever your need . . . service man or service technician . . . amateur . . . experimenter, scientist, manufacturer . . . always specify Centralab Volume Controls.

CENTRALAB: Division of Globe-Union Inc.
Milwaukee Wisconsin

The outstanding feature of the Centralab Volume Control not found in any other make is the wall-type resistor that hugs the inner circumference of the case.

. . . giving a larger and more uniform resistance surface than the ordinary "horse shoe" type . . . of resistor form.

...smoother and quieter performance throughout the entire rotation. Available in STANDARD RADIOHM...MIDGET RADIOHM...ELF RADIOHM . . . and SUB MIDGET RADIOHM.





INTER-COMS on Broadway

AN OUTSTANDING EXAMPLE of how modern inter-communicating and paging systems can aid a retail business, increasing efficiency, is found at the new Bond store on Times Square in New York City, largest men's clothing shop in the world.

This installation, planned by architects of Elias-Rothschild and Company before construction of the building, with the help of Terminal Radio Corporation, uses Webster-Chicago equipment.

Two master stations are in use, one at the telephone switchboard and the other at the main entrance reception table. Each is connected with the eighteen remote stations in departments on four floors.

A separate paging system permits the telephone operator to page the entire store, calling any employee or customer.

TYPICAL REMOTE—Switchbox and 8-inch p.m. speaker serves the fitting room



MAIN ENTRANCE MASTER—From here, clothing salesmen are called

Music Trade Show

Radio manufacturers arrange for large space

NEW YORK—A feature of the 40th Annual Convention and Music Trade Show to be held at the Hotel New Yorker, New York City July 29-Aug. 1, will be the competitive advertising and window display exhibit. There will be four classes covering greater and smaller populations.

Listed below is the official program as arranged by the convention committee:

Tuesday, July 29

Opening day luncheon, 12:30 p.m. with general inspection of the exhibits.

Wednesday, July 30

Open meeting. Awards in the advertising and window display exhibit. And Speakers with valuable suggestions for dealers.

Thursday, July 31

Convention continued with "Big Gala Night" at the Waldorf-Astoria. With banquet and dancing in the Grand Ball Room.

Friday, August 1

Wind-up of convention with competitive events and other activities.

Approximately 144 exhibitors, to May 17, had signed-up to show their new products at the show. Included in this total are 33 manufacturers producing radios, phonograph parts and allied accessories.

Latest FM News

14 stations now on commercial basis

NEW YORK—Latest FM application received by Washington from the metropolitan New York district was filed by the Interstate Broadcasting Company, Inc., operators of station WQXR. The application dated the second week of May requested an FM transmitting license to operate on 48.7 megacycles to cover 8550 square miles.

This makes the 19th application from the New York City area. Eight of these requests have already been granted, 11 applications are still pending decision.

Total applications so far filed by entire country is 107. The Commission has granted 46 construction permits which leaves 61 requests still on file.

After months of experimentation and construction, commercial FM stations are beginning to spring up with increasing speed throughout the nation. Among the latest to begin broadcasting on a full commercial basis are W65H, Hartford, Conn., W51R, Rochester, N. Y., W45D, Detroit, Mich., W45CM, Columbus, Ohio, and W45RG, Baton Rouge, La.

In addition to these stations, Washington authorized the Don Lee Broadcasting System of California to operate its K45LA on a temporary commercial basis with a power of 1000 watts to cover the Los Angeles Area. Similar permission has been extended to WJLB of Detroit to place W49D on the air commercially for

On the Newsfront



NOW WITH ZENITH—J. J. Nance, just appointed vice-president and director of sales for Zenith Radio Corporation. Formerly general sales manager of Easy Washing Machine Company

60 days. These stations will bring FM's commercial tally to 14 while another 14 experimental transmitters are on the air with regular experimental programs.

The Yankee Network, with the American Network, Inc. serving as representative, has issued rate cards for FM stations W39B, Mount Washington, New Hampshire, and W43B, Boston, Mass. The card for W39B, supersedes a previous card and includes a revision in discounts. Station W43B for Boston uses 50,000 watts to serve 18,647 square miles.

For Defense

Government officials step-up recommendations for tax levies to 20%

WASHINGTON—It is reported that Leon Henderson, administrator of Price Control, has presented a recommendation before the House Ways and Means Committee that excise taxes on such durable consumer goods as electric refrigerators, washing machines, and musical instruments be increased to at least 20 per cent.

Also reported that Marriner S. Eccles, chairman of the Federal Reserve Board made similar recommendations to the Committee which is hearing testimony on means for obtaining \$3½ billions for defense.

Last Treasury's proposal, called for a step-up in excise taxes from present 5½ to 10 percent.

Television Front

Video stations preparing plans for commercial bow July 1

NEW YORK—Alfred H. Morton, NBC vice-president, speaking before the NAB convention at St. Louis, was quoted as saying: "Television sets, selling at about \$200 each would be in hundreds of homes, throughout the nation, within five years."

The NBC official reported that there were at present about 7000 television sets in the country and they hoped that under normal circumstances between 150,000 and 200,000 receivers will be in operation in New York City alone within a three year period. The greatest difficulty, he thought, would be in getting materials and personnel.

On May 9 large-screen television was given its world premiere in New York City with over 1200 sports, movie, radio and newspaper executives on hand to witness the vast strides made in that field. The program was projected on a 15 by 20 foot screen.

It is reported that three television stations will be ready to make their commercial bow in the New York area on July 1. These are the NBC station atop the Empire State building, Columbia Broadcasting System and the Allen B. Du Mont station. Two others, WOR, of the Bamberger Broadcasting System and the Metropolitan Television, Inc., are expected to be set for commercial television by the end of the summer.



SOUND SPECIALIST — President R. C. Reinhardt, Atlas Sound Corp., says that big P. A. business today is with industrials engaged in national defense work and the army and navy centers. And that sound men should look toward these priority-rated requirements for sound installations

Reps Add New Members

NEW YORK—Ben Joseph, Chairman of Publicity for "The Representatives" reports the following additions to the membership roll: H. E. Erickson, Asheville, North Carolina; Bob Whan, 831 N. Wabash Ave., and J. E. Goode, 82 W. Washington St., both of Chicago, Ill.

Reps Banquet, June 10

CHICAGO—The "Representatives" will hold its 6th annual convention meeting at Hotel Stevens in Chicago, Tuesday, June 10th. Meeting to take place before noon with annual banquet following directly after. All members of the "Reps" and others who intend to join the organization are invited.



DISTRIBUTORS MEET AT CAMDEN—Representatives of 12 RCA wholesalers hold inaugural session with advertising mgr. D. J. Finn to preview summer and fall campaigns. Left to right, front row: Paul Dye, Charles Strawn, C. Van Maanen, H. Bevins; (2-row): B. Levin, H. P. Brightman, J. P. McMillan, Gerald Kaye, H. V. Renholm; (3-row): Dale Neiswander, M. V. Gellard, M. Ressler, I. E. Russell; (rear): J. M. Tuttle, W. H. Kelley, J. A. Milling, R. N. Baggas, D. J. Finn, James Sheridan, James Totten, Herbert Edgar and Walter Kraus

**Decca Records Buys
Brunswick Radio Corp.**

NEW YORK—Announcement was made by Jack Kapp, president, that Decca Records, Inc. had consummated the purchase from Warner Brothers Pictures, Inc. of all of the capital stock of Brunswick Radio Corporation, one of the Warner Brothers Pictures, Inc. wholly owned subsidiaries. The Brunswick Radio Corporation owns, among other things, plant properties at Dubuque, Iowa, and Muskegon, Michigan.

Turner Creates New Departments

CEDAR RAPIDS—With the opening of

the export market to its push-pull vibrators, The Turner Co., of this city has just made two new departments for this business and named W. D. Lyon as head of its advertising and Miss Garnet L. Ramsey as manager of the vibrator export department. The exporting of its microphones remains under the direction of Ad. Auriema, New York.

Audiograph Appoints

New Sales Manager

CHICAGO—Wm. W. Montgomery was recently appointed sales manager of the Audiograph Sound Systems Division of John Meck Industries, 1313 W. Randolph St., Chicago, Ill. Montgomery's back-

ground in the sound business gives him a thorough knowledge of the field.

In Spite of Hell . . .

Mallory statement reassures distributors concerning deliveries

INDIANAPOLIS—From Howard W. Sams of P. R. Mallory & Co., Inc., late in May to distributors went a report headlined: "In Spite of Hell and High Water," outlining the company's plans for the remainder of the year.

Included was a statement to the effect that while the national emergency has kept the firm "more than busy" it has not interfered with promotional activity and new product research considered essential to the continued development of distributor business. Said Sams: "We are still managing to ship orders on a 48 hour basis and this works little hardship as against our former 24 hour plan. . . . We may not be able to avoid price increases as raw material costs rise but there will be none so long as our present stocks last. . . . These stocks are at present adequate but will not permit hoarding by distributors. . . . We shall see to it that each distributor receives his fair allotment."

Announced was continuance of the Mallory promotional plan designed to help distributors increase industrial business, publication of the Fourth Edition MYE Radio Service Encyclopedia, a new general parts catalog, and a "three-point" plan for distributor use.

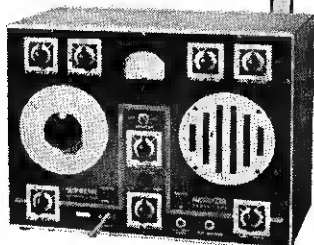
In the Test Equipment Field, Too.



OLD FRIENDS ARE BEST!

—because they are time-tried—
PROVED.

So is the current line of SUPREME testing instruments. Each and every one has been proved SUPREME in service.

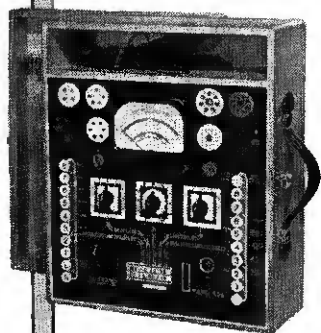


SUPREME MODEL 562

That's why SUPREME is announcing no new models at the show.

If and until advance in radio develops a need for new testing equipment, SUPREME will NOT merely rearrange a panel just to be able to announce a new instrument. SUPREME will stick staunchly to its policy of continuous improvement of its current models.

Look them over at the Show. With this their third show, you will find they represent the "tops" in instrument value.



SUPREME MODEL 504-A

Model 562 Audolyzer above, and Model 504 Tube and Set Tester at left, are making their third Parts Show. They were good the first time, and due to our policy of continuous improvement, they are better NOW.

SUPREME

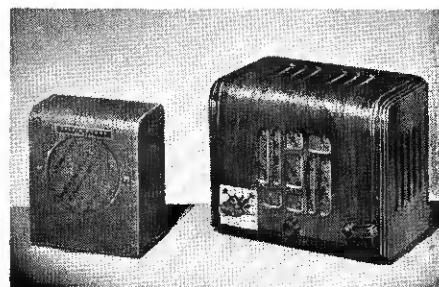
SUPREME INSTRUMENTS CORP.
GREENWOOD, MISSISSIPPI, U. S. A.

MAIL COUPON TODAY!

SUPREME INSTRUMENTS CORP., Dept. RR-4
Greenwood, Miss.
Please send me illustrated literature on the complete line of PROVED SUPREME Instruments.

NAME _____
ADDRESS _____
CITY _____ STATE _____

THE "BEST SELLER" IN INTER-COMMUNICATION!



Here's TALK-A-PHONE'S sensational LP-5 Inter-communication System—the best-selling profit-builder in the Intercom field! Master Selective type—works with up to 5 sub-stations; master can call any single sub-station or all at once; sub-stations can call master at will—persons may speak as far as 50 feet from units; includes special "Silent" feature which permits master to be called, yet excludes noise pickup from sub-station. Operates on 110 volts AC or DC. Quality-built, priced right to sell! Write for literature!



Also—A Complete Phonograph Line!

TALK-A-PHONE also builds a Complete Phonograph line—Profit-Builders all! Wired and Wireless Players, Player-Amplifiers, Automatic Changer-Players—and America's finest Portable Home Recorder! Take on these profitable lines! Prices, discounts, literature sent on request.

Visit us at the Radio Show, Booth 319

Talk-A-Phone Mfg. Co.
1217 W. VAN BUREN ST.—CHICAGO

Stromberg-Carlson Convention

Distributors preview new '42 sets

NEW YORK—On May 22nd Stromberg-Carlson's eastern and southern distributors met at the Hotel Astor, New York City, to preview this concern's new line of receivers.

On hand was president Wesley M. Angle, who advised that production was well ahead of last year. And that the company would have little difficulty in meeting immediate demands for new sets because of its foresight in accumulating raw materials. General sales manager Lloyd Spencer stated that we are in a "seller's market," and that distributors and dealers should have a good year with the 1942 models.

Lee McCanne, assistant general manager, Fred Anibal, radio sales manager, and Cliff Hunt, mgr. distributor div'n., presented the new sets to the gathering. Vice-president Dr. Ray Manson highlighted the FM features. Warren T. Eastwood, advertising mgr., introduced Gordon Hyde of the McCann-Erickson advertising agency, who spoke on new advertising and promotion plans.

For having surpassed the \$60,000,000 mark in consumer sales of its radios, the Stromberg-Carlson Telephone Mfg. Co., on Wednesday evening, May 21, gave a testimonial dinner to Ben Gross of Gross Sales, Inc., at the Hotel Roosevelt, New York City. Over 400 dealers from the metropolitan New York area and New England were present, also many executives of the Rochester concern, including president W. M. Angle, vice-president Dr. R. H. Manson, and general sales manager L. L. Spencer.

Hygrade Sylvania Expands

NEW YORK—Contract for building a new fluorescent lamp plant in Danvers, Massachusetts for the Hygrade Sylvania Corp. at an estimated cost of \$500,000 has been awarded to a nationally known contractor, according to an announcement by vice-president F. J. Healy.

Completion of this factory will bring the total space owned and leased by this company for radio tube, incandescent and fluorescent lamp and fixture manufacturing in seven separate factories to 835,107 square feet.

