

RADIO *and Television* TODAY

LIBRARY OF CONGRESS

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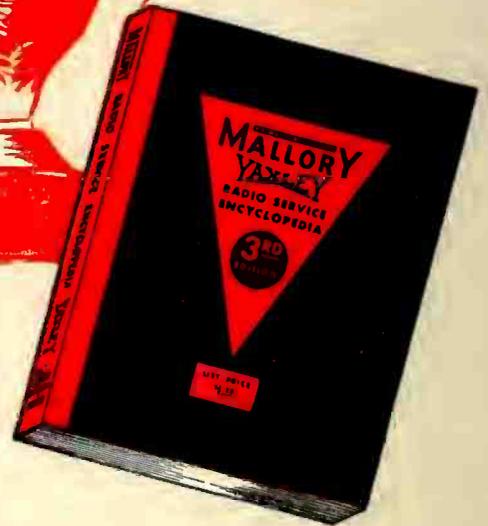
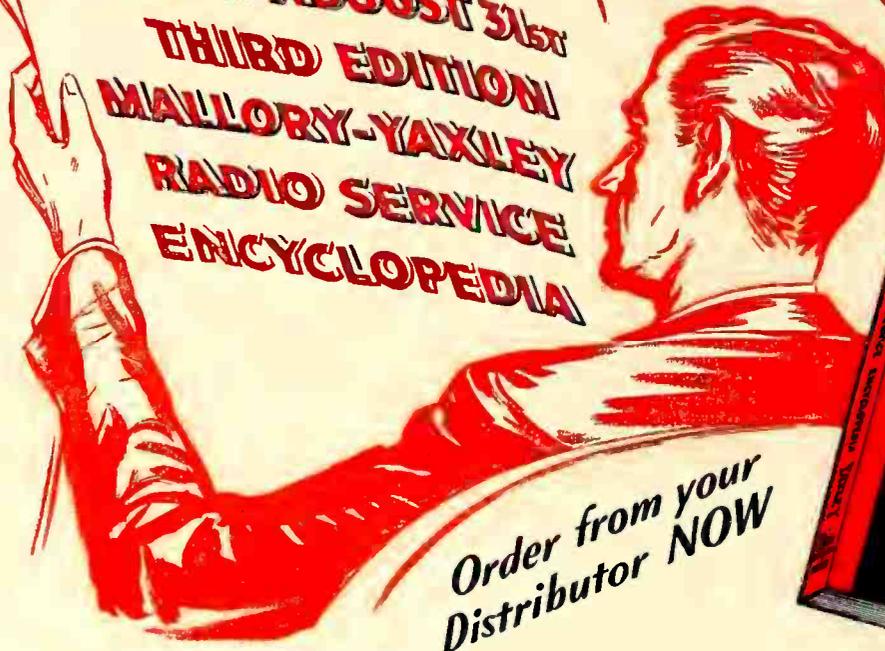
Programs that Help You Sell Radios: I—Charley McCarthy & Co. (See p. 10)

PLAN NOW FOR A BUSY FALL! (See p.12)

AUGUST

The Biggest News of the Year

READY AUGUST 31st
THIRD EDITION
MALLORY-YAXLEY
RADIO SERVICE
ENCYCLOPEDIA



Order from your
Distributor NOW

Keeps Pace With Progress! Includes Vital Changes That Help You!

*The Greatest Reference
Work Ever Published*

*Special Authorized Service
Engineer's Price*

75^c Net

Changes That Obsolete the 1st and 2nd Editions

Everything you want to know about *23,000 makes and models. All the dope on each set in one book—on one page—in one line.

The startling special low net price of the 3rd Edition MYE is Mallory's contribution to every Radio Service Engineer. Again in one handy book—is up-to-the-minute, split-second reference to vital information you need every day. Proven the biggest help service engineers ever had—it continues to pay for itself over and over on every job you handle.

*200 Pages of Listings Alone

The tremendous increase in the number of different sets manufactured and sold to the public since publication of the 2nd Edition MYE has made it necessary to devote *200 pages to listings in order to accommodate the *23,000 makes and models you will have to work on. Every set listing is complete and in addition even gives the correct Rider's Manual Volume and page number for instant reference to specific schematics if needed.

Full particulars are in the 3rd Edition MYE. Get your copy today!

* Approximation. Count indicated accurate as this advertisement was written.

Keep Pace with Progress!

Vital changes have taken place in set design and particularly servicing, during the last eighteen months—so that no longer is it possible to use old-time servicing methods. Mallory—alert to every change—foremost in many “original equipment” developments—has kept pace with the industry's progress. That's why Mallory is first to bring you dope on these vital changes so you, too, may profit through their daily use.

Don't Delay!—Get Your Copy Today

Only from authorized Mallory-Yaxley distributors can you buy your copy. Their supply is limited. To avoid disappointment, get your copy today. You'll never regret it because not only will you profit from its daily use, but your ownership of the 3rd Edition MYE will entitle you to participate in a monthly service—the *Mallory Supplementary Monthly Technical Service*—a service you can't do without—and at a cost (to owners of the 3rd Edition MYE) of less than a third of a cent a day.

Use

P. R. MALLORY & CO., Inc.
MALLORY
REPLACEMENT
CONDENSERS... VIBRATORS

P. R. MALLORY & CO., Inc.
INDIANAPOLIS INDIANA
Cable Address—PELMALLO

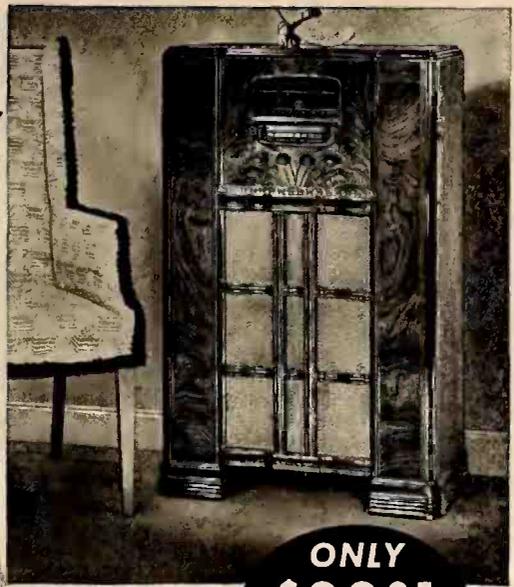
Use

YAXLEY
REPLACEMENT
VOLUME CONTROLS

ALREADY DEALERS REPORT

"Action"

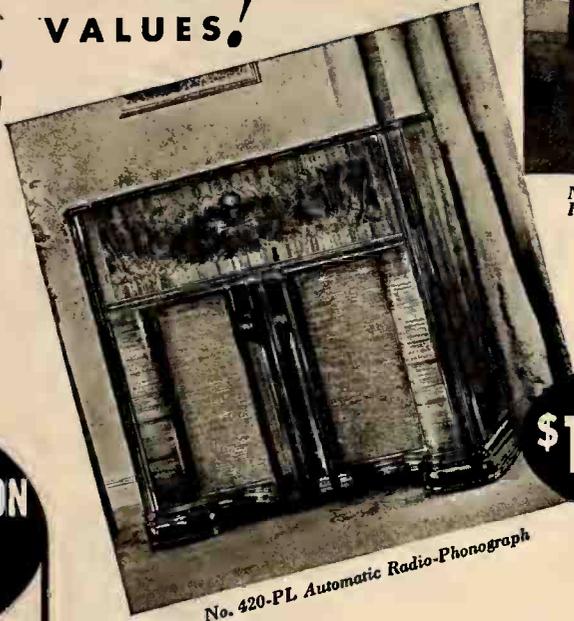
WITH THESE NEW
STROMBERG-CARLSON
RADIO
VALUES!



No. 430-M Labyrinth
Radio with Carpinchoe
Leather Speaker

ONLY
\$99.95
f.o.b. factory

The first time a full-featured 9-tube (including Bi-focal Eye and Power Rectifier) Stromberg-Carlson Console with both the patented Labyrinth and patented Carpinchoe Leather Speaker ever sold at anywhere near this price!



No. 420-PL Automatic Radio-Phonograph

ONLY
\$139.50
f.o.b. factory

Never before could you sell the luxury of an automatic Stromberg-Carlson radio-phonograph in such a gorgeous cabinet at a price to even compare with this low figure!

The
STROMBERG-CARLSON
LINE
is geared to
THE TIMES



"Console sales on increase," says *Retailing*. No manufacturer has a finer line of consoles.



"War or no war, business revival sure," says *Sales Management*. It's going to be a big year no matter what happens in Europe.



Color ads in national weeklies start telling Stromberg-Carlson's value story August 19th.



Stromberg-Carlson Authentic Period furniture styles show sales gains in every single territory.



An Unprecedented Full Season Promotion Program is under way to help Stromberg-Carlson dealers build the greatest volume ever.

Repeat orders from every section of the country keep pouring in for 420-PL's and 430-M's. The outstanding values of the industry, they keynote the entire new Stromberg-Carlson line.

With a public favoring consoles, the new Stromberg-Carlsons have been "sure-fire". Dealers have sold initial stocks and reordered in larger quantities to be ready to meet the even greater demand they know will come when the season opens.

Present conditions create a

"set-up" for Stromberg-Carlson dealers. People want good radios; big radios; radios packed with value like the new Stromberg-Carlsons. They are fitted to today's market and, with them, you as a dealer can realize a worthwhile volume at a worthwhile profit.

MAIL THIS COUPON

Stromberg-Carlson Telephone Mfg. Co.
240 Carlson Road, Rochester, N. Y.
Send full information on Radio's most timely line.

Name.....
Street.....
City..... State.....

There Is Nothing Finer than a
Stromberg-Carlson

YOU know radio values



MODEL AT-12 . . . Farnsworth creates an entirely new molded plastic table model for this splendid performer! 5-tube AC-DC superheterodyne circuit; standard broadcast; beam power output; Bilt-In-Tenna; 5" P.M. speaker. Cabinet dimensions: Height, 6 $\frac{3}{8}$ "; Width, 11"; Depth, 6 $\frac{3}{8}$ ".



MODEL AT-16 . . . The designer, with an eye to beauty, has challenged the dictates of convention with artistic results in this radio cabinet that command instant admiration. 5-tube AC-DC superhet; airplane dial; standard broadcast; push-button tuning; Bilt-In-Tenna; 5" P.M. speaker. Cabinet dim.: H., 7 $\frac{1}{2}$ "; W., 10 $\frac{3}{4}$ "; D., 6 $\frac{3}{4}$ ".

Then get the
at Your



MODEL AT-50 . . . A table model of original design combining classic simplicity with modern charm. 7-tube superhet.; two wave bands; Slide Rule Dial; treble and bass tone control; Bilt-In-Tenna; push-buttons; 5" electro-dynamic speaker; beam power output; phonograph and TELEVISION-sound connection. Cab. dim.: H., 12"; W., 16 $\frac{1}{8}$ "; D., 10".

ONLY TEN MODELS OF THE COMPLETE FARNSWORTH RADIO LINE ARE SHOWN!

Space didn't permit showing every one of the 28 towering values in the Farnsworth Line. But the values built into these 10 models extend right down through the line! BIG THINGS have been happening at FARNSWORTH! The radio industry has been looking forward to them. And here's evidence that no one is going to be disappointed! All over the United States, distributors' preparations are being rushed for dealer "open house" meetings. Discounts, policies, advertising and merchandising programs are some of the other Farnsworth facts your Farnsworth Distributor will have ready for you at his "open house" meeting. Don't miss it!



MODEL AC-70 . . . Tall and stately, this impressive console is definitely in the luxury class in appearance, though not in price. Chassis Specifications . . . 8-tube superhet; Flo-Lite dial; three wave bands; push-button tuning; shielded rotatable loop antenna; continuously variable tone control; 12" electro-dynamic speaker; phonograph and TELEVISION-sound connection. Cabinet dimensions: Height, 40"; Width, 27 $\frac{1}{16}$ "; Depth, 12 $\frac{1}{2}$ ".



MODEL AK-76 . . . A beautifully proportioned radio-phonograph combination of outstanding artistic design. Chassis Specifications . . . 8-tube highly developed superhet.; Flo-Lite dial; three wave bands, 540 to 1600 KC., 1.6 to 5.5 MC., and 5.5 to 18.1 MC.; tone control; shielded loop antenna; push-buttons; 12" dynamic speaker; beam power output; phonograph with Capehart record changer; TELEVISION-sound connection. Cabinet dimensions: Height, 36 $\frac{3}{8}$ "; Width, 33 $\frac{1}{2}$ "; Depth, 15 $\frac{1}{2}$ ".



MODEL AC-90 . . . The instrument panel of this truly magnificent console slopes well back, so that tuning may be easily done from a standing position. Chassis Specifications . . . 10-tube superhet.; Flo-Lite dial; three wave bands; push-buttons; shielded rotatable loop antenna; continuously variable tone control; 12" electro-dynamic speaker; phonograph and TELEVISION-sound connection. Cabinet dimensions: Height, 40 $\frac{1}{4}$ "; Width, 29 $\frac{3}{8}$ "; Depth, 12 $\frac{1}{4}$ ".



MODEL AC-91 . . . A lowboy console amplifying the rare artistry of Farnsworth Radios. Chassis Specifications . . . 10-tube superheterodyne; Flo-Lite dial; three wave bands; shielded rotatable loop antenna; continuously variable tone control; push-button tuning; 12" electro-dynamic speaker; beam power output; phonograph and TELEVISION-sound connection. Cabinet dimensions: Height, 35 $\frac{1}{4}$ "; Width, 32 $\frac{3}{8}$ "; Depth, 12 $\frac{1}{2}$ ".

Farnsworth RADIO

THE HISTORY OF TELEVISION IS

price **THIS** line!

surprise of your life
Distributor's "OPEN HOUSE"

HERE are a lot of words in Daniel Webster's book. But instead of using all the high-powered words to give you some idea of the values packed into the Farnsworth Line—we're ready to let your own figures do the talking! That's how confident we are that each of these models has *more* built-in value—that the Farnsworth Franchise packs a hefty competitive wallop!

This is a bold challenge, but one there's no mistaking. With an open mind—specifications considered—as an experienced radio merchandiser—look at these models—note all their features—and *then* take down what you believe is a fair price. Then take those prices to your local Farnsworth Distributor's "open house" meeting—and get set for a pleasant shock that's going to reach right down to the pocketbook nerves of your radio prospects! If you don't know where or when it's going to be held in your community—send in your pricing estimate and we'll gladly tell you. But get out that pencil and judge for yourself!

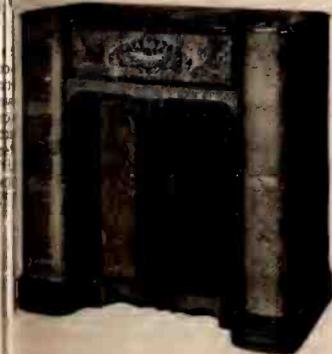
FARNSWORTH TELEVISION & RADIO CORPORATION
FORT WAYNE, INDIANA



MODEL AC-55 . . . Smartly styled, this curious console has a crisp, sparkling quality as new as tomorrow. Chassis Specifications . . . 7-tube superheterodyne; two wave bands; Slide Rule Dial; treble and bass tone control; Bilt-In-Tenna; push-buttons; 8" electro-dynamic speaker; beam power output; phonograph and TELEVISION-sound connection. Cabinet dim.: Height, 36"; Width, 25"; Depth, 11½".



MODEL AK-59 . . . A beautiful radio-phonograph combination whose unadorned simplicity and graceful proportions identify it as a luxurious piece of furniture. Chassis Specifications . . . 7-tube superheterodyne circuit; two wave bands; tone control; Bilt-In-Tenna; beam power output; push-buttons for five stations; 12" electro-dynamic speaker; phonograph with Capehart record changer; TELEVISION-sound connection. Cabinet dimensions: Height, 34¾"; Width, 31"; Depth, 16¼".



MODEL AK-95 . . . Pleasingly massive, smart, crisp styling achieves for this model a character always identified with the tastes of those who demand the finest. Chassis Specifications . . . 10-tube superheterodyne; three wave bands; Flo-Lite dial; push-buttons for six stations; shielded rotatable loop antenna; continuously variable tone control; 12" electro-dynamic speaker; bass compensation; phonograph with Capehart record changer; TELEVISION-sound connection. Cabinet dimensions: Height, 36"; Width, 35"; Depth, 18½".



I Price the New Farnsworth Line

MODEL AT-12 \$ _____

MODEL AT-16 \$ _____

MODEL AT-50 \$ _____

MODEL AC-70 \$ _____

MODEL AK-76 \$ _____

MODEL AC-90 \$ _____

MODEL AC-91 \$ _____

MODEL AC-55 \$ _____

MODEL AK-59 \$ _____

MODEL AK-95 \$ _____

Name _____

Address _____

City _____ State _____

THE HISTORY OF FARNSWORTH

SENSATIONAL NEW BATTERY HAILED BY THE RADIO INDUSTRY!

APPROXIMATELY 25 LEADING MANUFACTURERS
ARE DESIGNING PORTABLE SETS AROUND THIS
REVOLUTIONARY NEW

"EVEREADY" "MINI-MAX"

45-volt radio
"B" battery

DOUBLE the listening hours
of conventional batteries
of equal size—(because of
more active materials per
unit of volume)—or, about
the same service-life of a
conventional battery TWICE
the size!