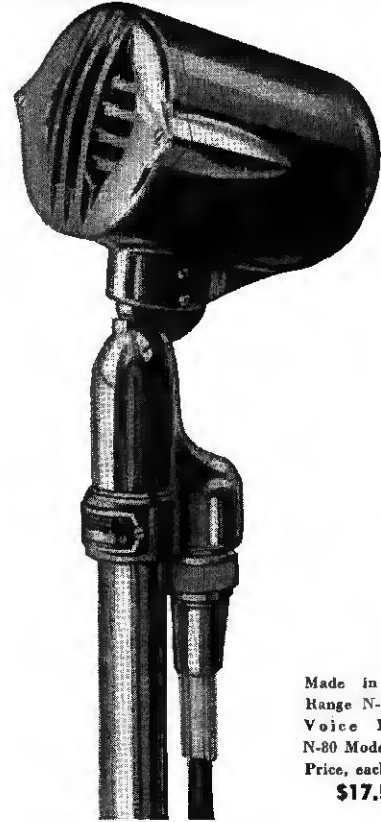
Zenith Ups Herrmann

CHICAGO—Edgar G. Herrmann, advertising manager of Zenith Radio Corporation since 1935 and associated in executive capacities with the radio industry since 1920, has been appointed sales manager of the Household Division of this concern.

Wolin Returns

NEW YORK — Solar Manufacturing Corp. announces the return to their organization of Sylvan A. Wolin as sales promotion manager.

ASTATIC'S New N-SERIES MICROPHONES



Made in Wide
Range N-30 and
Voice Range
N-80 Models. List
Price, each
\$17.50

Both models in the N-Series are available with convenient on-off switch as illustrated at left. Complete as shown: List Price, each
\$20.00

Because of an exceptionally smooth frequency response and other improved characteristics, Astatic's new N-Series Crystal Microphones are especially desirable for modern public address installations. Swivel joint tilting head, cushion protected internal diaphragm, concentric cable connector, low cost and grand performance, make the N-Series highly desirable from every angle.

Astatic N-Series Microphones will be displayed at the Radio Parts National Trade Show, and are included in Astatic's new 1941 Catalog, now available.

ASTATIC

THE ASTATIC CORPORATION

In Canada:
Canadian Astatic, Ltd., Toronto, Ont.

YOUNGSTOWN, OHIO

Crystal Products Licensed Under Brush Development Co. Patents

Majestic Preview

Distributors to see 1942 line

CHICAGO—Majestic Radio & Television Corp. 1942 line of radios will be shown to distributors for first time formally at the firm's 2600 W. 50th St. factory (Chicago) beginning "Open House" June 9, continuing until the 13th and coinciding with the Radio Parts Show dates.

Du Mont Ups Cramer

PASSAIC—The appointment of Leonard F. Cramer as sales manager of the Instrument and the Video Equipment

Divisions is announced by Allen B. Du Mont Labs., Inc., of Passaic, N. J.

Len Cramer is well known in the television and cathode-ray instrument fields. For years past he has been identified with the sale and also the production of Du Mont products.

Quick Heads Isolantite Division

BELLEVILLE—Howard L. Quick has just been appointed sales engineer in charge of a newly created Radio Specialties division of Isolantite, Inc., according to announcement by K. D. Hamilton, vice-president and general manager. He will make his headquarters at 233 Broadway, N. Y. City.

Hadlock Joins RCA

CAMDEN—Perry Hadlock has joined the International Division of the RCA Manufacturing Company to engage in the promotion of the company's products in Latin American markets, it has been announced by J. D. Cook, Manager of RCA International Activities.

Hadlock has been active in the radio industry since 1921. Previous position with the General Electric Company as manager of its Radio Sales Division.

Recoton Appoints

New Sales Manager

NEW YORK—The appointment of Edward M. Bieber as sales promotion manager of the Recoton Corp. was recently announced by President F. H. Behrendt.

Bieber comes to Recoton with extensive experience in radio merchandising. He is planning a country wide tour to meet the many Recoton distributors and dealers.

Groffman Joins Magnavox

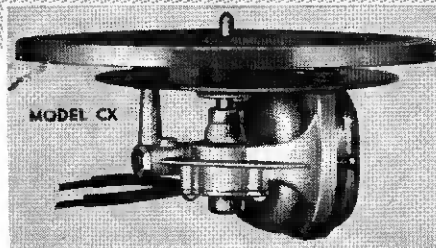
FORT WAYNE—Frank Freimann, vice-president of Magnavox Company, Inc., announces the appointment of R. C. Groffman as sales promotion manager, replacing D. H. Spicer who recently resigned.

Groffmann's duties will embrace sales promotion and advertising on Magnavox radio combinations and film equipment.

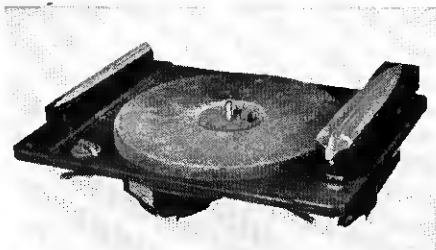


In your phonographs and combinations, make sure you have motors that do their part. Specify General Industries "Smooth-Power" Motors.

General Industries makes the most complete line of phonograph equipment obtainable from any one company — Electric and Spring Motors, Dual-Speed and Single-Speed Recorders, Automatic Record Changers, Combination Record Changer-Recorders. Advanced in design and precision manufactured.



Model CX light-weight, fan-cooled motor. Self-starting, induction type. Popular for small models. Turntable included.



NEW! Dual Speed Home Recorder and Phonograph assembly. 78 or 33-1/3 RPM. Self-starting, dynamically balanced rim-drive motor. Weighted turntable. Beautiful walnut grain finish on base plate; streamlined plastic trim on pickup and cutter arms.

The GENERAL INDUSTRIES CO.

DEPT. 16, ELYRIA, OHIO

Order your Cutting and Play-Back Needles from our Affiliate, the General Phonograph Mfg. Co., Putnam, Conn.

STOP IN AND SEE US AT THE RADIO PARTS NATIONAL TRADE SHOW Booth 1027

BRACH
Antennae

Automobile
Home — All types
F-M Systems
Television
Police • Marine
Multiple Systems
Complete Kits
Accessories

Made by World's Oldest and Largest
Manufacturers of Radio Aerial Systems

L. S. BRACH MFG. CORP.
55 DICKERSON STREET
NEWARK, N. J.

Rauland Heads New Webster-Rauland Company

CHICAGO—E. N. Rauland, one of radio's pioneers and head of The Rauland Corporation, announces the purchase of the Sound Division of Webster-Chicago Corp. The respective trade names of the two companies were combined to form the trade name of "Webster-Rauland."

To an expanded organization the Rauland Corp. will contribute the engineering skill and production ability of its sound division. The addition of the Webster-Chicago sound department brings to the new company a well established distributor organization as well as its manufacturing capacity.

E. N. Rauland, president of new concern, is an old timer in radio. In 1920 he launched the All-American Radio Corp. C. P. Cushway, who was general sales manager of the Webster-Chicago Corp. until the sound divn. was transferred, joins the company as vice-president and sales manager. He is also a veteran of the radio industry. R. M. Gray is assistant sales manager and J. R. Fredrickson advertising manager.

Hotpoint Names New Officers

CHICAGO—Following the annual meeting of the Board of Directors, A. D. Byler, president of the Hotpoint Company, has announced the election of R. W. Turnbull as executive vice-president; J. C. Sharp, vice-president in charge of engineering; and I. A. Rose, as vice-president in charge of manufacturing. Other officers are: W. H. Booth, Honorary Chairman of the Board; George A. Hughes, Chairman of the Board; A. D. Byler, president; G. W. Scott, secretary and treasurer; W. H. Perry, and W. Jarva, assistant secretaries.

Turnbull, Hotpoint's new executive vice-president, has been the company's first vice-president since March, 1940.

Ansley Takes New Quarters

NEW YORK—Ansley Radio Corp., Bronx, New York City on or about June 1, will move to new and larger quarters at 21-10 Forty-Ninth Ave., Long Island City, N. Y. New space will provide about 25 percent more area than present factory.

Rep. Opens Pittsburgh Office

PITTSBURGH—Jack Bergman, former vice-president and sales manager of the Pennwood Company, announces the opening of his own office at 1408 Investment Building of this city as a manufacturer's representative.

Simpson Builds New Factory

CHICAGO—The Simpson Electric Company of this city recently started construction on an addition to its plant. When completed it will ultimately double the capacity of its factory.

Here's why this "B" battery for portables OUTSELLS ALL OTHERS COMBINED!

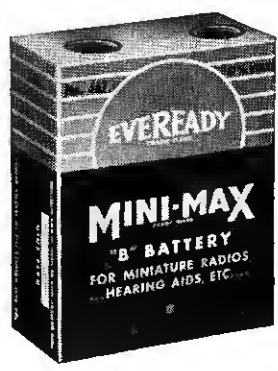


1. "Eveready" "Mini-Max" Radio "B" Battery No. 482 fits more than 90% of the 2,000,000 portable sets now in use!
2. It lasts approximately twice as long (size for size) as batteries of ordinary round-cell design!
3. It costs no more than ordinary batteries for portable sets!

GET YOUR SHARE OF THIS BUSINESS NOW!

FREE! Replacement Guide for portable receivers!
 Tells the proper batteries for portable sets.
 Accurate! Up to the minute! Write Dept. A-2,
 National Carbon Company, Inc., Box 635, New York, N. Y.

Here's the battery for "personal" or "camera-type" radios!



"Eveready" "Mini-Max" Radio "B" Battery No. 467 is the battery around which "personal" or "camera-type" portables were designed. 67½ volts in a space 3⅞" x 2¼" x 1⅞". More and more customers will ask for it.

"EVEREADY"
"MINI-MAX"
RADIO "B" BATTERIES
 NATIONAL CARBON COMPANY, INC.
 Unit of Union Carbide and Carbon Corporation

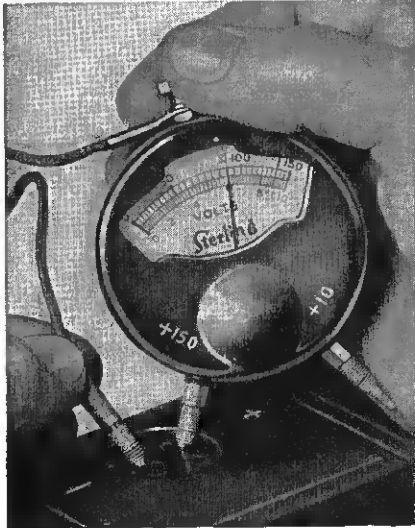
The words "Eveready" and "Mini-Max" are registered trade-marks of National Carbon Company, Inc.

Sterling

A New LINE OF METERS

For Testing "A" and "B" Batteries of Pocket, Camera and Portable Radio Sets. Every Dealer and Serviceman Needs these meters NOW.

Old Type Testers Will Not Do the Work.



Featured by Leading Jobbers
No. 42A at \$3.60 tests all these Batteries.
Write for Catalog No. 519-0.

STERLING MFG. CO., Cleveland, Ohio
9205 Detroit Avenue

Dealer Helps

BATTERY GUIDE—National Carbon Company has just released its new *Ever-ready* 1941 replacement battery guide for portable receivers. Printed on heavy cardboard, it lists all makes of portable and personal sets. Arranged for make, model and battery types. Issued free to all dealers. Mention *Radio Retailing*.

COUNTER DISPLAY—Recoton Corporation has a new color display, illustrated by Connie Boswell popular broadcast artist, endorsing Recoton needles. Write to the company at 42 W. 15th Street, New York City.

ENGINEERING BULLETINS—The Worner Products Corp., 1019 West Lake St., Chicago, Ill., releases a series of new bulletins and a descriptive folder on its electronic devices.

CATALOG I-21—New instrument catalog with specifications and prices by the *De Jur-Ansco Corp.*, Shelton, Conn. Write to department "H."

ANTENNA MANUAL—Vertrud Manufacturing Co., 132 Nassau St., New York City, announces the release of a new catalog describing various types of aerials with special treatment on communication and FM types. Free.

SOUND KIT—For recording amateur skits, parties and like, *Recordio* has a new

promotional sound effects kit complete with instructions. For details write *Wilcox-Gay Corp.*, Charlotte, Mich.

CONDENSER CATALOG—Cornell-Dubilier announces a 1941 capacitor manual, edition No. 2. Contains 256 pages with an unusual large listing on condenser replacements for standard receiver models. Also includes numerous diagrams with instructive data.

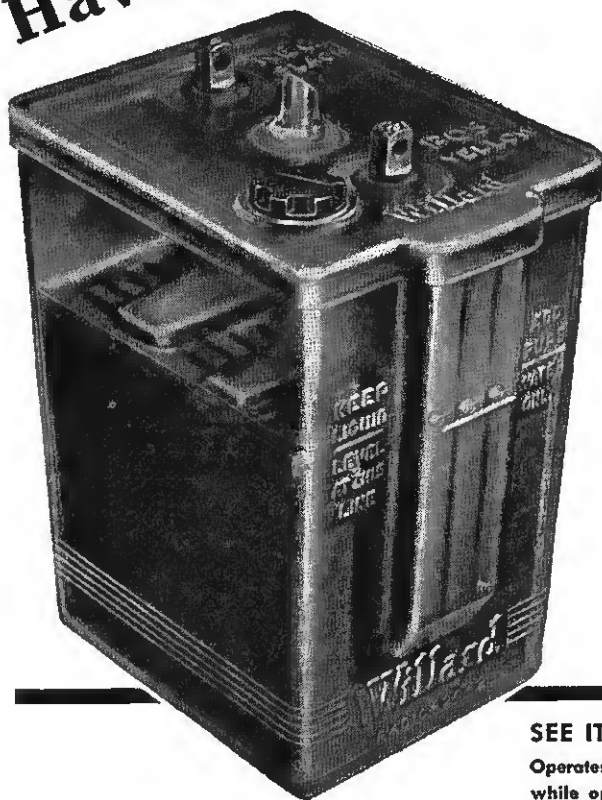
CATALOG 105E—Just released by *Illinois Condenser Co.*, 1160 North Howe St., Chicago, Ill., catalog covering its complete line of electrolytic and paper condensers. Copies are mailed upon request.

TUBE BOOK—*Hygrade Sylvania Corp.* releases a new radio tube complement book, containing tube and panel lamp information for 16,730 radio models. Includes I.F. peaks. Price 35 cents.

GENERATOR CATALOG—10-page catalog describing full line of *Pincor* generators as manufactured by the *Pioneer Gen-E-Motor Corp.*, Chicago, Ill. In request for copy please mention *Radio Retailing*.

AMPLIFIER CATALOG—*Amplifier Company of America* has a new 8-page catalog describing line of master-beam power-amplifiers. Complete with specifications and prices.

Have you heard about it?



The New

Willard Radio Battery

● A revolutionary new development in radio! A new and different kind of storage battery that brings to the portable radio field all the advantages of *constant voltage*—and the **ECONOMY** of an easily rechargeable battery.

SPECIAL FEATURES: Built-in ball-type Charge Indicator, operates automatically and is always visible. Strong, transparent plastic case, the first of its kind. Exclusive Willard construction—it's spill-proof, the electrolyte will not spill, even if the receiver is operated upside down. Another Willard First!

WILLARD STORAGE BATTERY COMPANY • Cleveland, Los Angeles, Dallas, Toronto

SEE IT IN THE NEW G-E SELF-CHARGING PORTABLE RADIO

Operates on its WILLARD Storage Battery or on A. C.—automatically self-charges while operating on A. C.—supplies both "A" and "B" power, no dry batteries needed.



TAKE 'EM WITH YOU—Crosley presents these new bicycle and bathing girl displays for promoting its 1941 "Glamor-Tone" portables. Photo shows replicas being inspected by J. H. Rasmussen, (left) radio division manager and L. Martin Krautter, head of advertising and sales promotion

TUBE FOLDER — Hytron Corp., Salem, Mass., has a new handy price list folder enumerating its complete tube line, interchangeable types and over 1000 ballast tubes.

BULLETIN ON ROTARY CONVERTERS—A new bulletin No. 13-25, put out by the Janette Manufacturing Company of Chicago, concerns rotary converters and dynamotors as made by this company. Operating specifications and dimensions clearly outlined.

PORTABLE PROMOTION—Westinghouse announces a new "banner" and a descriptive folder for its "Carryette" portables. Both in colors.

Distribution News

RCA—Dulaney Distributing Co., has just been appointed jobber for RCA Manufacturing Company's products in the Oklahoma City territory. Replaces the distributing firm of W. C. Dance, Inc., which is retiring from business.

ADMIRAL—Announces the following appointments: Ace Amusement Co., Memphis, Tenn.; F. B. Connelly Co., Seattle, Wash.; Kane Company, Cleveland, Ohio; Radio Specialties Co., Phoenix, Arizona, and Warren Electric Co., Sioux City, Iowa.

DU MONT—Allen B. Du Mont Laboratories, Inc., Passaic, N. J. announces the appointment of Harry Halinton as its sales representative for the Minnesota territory. Halinton will work out of his headquarters at Electronics Sales Co., 1807 E. Olive St., Milwaukee, Wis.

WESTON—Cowperthwait and Brodhead, 126 Newbury St., Boston, Mass., are the new Weston Electrical Instrument Corp. representatives for Massachusetts, Rhode Island, Maine, Vermont and New Hampshire.



A good condenser plus . . .

• Yes, there's no better condenser made in any corresponding type than AEROVOX. But there's more than just a real good condenser involved when you insist on the yellow-and-black carton. There are additional values coming to you, such as . . .

CHOICE . . .

The very completeness of the Aerovox line assures the logical selection for initial equipment or replacement requirements. The largest line of metal-can electrolytics; a dozen and a half molded-in-bakelite mica types; four whole pages of exact-duplicate replacement listings — and so on and on. The Aerovox line is outstanding in the choice of types. You don't have to resort to makeshifts or guesses when you use Aerovox condensers.

STOCK . . .

And whatever type and value you pick out for that job, you are sure of getting it. The nearby Aerovox jobber carries a good stock of condensers. And more important still, he can draw upon the huge jobber stock at our factory, which insures prompt filling and shipping of orders even in these times.

GUARANTEE . . .

Each and every Aerovox capacitor — the ten-cent tubular and the ten-dollar transmitting capacitor alike — is individually guaranteed by the clean-cut guarantee slip wrapped with it. That protects you against defective merchandise and, more important still, unwarranted service breakdowns.

DATA . . .

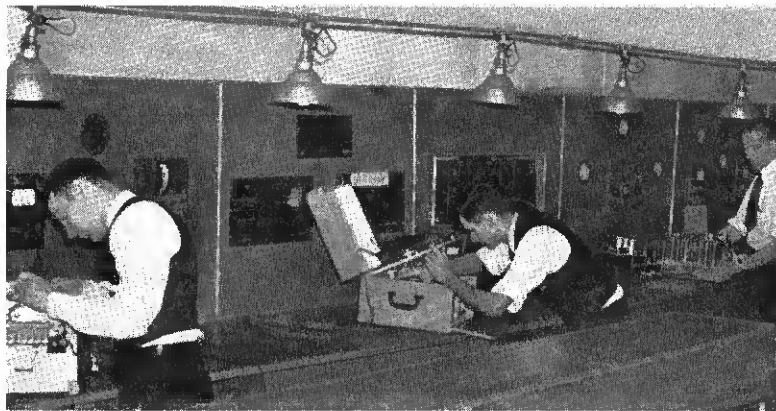
Lastly, to insure the proper application of Aerovox condensers, you can have a FREE SUBSCRIPTION to the monthly Aerovox Research Worker. Packed full of practical, valuable, indispensable engineering data. Ask your favorite jobber for a subscription. Ask for latest Aerovox catalog. Or write us direct.



AEROVOX CORPORATION
New Bedford, Mass.

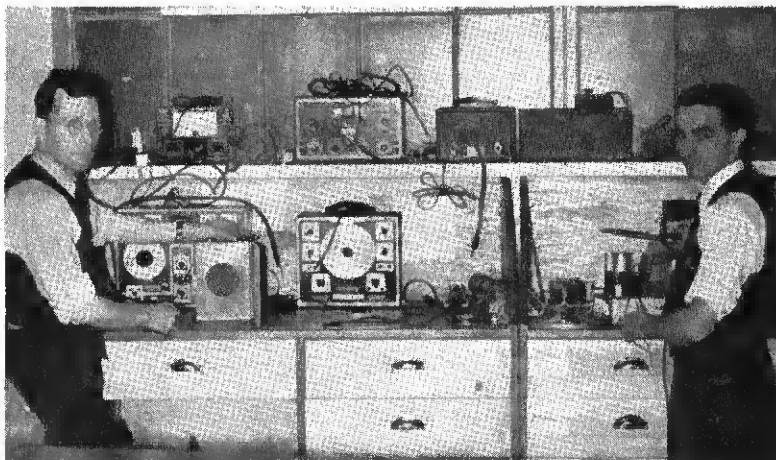
Sales Offices in All Principal Cities

New



BRIGHT AND CLEAR—Flood reflectors provide a high lighting-level for servicemen at Sceli's Radio Inspection Service Co., Hartford, Conn. Panel mounted meters and test equipment keep working areas clear

Let There Be LIGHT



FOR SUNNY SPOTS—A portion of the 30 foot bench and servicemen at Heins and Bolet, New York. Windows at rear supply daylight illumination, aided and abetted by fluorescent fixtures above bench



CONTRAST—A light colored bench sets off test equipment for Ben Myers, owner of Coos Radio Service, Marshfield, Oregon. Triple garage at the rear of building provides space for customer cars and another bench for auto radio repairs

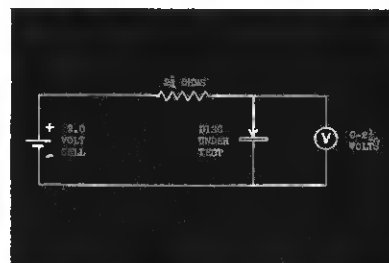
HIGH VOLTAGE for tube plates and screens is usually obtained by a vibrator power supply in present day auto radios.

A portable receiver may also be operated in this manner and the diagram shows the circuit of such a power supply that operates on a two volt storage battery.

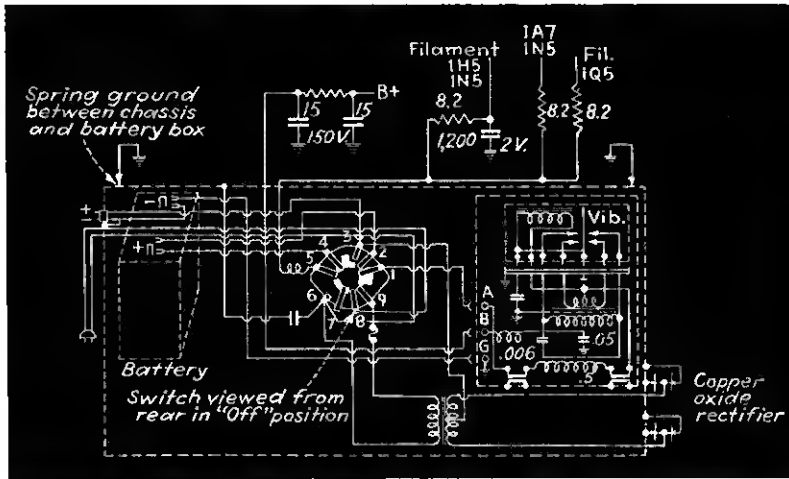
All the power required for the operation of the PORTABLE receiver is supplied by this battery. The tube filaments are heated directly by the two volts from the battery while the necessary high voltage for the screens and plates of the tubes is furnished by a SYNCHRONOUS VIBRATOR used in conjunction with a step-up power TRANSFORMER and its associated filter circuit. The synchronous vibrator OPERATES on the TWO VOLTS from the battery.

Provision has been made to charge the battery directly from the house current without removing the battery from the receiver circuit. Two charging positions are provided on the four-position power selector switch. The "Charge" position of this switch allows the battery to be charged at the rate of approximately 1.35 amperes from the house current during the period that the receiver is not being operated. The "AC" position of the switch allows the receiver to be operated at the same time that the battery is being charged. When this is done, however, it takes a considerably longer period for a partially discharged battery to be fully restored.

The tubes employed in the G-E LB-530 receiver are the one volt GT series and, since these have a filament instead of an indirectly heated cathode, any constantly recurring variation of the filament voltage would result in modulation of the received signal at the vibrator frequency. To prevent this and also minimize transient r-f peaks from the vibrator action the choke in the filament line and the eight ohm resistors and condenser filters are connected to supply paired tube filaments. The combined second detector and first



Circuits for 1942



audio tube, a 1H5GT, is most likely to be affected by variation of the filament voltage at an audio frequency and a 1200 mfd condenser is included on the filament line to this tube.

A charging cable is available which allows CHARGING of the set battery FROM a SIX VOLT BATTERY. The plug on this cable is then inserted over the prongs on the left side of the metal battery case and the plug and socket on the other end of the cable is provided with terminals for connection to a six volt automobile battery.

For charging from the ac line the unit consists of a step-down transformer which converts the house current to approximately 5.5 volts on 50 to 60 cycle models and to 6.6 volts on 25 to 50 cycle models. Applied to a copper oxide rectifier in a full wave circuit this supplies the battery with dc charging current.

To check the operation of such copper oxide rectifier units the following method is suggested. Remove the two black leads from the negative terminal of the battery and connect a DC ammeter which will read two amperes, in series with these leads to the negative terminal of the battery. Plug the power cord into an AC supply and turn the power selector switch to the "Charge" position.

With the AC line voltage at 117 volts, the average charging current should read about 1.35 amperes at 2.1 volts battery. If line voltage is greater or battery voltage is lower than 2.1 volts the charging current will be greater. If the current is much less than this value at the rated line of 117 volts, one or more of the copper oxide discs may be defective.

To check individual discs, the fol-

lowing tests are suggested. In the conducting direction the rectifier disc should pass 0.5 ampere or more when one half volt is impressed across the disc. Copper oxide rectifier discs conduct when the positive potential is applied to the copper oxide surface. The copper oxide is a dark blue coating and is plated with nickel to afford a good surface contact to the oxide.

If a DC ammeter is not available for measuring currents as high as 0.5 ampere, the circuit shown in the small diagram can be used for this check. This method requires that the resistance of 2.75 ohms be made fairly accurate and is placed in series with the rectifier disc and placed across the two volt storage battery. The voltage

should always read 0.5 volt or less; if the voltage exceeds 0.5 volt across the disc in this circuit, it indicates a defective disc.

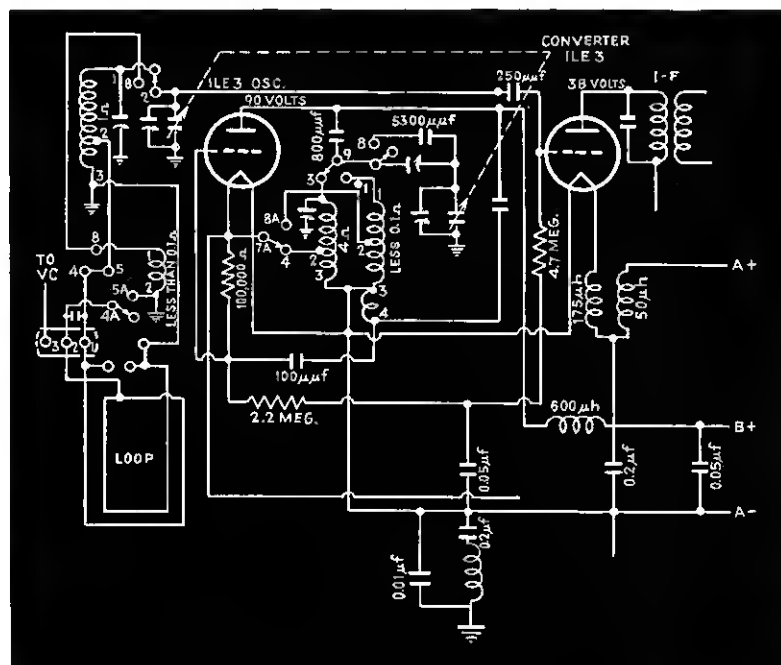
The reverse current flow is as important as the above test and is made as follows: Reverse the battery polarity in the test circuit and place a milliammeter that will read 10 milliamps in series with a lead to one of the battery terminals. This reverse current should not exceed $2\frac{1}{2}$ milliamperes at the applied voltage of 2.0 volts. If the current is considerably above this value the disc should be discarded. A suitable meter fuse should be used in series with the milliammeter to prevent damage to the meter in case the disc under test is shorted. A rough check, if a milliammeter is not available, is to measure the resistance of the disc in the non-conducting direction on the low-resistance tap ($1\frac{1}{2}$ volt) of the ohmmeter. The resistance should measure at least 750 ohms.