AGAIN NATIONAL CARBON COMPANY MAKES BATTERY HISTORY!

IN THE startling new "Eveready" "Mini-Max" "B" battery, the leader of the battery industry *again* makes an outstanding contribution to radio. National Carbon Company, Inc. pioneered the change from antiquated round-cell to "Layer-Bilt" construction of "B" batteries. And now the *ultimate* has been achieved by the development of a sen-

sational new principle in battery manufacture—too technical and involved to explain here. It took years of research and experiment by engineers of the world's leading battery manufacturer to perfect this principle. The result is the "Eveready" "Mini-Max" 45-volt Radio "B" Battery, destined to have far-reaching effect on the portable radio field.

WHAT "EVEREADY" "MINI-MAX" MEANS TO THE PORTABLE INDUSTRY... AND WHY!

As the name suggests, "Mini-Max" means MINIMUM SPACE and MAXIMUM POWER! With this battery, portable sets can be *lighter, smaller, more compact, and just as efficient.* For the new "Eveready" "Mini-Max" battery occupies only about

half as much space as the best comparable "B" battery. Yet it delivers the same number of service hours—an average of 250 or more—AT NO ADDITIONAL COST!

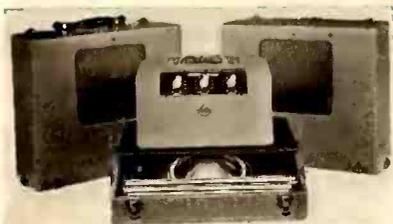
NATIONAL CARBON COMPANY, Inc.
General Offices: New York, N. Y. Branches: Chicago, San Francisco
Unit of Union Carbide  and Carbon Corporation

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

NOTE TO DEALERS

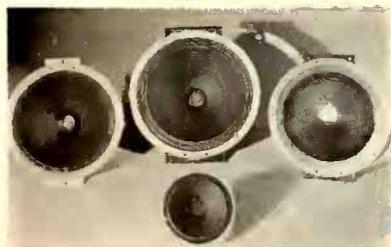
To make certain that these new batteries will be available for initial shipment of sets, it seems advisable for the time being to make our current output available to set manufacturers. However, the batteries will be available to the trade by the time the demand for replacements begins.

New Sound Products



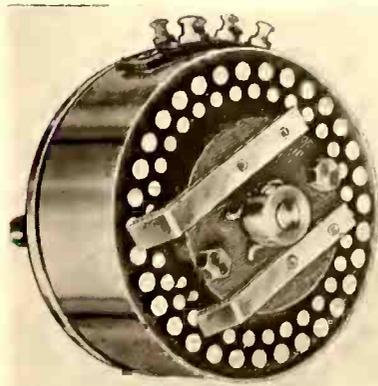
Webster-Chicago PA System

★ 14 watt portable PA system contains 3-section full-size mike stand. Amplifier has two channel input, tone control, and output impedances of 4, 8, 250, 500 ohms. Size 11¼ x 17 x 18 inches. List price with 1 crystal mike, \$135. Webster-Chicago, 5622 Bloomingdale Ave., Chicago.—RADIO TODAY.



Stromberg Speakers

★ Speakers used in the 1940 Stromberg line are now available in variety of sizes, 5¼ to 12 inches including the carpinchoe leather edge suspension feature. Stromberg-Carlson Telephone Mfg. Co., Rochester, N. Y.—RADIO TODAY.



IRC Step Attenuator

★ Bridged "T" step attenuator comes in 50, 200, 250 and 500 ohm impedances. Attenuation is 1.5 db per step up to 36 db, tapering off to 65 db and to infinity on the last step. Noise level, —150 db. International Resistance Corp., 401 N. Broad St., Philadelphia, Pa.—RADIO TODAY.

Storytone Electric Piano

★ Spinet-size piano employing individual magnetic pickups for each string and high fidelity amplification gives unusual tone and volume range. Optional bench containing record changing victrola and RCA radio operating through hi-fi audio system lists at \$150. Storytone piano, list \$695. Story and Clark Piano Co., 64 E. Jackson Blvd., Chicago.—RADIO TODAY.



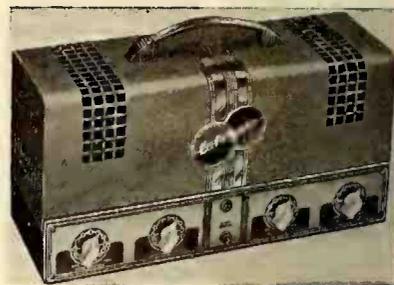
Clarion Sound System

★ A 31-41 watt PA system for 6 volt DC or 110 volt AC includes a three channel electronic mixing amplifier, two 12 inch PM speakers and steel dome baffles, hand microphone, and speaker cable. Supplied with or without phono attachment. List, less phono, \$202.67; with phono, \$227.36. Model C-463. Transformer Corp. of America, 69 Wooster St., New York, N. Y.—RADIO TODAY.



Garrard Record Changer

★ Automatic record changer plays eight 10" or 12" records in any assortment or combination. The unit is spring mounted and equipped with a tangent crystal pickup. Model RC-50 operates from 110 and 220 volts. Model RC-51 is the universal AC-DC unit with high impedance magnetic head. Garrard Sales Corp., 296 Broadway, New York, N. Y.—RADIO TODAY.

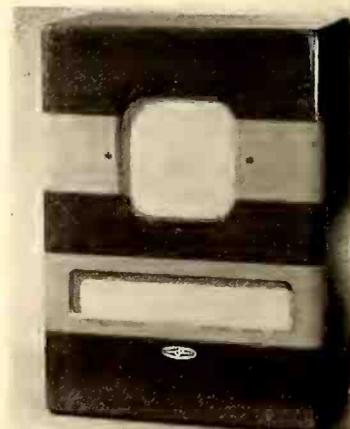


Radio-Wire-Tele PA System

★ A 25 watt reverse feedback amplifier has four input channels, two with 118 db gain and two with 84 db gain. Output is through a universal transformer and direct connections to the plates of the 6L6G's enabling the unit to be used as a driver or modulator. Model 440T. Radio Wire Television Corp. (Wholesale Radio Co.), 100 6th Ave., New York, N. Y.—RADIO TODAY.

Shure Microphone

★ Crystal microphone for amateur and commercial phone communication employs a built-in RF filter to protect against burn-outs. Output level is 26 db. below 1 volt for a 10 bar sound pressure. Comes equipped with 7 ft. shielded cable. Shure Brothers, 225 W. Huron St., Chicago.—RADIO TODAY.



Operadio Reflex Speaker

★ Speaker baffle of the reflex type increases useful frequency range of a speaker by utilizing resonant air column in closed speaker housing. AR series covers range of cone speaker sizes. Operadio Mfg. Co., 13th and Indiana St., St. Charles, Ill.—RADIO TODAY.



JOHN DOE is now running an established radio service business—turning over his tube stock at least three or four times annually—knows how to make use of attractive displays and other advertising material for increasing sales—and has the good judgment to maintain standard prices for his own protection.

If you resemble John Doe, and your location does not interfere with already established Tung-Sol agents, you're wanted at headquarters—*tube headquarters*. There's thousands of

dollars reward because you qualify for the Tung-Sol plan which provides an adequate supply of tubes without buying them. Write us today.

TUNG-SOL LAMP WORKS, Inc.
Dept. C Radio Tube Division



SALES OFFICES: Atlanta • Chicago • Dallas • Denver
Detroit • Kansas City • Los Angeles • New York
General Offices: Newark, New Jersey

The Radio Parade

Letters from readers on timely topics.

Pushes Service Sales— "Time and Material"

Editor RADIO TODAY:

We are bearing down heavier on service and easing off on receiver sales, due to our inability to find satisfactory radio merchandise to sell.

Service has kept us going the last two years. Haven't made a net nickel from radio sales, due mostly to:

1. Warranty-period service expense denting slim profits.
2. Too many models, too many model changes.
3. Getting caught with models, value of which has been depreciated to or below our net cost by department-store dumping.
4. Heavy trade-in pressure, inability to move the trade-ins.
6. Prospects, on demonstration or after home trial, telling us their old sets are better than the ones we are trying to sell, and being right about it.

PASS UP DOUBTFUL CREDITS

Current policy, which has at least kept us going, as follows:

Limiting advertising expense to about five dollars a month, in classified ads pushing service.

Passing up doubtful credits, close deals, excessive trades, net price selling to friends and relatives. We won't make a home demonstration any more, but will lend a new set while old one is pulled for repairs where customer is believed able to trade.

Re Pocket Radios!



"That's funny—I had that little set here in my pocket when I left home."

Letting new set stock run down, carefully overhauling and polishing up trades, emphasizing wonderful dollar value in rebuilt.

Bearing down on washer sales, and refrigerator service. Washer sales are our "nicest" business. Would gladly trade a thousand dollars in radio business for \$750 in washer business, and make more money.

Declining service work offerings where customer wants to set the price or limit it. We take 'em time and material, or three dollars flat plus material (excepting automatic tuners, and sets which have evidence of previous, incompetent servicing which wastes our time).

We charge fifty cents to open up one of the new midgets and test the tubes, although we'll test the tubes free if customer hands them to us. But we charge for our work, and consider opening up a set work!

In general, "sitting tight."

T. B. SCHERZER,
Cape May Court House, N. J.

The Case for Annual Introduction of New Models

Editor, RADIO TODAY:

Under the caption, "Manufacturers' New Policies" (page 10, July issue), you hail announcement by a prominent radio maker of "No Annual Showing of New Models" as a big step ahead, and prophesy its general adoption by the industry. In my opinion these conclusions are as yet highly debatable, as shown by the following point-for-point analysis of the proposition.

1. No manufacturer now advertises to the public or to the trade an arbitrary dead-line for bringing out new models and junking old ones. Engineering, production and sales promotion are planned well in advance; there is plenty of lee-way if things go wrong. Even so, the industry must be geared up to a certain amount of tension if it is to continue to produce new ideas and improvements compelling consumer demand. Rocking-chair tempo eventually leads to doldrums or death in any industry.

2. Proper production control, based upon up-to-the-minute sales reports, will reduce price demoralization to a minimum. Surely it is safer to utilize two dull months for a little necessary liquidation and have it over with, than to liquidate model by model over a period of twelve months.

IMPRESSING THE PUBLIC

3. The public has been educated to expect lines of new models at customary intervals, and orderly introduction of a new line at the usual time has no bad effect on time-payment paper.

"CAP" SAYS— Manufacturers, Attention!

In an adjoining column is a letter to the Editor, from a despairing radio man, who puts in words the feeling of countless radio dealers.

It deserves sincere and serious consideration because the loss of enthusiasm and morale of those on the firing line is as disastrous to an industry, as to an army.

There is much truth in what this dealer says, and the answer lies in your hands. Dependent upon how this feeling is corrected is the future of radio distribution.

It may be a matter of opinion as to whether you as manufacturers, prefer to have your products distributed by a large number of small dealers, or a small number of large dealers. But it is a fact that you cannot long merit, or hope to keep, the support of dealers who lose their money and their shirts, because of conditions over which they have no control, but which you govern.

The question of price stabilization becomes increasingly important as credit sales go up. The relation of production to demand, and the exclusion of predatory price cutters from your established retail distribution organization are vital factors in price stabilization.

The independent dealer has often been accused of lack of loyalty to any manufacturer, but as a matter of fact, loyalty can long endure only when it is merited.

If you, Mr. Manufacturer, want the small dealer in your future plan of distribution, you'd better start now, to keep him in the picture, before the present intolerable conditions reach their inevitable conclusion, and he gives up his business ghost.

Only ruthless price-cutting on models already in consumers' hands and widely advertised, can hurt the dealer's outstanding time sales, and proper production control renders this absolutely unnecessary.

4. Automobile, refrigerator, furniture, and countless other industries, some much older than radio, know from experience that timely introduction of a sweeping new line turns jaded luke-warm lookers into goggling, marveling, buy-hungry prospects, and these are the same people who buy radios. A year's contemplation of a trickling stream will never register like a minute's glimpse of Niagara Falls.

5. Obsolete fewer sets at one time will never compensate for the evils of continuous liquidation on a model-by-model basis. The public easily learns to differentiate between yearly models in all lines of business, but can never learn to distinguish between manufacturers' model numbers. Experience guarantees that certain retail outlets

(Continued on page 44)

Something newer than "portables"! Look inside the

Andrea Universal

The "portable" that is built like a big set

ENGINEERED LIKE AN AIRPLANE



IF YOU have seen all the "portables", there's still a real surprise for you when you look inside the brand new ANDREA UNIVERSAL!

— for ANDREA engineering, always directed to superlative performance, by applying more advanced design ideas, has put something entirely new INSIDE the "portable" case.

✓ CHECK THESE 12 ANDREA FEATURES AGAINST ANY "PORTABLE" RADIO

★ **MORE VOLUME & TONE QUALITY:** Before you look inside the ANDREA UNIVERSAL, you'll hear the greater volume (ample for out-doors) and the finer tone quality (high notes clear and bass notes strong).

★ **BIG-SET FEATURES:** The ANDREA UNIVERSAL chassis looks like the high-power set it really is. Not a skimpy, crowded affair, but a full-size chassis 11½ ins. long, permitting high efficiency, easy-access arrangement of the components.

★ **BIG-SET CIRCUITS:** 455 kc. super, 5 latest tubes, dual A.V.C., double-tuned litz transformers, rubber-mounted tuning condenser, big-set R.F., I.F., and power filtering to reduce interference, increase quality.

★ **MORE SENSITIVITY:** The ANDREA UNIVERSAL is not limited to nearby stations. In the country, where "portables" are silent, this set gives strong, clear reception.

★ **AUTOMATIC AC-DC-BATTERY SWITCH:** Fool-proof switch changes circuits from AC-DC to self-contained batteries.

★ **BATTERIES LAST LONGER:** Chassis design keeps batteries cool during AC-DC operation. Special circuits cut B drain to 10 mils, yet maintain full output down to 105 volts. Newest, heavy-duty batteries supplied.

★ **EXTRA-QUALITY SPEAKER:** More volume supplied by dust-proof speaker, with extra-large Al-Ni-Co field magnet.

★ **LOOP OR OUTSIDE ANTENNA:** Larger loop increases pick-up. Connections for outside antenna, also.

★ **EASIER TUNING:** Extra high ratio tuning control, with larger, easy-reading dial.

★ **"CLIMATE SEALED" CONSTRUCTION:** Built to specifications of ANDREA overseas sets, "Climate Sealed" treatment protects all parts against moisture and high temperatures.

★ **HIGHER OUTPUT:** Undistorted output of 260 milliwatts (2 to 3 times ordinary portables) gives amazing volume.

★ **MORE ATTRACTIVE APPEARANCE:** Smart case with disappearing door. Lock and key prevents unauthorized use and conserves batteries. Finishes: airplane luggage cloth, alligator, or leather brown.

SEND FOR ILLUSTRATIONS, PRICES, DISCOUNTS

Andrea Radio

RADIO and TELEVISION ENGINEERS and MANUFACTURERS

Renowned throughout the world for engineering that delivers Peak Performance

ANDREA RADIO CORP.

4820-48th AVENUE, WOODSIDE, NEW YORK CITY

Cable: RADIANDREA, N. Y.

LET'S LOOK AT

The Record

With an expected gross of 50,000,000 discs to be sold in 1939, phonograph records no longer have to prove their worth in the eyes of the radio dealer. However like any other merchandise, they do not sell themselves. Dealers who have stuck a few standard recordings in a corner of the store have been greatly disappointed in resulting sales. Buyers want variety, latest releases, and a place to try them out.

Purdue Radio Company, Montclair, N. J., have found the record field so profitable that it has become a major part of the business. Bob Purdue in charge of the department gives credit for the success to three principles followed over a period of time; complete, varied stock, consistent advertising, and strongest of all, service.

LARGE STOCK

Since the classical division of the business is the most profitable it receives the most studied attention. The stock comprises every well-known selection in both the individual record and album sets. Even some more obscure records are carried and while these sales are infrequent prestige is gained by not sending the occasional customer somewhere else.

The ballad and smooth-swing dance records comprise the bulk of the popular business so attention is focused on them in preference to the few "killers" bought by jitterbugs.

Unusual pressings make a good profit while in demand. When inter-

est subsides in an item it is discontinued. Children's records, after the "Snow White" shot in the arm are growing in popularity and Purdue keeps adequate stock on hand at all times.

CONSISTENT ADVERTISING

Direct mail proved to be the best medium for record advertising. A carefully selected list of record buyers receives a new listing each month and special letters during Christmas and other occasions. During the summer a list of dance and classical records is mailed to attract the young folks home from school and college.

Printed concert programs of outstanding musical events in the locality have been used with success for advertising purposes. To distribute the cost, ads of this kind usually feature a large radio-phonograph, with records mentioned as an additional item.

SERVICE

Purdue feels that many of the original customers have been held through what to many would seem a small factor. Promises made to customers are always kept, even at the expense of much extra trouble. Care is taken not to make commitments that are plainly impossible to fulfill. Customers are impressed with the salesman's knowledge of artists and music. In order to be well informed the men play over all the new releases and study accompanying literature. Current musical films are bound to be

Wax worth watching

GUY LOMBARDO and his Royal Canadians playing *I'm Sorry for Myself*, with vocal trio, and *I Poured My Heart Into a Song*, with VC by Carmen Lombardo—Decca 2550.