The balance of the receiver circuit follows more conventional practice. A loop antenna is contained in the cover, to which an external loop may be connected for weak signal pickup.

Two i-f stages are included, the second stage having its grid return grounded and not supplied by avc voltage. This second stage is resistance coupled to the detector diode, the first circuit of this type so far seen, and bias for the 1Q5GT power tube is obtained from a five volt bias cell assembly.

Oscillator Biases Mixer

Use of multi-grid converter tubes that operate as both oscillator and



mixer is conventional practice today among set designers.

This is not the only way of arranging the front end of a super-heterodyne receiver however and another method is shown in the simplified circuit diagram.

Two 1LE3 triodes are employed, one as the oscillator, the other as the mixer. The oscillator circuit is arranged so that the grid of the tube is effectively at ground potential and the filament of the tube is "hot" with respect to the r-f current circulating in the tank circuit. Since the filament of the mixer tube is in series with the oscillator filament the common r-f circuit formed serves to inject the output of the oscillator to the electron stream of the 1LE3 mixer.

The trap circuits in the filament line, composed of the r-f chokes and condensers, isolate the filaments of these two tubes as far as r-f is concerned from the rest of the filaments in the receiver. Additional filters in the positive high voltage line prevent the oscillator output from getting back into the B battery supply.

The oscillator grid voltage is of course negative with respect to chassis and this is employed as the bias voltage for the mixer tube. Decoupled by the 2.2 megohm resistor and bypassed

by the .05 condenser this dc voltage is applied to the grid return of the mixer.

When tuning a receiver the output of the oscillator lowers gradually as higher frequencies are approached and the voltage developed across the grid leak lowers in proportion. With this voltage applied to the mixer tube the bias is therefore decreased and the tube gain consequently increased. The lowered oscillator input to the mixer at the higher frequency end of a band is thus compensated by increased mixer gain and uniform conversion results.

It will also be noticed that a low impedance loop is included in this Philco model 42-853 and is connected across a portion of the mixer grid coil, or auto-transformer.

For short-wave operation the band-switch connects another coil into the grid circuit and grounds out a portion of the loop. The remaining section of the loop is then in parallel with the short-wave coil.

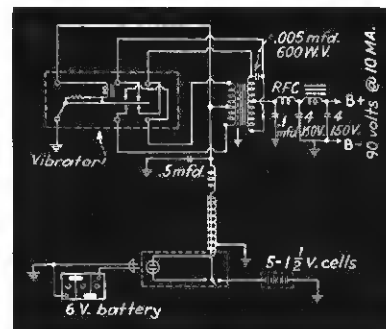
Of particular interest to servicemen is one extra lead that appears on the loop antenna terminal strip. This lead is connected to the high side of the voice coil and an output meter may be conveniently connected between the terminal post and ground for realignment purposes.

B Eliminator for Portables

The types of battery required for portable receivers may be cut to minimum through the use of the unit whose circuit is shown.

Power for the plates of the receiver tubes is obtained through the use of a vibrator power supply that operates from five flashlight dry cells. Connected in series, these actuate the reed of a synchronous vibrator whose rectified output voltage is filtered for r-f peaks and the vibrator frequency by the chokes and condensers shown.

Since the plate current drain of the portable receivers is quite low the unit supplies 90 volts at a ten milli-ampere current drain and yet allows



FISHING'S GOOD AT NORTH ADAMS

. but we're not doing much of it this year

Sure, we like to fish—but these are times when fishing must take a back seat. With one big Sprague plant working exclusively on national defense orders and with the other turning out more Sprague Condensers, Koolohm Resistors and Test Equipment for the radio trade than ever before, we've got a man's size job to do—and we're doing it. Meanwhile, we take this means of assuring our radio friends that, while putting national defense wholeheartedly first, we are neither forgetting nor neglecting them.

SPRAGUE
PRODUCTS COMPANY
North Adams, Mass.

ATOM
CONDENSERS
(Miniature dry
electrolytics)

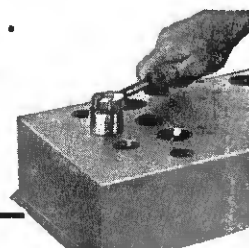
KOOLOHM
INSULATED
RESISTORS

TC PAPER
TUBULARS

FIXED MICA CONDENSERS

HOW TO CUT HOLES IN RADIO CHASSIS THE EASY WAY

NO FILING . . .
REAMING . . .
OR TEDIOUS
DRILLING



With the Greenlee Radio Chassis Punch, the radio worker can save hours of work when cutting holes for sockets, plugs, connectors, meters, and other receptacles in radio chassis. A cap screw is inserted in a small drilled hole, and the punch is easily forced into the die by a few turns of the screw with an ordinary wrench. These punches are available for cutting 3/4 to 2 1/4-inch holes. A Greenlee Knockout Cutter is also available for cutting holes up to 3 1/2-inch size. Send for new circular S-114 on Radio Chassis Punches.

GREENLEE TOOL CO.
1708 Columbia Ave. Rockford, Ill.

Suppose *YOU* Were the Customer...



... Which Serviceman Would You Deal With?

IRC Type D Universal Controls give you the edge on competition. With them you can give customers the kind of prompt, accurate service they like—the kind that means better business for you. For Type D's with their famous Tap-in Shafts are the first truly all-purpose controls.

A small stock equips you for the big majority of jobs. No lost time—no wasted motion. Often, you avoid waiting for more costly special replacements to arrive. Type D's are easier to install in crowded chassis. Although smaller in size, they are exact mechanical duplicates of the larger IRC Type CS Controls and equally dependable. Nothing has been changed or cheapened. Type D's have the same S-finger "Knee Action" element contactor, the same Silent

Spiral Connector between center terminal and rotor shaft, the same type of Metallized element and the same protection against moisture.

IRC Tap-in Shafts are equally dependable—and by far the easiest, most practical of all to use. Choose the shaft position, drive them in with a hammer and the job is done. They stay put—because they employ the same taper socket principle used to hold cutting tools in lathes for heavy work.



60% TO 75%

The 18 controls, 6 switches and 5 extra shafts of special design included in this IRC Master Radiotrician's Control Cabinet handle from 60% to 75% of all control replacement needs—as proved by actual count in the IRC Guide! Best of all you get the control cabinet FREE. You pay only the standard price for the controls, switches and shafts, \$14.97 net (\$24.95 list). Ask your IRC jobber about it today. Don't miss it!



TYPE "A" DOUBLE-FLATTED SHAFTS

This exclusive new IRC design gives you a shaft that eliminates the use of inserts and will fit practically any knob without filing. It's a time-saver that will account for tangible savings to the busy service man.



THE GREATEST CONTROL MANUAL EVER PUBLISHED!

Out Soon!

IRC has gone the whole distance in compiling and publishing the 3rd Edition IRC Volume Control Replacement Manual. Larger page sizes for easiest, quickest reference. Easy on the eyes! PLUS . . . more replacement specifications than have ever been listed before. Reserve your copy today. You'll say it's the finest Volume Control Manual you ever saw!



Type D UNIVERSAL VOLUME CONTROLS

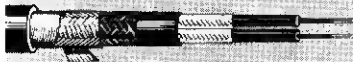
INTERNATIONAL RESISTANCE CO. • 401 N. Broad Street • Philadelphia, Pa



Do you use **MICROPHONE CABLE?**



8400—Single Conductor Cable



8402—Two Conductor, Crystal Microphone Cable



8422—Two Conductor Carbon Microphone Cable



8423—Three Conductor Microphone Cable



8432—Shielded—for Temporary Installation

For Antenna Wire and Kits, Hook-up Wires, Transmission Cables, and all other specialized wires for radio and sound equipment—see Belden Catalog B41.



Here Is **Wire Insurance** for Your Installations

Good wires mean good connections. That microphone you are installing will give longer, more satisfactory service with the right wire engineered for the particular type of job.

Belden microphone cables have been engineered for original equipment. They are furnished in a complete line for all types of applications. Belden-developed low capacity insulation, specially stranded conductors, and unique construction provide a cable that gives plus performance and longer life. Ask your jobber.

Belden WIRE

FOR GOOD CONNECTIONS

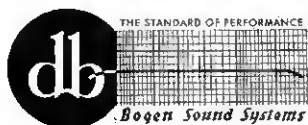
see bogen

see bogen when you visit the radio trade show at the hotel stevens.

see the most complete line of amplifiers, intercommunication and school systems; public address equipment and sound accessories at the show.

see bogen men — who know the equipment thoroughly — and who want to know you!

come to the show, come to display 918 — and then come up to our room in the hotel.



david bogen co., inc.—663 broadway, n. y. c.

a reasonable life expectancy from the dry cells since it requires about .2 amperes of current.

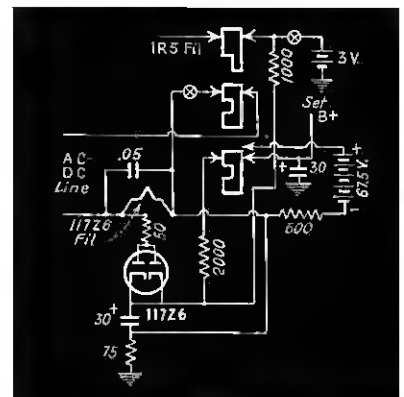
The eliminator unit of this ATR device contains the vibrator and parts. These are mounted in a metal case which is connected by a shielded cable to a metal battery box for the cells. The switch in the input circuit permits operation from an automobile storage battery as an alternative when this is desired.

Personal Charges Batteries

Several of the diminutive portable receivers have added power supplies for operation from ac or dc power lines and circuits of these appear elsewhere in this issue.

Another feature, charging of the batteries, is provided through use of the circuit shown in the illustration. The switching arrangement is shown in the ac-dc position and the 117Z6 rectifier supplies the B voltage from its parallel connected cathodes through the filter composed of two 30 mfd condensers and the 2000 ohm resistor.

Filaments of the 1R5, 1T4 and 1D8 tubes used in the receiver portion of the Automatic Tom Thumb are fed through the 1000 ohm resistor near the top of the diagram. Since both the



line switch and the battery switch operate at the same time from the volume control shaft, the two flash cells in series are actually floating on the filament line and provide a current filtering action during operation of the set from the light socket.

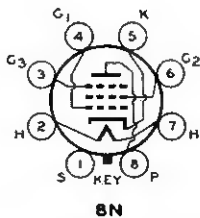
When the power selector switch at the back of the set is turned for battery operation the center portion of the switch segments in the diagram are opposite the paired arrows. This allows the top segment to maintain filament voltage on the receiving tubes while the other two segments open the 110 volt line and the rectifier B supply circuit. The bottom segment also closes the B battery line to the set which now operates completely from the batteries.

The third position of the selector

switch connects the bottom portion of the segments between the proper contacts and opens the filament circuit to the receiving tubes. The output of the rectifier is now used as a charging current and is fed to the A battery through the 1000 ohm resistor and to the B battery through the 2000 ohm resistor.

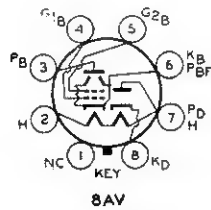
As the rate of charge is almost equal to the rate of battery discharge the charging action can be continued for about the same length of time that the set was used on battery power but it is not recommended that this continue for more than twelve hours. It will be noted in passing that when the current is shut off at the light socket and the knob switch is left on, the set will stop playing but the filaments are still lit by the flash cells.

New Tubes



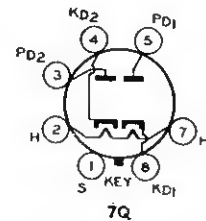
6SS7—Remote cut-off r-f amplifier

pentode of the single-ended metal type with a 6.3 volt, .15 ampere heater. RCA



117P7GT—Rectifier and beam power amplifier similar to type 117N7GT

but having somewhat lower power output. RCA



12H6—Twin diode similar to the 6H6 except for heater rating. RCA

At Simpson BOOTHS

421-423

RADIO PARTS TRADE SHOW
Stevens Hotel, Chicago
June 10-11-12-13

New MODEL 410 AM and FM Signal Generator for the service man who wants a single instrument producing accurate signals for any type broadcast receiver. A-M is on black scales; F-M on red. Covers all frequencies from 75 KC to 56 MC in generously overlapping ranges—all fundamentals.

New MODEL 510 Signal Tracer designed to cover every requirement of this new test procedure without the usual maze of knobs and gadgets. Three instruments in one: (1) Sensitive RF-IF Amplifier and Demodulator for all frequencies from 170 KC to 17 MC with its own meter calibrated in millivolts and volts with eight overlapping ranges. (2) Sensitive audio amplifier with its own meter and 8 overlapping ranges. (3) Large vacuum tube volt and ohmmeter with 6 voltage and 6 resistance ranges. Output jack for oscilloscope or phones. Power amplifier and speaker for audible monitoring.

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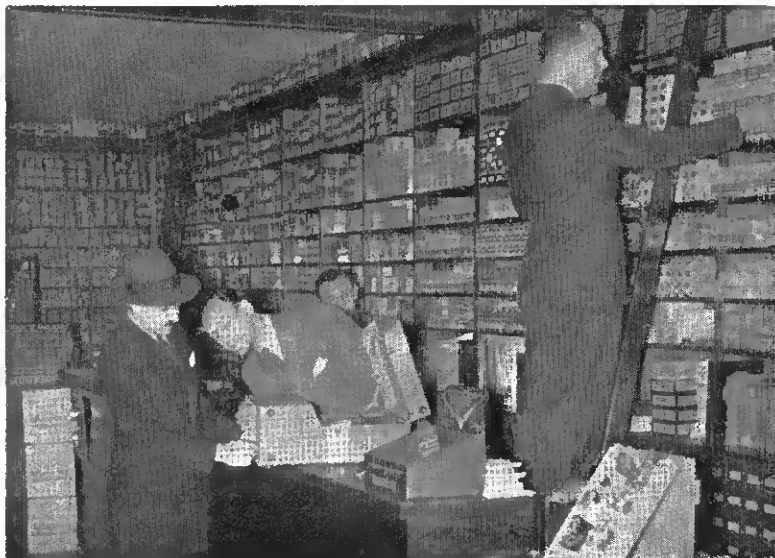


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A MIDTOWN JOBBER—Specializing in radio, sound and television parts and equipment, Terminal Radio Corp., centrally located in Manhattan, employs truck delivery to local customers, issues 480 page catalog for servicemen use

Tricks

By JOSEPH AMERICA

In charge of Phonograph and Speaker Repair Dept., Davega-City Radio, Inc., N. Y.

MECHANISMS employed in record changing panels actuate the various parts in a sequence of operations and a few minutes study of an operating mechanism will show an interesting order of movement of the mechanical parts.

This may not be possible when a panel requires service, generally caused by accidental abuse or tampering by the purchaser or by injuries sustained in shipment. The resultant jamming of the mechanism or erratic operation of certain parts must then be corrected by the serviceman before proper operation can be observed.

When the Mechanism Jams

When a record-changing phonograph panel is in cycle a certain amount of momentum is exerted against a series of moving parts. There is a sudden, excessive amount of pressure against this series of parts whenever the panel suddenly jams and the weakest link in the series will be damaged.

The serviceman confronted with a jammed panel thus has two jobs to do, find and fix the cause of the jamming, and find and repair the resulting damage. This latter may consist of stripped fibre gears, loosened mounting studs, broken trip levers or pawls, bent selector levers or record mounting posts.

If the customer does not turn off the motor after a jam occurs the phonograph motor may also be damaged.

A badly damaged mechanism is generally caused by warped records that bind on selector blades or by bent selector posts and blades due to rough handling.

When a warped record is removed a mechanism may still jam when good records are used. This is caused by damage to the selector blades and parts by the previous warped record. When attempts to operate the machine are continued other moving parts not already affected will be damaged. In turn any damage to one of these parts will again cause jamming even if the selector blades and posts are adjusted.

Since jamming of the phono panel

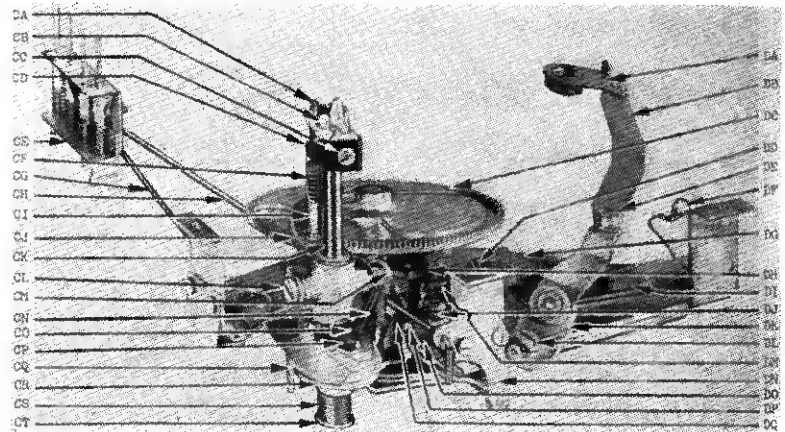
with RECORD CHANGERS

SERVICEMEN accustomed to electronic problems often shy away from purely mechanical ones

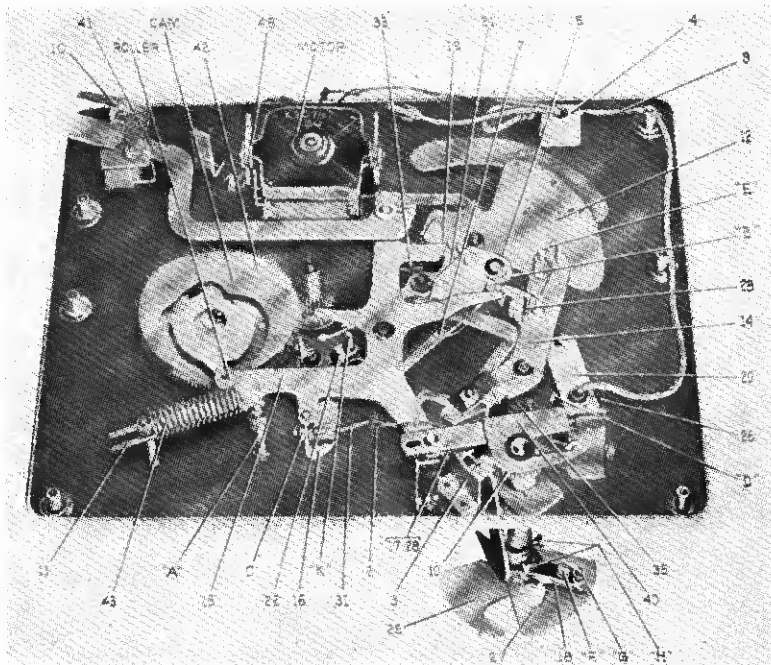
can result in such extensive damage it might be well to caution the user to play flat and unwarped records, to handle them carefully and to remove them from the loading posts when not in use to prevent warping. The possibility of jamming will also be reduced if records are not mixed.

Tone Arm Landing

Another common difficulty is occasioned by erratic landing of the tone arm on the records. This is often caused by improper handling of the panel during operation. When the tone arm is held or interfered with



Sub-plate assembly of the Webster-Chicago record changer. Lettered parts are referred to in the hints given for the Philco 41-608



Mechanism of the RCA RP-152, A, B, C, D and J. The RP-153 panel is similar but has flexible coupling turntable drive and automatic switch. The former is found in the RCA V-170 described in the text

during a cycle damage to the mechanism will result and the arm landing will vary on subsequent operations.

Erratic Speed or "Wow"

Insufficient lubrication may cause erratic speed or wow and will differ in methods of treatment in various models of mechanisms. If the armature shaft and bearings are of the same temper or hardness "freezing" will occur and the motor will slow down. To repair these it is necessary

to dismantle, clean, repair and reassemble motor.

In other cases the armature shaft and bearings are of unequal temper or hardness and the weaker of the two will wear excessively when not lubricated properly. The motor then becomes noisy and varies in speed. To repair this type worn parts must be replaced or an exchange made.

If the speed adjustment of induction motor panels is shifted to allow excessive motor speed the governor springs will bend out of shape or may even

break. New springs must then be installed for proper operation. Mechanisms with dc motors also employ governors and the same applies to these.

Erratic Tripping

Occasionally poor setting on the trip lever, trigger arm, clutch, or pawl may cause erratic tripping but mechanical wear plays a part here also. Loose studs, a worn catch on the trigger arm, rough edges or bent pins on the pawl may cause this condition.

Suggestions for the adjustment and repair of specific models follow. Servicemen will encounter other models that have similar mechanisms and for help in identifying these reference may be made to the listing of mechan-



A new type of spring is available for Emerson models 397 and 374

isms in the October, 1940 issue of *Radio Retailing*.

Admiral 69 M. 5

Check for loose lever on tone arm vertical shaft. Check for binding vertical shaft in base of tone arm. Check phonograph records. When center holes on records are too large or worn, two or more records will drop off rest on spindle during cycle. Erratic speed . . . check for warped

turntable, binding spindle in bearing or poorly lubricated motor.

Emerson 397

Check for loose lever on tone arm vertical shaft. Check for binding in vertical shaft of tone arm. Gear on spindle is sometimes too low striking connecting rod between record posts.

If tone arm lands only in 10" position, check automatic record setting lever. This is the lever that is struck by 12" records when dropping. Directly below this lever, on the under side of panel, there is a bronze spring about $\frac{3}{4}$ " long that sometimes drops from panel. When this spring is missing, the tone arm will land only on 10" records. Emerson has a new type spring for replacement which cannot fall off. It is advisable not to mix records on this phono panel.

The same new type lever setting tension spring is also provided for the Emerson FA 374.

Furnsworth P. 2

Erratic landing of tone arm . . . check for loose lever, connecting tone arm to tone arm vertical shaft.

If tripping is erratic . . . check to see that trip finger does not interfere with release trip lever and also check for excessive binding on friction trip assembly.

Philco 41-608

JAMMING

Bent cam connecting rod lift DK (see illustration) . . . if bent this rod will jam against gear DC. To adjust, remove, reshape and reassemble. This rod can become jammed if lift spring is missing or if shoulder screw DL is loose.

Jammed or frozen changer shaft . . . dismantle, sandpaper, clean and oil shaft.

ERRATIC VARYING SPEEDS OR WOW

Replace warped records.

Replace motor coupling assembly if damaged.

If idler gear assembly binds . . . dismantle, clean and oil bearings, grease gears.

If turntable spindle is not in line with motor spindle . . . loosen screws holding mounting plate, align spindles and retighten screws on mounting plate.

If mounting plate is bent due to rough handling . . . to adjust, dismantle, straighten and reinstall.

Erratic motor speed . . . may be due to poor lubrication. Set screw for adjusting play in armature may have been inserted too far, binding armature. Reset play in armature.

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If motor is not regularly lubricated, bearings will be damaged. Motor replacement will be necessary.

ERRATIC TONE ARM LANDING

Loose tone arm . . . tone arm not properly set on hinge spring CD. Reset tone arm on hinge spring.

Bent tongue on clutch assembly CQ . . . use pressure to straighten. Binding adjusting rod assembly . . . there is a hook on the end of this rod, which is actuated by the side of left lever DK. This hook goes through a slot in the sub-panel. When this hook is bent, erratic tone arm landing will result. To adjust, straighten hook.

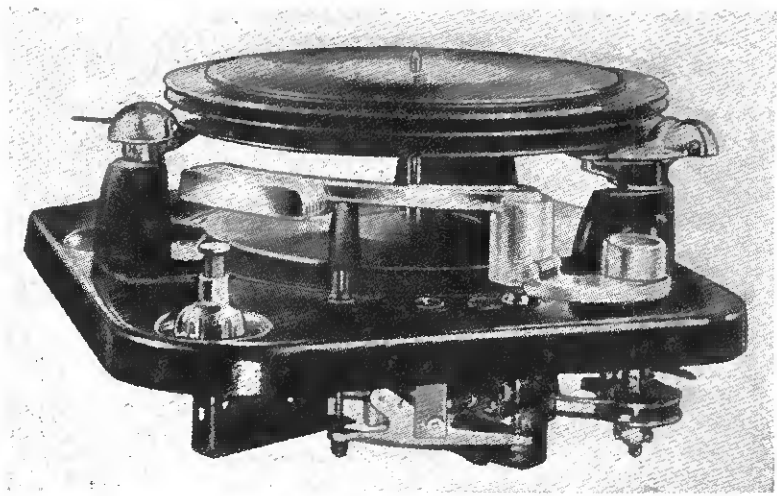
Weak tension on springs . . . check for tension on all springs including those shown in illustration—CN, CO, CP, and tension spring on adjusting rod assembly. Adjust tension on springs by removing one or two turns. If there is not enough tension on springs after taking one or two turns off, replace springs.

Binding swivel tube and trunnion assembly CK . . . there are three $\frac{1}{8}$ " ball bearings on top of this tube and trunnion assembly. If ball bearings are missing, binding will result. If missing, install new ones.

If trunnion binds in swivel post, apply oil. If oiling is ineffective,

then dismantle and clean trunnion and swivel post.

Guide arm CJ fails to release from cam gear at end of cycle . . . the tone arm will be "knocked off record" when this occurs. To adjust, increase tension on guide arm spring CN. Check for binding guide arm at trunnion shoulder screws CL. Binding may be due to bent or rough shoulders. Straighten, sandpaper, clean and oil shoulders.



Complete photo panel of Webster-Chicago, utilized in the Stromberg-Carlson 535. Except for the tone arm and head this panel is similar to the Philco 41-611

ERRATIC TRIPPING

Incorrect clearance between trigger DO and clutch CR . . . if clearance is too small tripping will be continuous. If clearance is too great tripping will not result. To adjust clearance, reset clutch screw DP.

Reset clutch play . . . when there is no clutch play, panel will trip continually. To adjust, reset set screws on clutch release assembly.

When clutch release assembly is too

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high, the clutch will not release. When clutch release assembly is too low, the clutch will not engage. To adjust clutch play, reset set screws on clutch release assembly.

When there is excessive tension on clutch, the tone arm jumps or does not follow eccentric groove at the end of records and as a result the phono panel will not trip. To adjust, reduce tension on clutch lever and sleeve spring CS.

JAMMING *RCA V-170*

Bent mounting posts . . . use pres-

sure to straighten. Posts must be perpendicular to panel base.

Bent selector blades . . . adjust bent selector blades using pressure . . . Both selector blades and shelves must be horizontal to panel base.

Incorrect spacing between shelves and blades . . . spacing for 10" record is .055" and for 12" record is .075".

Bent or loose mounting studs . . . to adjust, remove turntable andpeen studs to panel, using round end of hammer, or weld studs to panel.

Broken trip pawl . . . replacement is necessary.

Trip pawl 22 in illustration wedged

between main lever 15 and its stud . . . apply pressure to release trip pawl.

ERRATIC SPEED

Warped turntable . . . adjust by pressure against low side . . . binding turntable . . . remove turntable, clean shaft, shaft bearing and lubricate.

Worn or damaged tire . . . if necessary replace tire.

Incorrect tension of idler wheel . . . if tension on spiral spring attached to idler wheel is too weak, motor will not engage. If tension is too tight, turntable will slow down.