JIMMY DORSEY and his orchestra playing *Romance* and *This Is No Dream*, with VC by Bob Eberly—Decca 2536.

DUKE ELLINGTON and his orchestra playing *No Papa No* and *Rockin' in Rhythm*—Victor 26310.

MILDRED BAILEY, with her orchestra, singing *Moon Love* and *It Seems Like Old Times*—Vocalion 4939.

FATS WALLER and his Rhythm playing *Honey Hush* and *You Meet the Nicest People in Your Dreams*, both with VR by Mr. Waller—Bluebird B10346.

ELLA FITZGERALD and her Savoy Eight playing *If That's What You're Thinking You're Wrong* and *I Had to Live and Learn*, both with VC by Miss Fitzgerald—Decca 2581.

EDDY DUCHIN and his orchestra playing *Well All Right*, with VC by Johnny MacAfee and *Still the Bluebird Sings* with VC by Stanley Worth—Brunswick 8442.

JAN GARBER and his orchestra playing *You Meet the Nicest People in Your Dreams* and *Love With a Capital "You,"* both with VC by Fritz Heilbron—Vocalion 4994.

FREDDY MARTIN and his orchestra playing *Winter Blossoms* and *Let's Disappear*, both with VR by Bill Stoker—Bluebird B10350.

HORACE HEIDT and his Musical Knights playing *The Man with the Mandolin* with VC by Larry Cotton and the Heidlites, and *If I Were Sure of You* with VC by Mr. Cotton—Brunswick 8430.

PAUL WHITEMAN and his orchestra playing *Moon Love* and *To You*, both with VC by Joan Edwards—Decca 2578.

ABE LYMAN and his Californians playing *You Don't Know How Much You Can Suffer* with VR by Rose Blane and *After I Say I'm Sorry* with VR by Ed Holly—Bluebird B10325.



Ralph C. Powell, sales manager of Presto Recording Corp., (extreme right), officiates at the recorder while S. J. Andrews and Carolyn Allen of ad agency Fuller, Smith, and Ross, aid in making a preliminary script recording for the Westinghouse radio series.

discussed so all such pictures are attended.

Customers naturally appreciate the great regard shown for the records. They are demonstrated only with composition needles and their playing surfaces are kept free from dust and finger marks.

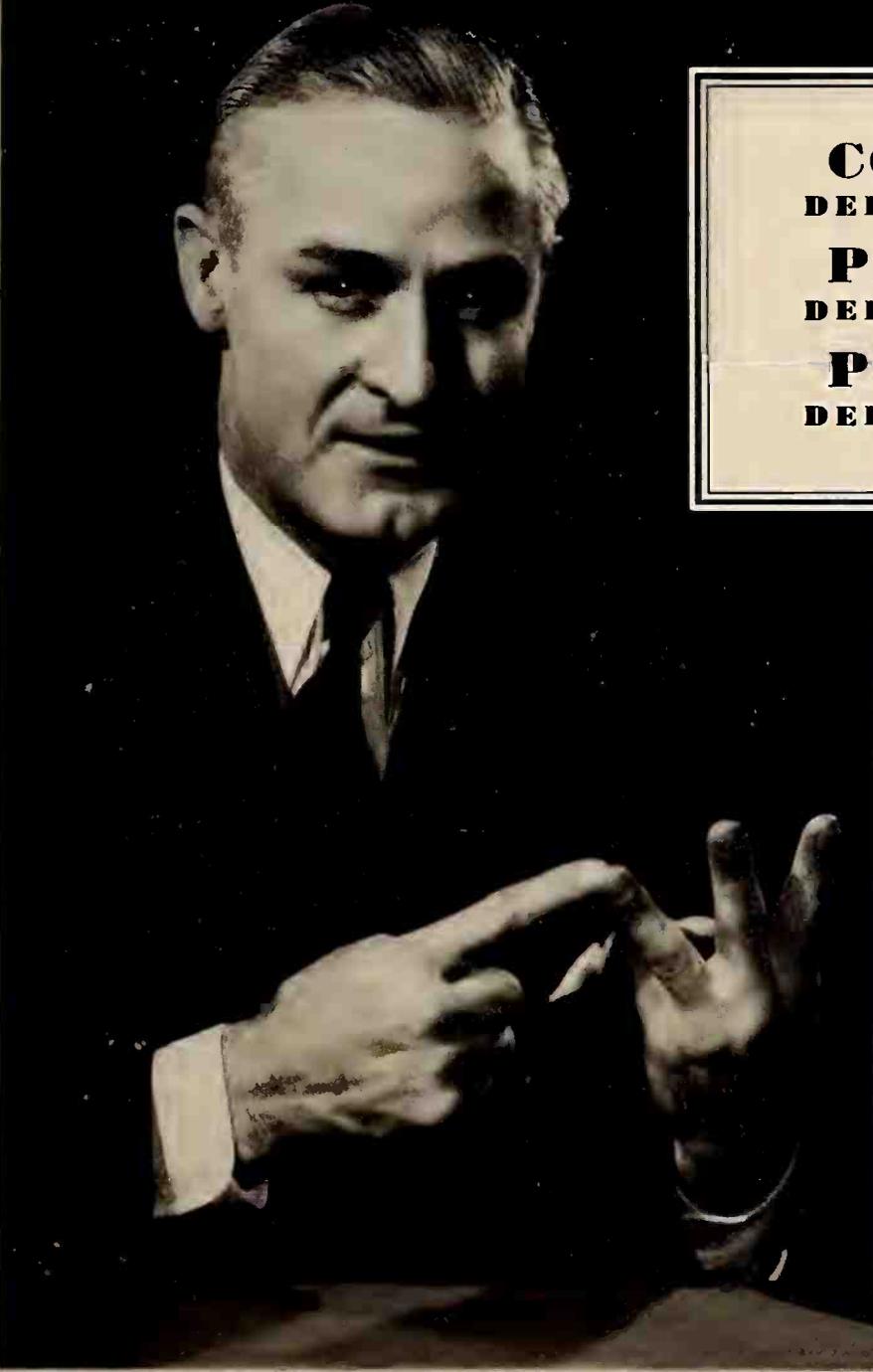
Victor Black Label Records Reduced

Now popularly priced at \$1.00 are RCA Victor's 12-inch Black Label records of standard classics. Announcing the reduction in price, and an extensive recording program, W. W. Early, manager of recording and record sales, stated:

"This new program will include every type of music which falls within the broad confines of what may be called 'standard musical tastes.' "It is aimed directly at the nation-wide market which, though it is now increasing more rapidly than ever, consistently demands the old favorites."

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on 3 Counts



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**PRODUCT
DEPENDABILITY**

**PROFIT
DEPENDABILITY**

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So don't risk your present prosperity and future business welfare by stocking a tube line that fails on even one of these important requirements. Make *Sylvania* your feature tube line —for *Sylvania* wins on all three counts . . . gives you full measure on not only company and product dependability, but **PROFIT DEPENDABILITY** as well!

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• " D E P E N D A B L E A L L W A Y S " •

Performance Sells Sound

How to select, install and operate a public address system for greater fidelity and profits. How to change the acoustical properties of a room and improve sound installations.

The increased use of sound amplification for advertising and entertainment purposes has brought a host of new problems and new developments. More and more, the local serviceman and radio dealer is called upon to supply sound amplifiers and to service existing installations.

In so many installations, the results obtained from sound amplifying equipment are so poor that the user is dissatisfied, the equipment is, in some cases, unjustly accused, and the general public forms an opinion of sound systems which works against a more extensive use of PA equipment. With these facts in mind, we decided to do something about it by covering a few fundamentals of the art.

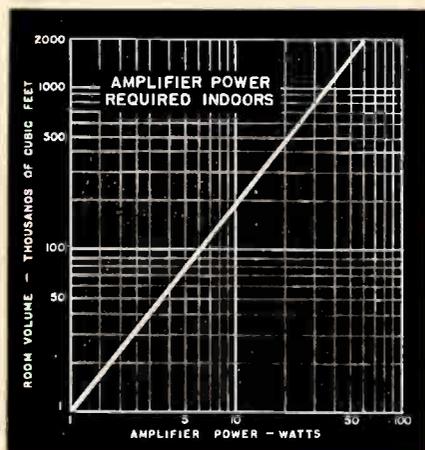


Fig. 1—Audio power requirements vary with initial noise level in the area. This graph is based on average conditions with a medium or low noise intensity.

AMPLIFIER POWER

The question of the power rating of an amplifier is very important. Too many present day sound jobs have been installed with insufficient power either for economic reasons or overestimation of the amplifier capabilities. In order to maintain a satisfactory sound level, the under-sized system must be "pushed" with the result that reproduction is badly distorted. Amplifier distortion at levels above the normal rating is due to the non-linearity of the eg—ip curve near the "knee" or saturation point. The output wave is distorted with a second harmonic and to a lesser extent with the higher order harmonics. The use of a push-pull amplifier will eliminate the second harmonic distortion. Because the distortion of any amplifier

increases rapidly beyond its normal power level, it is necessary to use an amplifier of sufficient capacity to secure the best quality reproduction. A maximum distortion of 5 per cent or less at full sound level is entirely satisfactory.

The problem of just how much power to use for a given room or area is quite difficult to answer. The initial noise level, the total sound absorption, and the efficiency of the speakers enters into the final answer. The curve in Fig. 1 gives the amount of power required for rooms of different cubical content. It is based jointly on observations and calculations. It is further based on speakers of the trumpet type; meaning transducer efficiency in the order of 25 per cent. Flat baffled or box baffled speakers will require approximately three times the power as given in Fig. 1. In skating rinks, and places of high initial sound level, proportionally more power will be required. A sound level of 35 DB above the existing noise level is about correct for general purposes. (Remember that the total level is not the sum of noise leveled in DB and the sound level in DB. Two sounds of 10 DB intensity each, when combined give a resultant level of 13 DB and not 20 DB.) For outdoor installations it is customary to allow approximately 1 watt of power for each 1,000 square feet. Here again, this figure must be tempered with judgment and slightly more power allowed to be on the safe side with respect to quality.

SPEAKERS

The quality of reproduction is dependent upon the speakers as much as upon the amplifier. Distortion may result from overloading the speakers or from resonance of the speaker, its supports, or baffle. To overcome the first defect, be sure that the sum of the power ratings of the speakers is equal to or greater than the power rating of the amplifier. Be sure that each electro-dynamic speaker has its rated field power supplied. Mechanical resonance of the speaker system can best be located by using an audio oscillator connected to the input of the amplifier and while holding the volume level constant at about 50 per cent capacity, varying the frequency of the oscillator and observing the speaker system for vibration and distortion. Thin wooden or metal baffles cause the most trouble since their natural resonant frequency is within the audible range. The general cure for both types is dampening. Wooden baffles may be backed with celotex or similar material to lower the natural resonant frequency below the normal range of the amplifier. Metal baffles of the trumpet type are being successfully dampened with a strip of rubber hose which has been slit and slipped over the rim at the mouth of the trumpet. Resonance in the speaker itself, unless due to loose parts, can best be coped with by trying different makes of speakers.

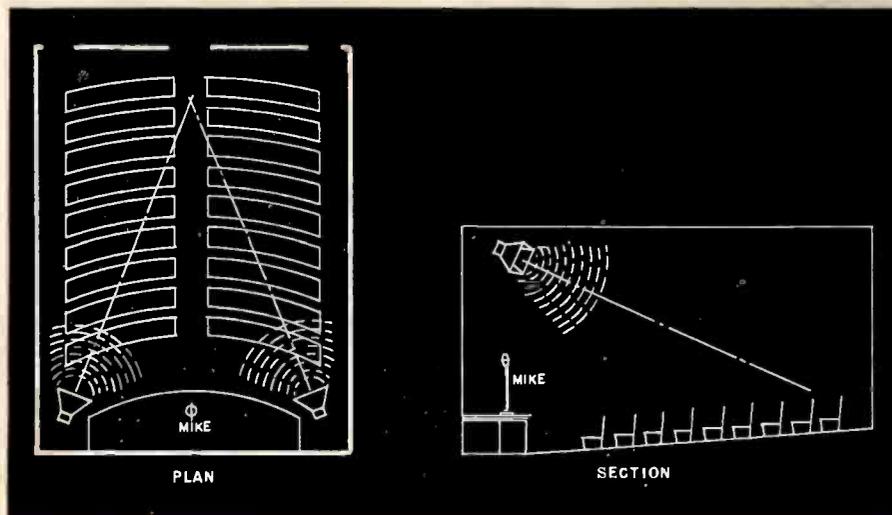


Fig. 2—Proper two-speaker lay out for best sound coverage and minimum of feedback. Note speakers mounted above and ahead of the microphone. Directional baffles put the sound where you need it.

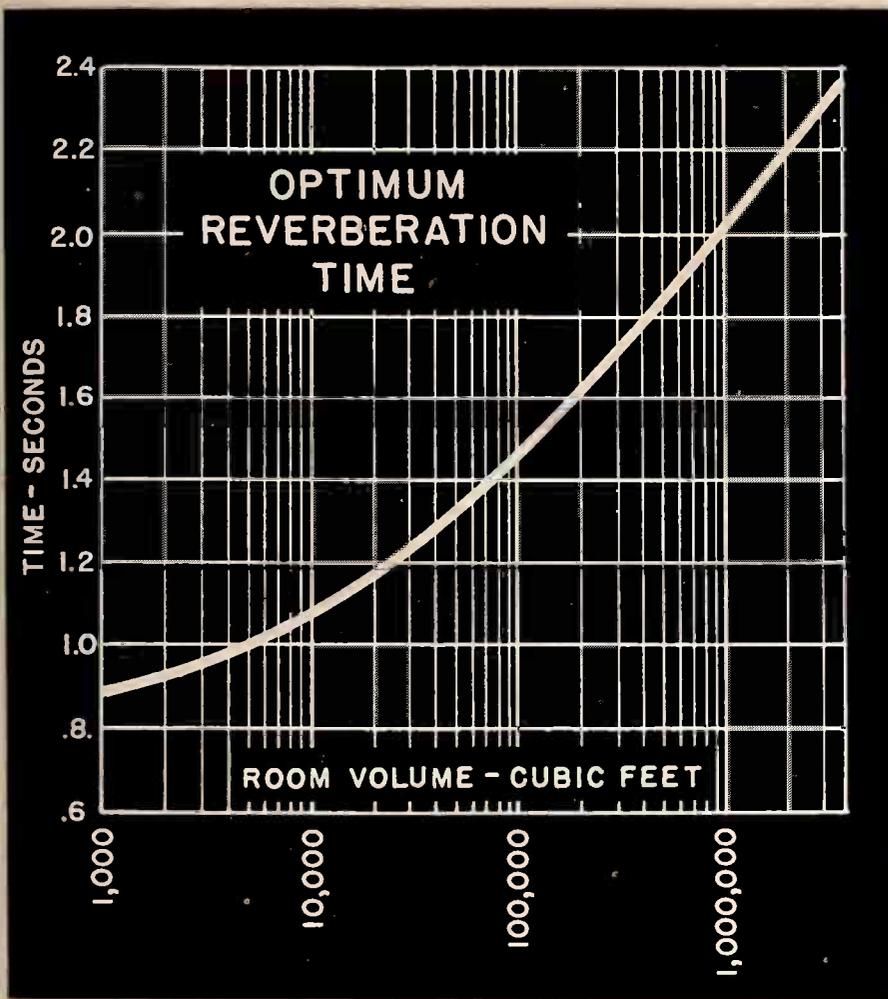


Fig. 3—The most suitable reverberation period as based on observations in acoustically good rooms. Reverberation time is period during which a sound, having been produced, decreases 60 db. The addition of sound absorbing materials increases the reverberation time.

BAFFLES

The speaker baffles are the final link in the sound system and their choice largely determines the final results. Flat baffles give the widest angle of sound projection, are easily transported, and are relatively inexpensive.

These facts account for their use in the general portable system where low to medium power is being used through one or two speakers. The flat baffle has been "folded" into the box type with an open back. In using the box type speaker baffle, be sure to have at least two inches of clearance between the back of the baffle and any mounting surface such as a wall. This clearance will prevent "cavity resonance" by the air trapped in back of the speaker cone.

Trumpet type horns or baffles are used in the higher powered installations where the sound must be directed over distinct areas. Their directional properties aid in reducing audio feedback by keeping the high intensity sound area away from the microphone.

SPEAKER PLACEMENT

Best results are obtained when the speakers are mounted above and forward from the microphone position.

The speaker baffles should be placed to direct the sound down into the audience and where two speakers are used, one on either side of a stage, they should focus on a point mid-way between and about three-fourths of the way back to the end of the room. See Fig. 2. Flat baffled speakers should be mounted further in front of the mike than trumpet speakers in order to minimize audio feedback.

(Continued on page 45)

Speaker Enclosure

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Without It

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Further Detection Analysis

Operation of grid-leak and plate type detector circuits in radio receivers. How detection is accomplished and possible sources of distortion.

By VINTON K. ULRICH,
Hytronic Laboratories,

Formerly Managing Editor,
RADIO TODAY

The grid-leak detector, employed in many of the older receivers, works similarly to the diode detector discussed in RADIO & TELEVISION TODAY on pages 46 to 49 of the June issue. The grid circuit of the grid-leak detector is identical, electrically, with the diode as shown in Fig. 1.