ERRATIC TONE ARM LANDING

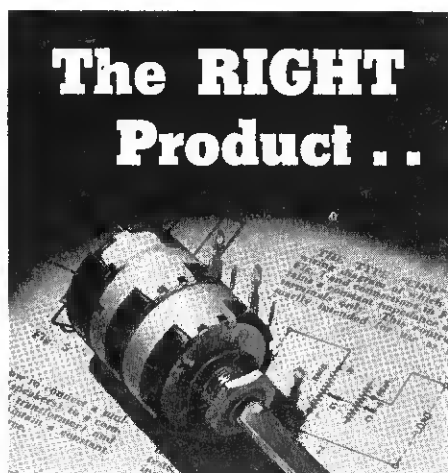
Loose lever on tone arm vertical shaft . . . solder or weld loose lever to shaft.

Excessive "up and down" play in tone arm vertical shaft . . . to adjust loosen set screws on vertical shaft and adjust play. This adjustment will necessitate resetting tone arm for correct landing.

Binding in bearing of vertical shaft . . . to adjust, dismantle, clean, lubricate and reassemble.

Loose pivot pin on pivot arm . . . to adjust—dismantle tone arm andpeen or weld loose pin on pivot arm.

Loose cable . . . if cable is too loose the tone arm will not rise enough, and swing on tone arm will set needle



The RIGHT Product . .

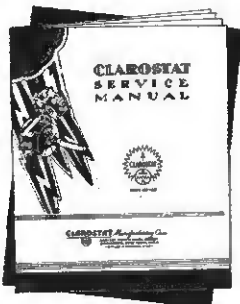
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down off side of record. To adjust remove some slack in cable.

ERRATIC TRIPPING

Wrong tension on clutch 5 . . . if tension is too great, the panel will trip in middle of record. If tension is not enough, tripping will not occur.

Loose mounting studs . . . generally found on cam and gear assembly, trip pawl, and on main lever.

Rough edges on trip pawl 22 . . . to adjust, smooth edges with sandpaper.

Stromberg Carlson 535

Jamming will occur if raising lever pressure adjustment is too high. Panel will jam if pin on rest shaft falls below main gear assembly. Adjust cut-off switch to allow as little drop of rest lever possible.

Erratic landing of tone arm can be caused by loose set screw connecting vertical shaft to tone arm. It can be caused by stop spring adjustment. If stop spring is too low, it will not clear eccentric studs, and will prevent swing of tone arm to tone arm rest. If stop spring is too high it cannot engage eccentric studs controlling landing position of tone arm. If tone arm slides across first few grooves after

landing, the clutch release is retarded. To correct, turn knurled nut below stop spring, clockwise.

Erratic tripping will occur if spacing between trip lever and trip arm is incorrect. A few thousandths of an inch is necessary. If clutch is not released by trip lever, the Phono Panel will trip continually. If trip lever is bent too much, the clutch will not engage and tripping will not take place.

Philco 41-611

This panel is similar to the S.C. 535

except for the tone arm and head. The Philco uses the photo-electric cell unit. If the reception seems to rumble or waver, check for loose mirror on crystal assembly; check for loose filament on pilot light; check for excessive vibration due to motor mounting or tightly mounted panel to cabinet.

Zenith 6S-596

Check for loose lever on tone arm vertical shaft. Check for binding in bearing of tone arm vertical shaft. Removal and reassembly may be necessary.

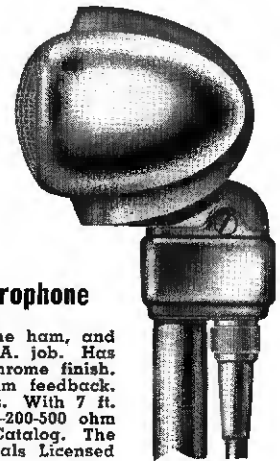


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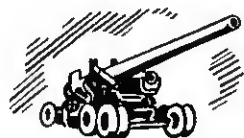
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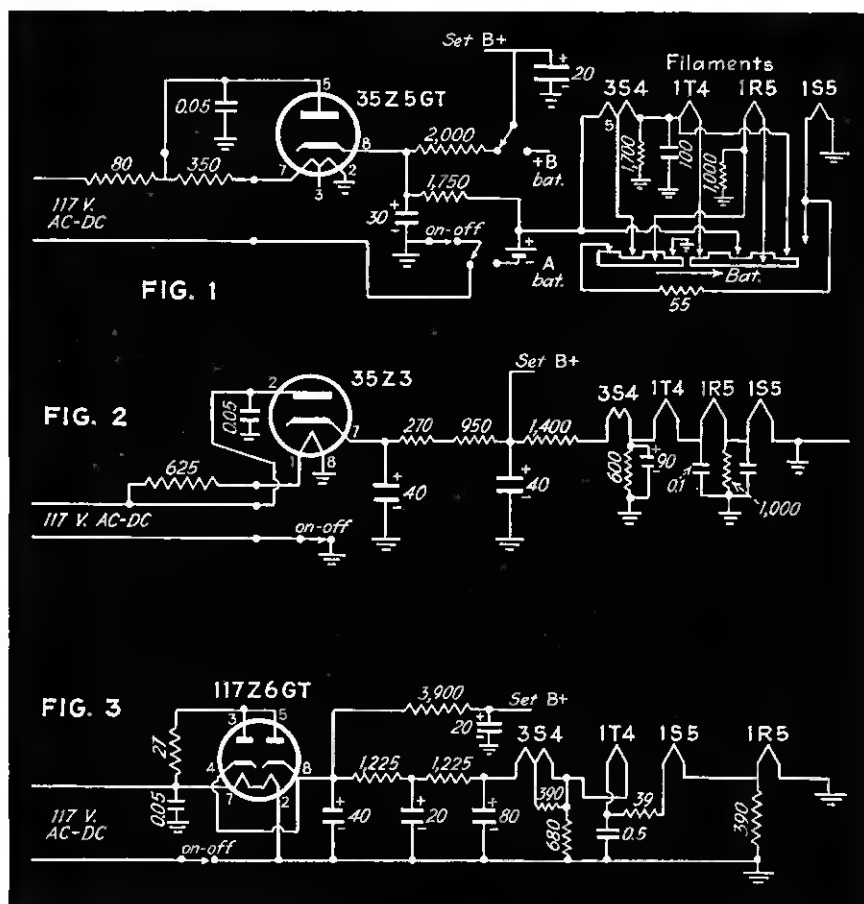
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Personal POWER Supplies

THREE METHODS of operating miniature receivers from the house current



By **VIN ZELUFF**

SEVERAL CIRCUITS are being employed in the three way personal portables that have appeared recently and they offer points of interest to servicemen.

Most popular of these among the design engineers is the circuit shown in figure 1. A plug-in line cord contains a 430 ohm resistance winding that is tapped at 80 ohms. The total plate and filament current to the rectifier passes through the 80 ohm portion and it helps keep the B voltage supplied to the rest of the tubes under the proper 90 volt maximum and also serves to limit the peak current surges to the rectifier.

The remaining 350 ohm section of line cord has a voltage drop through it of about 53 volts and supplies the filament of the rectifier tube at 35 volts.

The cathode of the rectifier feeds the B voltage to the set through the 2000 ohm filter resistor and supplies the receiver tube filaments through the 1750 ohm filter resistor. The first filter condenser is common to both circuits but each has its own second filter condenser.

For line operation the filaments are connected in series by the switching arrangement and in parallel for battery operation. Figure 1 shows a typical switch circuit while figures 2 and

3 show the filaments as they are connected for line operation with the switch eliminated.

Other Methods

Models so far encountered that employ this circuit with slight changes include those of Admiral, Fada, Farnsworth, DeWald and Garod. A portion of the rectifier filament is left open in the Detrola model and voltage is supplied to tube pins 7 and 3. The 80 ohm section is included in the cord and a 450 ohm section supplies the lower voltage necessary for the filament.

A 35Z3 tube may also be given the rectifier job and is shown in figure 2 with a line resistor of 625 ohms.

Both plate and filament current for the pygmy tubes flows through the two resistors shown in the filter circuit of this type. One of these, the 950 ohm resistor, is a wire wound type and the 270 ohm is a carbon type. In the early production the values of the resistors were 800 ohms and 420 ohms but heat dissipation is more equably distributed at the values shown on the schematic. Voltage for the filaments is dropped by the 1400 ohm resistor and again filtered.

Figure 3 shows another variation that contains no resistance in the line

cord, instead uses a 117Z6GT operated directly from the line voltage. The tube has plates and cathodes in parallel and the rectified output feeds the B voltage to the set through the 3900 ohm resistor.

The two 1225 ohm resistors and the filter condensers complete the filament supply circuit and permit the proper voltage drop to the series connected filaments in the Motorola model.

Battery Charging

This same tube, the 117Z6GT, is also found in the Automatic model

and the diagram will be found in the new circuit descriptions on another page of this issue. This tube also furnishes the charging current to the batteries in this model.

Circuits of the personal receivers with the miniature tubes appeared in *Radio Retailing* in October, 1940 and most servicemen are now familiar with them. Designed for straight battery operation these employed the 1S4 tube in the output stage but for three-way operation most manufacturers now employ the 3S4 having the same characteristics but with a center tap in the filament to permit either series or parallel operation.



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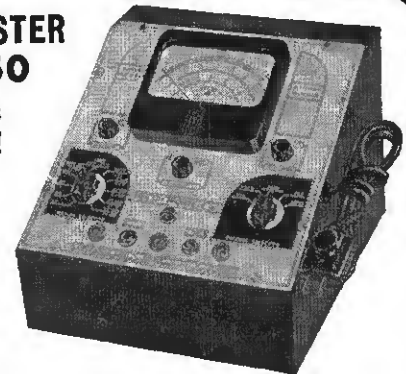
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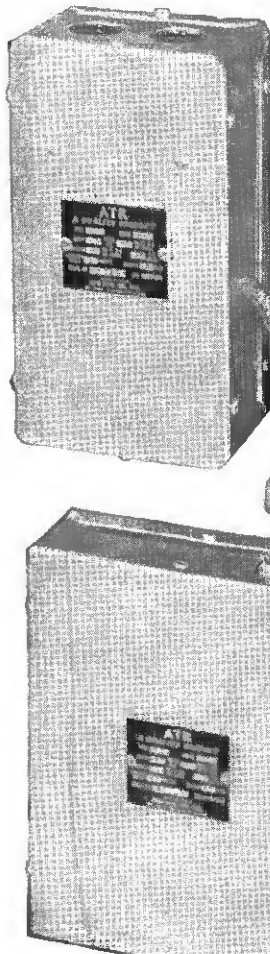
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Net Weight
(less cells)
4 1/2 ozs.
Weight
(including five cells)
1 1/2 lbs.

- ELIMINATES EXPENSIVE "B" BATTERIES.
- OPERATES ON RECHARGEABLE FLASHLIGHT CELLS OR—
- OPERATES ON ORDINARY FLASHLIGHT CELLS OR—
- OPERATES ON STORAGE BATTERY IN CAR.
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- SMALLER THAN EQUIVALENT "B" BATTERIES—WEIGHS ABOUT 1/3 LESS.

INEXPENSIVE . . . TIMELY . . . PROFIT MAKERS

ATR again scores another engineering triumph by eliminating expensive "B" batteries in portable receivers, which is accomplished by the use of an ingenious ATR Vibrator-Operated "B" Unit operating on five ordinary No. 2 flashlight cells, three rechargeable two-volt flashlight cells, or the storage battery right in the car!

The chief advantages of the arrangement using No. 2 flashlight cells are that they are obtainable in the remotest territories from garages, filling stations, hardware stores, etc., whereas expensive "B" batteries, generally considered special, are hard to obtain; also, the investment in flashlight cells is approximately one-sixth that for "B" batteries.

Operating the ATR "B" unit from three rechargeable two-volt flashlight cells provides the ideal arrangement and eliminates the battery maintenance problem, since the cells can be recharged directly from the storage battery in the car or by means of an inexpensive Battery Charger on 110-volt A.C. mains.

The use of the ATR "B" Unit on the storage battery in the car in place of flashlight cells provides another dependable source of energy for the "B" supply and a resultant overall saving in the cost of operation.

The ATR "B" Unit delivers 90 volts at 10 milliamperes, which is ample for any portable receiver, and requires approximately 0.2 ampere from its 7 1/2-volt supply source (five No. 2 flashlight cells in series).

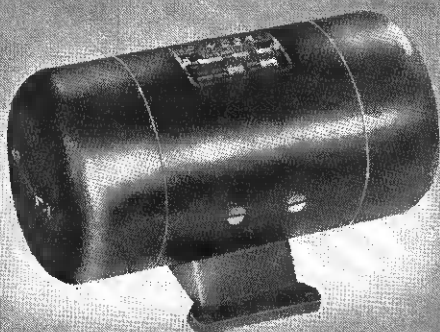
The ATR "B" Unit, together with its auxiliary flashlight cell container, is so arranged that the total space occupied is less than that for the equivalent "B" batteries, so that these units can be easily installed in any portable receiver in a few minutes' time.

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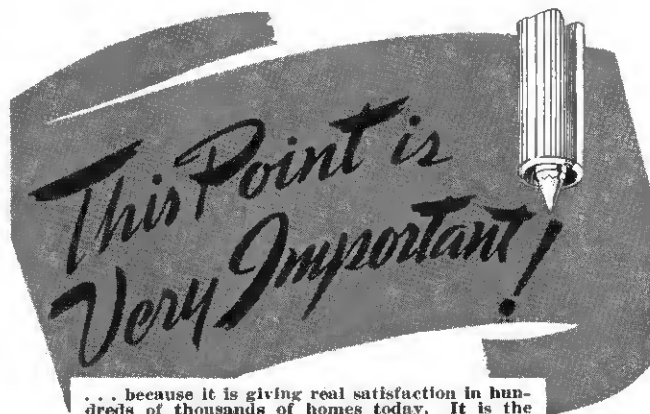
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Manufacturing Metallurgists

CAPACITY Measurements

IF YOU KNOW the resistance of your ac voltmeter use this chart to read values from .0005 to 1 mfd

By John M. Borst

TO USE THE CHART shown on this page first note your line voltage, which we shall call E_1 .