Part "B" of Fig. 1 shows the rectifying portion (detection) of the grid-leak circuit. "C" is for the diode type. The only difference between the two circuits is the position of the load resistor and the condenser. In "B" the grid-leak is connected between the grid and the hot side of the coil, while for "C" the resistor inserted between ground and the coil.

The condenser "C" across the load resistor effectively by-passes the r-f energy. Therefore, for r-f the circuit works as though there were no resistor in the circuit.

RECTIFICATION OF SIGNAL

As explained in the June issue, the purpose of the detector is to rectify

the modulated signal—and this is done by the detector by passing only the positive peaks of the signal. These impulses form an audio frequency current in the circuit which follows the envelope of the modulated wave. As the current flows through the resistor (R_L or R_{Lg}), an audio frequency voltage variation is created. It is this voltage that is the desired audio frequency signal.

In the case of the diode detector, the voltage appears between ground and the left side of the resistor R_L in Fig. 1-C.

In the grid-leak detector, the grid coil has no appreciable resistance to audio frequencies and can be considered as a short circuit; therefore, the resistor R_{Lg} be thought of as being connected between the grid and ground. The rectified audio voltage is across the load resistance and applied to the grid of the grid-leak detector. These variations in the grid potential are amplified by the tube, which also functions as an audio amplifier.

In the usual diode detector circuit, the audio signal is fed into the grid of the first audio stage through a coupling condenser, which blocks the negative diode voltage from the grid of the audio tube. This blocking condenser

is not always necessary and is omitted in some receivers. Then the bias from the diode is also the negative grid bias for the audio stage. This circuit, shown in Fig. 1-D, is known as diode biasing of the audio amplifier.

DIODE BIASING

Since the rectified DC diode voltage varies with signal input, the bias on the audio amplifier will not be constant. Furthermore, with no signal input, there is no bias on the grid of the tube. While this circuit is somewhat more simple than the conventional ones, its operation is sometimes inferior because of the varying bias.

The grid-leak can be likened to the diode-biased circuit since the grid is connected directly to the load resistor. The only difference is that a single tube performs the two operations as a comparison of Figs. 1-A and 1-D shows.

In operation, the grid first performs the diode function and rectifies the applied signal. This grid current flowing through R_{Lg} the grid load resistor, causes a potential drop in the resistance that varies in accordance with the audio modulation of the applied r-f signal. Then the audio voltage is amplified by the tube since it is applied to the grid of the tube. The signal output of the tube is developed across resistor R_{Lp} in the plate circuit of the tube.

GRID LEAK DETECTION

How this rectification and subsequent amplification takes place is shown in Fig. 2. The dynamic diode rectification characteristic is shown in 2-A, and it was obtained in the same manner as that described in the June issue for the diode detector. Since there is no fundamental difference between the two types of detectors, what is true for the diode detector is also true for the grid-leak type. Distortion at high-level modulation due to the fact that the AC and DC impedances of the grid load are not equal, also takes place in grid detection. However, it is not usually so pronounced since there are no shunting resistances in the grid-leak detector circuit—the only shunting is the r-f bypass condenser "C".

A carrier having a value of 5 volts is applied to the detector as shown in Fig. 2-A. The signal is modulated approximately 80 per cent and these variations are rectified by the grid circuit of the detector. The current variations above follow the input signal—but only approximately since the diode characteristic has a bend at the bottom.

The voltage amplifier characteristic of the tube is plotted in Fig. 2-B and is obtained in the usual manner. At

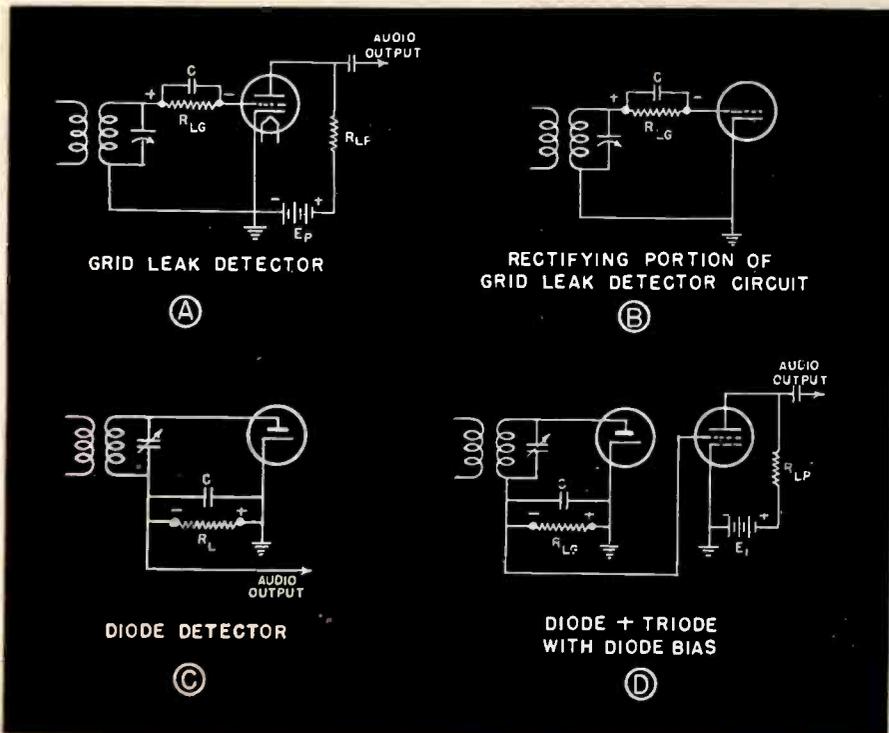


Fig. 1—The process of detection is carried out by rectification in both the grid leak and diode type detectors. The capacitor C acts as a low impedance path to the RF currents. Low frequency audio currents flowing through R_L develop the audio voltage applied to the AF tube.

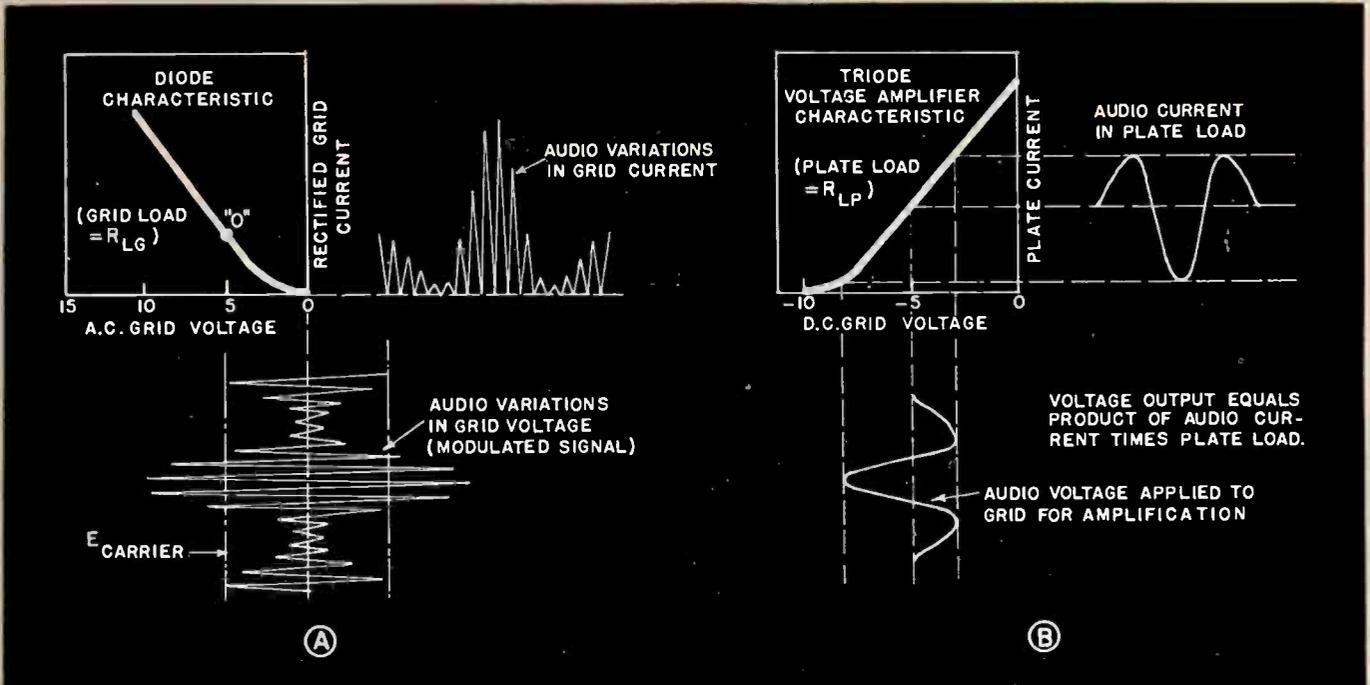


Fig. 2—Valve action of the rectifier portion of the grid leak detector removes the negative portions of the modulation cycles. The curved portion of the dynamic characteristic introduces distortion in the grid current. The audio triode characteristics in part B, show that distortion is least when grid bias is such as to keep signal voltage variations on the straight portion of the curve.

the right below the amplifier characteristic, the grid current variations are shown in terms of voltage variations. (Voltage equals product of current times resistance). The voltage variations are not sinusoidal since the signal was distorted in the detection process. The audio grid voltage is amplified by the tube and resultant output waveform is shown at the upper right corner, essentially the same as before amplification since no distortion takes place in this particular instance.

EFFECT OF BIAS ON DISTORTION

Had the DC grid bias been -7 volts instead of -5 for the same signal, the output wave would have had a different appearance than the input. Fortunately, the distortion would have been of such a value as to cancel that introduced by detection. This is shown in Fig. 3-A.

An even higher bias would have resulted exceedingly high distortion as Fig. 3-B shows when the bias is -10 volts.

This varying bias is one of the chief drawbacks of the grid-leak detector. Every different value of signal input causes a different value of amplifier grid bias. And none of the receivers using this type of circuit have AVC. Furthermore, control of the signal level (volume) is accomplished in the antenna or r-f stages, which means that when the radio is run softly, the grid signal is small. At high volume levels, the grid signal is high.

EFFECT OF PLATE VOLTAGE

The applied plate voltage and the plate load resistance also come into importance in a circuit of this type. As was pointed out previously (pages 30 and 31, May 1938) the optimum bias for an amplifier is dependent upon the plate voltage and the plate load resistance. Conversely, if the bias is selected first, there is an optimum value of plate circuit constants.

The dotted curve in Fig. 3-B shows how the characteristic changes when the plate voltage is increased. Under the conditions where the grid develops a high negative bias, higher plate voltages are more desirable.

While the discussion so far has been specifically grid-leak detectors, it applies fully as well to the diode-biased audio amplifiers.

PLATE DETECTION

Plate-type detectors are being featured in many of the current T.R.F. receivers having 2 or 4 tubes. Also they are used in the older type receivers of several years ago, before AVC became popular. Typical circuit is shown in Fig. 4.

Plate detection is similar to amplifier operation since it is an amplifier biased to approximately cut-off. Consequently rectification is obtained since only the positive peaks of the carrier signal are amplified. On each positive portion of the cycle, the grid bias is instantaneously reduced due to the presence of the signal, and therefore, plate current flows during this period. During the negative portion of the cycle, the tube is at zero plate current.

Graphically, this is shown in Fig. 5 which is the dynamic characteristic for a plate detector. Since the graphical portrayal of this detector is so similar to the others, it means that fundamentally there is but little difference in the various types of detectors.

(Continued on page 42)

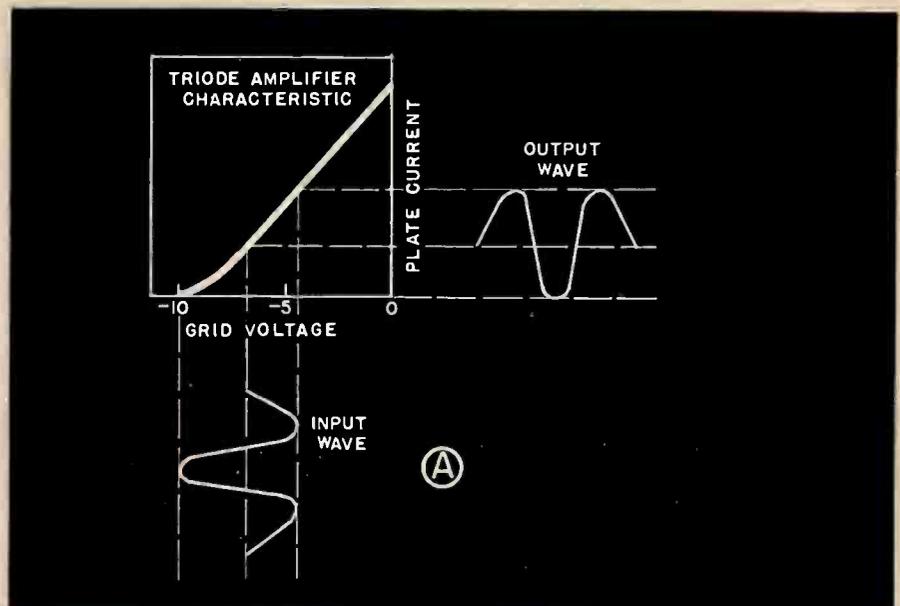


Fig. 3A—Increasing bias on grid has a neutralizing effect on the distortion introduced during detection.

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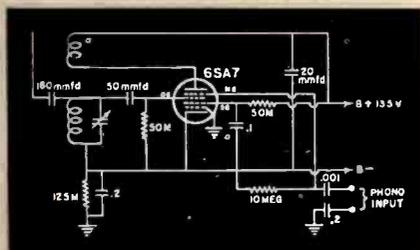
Joe Marty, Jr., Executive Secretary

304 S. Dearborn Street, Chicago, U. S. A.

Service Editor Answers Readers' Problems

Sir: I would like to get some data on wireless phonograph players. Can you help me? *A. S. Richmond, Va.*

Phonograph records may be reproduced through any radio by either of two methods. The first system is that of direct connection of the pickup to the first AF amplifier. The second method is supplying a signal of a frequency within the tuning range of the receiver, usually 540 kc., modulated by the output of the pickup. The "wireless" record player uses the second method. A single tube is usually employed as both oscillator and modulator. Remote cut-off tubes, such as the 6K8, use suppressor grid modulation, while converter tubes, such as the 6SA7, have the pickup connected to the modulator grid. The modulated signal from the oscillator may be fed into the receiver by a conductor or by radiation, the same as any station. A certain amount of coupling exists between the oscillator and the receiver through the medium of the power line. The maximum effective range of the "wireless" oscillator is 20 to 50 feet depending upon the amount of power line coupling. Remember, these "wireless" phono-oscillators are miniature broadcasting stations. Do not connect an antenna to these units! A typical wiring diagram for such an oscillator is given below.

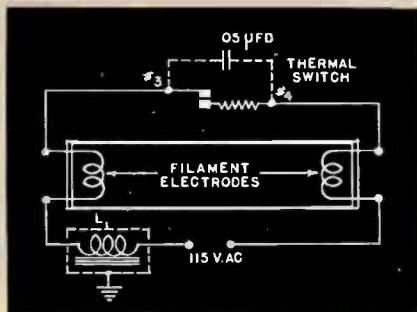


Wireless phonograph oscillator with grid modulation.

Sir: Please give me some information on the new fluorescent lamps and a few pointers on eliminating radio interference from these units. *R. J. M., Bloomington, Ill.*

The new fluorescent lighting sources consist of a mercury-discharge tube, and a pair of pre-heating filaments, all housed in a cylindrical glass tube, the inner surface of which is coated with a fluorescent material whose chemical properties determine the color of the light given off. In starting, the two filaments are connected in series across the supply voltage (115 v. or 230 v. depending upon the tube size). After a heating period of several seconds, the series connection between the filaments is opened with either a thermal switch or a magnetic relay, depending upon the type of control unit.

The rapidly changing current in the line circuit upon the opening of the switch causes a voltage in the order of 175 volts (for the 115 volt lamp) to appear across the tube terminals. The voltage is developed because of the self-induction of coil L_1 ; see diagram. The heated mercury vapor is ionized by the voltage surge and normal operation takes place with the spiral filaments functioning as electrodes and L_1 limiting the voltage drop across the tube to about 65 volts.



Fluorescent lamp circuit with capacitor filter across starting switch.

Radio interference from fluorescent lamps may arise from several causes: the arc from the starting switch, static charges on the glass tube, loose and dirty contacts. The interference from the switch may be eliminated by connecting a 0.05 mfd. 400 volt bypass capacitor across terminals No. 3 and No. 4 of the auxiliary control unit used with each lamp. See diagram of Fig. 1. The starting and control units manufactured in the past six months or so have been equipped with the by-pass capacitor across the switch. Ground the metal case of the auxiliary and the metal mounting or reflector for the lamp to cure static discharge interference. As further precaution, keep the receiver at least 10 feet from a lamp and the antenna away from power line wiring. The regular type of power line noise filter may be successfully used in stubborn cases.

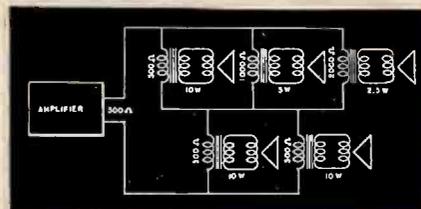
Sir: What steps can be taken to reduce or eliminate radio interference from "neon" signs. *E. M. B., Staten Island, N. Y.*

Neon sign interference is caused by static charge radiation from the tubing. Clean the tubing at the center of the sign and ground with a small piece of metal foil wrapped around the tube. Dirty tubing and insulators, and loose connections are sources of trouble. The solution for these cases is obvious. Since the field strength of the interference drops off rapidly with distance, keep the receiver, antenna, or antenna feeder at least 10 feet from

the sign. Ground the transformer case and any metal frame for the sign.

Sir: A certain sound installation will require approximately 10 watts power for a gymnasium, 5 watts for an office, 2.5 watts for a small lecture room, and 20 watts for an auditorium. The 40 watt amplifier to be used has a 500 ohm output. How may the speakers be inter-connected to give the proper division of power? *B. N. B., Springfield, Mo.*

The diagram below gives the proper connections for dividing the audio power into the approximate quotas specified. Each speaker has its individual line to voice coil transformer. The equipment required will be one 10 watt speaker with 500 ohm transformer, one 5 watt speaker with 1,000 ohm transformer, one 2.5 watt speaker with 2,000 ohm transformer, and two 10 watt speakers each with a 500 ohm transformer. The total impedance to the amplifier is 536 ohms which will result in only a negligible power loss due to mismatching of impedances.



Speaker connections for power division.

Sir: How can I eliminate the hum in a high gain public address amplifier? *W. M., Jamaica, N. Y.*

Assuming that the power supply filter circuit is adequate, check for hum pickup from filament leads near the high gain input tubes. Tubes should be shielded and also the grid leads. Decoupling and filtering resistors ranging from 10,000 to 50,000 ohms, depending upon the allowable voltage drop, may be inserted in the plate circuit of the first and second stages. Any power-supply ripple will appear across the bias resistors, thus introducing hum into the grids. Try increasing the size of cathode by-pass condensers if hum from power-supply ripple is suspected. Keep the AC power cord at a distance from input terminals. In transformer coupled amplifiers, magnetic coupling may exist between the power transformer and inter-stage couplers. A double sheet-iron shield around the power section should cure this trouble. Non-ferrous metals, such as aluminum or copper, are worthless for shielding low frequencies. In all cases, be sure to have the amplifier well grounded.



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Dynamic Testing (Continued from p. 39)

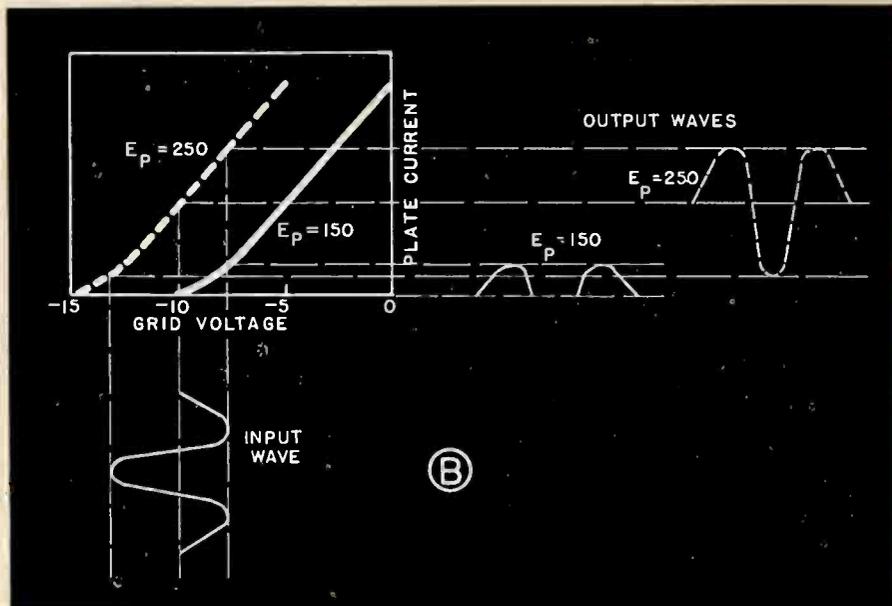


Fig 3B—Extreme distortion is introduced when bias is carried to cut-off. Increasing the plate voltage moves the cut-off point further out on the grid voltage scale thus reducing distortion.

NO GRID CURRENT IN PLATE DETECTION

In the plate-type detector, the grid variations cause a direct variation in the plate current. No grid current flows since the grid is always negative. The absence of grid current makes this detector preferable for some applications, particularly small sets, since there is no loading off the previous stage.

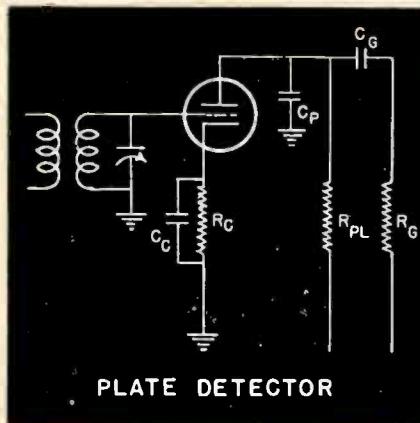


Fig. 4—Plate or grid bias detector in which tube is biased to near cut-off at zero signal thus giving rectification on positive half cycles.

For small signals, the plate detector operates largely in the region of the curved part of the characteristic. Under such conditions the distortion is quite high because the curvation causes unequal amplification. This is shown in Fig. 5.

As the signal increases in size, more and more of the circuit operation takes place on the straight line part of the characteristic. Consequently less distortion occurs.

As in all circuits, the detector can handle only a certain amount of signal. An increase beyond this amount

causes overloading and its attendant distortion. If fixed bias is used in the plate detector, the maximum signal that can be handled has a peak voltage approximately equal to the bias. In other words, the signal must never be so large that it causes the grid to go positive and draw grid current.

When self-bias is used the signal handling capability is greater because as the signal increases, the bias becomes greater due to the increase in plate current.

FREQUENCY RESPONSE

The frequency response of the plate type detector is dependent upon the size of the cathode bypass condenser C_c and the plate bypass C (Fig. 4). For full amplification at low frequencies, the condenser C_c must have a reactance (AC resistance) much less than the DC resistance R . In this respect, the behavior of the circuit is similar to an audio frequency amplifier.

Condenser C is in the circuit to bypass r-f energy in the plate circuit and permit the passage of only audio. Generally the value of C is such that it somewhat attenuates the higher audio frequencies.

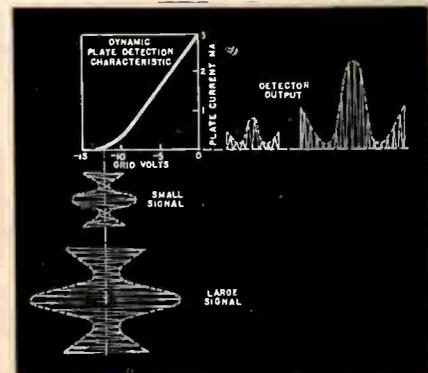


Fig. 5—Plate or bias detector distortion occurs in the square law portion of the characteristic. No grid current in this type detector.

FTC Rulings

(Continued from page 20)

Rule 7 prohibits any member of the industry from "giving money, or anything of value" to a customer, or prospective customer, directly or through an agent or representative as an inducement to buy from such member of the industry, or not to buy from a competitor.

Rule 8 prohibits the payment of spiffs, push-money, bonus, or gratuity to any dealer or dealer's salesman, who handles more than one line of radio, intended directly or indirectly to encourage the sale of one product over a competing product.

In connection with rule 8 it is interesting to note, that the Federal Trade Commission has jurisdiction only over companies or products engaged in interstate commerce. If a radio manufacturer however gives spiffs or bonuses to dealers located in the same state as the manufacturer, the manufacturer discriminates between his customers in his own state and those located in another state, which again under other rules, gives the commission jurisdiction.

APPLICATION, ENFORCEMENT

The Commission stipulates that these rules are not to be used, directly or indirectly, as part of any agreement to fix prices, to suppress competition or restrain trade.

Radio broadcasts and newspaper advertising will be checked, Better Business Bureaus, offended members of the industry, and public spirited citizens who complain, will be the basis of individual Commission investigation and prosecution.

The enforcement of these rules is expected to do much to protect the ethical dealer, as well as the consumer, and will eliminate practices which have long been complained of.

Stewart-Warner Announces "Varsity" Campaign

An intensive merchandising and advertising campaign will be opened in September by Stewart-Warner, concentrating on the college and school market with its line of "varsity" models. The receivers will be sold with appropriate school colors and insignia. The campaign now being prepared will include special dealer newspaper advertisements, striking window displays, and a variety of consumer literature. Special distributor-dealer meetings throughout the country will serve to present the campaign to the trade.

Stewart-Warner's new additions to its distributor group as announced by L. L. Kelsey, sales manager for S-W, are Jenkins Music Co., 25 E. Reno St., Oklahoma City, Oklahoma; Tracey Wells Co., 173 N. Front St., Columbus, Ohio; The Hibbs Hardware Co., Fifth St., Portsmouth, Ohio.

Plan for Fall Selling

(Continued from page 12)

your sincere interest in your customers to be greater than your interest in the mere sale itself, you have established the fact in your customer's minds that your service is worth much more to them than the difference between your price and that of the cut-price gyp.

In this removal of the necessity of meeting price competition, by giving more, and justifying your better price, profits begin to grow again, and your interest, and enthusiasm grows apace. In this new enthusiasm you see things

in a different light, and so, too, do your customers, for enthusiasm, friendship, courtesy, are contagious, and they all beget business, too.

The day of expecting customers to form in line before your store for the privilege of buying a radio is gone, but business is good, and dealers are happy, when they keep everlastingly on the trail of the sale.

"Sell 'em, service 'em, satisfy 'em, and you will sell 'em again," is the practice of those real merchants who have made this plan effective, pulled their radio business out of the red, and are on their way again, to make the most out of the best potential year in the last decade.

Gift Merchandise added to FREE EQUIPMENT



86 PIECE ROGERS SILVER SERVICE

Retail Value, \$60.00

86-Piece Embassy Chest Rogers' Extra Silverware . . . made and guaranteed by Simon L. and George H. Rogers, famous Oneida Silversmiths. Retail value, \$60.00. . . Dealer Deposit, \$12.00. . . Immediate delivery.

Full merchandise credit on purchase of 600 tubes (points), two years' time.



ELGIN WRIST WATCH

Men's or Ladies' Style

Retail Value, \$37.50

Elgin Wrist watch, Keystone Model, Ladies' or Men's Style. Retail Value, \$37.50. . . Dealer Deposit, \$11.00. . . Immediate delivery.

Full merchandise credit on 550 tubes (points), two years' time.

... AND MANY OTHER ITEMS!

**ASK YOUR
JOBBER
OR WRITE →**

More reasons why it pays to handle NATIONAL UNION TUBES and CONDENSERS

NEW LOCTAL TYPES



SERVICE DEALERS—

Do you want to increase your volume, give better satisfaction to your customers, protect yourself from cut price competition. . . THEN WHY NOT WORK WITH N.U. . . All our policies and sales promotions are aimed to build up the service dealer and his business.

National Union offers a complete line of all (320) types of tubes. Quality is the finest that research skill and engineering can produce; backed by the most liberal replacement policy in the industry. The choice of leading service engineers everywhere . . . it's got to be good.

CERAMITE CONDENSERS

The only midget electrolytic encased in ceramic insulation. Can't short when jammed in tight places. Competitively priced. Available in all popular capacities and voltages.



What National Union is doing for others it can do for you. Thousands upon thousands of completed premium agreements prove the fairness of our proposition. Equipment or premium is obtained immediately on a small down deposit, no time payments to meet or exorbitant interest rates to pay. National Union can afford to do it because our selling costs are lower. Just try it for yourself and you'll see why it pays you to buy your tubes and condensers the National Union Way.

Both Tubes and Condensers Count on N.U. Premiums

NATIONAL UNION RADIO CORPORATION

57 State St., Newark, New Jersey

RT-839

Please send me more information on your Gift Merchandise. I am interested in the following Free Test Equipment. . . .

.....

Name.....

Address.....

City.....State.....

**EVERY ONE OF THE
1,500,000
PORTABLE
RADIO OWNERS
NEED THIS
SENSATIONAL**

**GTC^A₊^B
PORTA-POWER**



**BIG IMMEDIATE
PROFITS!**

**MODERNIZE SETS BY
SELLING COMBINATIONS NOW!**

Double your profits *now* by selling GTC Porta-Power in combination with portable radios for considerably less than the combination set.

Give portable set owners a light-weight set for portable operation and an economical unit for home use during the cooler months.

Prepare now to cash in this Fall when portable owners will want them as second home sets.

GTC Porta-Power replaces batteries in battery operated 4 or 5 tube portable or farm radios using 1½ volt tubes. Operates on 110-120 v., 50-60 c. current, using only 7 watts. About the same size as a single B battery . . . 2"x3½"x6". Fits all battery compartments. Universal sockets to fit all battery plugs.

ATTENTION Dealers and Service Men
Cut battery cost and be assured of peak efficiency by using GTC Porta-Power when demonstrating and testing.

List \$7.50 ea.

GENERAL TRANSFORMER CORP.
1252 W. VAN BUREN ST. • CHICAGO, ILLINOIS

Radio Parade

(Continued from p. 32)

will readily take advantage of this in advertising, and the inevitable result will be universal consumer distrust regarding all radio prices. And what manufacturer is going to tell what dealer which set is due for obsolescence next month?

SHUN THE "ROCKING CHAIR"

6. All consumer enthusiasm is artificial in the sense that it must be aroused by some outside activity, usually called promotion. If we seek to reduce enthusiasm among the trade and consumers as an important merchandising element, we shall be throwing overboard one of our strongest driving forces that helped us through one of the toughest periods of American business. Again, let's shun the rocking-chair idea.

7. Seasonably right models can be introduced at any time without disrupting business, under the present set-up. Last year's portables did a lot of good and didn't hurt anybody. And waiting until models are "seasonably right and can be sold best" is not exactly the best merchandising technique. Remember the farmer has to sow the seed and cultivate the crop before he reaps the harvest. He can't just sow one day and reap the next.

Harry B. Taylor
428 S. Main St., Pennington, N. J.

Protests Tax on Television Sets

Editor RADIO TODAY:

There is, undoubtedly, justification for the Federal excise tax on radio sound receivers. However, the application of this tax to television receivers is quite another matter.

I am certain that none of our legislators would propose a tax on the products of any entirely new industry. When a new product is first marketed, with limited production and demand, yet representing many millions of dollars of development costs, it is essential to the development of the undertaking that the product be made available to the public at the lowest price possible. I am sure that this view is shared by our legislators.

CONSUMER PAYS DOUBLE

Unfortunately, however, although the manufacture and sale of television equipment was not contemplated when the Federal excise tax on radio equipment was established, inasmuch as the apparatus is operated by radio transmission, the law is being construed as applying to television receivers. I believe that, if this condition were brought to the attention of Congress, relief would be granted from the tax on television sets.

Manufacturers of television sets are bending every effort to bring down the cost of the receivers so as to make them available to the greatest number of people, and to encourage the growth of this new industry. At this time, when prices are necessarily high, the

excise tax puts a serious burden on the buying public.

Because of the setup of the excise tax on radio sets, the 5 per cent tax paid by the manufacturer costs the consumer, for example, \$30 on a \$600 receiver. In other words, the tax costs the consumer twice as much as the amount actually paid to the Federal Government. The reason is this: The manufacturer figures his selling price, including excise tax, is \$300. On that basis he pays the government \$15 or 5 per cent of his selling price. Since the jobber must have, ordinarily, a 50 per cent discount from the list price, on the basis of the jobber price of \$300, the list price becomes \$600.

But suppose the Federal tax were eliminated. The price to the jobber would then be \$285 and, on the basis of a 50 per cent discount from the list price, that would make the list price \$570.

From this you will see that the cost to the consumer is not merely the \$15 tax received by the Government. The cost of this tax is actually \$30. Experience in the merchandising problems of radio dealers and manufacturers will tell anyone, without any elaboration on my part, that there is a tremendous difference between a list price of \$600 and a list price of \$570.

SHOULD ENCOURAGE NEW INDUSTRY

Even on the lowest-price receiver which we manufacture, listing at \$189.50, the elimination of the Federal tax would save the retail purchaser \$10. One can see how much it would contribute toward reducing sales resistance if we could offer the same set at a price of \$179.50.

M. B. SLEEPER,
District Sales Manager,
Andrea Radio Corp.

Woodside, N. Y.

* * *

Frequency Modulation in GE Models

First frequency modulation radio receivers designed for sale to the public have been announced by the General Electric radio and television department, Bridgeport, Conn., and are now being shown in New York and New England, only sections of the country to date in which there are transmitters and broadcasting stations utilizing the new system developed by Major E. H. Armstrong. Three models are now available, two of them equipped to receive only frequency modulation broadcasts, and a third which also combines three-band radio reception of the conventional type.

Thordarson Honored

C. H. Thordarson, president of Thordarson Electric Mfg. Co., was recently awarded the Cross of the Icelandic Falcon Order, highest honor given by the Danish and Icelandic governments. It is given to those of Icelandic or Danish descent who have contributed some outstanding achievement.