Next connect the unknown condenser in series with the meter across the line and read the new voltage, E_2 . This second reading should then be expressed in percent of the line voltage by using the formula shown at the bottom of the chart.

When this percentage and the resistance of the meter are known the chart shows the capacity. On the chart find the intersection of the horizontal line marked with your meter resistance and the vertical line corresponding to the percentage of line voltage. The nearest slanting line now indicates the capacity.

Example: Suppose the line supply

is 110 volts and with the condenser in series the reading is 40 volts. This amounts to slightly over 36 percent of line voltage. When the meter resistance is 100,000 ohms, the chart shows that the capacity is .01 mfd.

Larger Values Easily Measured

According to the chart, the highest capacity that can be measured with an instrument having 100,000 ohms resistance is about .04 mfd. Larger condensers will all show about the same reading. A new range for larger condensers can be obtained by using a lower-resistance instrument. However, a 100,000 ohm meter can be used simply by shunting it with a lower resistance. The value of R in the chart is then equal to that of the meter and auxiliary resistance in parallel. For instance, 11000 ohms in parallel with the 100,000 ohm meter reduces the value of R to 10,000 ohms.

One might also use a lower range of the voltmeter and measure across the filament winding of a transformer supplying voltage to a tube.

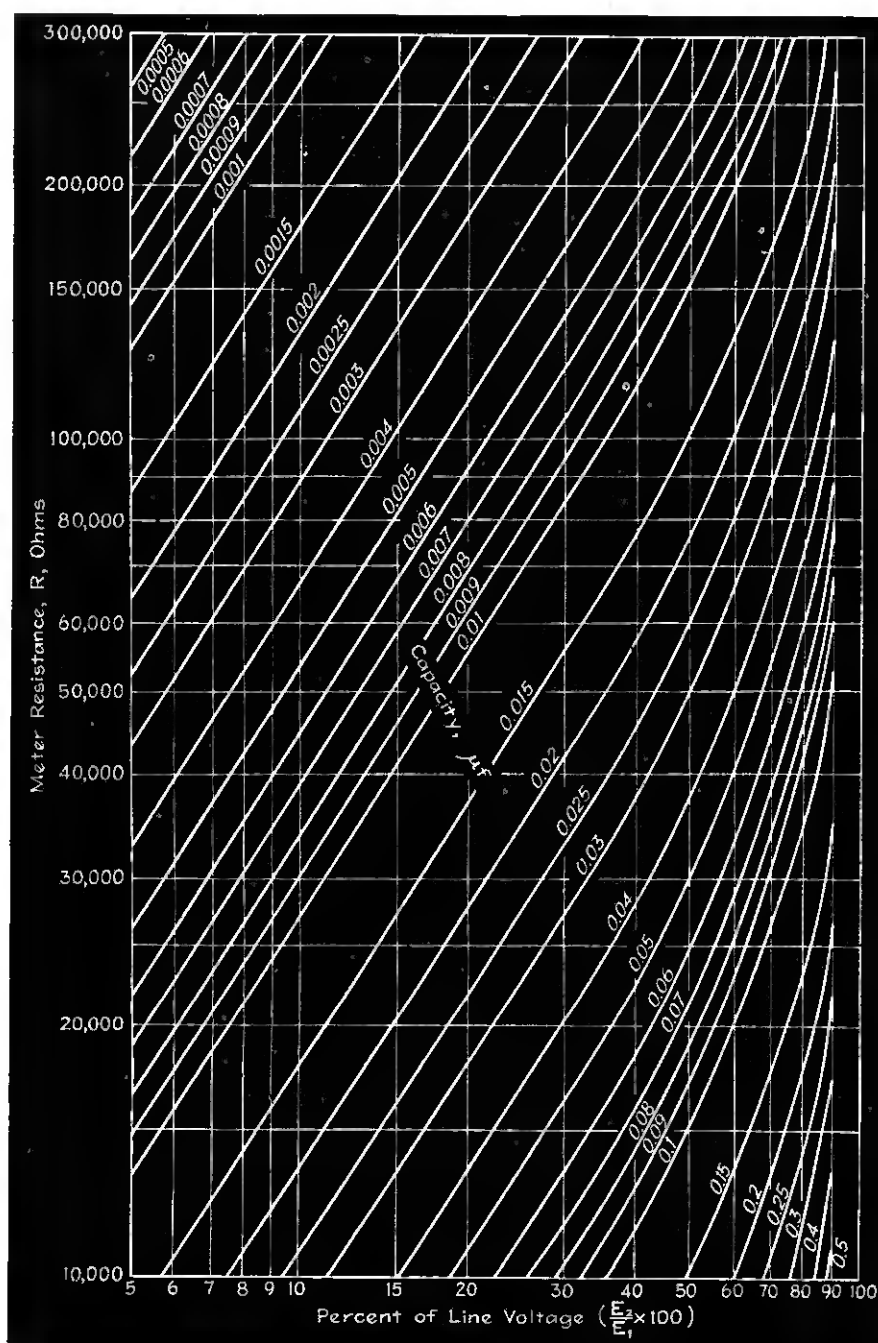
Example: With the 5-volt range (5000 ohms resistance) we measure first the filament voltage from a tube-loaded transformer. Let this be 5 volts. Then a second reading with the unknown condenser in series is found to be 3.4 volts which amounts to 68 percent of 5 volts. In the chart it will be seen there is no provision for as low a meter resistance as 5000 ohms. In that case one uses a multiple of 5000 such as 50,000 ohms. For this resistance and 68 percent, the capacity is .05 mfd. For 5000 ohms as meter resistance it is then .5 mfd.

In other words, if all resistance values of the chart are multiplied by any factor, the capacity values must be divided by the same factor and vice-versa.

For Small Sizes Too

The measurement of smaller condensers can be accomplished when a higher range and high-resistance voltmeter is used with a source of supply taken from the high-voltage secondary of a power transformer.

The chart was calculated for a supply frequency of 60 cycles. Those who employ 50 cycles should multiply all capacity values by 1.2, for 25 cycles multiply by 2.4.



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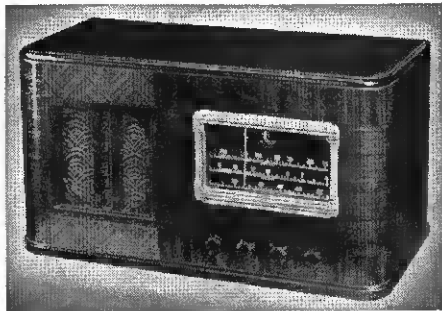


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Servicing AC-DC COMPACTS

MORE THAN HALF the radios sold last year were compact. Added to the number now in use gives servicemen increased problems peculiar to such types

By **WILLARD MOODY**

GENERAL PRINCIPLES that apply in the testing of straight ac receivers also apply when servicing ac-dc models. However, the actual troubles that are encountered are usually a bit different from those found in their big brothers due to space limitations.

Heat generated within such sets is confined to a small space and parts often have a short life due to the "baking" action. Still another trouble may be traced to the high surge or peak voltage when the set is turned on and some models now use a small resistance in series with the plate or cathode circuit of the rectifier to limit the flow of current under these conditions.

Filter condensers that have dried out may be located by the use of bridging or shunt capacitors to locate open circuited units. One precaution must be observed in addition to watching polarity of connection, and that is the realization the defective condenser in the set may be "healed" temporarily by the action of the bridging unit. When this happens it is often necessary to repeatedly let the set cool and try again in an effort to duplicate the breakdown condition.

Parts Change Values

Other parts may warm up and change value. In time, carbon re-

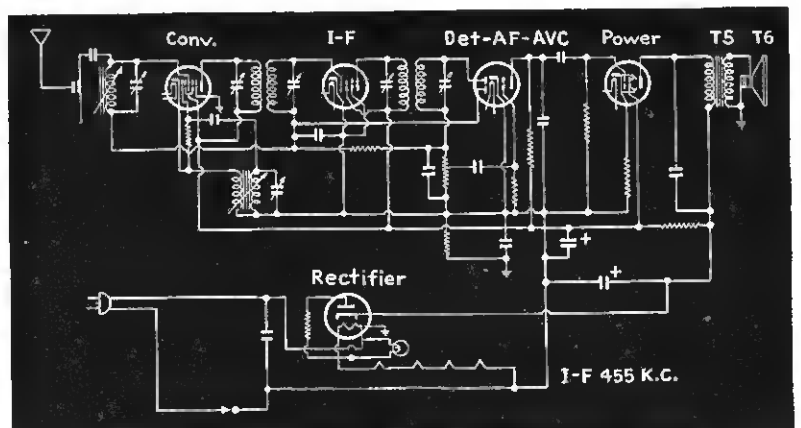
sistors may shift too far out of line and have to be replaced. A resistance check therefore should be made as a matter of routine. The grid resistance for the 25L6, for instance, should not exceed 1 megohm. A high resistance voltmeter may be used to check grid voltage. The grid should not be positive with the receiver tuned off the station (no signal input).

If the grid resistance is normal, but distortion results, the coupling condenser may be suspected. Intermittent or faulty reception after the set has warmed up may be caused by these units. All coupling condensers should have a d.c. leakage resistance of not less than 18 megohms.

Distortion After Operation

If the receiver distorts after about ten minutes operation, the trouble is probably in the output tube. Tubes of the 43, 25L6, 35L6 and 50L6 varieties often evidence this fault. A check in a tube tester will not disclose the trouble since the tube must first heat up under operating conditions. Very often, this failure will be due to a leak between cathode and heater.

If the line voltage is abnormally high, too much filament or heater voltage will be applied, and the line resistor may have to be increased to some slightly higher value. A series resistor of 5 or 10 ohms rated at 2



CIRCUIT of a typical compact receiver of current design

to 5 watts will do.

A sometimes puzzling trouble will be lack of voltage across the cathode resistance, with the plate, screen and grid voltages and resistance apparently normal. If the cathode current is not normal, with a drop of about 7.5 volts across the 150 ohm resistor, there is no electron current within the tube from cathode to plate and the sole remaining cause would be the heater voltage.

When the heater voltage drops to too low a value, such as 10 volts instead of the normal 25, plate current or cathode current will similarly drop.

If the set is on the service bench, a quick check of field current in the speaker may be made by taking a small screw driver and holding it near the pole piece where the voice coil slides in and out. If field current is normal, the screw driver will be attracted by the magnetic strength of the field. An open field coil in the circuit shown would have the effect of cutting out voltage on the plate or screen of the power tube and would make the voltage from the cathode of the rectifier to ground or chassis become very high; for when current is reduced, voltage rises. This high voltage would puncture the insulation of the condenser at the input of the filtering system, if the set were left on for any length of time.

A common cause of trouble is the small condenser used as an r-f filter shunted from the diode return plates to ground or chassis. If these condensers open up, the circuits may become unstable. R.F. voltage will appear and be fed back into preceding stages. Moving the antenna near the tube may be enough to send the set into oscillation and screeching. Feedback may extend through the detector plate to output tube grid, thence into the loudspeaker wiring and back to the antenna, providing a feed-back path circuit.

Oscillation may also originate in

other circuits through lack of proper shielding of tubes or location of grid circuit wiring. In the case of metal tubes, oscillation will be occasionally caused by a bad weld on the steel casing of the tube. A jumperwire fixes this.

In many sets glass tubes are used with no shielding. A tube shield may be installed easily enough and reaction cut down. Stability will be increased and better tuning will usually result, although care should be taken if the effect of regeneration is depended upon to achieve a sharp selectivity curve.

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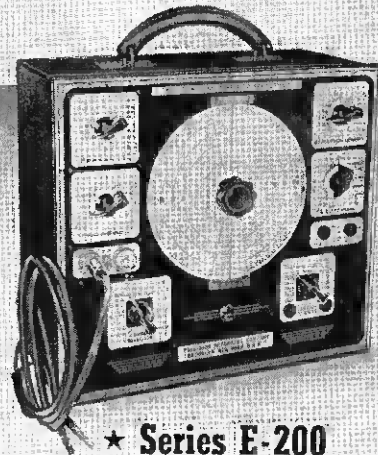
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Weak on all stations . . . check .01 condenser (part no. 61-0100) from plate of 7B6 to grid of 7B5 tube, for high resistance leak.

No reception at low end of dial and stations near 550 kc come in at 900 kc . . . open oscillator coil. Realign after replacing.

Shorted filter . . . replace original part No. 61-0089 with filter part No. 61-0028 for less breakdown due to surges caused by the car voltage regulator.

CROSLEY 855

Dead . . . if set operates when finger is placed on grid cap of 6F5 tube at back of chassis, change all electrolytic condensers.

DELCO R-1126

Noisy . . . for a temporary repair while awaiting a replacement coil try a 100M ohm resistor across the primary of the first i-f transformer.

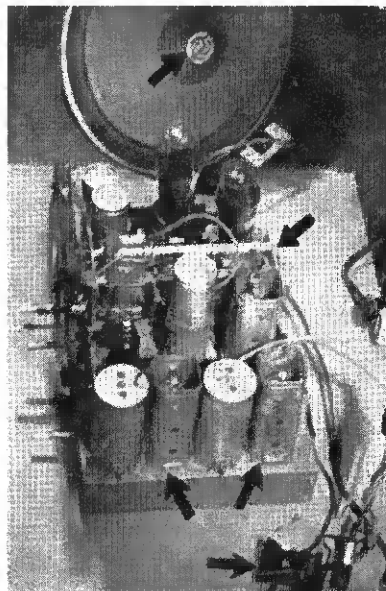
FORD F-1440

Weak or intermittent . . . check volume control closely for high resistance leak to ground.

PHILCO 37-630

Intermittent . . . check lead from tuning condenser to 6A8G grid.

Noisy . . . check rear bearing of tuning gang, oil if necessary. Speaker voice coil leads may work loose and



cause noise. This also applies to leads of the shadow tuning indicator and antenna and ground binding posts.

Oscillation . . . tube shields may corrode at base.

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CHART "S"

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PHILCO 41-240

Intermittent oscillator operation . . . dust or other foreign matter collects between the plates of the oscillator tuning condenser and may absorb moisture sufficient to allow leakage in oscillator tuned circuit.