Performance Sells Sound

(Continued from p. 37)

Sound reverberation is due to reflection from the walls, floor, and ceiling and is most noticeable in empty rooms where the reflecting surfaces are hard and smooth such as plaster, and hard wood. Sound reverberation, where the time constant is great, causes "hashing" of speech or other sound coming from the speakers. Reverberation time has been defined as the time required, after the sound has been produced, for that sound to decrease in intensity to one one-millionth of its initial intensity.

This corresponds to a 60 DB reduction in sound power. The reverberation time for a given room may be calculated from the formula,

$$T = \frac{0.049 V}{A}$$

Where T is the time in seconds for a 60 DB reduction in sound level, V is volume of the room in cubic feet, and A is the total absorption of the room in Sabines. The table below gives the sound absorption coefficients for a few common materials.

COEFFICIENTS OF SOUND ABSORPTION

Surface	Units per sq. ft.
Acousti-celotex—1/4"	0.75
Audience, seated, each	3.9
Brick wall painted	0.017
Glass	0.027
Plaster, lime, sand finish on metal lath	0.060
Poured concrete	0.016
Wood, varnished	0.03
Masonite 7/16"	0.32
Velour draperies	0.44
4" from wall—18 oz. per square yard	

The total absorption, A, is equal to (the area of the ceiling in square feet times the coefficient of absorption for the particular material) + (the area of the walls in square feet times the coefficient for the wall material) + etc., until all areas have been taken into account. Be sure to consider windows where they constitute most of the wall area. A slight amount of reverberation is desirable because it lends power to the issuing sound. An acoustically "dead" room will require more audio power than one with a slight reverberation although the sounds produced will be clearer in this "deadened" room. The optimum reverberation time has been found to vary with the size of the room. Observations in "acoustically good" auditoriums have given the average results of the optimum time which are plotted in Fig. 3. Because the majority of rooms have a high reverberation time, it will be necessary to add a sound absorbing material in order to limit the time to the optimum value. The necessary amount of this material may be determined by solving the above equation for the total required absorption, using the optimum value of time as obtained from Fig. 3, and subtracting from this total absorption, the actual sound absorption as determined by adding up the products of the areas and coefficients for the various materials. Dividing this difference by the coefficient of the material it is desired to use will give the necessary area in square feet.

It is, of course, not feasible to make reverberation time corrections in a PA

installation of a temporary nature. The information is given here for consideration in the permanent installation where the improved results will be a lasting advertisement of the technician's capabilities.

SUMMARY

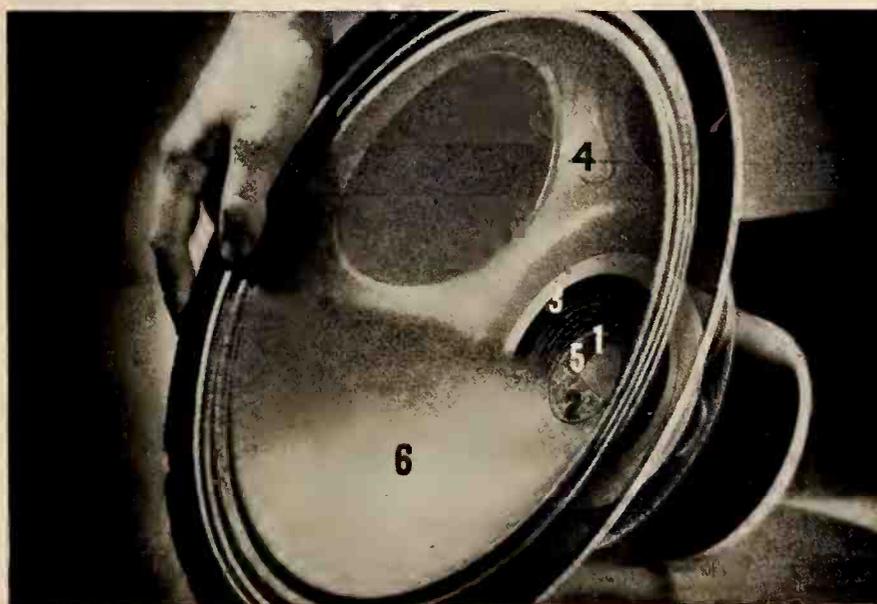
Sound distortion may result from, amplifier overloading, speaker overloading, mechanical resonance in the speaker system, reverberation, and audio feedback. Distortion is used in the broad sense of the word, meaning a change in the original sound quality by any means. Careful consideration in the selection of equipment, in the placement of speakers, and of the acoustical properties of the room will,

in a majority of the cases, guarantee a satisfactory sound amplifying system.

Ford-Edison Museum Shows Tubes

A complete complement of Sylvania Radio Tubes from the old 199 and 201A types to the latest Loktals, "GT," and Single-Ended tubes are on display in the Henry Ford-Edison Institute, Communications Section at Dearborn, Michigan. Visitors at the museum can follow the development of radio tube manufacture chronologically and see the emergence of the vacuum tube from a simple, few element unit to the complex multi-element structure of today.

GREAT NEW "PM's"



... SPECIALLY DEVELOPED BY UTAH FOR HIGH POWER PUBLIC ADDRESS SYSTEMS AT SURPRISINGLY LOW PRICES

Check these outstanding features:

1. Special Utah phenolic resin cement treatment provides an extra sturdy voice coil, assuring maximum safety under extreme overloads.
2. Completely dustproofed.
3. All cementing operations completely cured before final test, assuring perfect centering made possible by the modern method—use of THERMOPLASTIC cements throughout.
4. Rugged formed-steel cone housing for maximum strength and rigidity—rust proofed, aluminum finish.
5. 1½-inch voice coil—8 ohm impedance.
6. Cone

and spider assembly selected for maximum power handling and tone quality and minimum distortion and break-up.

There is a Utah Speaker for Every Original Equipment or Replacement Requirement

GET THIS NEW CATALOG—FREE

32 pages of important facts for radio men. The complete line of Utah replacement parts is illustrated and described in the new free catalog. You should have a copy for ready reference. Write for it today.



SPEAKERS • TRANSFORMERS • UTAH-CARTER PARTS



UTAH RADIO PRODUCTS CO.

CHICAGO, ILLINOIS

CABLE ADDRESS: UTARADIO—CHICAGO

Trade Flashes

Radio Wire Television Corp.

Formation of a new company to be known as Radio Wire Television Corporation of America with offices at 160 East 56th Street, New York City, embracing the former holdings of Wire Broadcasting, Inc., Wholesale Radio Service Co., Inc., and the various subsidiaries of these enterprises, was announced recently.

Heading the new company as president is John E. Otterson, formerly president of Winchester Repeating Arms Corp., Electrical Research Products, Inc., and Paramount Pictures. J. R. West, president of Wire Broadcasting and A. W. Pletman, president of Wholesale Radio, have been elected vice-presidents.

Under the new corporate structure, the various retail outlets of Wholesale Radio, which engage in the merchandising of radio equipment, phonographs, and photographic supplies, will take the name of the parent company and will be further identified by the states in which they are located. Thus Wholesale Radio, Inc., of New York becomes Radio Wire Television, Inc., of New York, etc.

Wire Broadcasting and its principal subsidiaries will continue under the present titles. The enterprises operate wire networks, supplying musical entertainment to hotels, restaurants, night clubs, industrial plants and homes.

In addition to these operating subsidiaries, the new company acquires full interest in the Transformer Corporation of America, manufacturers of radio and electrical products; Tele-Capital Corporation, a financing unit, and the Syndak Corporation, holder of

a large group of patents relating to motion picture projection, sound, and lighting.

In addition to the patents acquired by the new company the organization is licensed by Electrical Research Products, Inc., under the patents of Western Electric Company, Bell Telephone and Telegraph Company.

Brown Supply Shows Stromberg Line

Television demonstrations featured a presentation of the 1940 Stromberg-Carlson line to dealers of the Brown Supply Co., St. Louis, held July 16-18 at the Coronado Hotel. Kenneth Gillespie, sales manager of Stromberg-Carlson's Kansas City branch, made the presentation, which according to Captain Norman S. Brown, president of Brown Supply, drew the largest attendance they have had at any showing during the past five years.

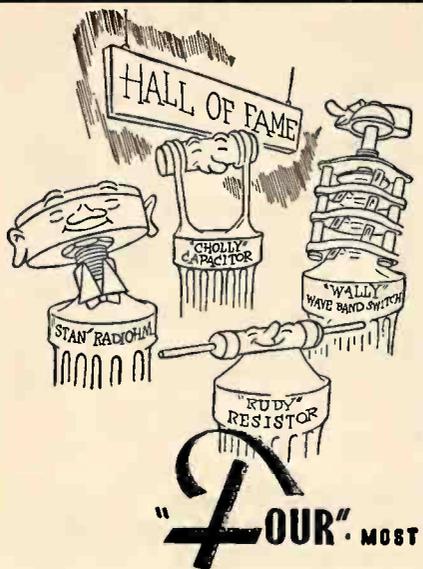
More than 1,000 people saw the array of new Stromberg-Carlson radios and radio-phonographs. Popular were the No. 420-PL automatic combination and the No. 430-M Labyrinth radio with Carpinchoe Speaker, both models priced for popular appeal.

A television program, with talent from the Baldwin Piano Co., and Station WEW of St. Louis University, highlighted the presentation. The television transmitter was supplied by First National Television, Inc., of Kansas City who own and operate high-fidelity station KITE and also are the owners of one of the first television experimental licenses granted in this country. Their television transmitter will be on the air in the early fall. Call letters will be W9XAL.

St. Louis Radio Dealers See Television



Kenneth Gillespie, sales mgr., Stromberg-Carlson's Kansas City branch, and Capt. N. S. Brown, pres. of Brown Supply Co., St. Louis, with Stromberg-Carlson labyrinth radio television receiver at dealers' demonstration.



FAMOUS MEMBERS OF A FAMOUS FAMILY

Preserved for posterity on the pedestals of popularity are these four genial gents who represent the millions of Quality parts in use throughout the world.

As a foursome . . . or individually . . . they stand for sterling honesty in performance . . . integrity in service . . . and all the other glowing virtues that a radio-part should possess.

So, if you are a ham . . . a serviceman . . . an experimenter . . . fail not . . . on sundry and all occasions . . . to SPECIFY CENTRALB.

- **RADIOHM** In standard or midget . . . low noise level . . . long life
- **FIXED RESISTOR** Insulating and conducting area baked together into one . . . copper sprayed end connection.
- **CERAMIC CAPACITOR** Where permanence or temperature compensation is important.
- **WAVE BAND SWITCHES** In Isolantite or Bakelite . . . available in various combination.

Centralab

Division of

Globe-Union, Inc.
MILWAUKEE, WIS.

Stromberg Jobbers

Appliances, Inc., Cincinnati, Ohio, headed by H. F. Burckhardt, will distribute Stromberg-Carlson radios in southern half of Ohio and several counties of northern Kentucky. Northern Radio Co., Seattle, Wash., headed by Frank Wedel, will serve most of the state of Washington, including all of the western part. Home Appliances, Butte, Mont., under the direction of George Steele, will distribute the line throughout the entire western portion of Montana.

New "Little Nipper" Line

A line of ten radios introduced by RCA are creating much interest with unusual cabinet design and several new features. Picturesque scenes of the two world's fairs and a Mexican landscape are each themes for three models. Improved sound reproduction in two of the series is obtained by using a resonant sound chamber. All of the sets have a built in antenna. are designed for AC-DC operation, and have fire underwriter's approval.

Permoflux Corp. Starts Making Speakers

The Permoflux Corporation, 4916-22 West Grand Avenue, Chicago, Ill., has purchased the radio speaker division of the Continental Motors Corp. of Detroit, and is now completely set up at its Chicago factory where it has been manufacturing speakers since July 24, with double the former factory capacity at Detroit.

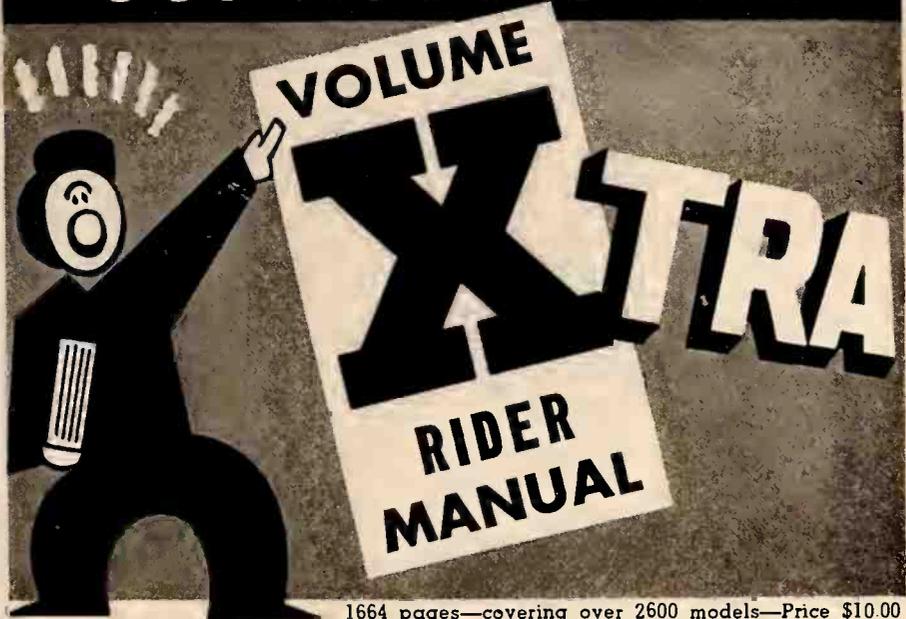
Permoflux facilities include metal stampings for the production of special speakers as well as standard interchangeable units. Permanent-magnet speakers include 4, 5, 5½, 6, 8 and 10-inch speakers, with magnets weighing from 1½ oz. to 16 oz.

L. M. Heineman heads the organization as president. Each of the various departments has personnel equipped with long practical experience in radio and speaker manufacture.



L. M. Heineman, president Permoflux Corp., Chicago.

OUT AUGUST 19th



1664 pages—covering over 2600 models—Price \$10.00

COVERS 30% MORE MODELS Than Any Previous Volume of Rider Manual

XTRA NUMBER—of models are covered in Volume X. Because of the tremendous increase in the number of models being issued by manufacturers, Volume X will cover more than 2600 models. This is over 750 more than any previous edition.

XTRA INFORMATION—Television—Facsimile—Wireless Record Players—you must have the manufacturer's instructions when you install or service any of these new instruments. You'll find every bit of the latest available information on these important new developments in Volume X.

XTRA DATA—Because servicemen need the greatest possible amount of essential data, Volume X has been carefully edited to eliminate all the commonly known data and the space used to present more of the wanted material.

XTRA SECTION—New revised 64 page "How It Works" section gives easy to understand explanations on the theory of Television—Facsimile—Wireless Record Players, etc. Many servicemen regard this section to be as valuable as the manual itself. Volume X index covers all 10 Rider Manuals.

XTRA PROFITS THROUGH GREATER KNOWLEDGE FROM RIDER BOOKS

Servicing Superheterodynes
Changes, changes, changes! That has been the history of the superheterodyne circuit. Make repairs quickly by analyzing the different parts of the circuit quickly. Rider shows you how. 288 pp. pro. \$1.00
fusely ill. Price

Aligning Philco Receivers
This new book presents authentic and complete instructions for fast and accurate alignment operation on ANY Philco receiver. Every trimmer is located for you. 176 pp. Hard cover. Only \$1.00

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Tells how to take guess-work out of servicing by using an ohmmeter. This method is in line with continuity data being furnished by set manufacturers. 203 pp. 93 ill. \$1.00
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The Cathode-Ray Tube at Work
With introduction of new, cheaper Cathode-Ray Tubes, this book is even more indispensable for its complete practical information on Oscillographs, etc. 336 pp. \$2.50
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Service Notes

Stewart-Warner Model 01-6B9

Excessive needle scratch during phonograph operation may be traced to the filter resistor and capacitor connected to the Phono-Radio switch. First sets of this type had a 220M resistor across pickup. Remove this resistor and replace with 68M and parallel it with a 0.003 mfd. capacitor. A few sets have the 68M resistor and no .003 mfd. capacitor; install condenser to eliminate scratch. Some sets have a 470M ohm resistor paralleled with a 0.001 mfd. The pickup in these sets is slightly different. A larger bypass capacitor will eliminate any scratch for these sets but at the expense of high frequency response.

Ballast Tube Selection

Several manufacturers of ballast tubes list their products by both type number and voltage drop for a specific current. Add up the rated filament voltages of the tubes connected in series with the unknown ballast and subtract this figure from the normal line voltage. The remainder is the voltage drop across the ballast tube.

Tubes used in series have the same

current rating, therefore, ballast rating can be determined from the filament rating of any tube in the "string." The proper ballast may then be selected from manufacturers' lists. In some cases it may be necessary to use a different socket due to non-standardization in ballast tubes.

Unwanted Waves Help Test Television

Radio engineers have continually aimed to reproduce the waves created by music or the human voice free from distortion and in their natural form. The development of good amplifiers in radio receivers, or public address and sound motion picture apparatus, has all been directed towards distortion-free operation.

But in seeking apparatus for testing television circuits, RCA engineers found that waves having the maximum possible distortion were frequently the most valuable. So-called "pure" wave forms or "sine" waves, of even, smooth slope would provide little or no indication of the time delay which improper circuits imposed. This delay was important since it might put white edges on dark objects in the television picture or cause other difficulties.

But if the circuits were tested with "square" waves, having the maximum distortion from the pure form, it was relatively easy to tell whether the time delay was satisfactory. Hence a special square wave generator capable of producing wave forms with straight sides

Majestic's Wee Portable



Bob Hope, comedian of stage, screen and radio, enjoys his 3½-lb. Majestic 130 while dressing for a public appearance in Chicago.

and tops has been made available by the RCA Manufacturing Company for television laboratories and manufacturers.

Try These Low-Cost Record-Changers in Your Installations!



Model M, above, plays and changes eight 10-inch or seven 12-inch records. Choice of other models.

YOU'LL sell more radio-phonograph combinations—with smaller investment—using America's leading low-priced record-changer units. These General Industries changer units have self-starting, induction-type motor with turn-table; high fidelity, tangent-tracking pickup; simple, dependable record changer. Compactly assembled on mounting plate. Efficient and trouble-free.

Order a selection to test in your cabinets.
State voltage and frequency of current you use.



The **GENERAL INDUSTRIES CO.**
3938 TAYLOR STREET
ELYRIA, OHIO

QUALITY at LOW PRICE

CONSOLIDATED Volume and Tone Controls



Ask your jobber today about these quality controls at exceptionally low prices. He will be glad to show you how a small stock of Consolidated Volume and Tone Controls will cover 90% of your replacement calls.

Five types of controls are available with resistances ranging from 1,000 to 2,000,000 ohms.

See Them at Your Jobbers Today!

CONSOLIDATED
WIRE AND
ASSOCIATED
CORPORATIONS

516 S. PEORIA ST.

CHICAGO, ILL.

Victor Launches Publicity on Heifetz Film, Records

RCA Victor, in cooperation with United Artists, has launched a nationwide publicity campaign for "They Shall Have Music," new film starring Jascha Heifetz.

Keyed to simultaneously boost exhibitors' box office receipts and promote the sale of Victor Red Seal recordings by Heifetz, the program offers musical merchandise dealers an opportunity to capitalize on the increasing popularity of the Heifetz violin.

Marking the opening of the joint campaign, an illustrated story of Heifetz' life and genius, his debut in film and his Red Seal records was carried in the August issue of the Victor Record Society Review, and the popular RCA Victor "Music You Want" radio programs in more than fifty key cities will be dedicated to Heifetz records preceding the opening of the picture. Through United Artists, RCA Victor will notify its distributors of the booking in each city so that dealers may be prepared to tie-in with the special "Music You Want" broadcasts.

In addition, the United Artists press book which is mailed to all theatres scheduled to show "They Shall Have Music," will devote space to RCA Victor's promotional activities on the film, and will instruct exhibitors to contact RCA Victor dealers.

Tele Station Planned by Stores

Abraham and Straus, Inc., and Bloomingdale Bros., New York City department-stores, have applied to the FCC for a license to construct a television transmitting station, according to an announcement by I. A. Hirschmann, vice-president of Bloomingdale's. The application for the license was filed by Metropolitan Television, Inc., a subsidiary of the stores, organized for the transmission of television programs. The Allen B. DuMont Labs., Inc., are listed as consulting engineers in the application.

Farnsworth on Television at Music Show

There will be no radical changes in the present system of television during the next year, in the opinion of Philo T. Farnsworth, vice-president of the Farnsworth Television & Radio Corporation.

"Laboratory technicians in the next year or so will devote their time to creating better performance within the standards that have already been set," Mr. Farnsworth said in a message to his company's distributors, attending the convention of the National Association of Music Merchants. "I most certainly do not anticipate any development in television that will affect sound radio receivers."

Mr. Farnsworth believes the important changes in the present system of television taking place in the near future will be in transmitting rather than in receiver equipment.

He anticipates that before the end of this year there will be 10 to 12 television broadcasting stations across the country and that next year will see at least 36 additional stations.

Does Parts Gambling Pay? Mucher Sounds Warning

Saving money is perfectly sound practice. If one price is lower than another, everything else being equal, it's just good business to buy at the lower price. But, points out Vic Mucher, Clarostat radio manager, one wants to be pretty sure that low price is not going to mean higher cost in the final analysis.

Our parts industry is threatened as never before with price slashing. Hardly a month goes by but another volume control or resistor pops up with lower prices as its main sales appeal. The fact that such devices call for specialized engineering over a long period is usually overlooked by newcomers bent on utilizing purely mechanical skill for something which seems to have a brisk market already established. The electrical end may be pretty much neglected.

Now the truth remains that established parts manufacturers have spent years attaining their present quality. They have long specialized. They have spent fortunes in research and engineering. Consequently, when they sell a given part, a certain percentage of the cost is necessarily reflected in research and engineering. The price-slasher would save that percentage.

For that slight percentage which usually matches the difference between established brand parts and nondescript parts, you are getting a definite insurance covering satisfactory performance. You are assured that the established brand parts will perform satisfactorily. Plenty of case histories attest to the dependability of such parts. Can you afford to pass up such insurance for the sake of a few pennies?

Many jobbers today are being coaxed to cheaper parts either to make a few extra cents on each sale, or more likely to secure price leaders. Either way, their servicemen customers may be getting parts of little known reputation. And that means taking long chances—gambling with results—in the absence of that insurance which backs long-established parts.

Because servicing is mainly a matter of time and labor, with materials as a secondary portion of the costs, it seems that the very small percentage in price between established brand parts and others should hardly prove much of a sales inducement. In these days when more and more service jobs must be guaranteed for a certain period following the installation of replacement parts, the serviceman can ill afford to take any chances. He needs all the insurance he can get.

CAN YOU QUALIFY?

For a long time Kenyon has been recognized as the outstanding **QUALITY** line of transformers. Equipment of such leading manufacturers as the Hallcrafters, Temco, Doolittle & Falknor, Browning Labs., Radio Engineering Labs., Jefferson-Travis, Presto Recording, as well as the Army, the Navy, Commercial airlines and others all depend upon the reliability of Kenyon Transformers.

It was only natural that jobbers would follow the leadership of these companies and investigate the resale possibilities of the Kenyon Line. What followed was inevitable! During the past 90 days—more than 40 Jobbers have **GONE KENYON!**

A COMPLETE LINE

Now Kenyon offers you—if you qualify—the opportunity to take on what is considered the most valuable transformer franchise in the industry today. We assure you

A COMPLETE AMATEUR LINE

A COMPLETE REPLACEMENT LINE

A QUALITY LINE

A FAIR PROFIT LINE

ALL BACKED BY THE RESOURCES OF A COMPANY OF HIGH STANDING IN THE INDUSTRY

You owe it to your business to write or wire **TODAY** for complete details of the Kenyon Protected Franchise—before it's too late.

Complete Catalogs Mailed Upon Request



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Export Department: 25 Warren St., New York, N. Y.

AIEE Fights Radio Static

At the Pacific Coast Convention of the American Institute of Electrical Engineers in San Francisco, C. V. Aggers, Westinghouse engineer, told the group that war is now being waged on man-made static resulting from unbridled electrical equipment.

"The solution of the problem of man-made static lies in the mutual cooperation of interested parties: the broadcasters, in providing adequate field strength; the radio set manufacturer, in supplying equipment and means for installations with minimum practicable susceptibility to unwanted signals; the radio listener, in the proper installation and operation of the set;



P. G. Horton, credit mgr. for the Edmond Co., White Plains, N. Y., and J. W. Jennings of the sales department, watch H. T. Kinner, president of the company, demonstrate the new portable radio to his secretary, Helen Couzens. Geo. Kinner, Edmond v.p., and Harry Elkan, Emerson's field man are at right.

TRADE MARK
PERM-O-FLUX

CORPORATION

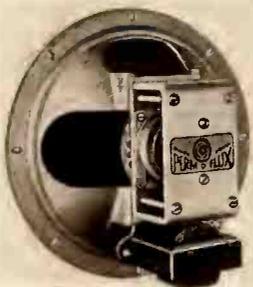
**MANUFACTURERS
OF
A COMPLETE LINE
OF
PERMANENT MAGNET
SPEAKERS**

Sizes include 4", 5", 5 1/4", 6", 8" and 10". These speakers are available with magnets weighing from 1 1/2 oz. to 16 oz.

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Equipped with genuine G.E. Alnico Magnets having a full ratio of Cobalt.

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4916 GRAND AVE.
CHICAGO, ILL.

and the manufacturer and user of electrical equipment, in seeing that it is made and operated so as to produce the minimum of unwanted stray fields," said Mr. Aggers.

It was explained that many persons believe that radio disturbances are introduced into the receiver chiefly by conduction along the 115-volt cord used for the power supply. While it is true that a small amount of noise enters the set by this route, the major portion reaches the receiver circuits because of the proximity of the antenna and antenna lead-in to the building wiring and noise field. Improved reception from the standpoint of noise produced by electrical devices, can be obtained by increasing the distance between the antenna lead-in and other wiring in the building.

Auto-Radio Dealers Organize

A group of leading members of the automobile radio industry, in the New York metropolitan area has organized the Auto Radio Dealers Association, Inc. Chartered as a membership corporation, the association has convened regularly for several months, laying the foundation for a sincere endeavor to improve the conditions under which the auto radio dealers operate.

Officers of the association for the current year are: Maurice B. McCullough, president; George Levine, vice-president; George Aldrich, secretary; and Sid Barry, treasurer. Fred N. Dagavar is chairman of the board of directors, and Travis S. Levy, an attorney, acts as general counsel to the organization.

With the beginning of the new season, an intensive advertising campaign will be begun, directed both to the trade and to the general public. By means of this publicity, the association will bring its activities to the attention of buyers and sellers everywhere promoting a greater market for its merchandise and encouraging higher standards in the sale of both new and used automobile radio equipment to new and used-car purchasers.

Membership Requirements, NRPDA

Any jobber who meets the following requirements is eligible for membership in the NRPDA, points out Arthur Moss, executive secretary, who quotes:

Article III of the Constitution.

"Membership in the Association shall be limited to radio parts distributors or wholesalers, who are hereby defined as persons, firms or corporations, actively engaged in the distributing of radio parts; who shall, generally speaking, maintain and warehouse a stock of such products, sufficient to adequately supply the requirements of the trade; who shall maintain a minimum investment in radio parts, in their principal warehouse, not on consignment, amounting to \$5,000; who do a gross annual dollar volume of business of at least \$25,000 per year; and who do not do any retail radio repair service for hire."

Regarding dues, Article VIII of the By-Laws provides:

"No initiation fee shall be charged.

"The annual dues of each member shall be based on his gross radio business (excluding radio sets) for the previous fiscal year, according to the following schedules:

Gross amount of sales—\$25,000 to \$50,000. Dues \$25.

Gross amount of sales—\$50,000 to \$100,000. Dues \$50.

Gross amount of sales—\$100,000 to \$200,000. Dues \$75.

Gross amount of sales—\$200,000 and over. Dues \$100.

"In determining the dues the gross annual sales shall include the sales of branch stores."

Solar Mfg. Sales Up

Sales of the Solar Manufacturing Corp. increased about 65 per cent in June to \$153,555 from \$93,205 in the same month last year, according to Otto Paschkes, president. An increase of approximately 38 per cent was registered in sales in the half year.

Trade Flashes

Station WFAA, owned by the Dallas Morning News, has purchased RCA radio facsimile equipment for experimental transmission of printed text and pictures through its ultra high-frequency station, W5XD. The News will publish a special facsimile edition as soon as the equipment is installed. Programs will be transmitted on 25,250 kc. with power of 1,000 watts.

An informal sales conference was held recently at the Chicago offices of the Utah Radio Products Company. Activities for the first six months and the resulting sales figures were discussed. Every one of the company's divisions has shown substantial improvement during the first half reports G. Hamilton Beasley, president.

M. P. Fitzpatrick, associated with Stromberg-Carlson Telephone Mfg. Co. for many years, was recently appointed sales representative for that company in the Los Angeles area, according to an announcement by Radio Sales Manager, Lee McCanne.

Much enthusiasm was shown for the 1940 line throughout the South, according to Stromberg-Carlson distributor manager Fred N. Anibal. Stromberg-Carlson distributors appointed were: Byrum Music Co., 25 S. Main Street, Greenville, S. C.; Wimberly & Thomas Hardware Co., Inc., 201 1st Avenue, N. Birmingham, Ala.; Raybro Electric Supplies, Inc., 812-814 Sliggs St., Tampa, Fla.

J. S. Patterson of the Tung-Sol Radio Tube Co. was the featured speaker at the Stamford, Connecticut, chapter of the RSA. The subject of his address "New Developments in Radio Tubes and How They Affect the Radio Serviceman."



Roy Harten, president, The Harten-Knodel Distributing Co., Cincinnati, O., new Farnsworth distributors.

The Harten-Knodel Distributing Company of Cincinnati have been appointed Farnsworth Radio and Television Distributors for Southern Ohio, Southeastern Indiana and Northern Kentucky territories. Ray Harten, president of the firm and

Harry Knodel, vice president, have been in radio since 1924, formerly being associated with the Cooper Corporation.

American Television Corporation announces the election of Dewey Bullock as vice-president. He will continue as a member of the board of directors. Mr. Bullock is president of Roger Verseput and Co., investment brokers, of Grand Rapids, Mich. In recent announcements the American Television Corporation introduced "tele-sales," a system that televises merchandise from a central studio in department stores so that customers can look on at remote points in the store; and Videor, popular priced television sets for the home. Recently named on the board of the television company are Adolph W. Tahaney, of Holland, Mich.; Raymond Starr, former Attorney-General of Michigan; and Maxwell Landsman, theatrical producer.

As the result of a recent reorganization of the Stewart-Warner accessory sales division, Maurice G. McCall has been appointed to direct the newly-formed technical department, according to George Zahn, Stewart-Warner accessory sales manager. McCall was formerly in the service department.

Captain Leonard F. Plugge who plans installation of home receivers and printers in both France and England made a survey of facsimile progress in America during his recent visit here. One hundred receivers and printers went abroad.

Crosley's recently introduced ban-tam auto has created much public interest, states Powell Crosley, Jr., president, Crosley Corp. When shown in New York City many thousands viewed the car and sales were reported as exceeding expectations.

Hugh R. McKean, since 1933, assistant supervisor of cost for the General Electric Company, has been appointed operating manager for the Pittsfield Division of the Plastics Department, as announced by G. H. Shill, manager of that department. Mr. McKean will be in direct charge of engineering and manufacturing for the Pittsfield Division, reporting to Mr. Shill. He assumed his new duties Aug. 1.

Of interest to servicemen's groups and radio dealers' organizations is the opportunity presented by a new program series on WIRE, Indianapolis, which will offer professional, retail and service organizations the opportunity to discuss their problems before the radio public, explain the work of the groups and correct any mistaken impressions. Titled "At Your Service," the broadcasts will be a public service feature offered without cost or obligation to every local, county and state organization registered with the Indianapolis Chamber of Commerce. Programs begin in July on Thursdays, weekly. Each association is scheduled for a date which complements other promotional activity.

PRESTO PRESENTS



A New Low-priced SOUND RECORDER with 5 EXCLUSIVE SELLING POINTS

1. Dual speed operation 78 and 33 $\frac{1}{3}$ r.p.m. The only two-speed machine in its price class.
2. Sensitive microphone and full size adjustable floor stand.
3. Rubber-rimmed turntable driven directly by motor pulley. Uses no idler wheels or rubber pulleys. Nothing to wear out.
4. Operates as public address system. You can hear your program before you record.
5. Safety cam lever lowers cutting head gently. Prevents breaking costly sapphire cutting needles.

MODEL 12J RECORDER

Price Complete

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*\$194.50 Denver and West

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HOW DEALERS SELL THE PRESTO RECORDER

— This new booklet tells you who your prospects are, how to reach them, why they buy recording equipment. Illustrates form letters, direct mail pieces, newspaper mats, window and counter display material. Describes numerous promotional stunts that dealers have used successfully to sell recorders and personal recordings. A complete merchandising manual that will boost recorder sales for you.

Your Copy is Waiting • Write for Booklet Today

PRESTO RECORDING CORPORATION

242 West 55th Street, New York, N. Y.

JIM QUAM Says



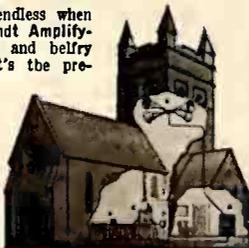
One of my good friends, watching the Quam speakers coming off the line in the factory, suddenly asked me, "Jim, how many speakers have you built?" Well, that simply floored me, because I didn't know and couldn't make a reasonably close guess. But I've got somebody started checking our records, and, while they're not nearly through, they have already accounted for over 12 million speakers! That figure should give me and my organization a real sense of achievement, but I am also rather awed by it. At least 12 million pairs of ears, and probably many times that number have listened to those many Quam speakers. That's passed judgment on our work. The biggest jury I ever heard of. The verdict must be favorable for our business continues to grow every year—and don't think that's not a real source of satisfaction.

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Sales possibilities are endless when you sell and service Sundt Amplifying Systems for tower and belfry chime installations. It's the preferred custom built profit line to sell because high quality and performance is backed by real technical assistance and sales help.