PHILCO TP-10

Inoperative but signal to i-f stage goes through to speaker . . . clean and tighten or replace loktal socket on 7A8 tube if oscillator pin connections fail to contact tube prongs.

PHILCO 37-623

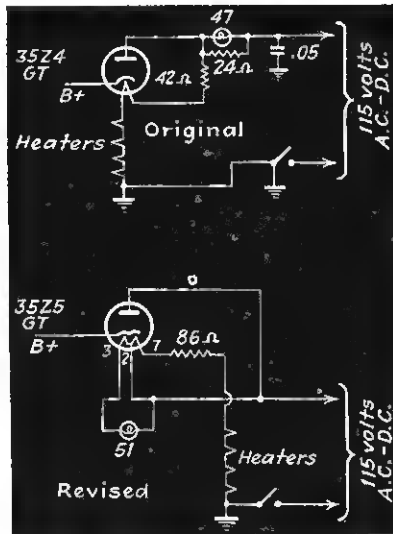
Intermittent oscillator action . . . cut off screen grid voltage supply lead from terminal beneath chassis and connect a 15 M ohm resistor between this terminal and 135 volt supply terminal.

RCA HF-6

Afc operates only on high side of station carrier . . . negative voltage is not reaching grid of 6J7 oscillator control tube. Replace 560M ohm resistor (R18) in 6H6 K2 circuit.

RCA 9TX 31, 32, 33

Repeated pilot light failure or burn-



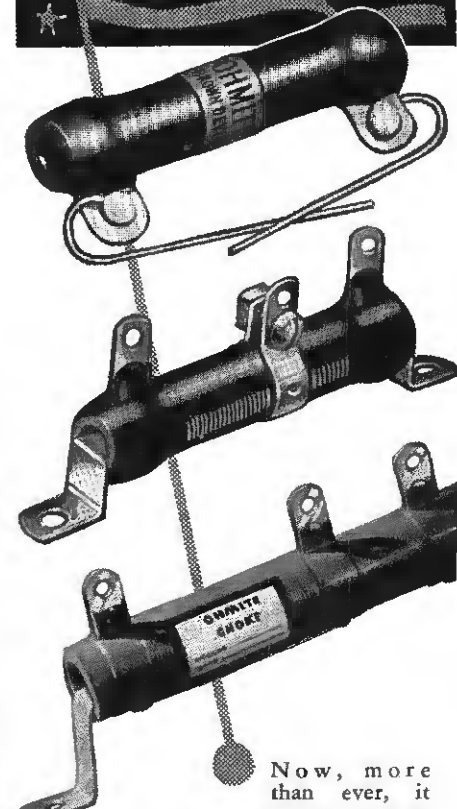
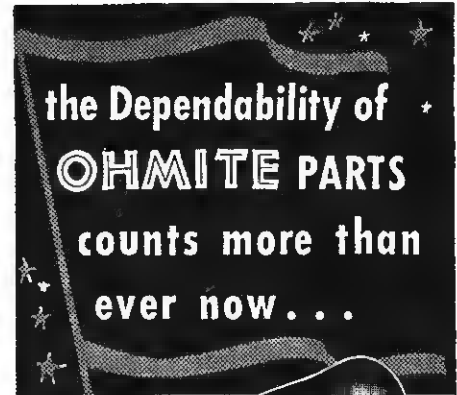
out of line resistor . . . change rectifier tube and circuit as shown in the diagram.

RCA 6-T-2

Noisy . . . replace resistor no. 11466 in metal case if it shows leakage to ground.

RCA 96-T-7

Intermittent blasting sound . . . replace output tube cathode bypass condenser.



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Radio Ret.—June '41

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ABOUT MATERIALS

(Continued from page 15)

for items not normally within the field . . . with \$400,000,000 worth more expected within the next two or three years.)

Some Reasons For Optimism

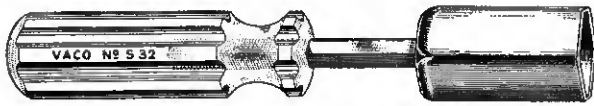
Manufacturers are, naturally "cagey" about committing them-

selves very far in advance concerning prices.

The situation is best summed up by quoting a few significant phrases gleaned during conversations with prominent sales managers. Thus: "Advance raw material purchases in anticipation of shortages will permit us to get along during the third quarter and possibly through the fourth, although the latter is speculative." Another: "Slow replacement material shipments are anticipated but we have done pretty well

taking care of customers up to now." Still another: "I believe the actual production capacity of this country is so vast that it merely needs co-operation and adjustment during this transition period to make supplies adequate for both defense and reasonable domestic business." And another: "Tell retailers and distributors not to get jittery. Tell them manufacturers are working together to make available the greatest number of sets possible and have not given up hope of turning out as

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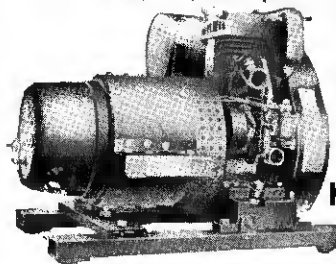
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many as the trade can sell." Call the last two statements "wishful thinking," if you like. We prefer to consider them expressions of faith in the democratic system.

PREVIEW OF NEW MODELS

(Continued from page 20)

power supply types extends the line's flexibility.) Featured in certain models are such refinements as "drift compensation," spread-band shortwave tuning, built-in shortwave and FM antennas. Particularly interesting is a new "electromatic range-shift" method of control which permits one set of buttons and one set of control knobs to serve for operation on widely separated frequencies, provision for playing soon-expected higher-fidelity records through wide-band FM audio systems.

Prices

Prices on *Westinghouse* WR62K1 "Carryette," WR62K2 "Carryette" and WR42X1 table combination (released late last month along with six plastic table models) have now been announced as, respectively, \$24.95, \$29.95 and \$29.95. These sets are just the "advance guard."

Wilcox-Gay reports that there will be several new radio models added to the line this month, says conditions in general have required several changes in plans, which prevent forwarding of data and pictures for presentation in this *Radio Retailing* report but that the merchandise will be shown in the field in June.

MORE NEW MERCH

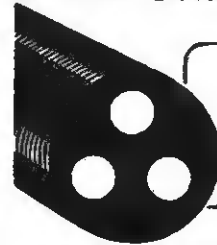
(Continued from page 26)

equipment items, one (illustrated) the model 131 signal generator with large dual scale dial, calibrated from 100 kc. to 96 mc. Multiplier-attenuator permits sensitivity, selectivity, a.f.c., a.v.c. and overload tests. Variable percentage modulation at 400 cycles or any other frequency. Zero to 2½ volts of 400 cycle output at output cable. Other item is model 323 pocket-size test set, a general-purpose, high-sensi-

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BOOTH 725—Chicago Radio Parts Show

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All-Insulated Tools

Newly announced by *Vaco Products* are a number of items, including: S40 "Amberyl," shock-proof, all-insulated, 1/4-inch spin-hex nut driver; VR1200 insulated screwdriver's with Amberyl handles and "rubber-plated" blades; type A860 all-insulated screwdrivers with Amberyl right down to the business-end.

Vibratoc is now turning out "Triflex" universal baffles for use in corners, on walls or ceilings or in clusters, with removable speaker bezels, grilles, protective screens and leatherette coverings. Of the bass reflex type, these are available in three sizes for \$4.50, \$6.75 and \$8.50 list. They can be nested together to give a circular pattern and a unit to fill in the area directly beneath when clusters are suspended is also available.

Walter L. Schott is featuring a new version of ingenious adjustable-length dial-belt; chemicals useful in radio repair work and available in bottles, jars or tubes; an improved version of the popular "Walsco" staple-driver.

A new dual-speed recorder and a low-priced single-speed job (illustrated) paces the *Webster-Chicago* line, with a re-styled group of amplifiers completely changed in appearance and construction and a new directional crystal mike expected momentarily.

Steel Recording Blanks

What recording disc manufacturers intend to do about the critical aluminum situation is further answered by *Zephyr Products*, now running four qualities of discs, i.e.: Bond base, non-flammable. Bond base, nitrate. Steel base, non-flammable. Steel base, nitrate. Base materials, says company, will not warp, are absolutely flat, have coatings which will not peel and sufficient weight to prevent slipping. Packaged, like their commercial brothers-under-the-skin, in albums.

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Although Radio & Television Retailing takes every precaution to insure accuracy, we cannot assume responsibility for an occasional change or omission in the above index.

McGRAW-HILL PUBLISHING COMPANY,
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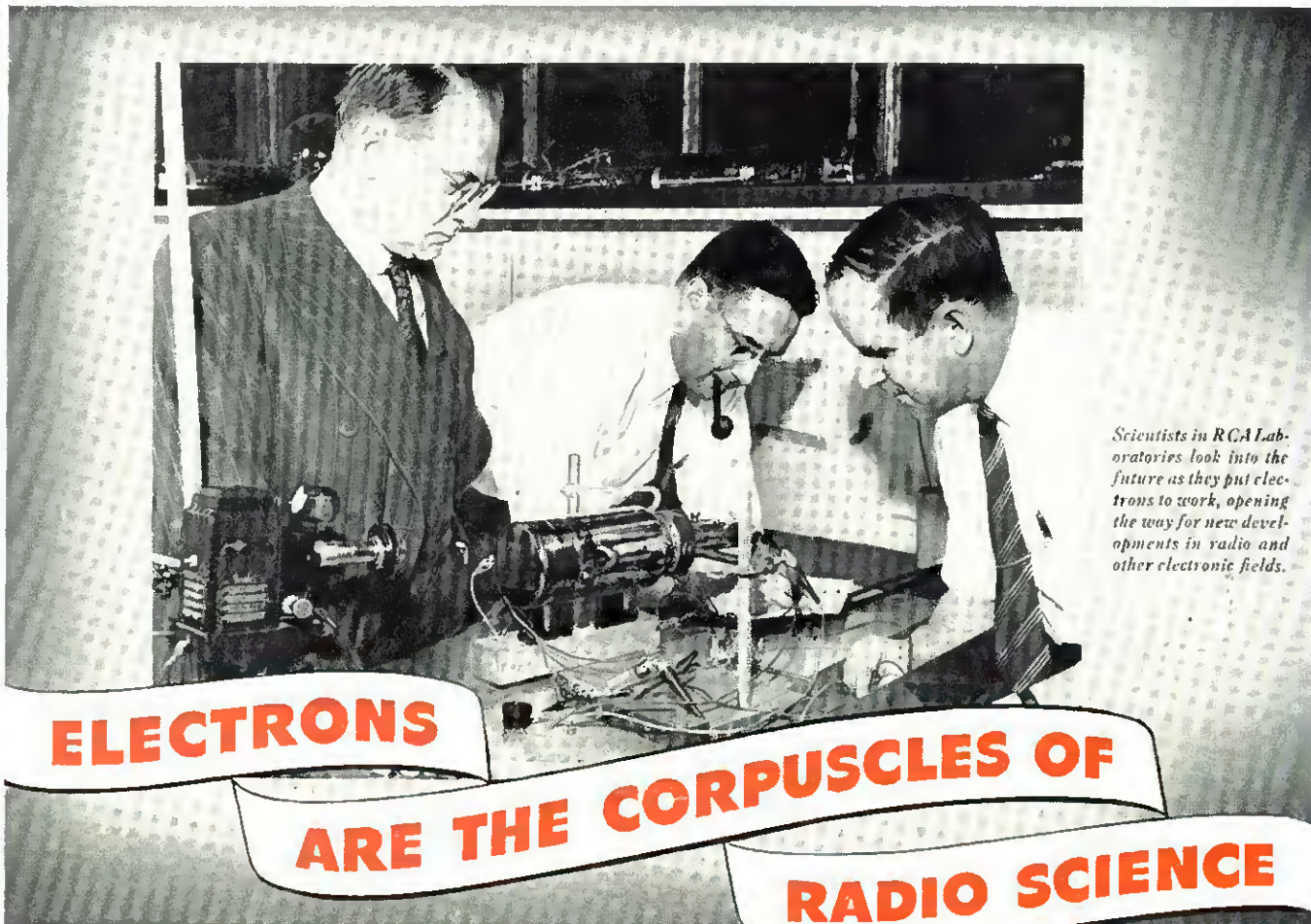
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Scientists in RCA Laboratories look into the future as they put electrons to work, opening the way for new developments in radio and other electronic fields.

ELECTRONS ARE THE CORPUSCLES OF RADIO SCIENCE

Electrons are the corpuscles of radio. The vacuum tube is the heart that pumps them through the copper veins and arteries. Electricity is electrons in motion—it is the lifeblood of communications by wire and radio.

ELECTRONICS is a science born of radio. Both are members of one family. The modern radio research laboratories are electronic laboratories—the two are inseparable. Radio tube and electron tube are synonymous. Both pump the billions of electrons which flow in the electrical blood stream of communications and industry.

Putting electrons to work in a vacuum tube opened the Radio Age. It gave a voice to wireless, enabling it to talk and sing. Today, while millions of tubes glow in broadcast receivers, millions of others pulse with commercial dots and dashes, radiophotos, facsimile and television.

At the advent of broadcasting in 1920 there were a few thousand radio tubes at most, largely in the hands of experimenters. Today, there are hundreds of millions, in more than 50,000,000 American radios.

Revolutionary developments in radio

since the first World War can be traced to the vacuum tube. It has been a key to progress. It has enlightened the world through broadcasting. It makes short waves, ultra-short waves and television what they are today.

Now, the wonders that the radio or electron tube has worked in communications are spreading into other electrical and industrial fields. As the research experts have developed and improved the tube, they have multiplied its uses.

As a result, today industry is being *electrified*. The Electronic Age is opening. The electron

tube, once believed to be limited to radio, is recognized as an extremely sensitive and precise tool for manufacturing and processing control. The uses of electronics in industry appear limitless. Super-human in its response to light, sound, touch and color, the electron tube is acclaimed as a new brain of industry.

From electronics came the electron microscope, which uses 52 radio tubes to perform as an ultra-eye that sees far into the sub-microscopic world.

In 1940, more than 106,000,000 electron tubes were produced for radio and industry, so that man might find life more pleasant and his tasks speeded and simplified, yet with accuracy and efficiency.

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