Broadcasts chimes, organ recordings. Powered for 2, 6 and 12 mile diameter coverage. Used as P.A. unit indoors. Automatic record changer. Plays 10" and 12" records mixed, either 78 or 33 R.P.M. Special low-noise records for church service on acetate discs. We furnish everything—speakers, accessories, installation directions. Sales help. **PROTECTED TERRITORY.** Be first in this big profit field. Write today.

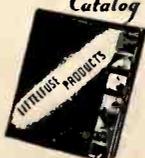
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For radio instruments, meters, transmitters, rectifiers, etc. "Quicker than a short circuit." FUSE MOUNTING . . . ALL KINDS. See your jobber or write today for catalog and prices.



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4260 LINCOLN AVE. CHICAGO, ILL.

Parts Jobbers Discuss Tubes

On Tuesday, July 25, at the Hotel Brittany, New York City, was held the first meeting of the tube committee of the National Radio Parts Distributors Association, under the chairmanship of Maurice Despres.

Arthur Moss, executive secretary, and the following members were in attendance:

Maurice Despres, chairman, Dale Radio Parts, New York City; Henry Jappe, H. Jappe Co., Boston, Mass.; George D. Barbey, George D. Barbey Co., Reading, Pa.; John Stern, Radio Electric Service Co., Phila., Pa.; Walter Hollenback, Walter D. Hollenback Co., Altoona, Pa.; Charles Ollstein, Sanford Samuel Corp., New York City; Arthur C. Stallman, Stallman of Ithaca, Ithaca, N. Y.; H. L. Dalis, H. L. Dalis Co., New York City; Aaron Lippman, Aaron Lippman & Co., Newark, N. J.

The whole tube situation was reviewed and certain problems affecting the replacement-tube market were thoroughly analyzed. Definite recommendations will be made shortly after the completion of a national survey.

It is the intention of the tube committee to submit their findings to tube manufacturers for the latter's consideration.

Radio Men Play Golf at Harrison, N. Y.

The annual golf tournament sponsored by the Sales Managers' Club, Eastern Group was held August 8, at the Green Meadows Club, Harrison, N. Y. Committee for the event included: Paul S. Ellison, Hygrade Sylvania Corp.; Victor Mucher, Clarostat Mfg. Co.; John F. Rider, John F. Rider, Inc.; Arthur Berard, Ward Leonard Electric Co.; and Walter Jablon, Hammarlund Mfg. Co.

Program for the day started with a meeting of the Sales Managers' Club. Luncheon followed and then the golf tournament with a kickers handicap which made competition interesting for even inexperienced players. Climax of the affair was a steak dinner where prizes were awarded.



Harry L. Sommerer, recently appointed assistant to the executive vice-president of RCA Mfg. Co.

The FCC has granted Finch Telecommunications Labs., Inc., a license to operate W2XWF on 42.18 mc. with a daily schedule of facsimile transmission.

Roscoe Kent has been appointed sales manager of all Finch facsimile apparatus announced W. G. H. Finch, president of the company. Mr. Kent comes to the organization with more than twenty years experience in the radio and wire communication fields.

Shapiro Sporting Goods Co., Hudson Valley distributors, have announced the acquisition of the ABC washer and ironer line. The firm is wholesale distributor for RCA Victor products, Leonard electric refrigerators, Quality gas and electric ranges and Sunbeam products.

Tung-Sol Lamp Works, Inc., Newark, N. J., announce the appointment of Rissi Brothers, 5031 Hamilton Avenue, Detroit, as distributors of Tung-Sol products in that territory.

Precision Apparatus Corp. has again expanded its facilities. Both the executive offices and factory are now located at 547 Kent Ave., Brooklyn, N. Y.



Alterations give modern appearance to Hughes-Peters Electric Co., Mallory jobber in Columbus, Ohio.

Sales Helps

Package Deal

Admiral package includes ten table radios and the dealer's choice of any console model. Included gratis is a floor stand, a counter-display, an electric flasher sign, two window banners, and a supply of 24 page booklets describing the complete line.

Tele Counter Card

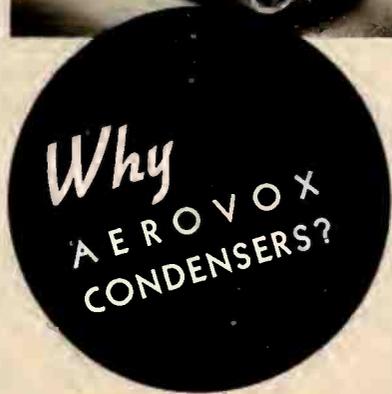
Counter or window card for Stromberg-Carlson television sets is a gold foil eased card with a message silk-screened in black reading: "In television, too, 'There is nothing finer than a Stromberg-Carlson' for only the patented labyrinth gives natural sound accompaniment."

Tube Displays

Four Arcturus displays tie up with the widespread interest in current events. The main unit, 18 x 28 inches in size, shows a news reporter against a background of illustrations showing news events where radio has distinguished itself. Same display comes in smaller size, 9½ x 14 inches. Two other smaller pieces use the theme "Around the World on All the Waves," are designed for counter, wall or window displays. Metal, glass and G type Arcturus tubes are featured.

College Posters

Posters featuring the difficulties encountered in college or school dormitories when electric razors cause static are being issued by Aerovox Corp., New Bedford, Mass. The posters are supplied direct to dormitories or to local jobbers who may insert the name on the "On Sale At —" line.



- ★ Because those familiar yellow-and-black cartons dominate the condenser stock of most progressive jobbers, may be convincing enough. But if you want more reasons to make you "go" AEROVOX, just consider:

INDIVIDUALLY TESTED

- ★ AEROVOX originated the practice of individually-tested condensers. Despite the greatest jobbing business in its history, taxing the new giant plant's production capacity, AEROVOX continues to test each and every condenser, regardless whether it carries a ten-dollar or ten-cent list.

FULLY GUARANTEED

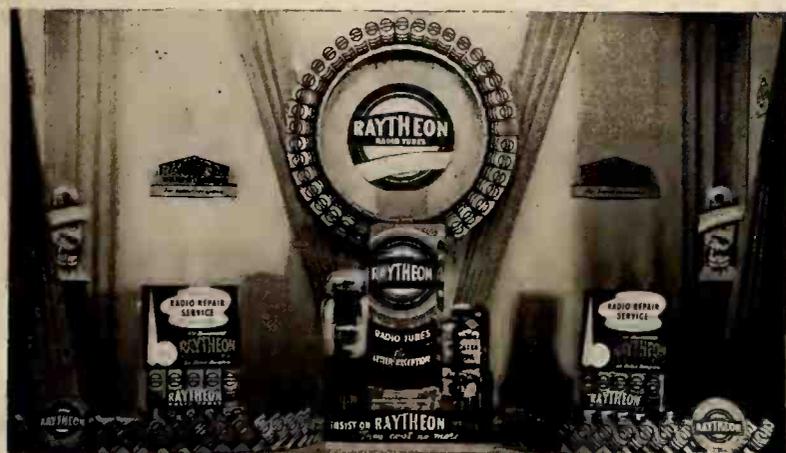
- ★ A guarantee slip packed with every condenser positively protects you against the remote possibility of a defective AEROVOX condenser. Prompt replacements are made on any unwarranted condenser failure.

ALWAYS ACCEPTED

- ★ When you install AEROVOX condensers in that new assembly or in servicing, there is that safe feeling of a job well done. General acceptance, always.

★ Ask for CATALOG . . .

Your jobber has a new catalog for you. Ask for it—or write us direct.



Extensive line of free display and advertising matter has been announced by Raytheon. Picture shows an excellent window display that can be made with some of the material.

\$75.00 RETAIL... Quick Sales...



for Home Use

Simple — Safe — Ample Power
Design Perfected through Trial
of Hundreds of Sets in Actual Use

Trouble Free —
Eliminating Service Calls

Volume Production
Makes This Low Price Possible

3 Year Guarantee

Every MERIT Short Wave Diathermy is licensed by Electrical Research Products, Inc., under U. S. patents of American Telephone and Telegraph Company and Western Electric Company, Inc.

Volume Profits

Here is your opportunity to get started in the lucrative health appliance field. Everybody is interested in health. Nearly every home a possible buyer.

DIATHERMY is not a fad, but a medically proved method. Used and recommended by thousands of physicians. The MERIT is practical—proven in actual service. Hundreds of satisfied customers.

Full profit is yours. No trade-ins to cut your margin. Rentals very profitable—many result in sales.

Health equipment provides a great field for profit. Build up your "off" season with this new item. Write at once for Special Introductory Offer. You will find the MERIT sells readily at this low price. Hundreds of buyers waiting. Proven Selling Plan Furnished. Costs nothing to investigate. Address

MERIT HEALTH APPLIANCE CO.

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1303 S. Lorena Street, Los Angeles, Calif.

MADE BETTER TO
WORK BETTER



• The combination of high tensile strength that assures a lasting bond and faster, cleaner work made possible by quick acting flux of pure water white rosin, has given Gardiner Rosin-Core Solders an outstanding reputation for efficiency and economy on radio work by expert or amateur. Yet, due to modern production methods and big sales, Gardiner Solders cost less than even ordinary kinds. Made in various alloys and core sizes . . . and in gauges as small as 1/32 of an inch . . . in 1, 5 and 20-lb. spools.

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Today's BEST MULTI-PURPOSE TESTER Buy

Model
432-A-742



Only
\$26.85
Net

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RANGER

- WITH RED • DOT Lifetime Guaranteed Meter
- Complete Volt - Ohm - Milliammeter, 16 Ranges
 - Sockets for All Tubes. Filament Voltages from 1 to 110 — A Safe-guard Against Obsolescence.
 - Precision Indicating Instrument With Two Highest Quality Sapphires Jewel Bearings.
 - Separate Line Control Meter.
 - Neon Shorts Test.
 - Approved RMA Circuit.
 - Portable Rich Black Leatherette Covered Case—Professional in Appearance. Etched panel.

Model 432-A-742 is a combination Tube Tester (Model 432-A) and Volt-Ohm-Milliammeter. Volt-Ohm-Milliammeter section is a separate panel with range selector switch, ohmmeter zero adjuster and jacks, with ranges as follows: AC-DC Volts 0-10-50-250-500-2500 (DC at 1000 ohms per volt); DC Milliamperes, 0-1-10-100; Resistance—.5 to 500 with 25 ohms at center scale; 0-100,000 ohms and 1½ megohms. Complete, less Batteries \$26.85 Net.

READRITE METER WORKS, Bluffton, Ohio

Features of New Farnsworth Radio Receivers

The new Farnsworth radio models, numbering 28 in all, were shown at the national distributors' meeting at Fort Wayne, Ind., Aug. 7 and 8, as reported on page 10 of this issue. Local distributors' meetings with their dealers will follow the Ft. Wayne session, (the New York City meeting being scheduled for the Park Central Hotel, New York, Aug. 14, 15 and 16, under the auspices of the Warren-Norge Company, Inc., C. B. Warren, president).

Representative of the new Farnsworth line as displayed at Fort Wayne are three table models, three consoles and two combinations.

The cabinet of one of the typical table models (AT-15) is of molded plastic, finished in ivory, with one end gracefully curved. Parallel louvres form the speaker grille pattern. The chassis has 5 tubes, standard broadcast band, push-button tuning for four stations, Bilt-in-Tenna, automatic volume control, and 5-inch dynamic speaker.



The Adams model, one of the attractive Panamuse phonograph-radios just introduced by Farnsworth's Capehart division.

A larger table model (AT-22) has a cabinet of sliced walnut, with decorative bands of pecan veneer and teakwood. Grille bars are horizontal. The cabinet is 8 inches high, 14 inches wide and 8¾ inches deep. Chassis features include AC-DC operation, six tubes, two wave bands, push-button tuning for four stations, 5-inch electro-dynamic speaker, and beam power output.

A third table model (AT-50) has a wooden cabinet 12 inches high, 15 inches wide and 10 inches deep. The chassis has seven tubes, two wave bands, "slide-rule" dial, treble and bass tone control, Bilt-in-Tenna with connections for outside antenna and ground, push buttons for five stations, 5-inch electro-dynamic speaker, beam power output and phonograph and television-sound connection.

One of the Farnsworth console radios (AC-56) is 38 inches high, 26¾ inches wide and 13 inches deep. It houses a 7-tube chassis.

Another walnut console (AC-70) is 40 inches high, 27 inches wide and

12½ inches deep. It has an 8-tube superheterodyne circuit.

A still larger console (AC-91) contains a 10-tube chassis. Like the others it has 12-inch electro-dynamic speaker, and phonograph and television-sound connection.

One of the radio-phonograph combination instruments (AK-76) is 36 inches high, 33½ inches wide and 15½ inches deep. Its chassis has eight tubes, three wave bands, automatic volume control, continuously-variable tone control, shielded loop antenna, push buttons for six stations, 12-inch electro-dynamic speaker, beam power output, Capehart record changer, and television-sound connection.

Another combination (AK-96) is slightly larger, being 36½ inches high, 38 inches wide and 18 inches deep. This chassis has 10 tubes.

The Farnsworth line also includes two portable receivers, one battery-operated and the other universal. Among the table models is a 4-tube battery receiver for rural homes without electric current.

Universal's New Products

In line with the policy of bringing the high-speed candid camera within the range of the average buyer, Universal Camera Corp., 28 W. 23rd St., New York City, has announced large scale production on a 75 mm. 3.5 telephoto lens. The lens is quickly interchangeable with standard 3.5 lens and comes in a precision micrometer focusing mount. Objects at large distances are brought sharply into focus and a magnification factor of more than 2 to 1 brings distant objects close to the camera. The magnification factor is not so great, however, that a slight movement of the camera in the hand would spoil the picture. Deliveries on the new lens are promised for September at a list price of \$19.95.

Also announced is an enlarger specifically designed for the candid. Called the Micrographic the new enlarger features an automatic film pressure release permitting sliding of the film without scratching. A double lens system provides uniform flat field illumination and the enlarger is equipped with both double and single frame masks. While using a standard Mercury 3.5 35 mm. lens, adapters are available for Leica, Contax, and other makes of lenses. Included is an adjustable ruby filter and holder. List is \$27.50, deliveries are announced for October.

Record Attendance at Music Show

Manufacturers and dealers reported the annual Convention of the National Association of Music Merchants and Trade Show held in New York City August 1, 2, and 3, as a most successful event. Attendance figures this year jumped to 4,100 as against last year's attendance figures of 2,300. Outlook, on the whole, was for excellent Fall sales in all branches of the \$2,000,000 worth of merchandise shown.

New president of the National Association of Music Merchants is Howard Beasley, president of Whittle Music Co., Dallas, Tex.

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TO
ADVERTISERS

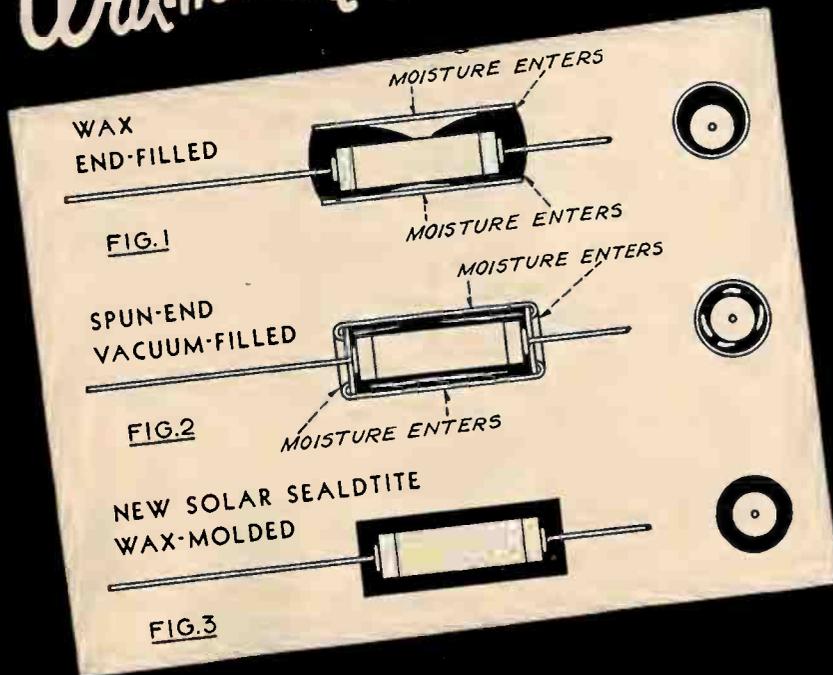
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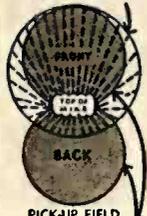
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Line of power transformers, chokes, audio, microphone, and modulation transformers including television oscillation transformers are listed in catalog 391-R. Also a 32 page transformer replacement guide listing all power, audio, output transformers and filter chokes for receivers manufactured during the last decade. Available from Jefferson Electric Co., Bellwood, Ill.

A 16 page booklet describing and illustrating the Garrard line of automatic record changers, motors, pickups, and turntables. Available from Garrard Sales Corp., 296 Broadway, New York, N. Y.

Catalog of radio and television service equipment featuring panel adaptability is available from the Hickok Electrical Instrument Co., Cleveland, Ohio. Catalog No. 12.



Complete line of resistors, fixed and variable, T and L attenuators, plug-in shaft controls, and midget controls featured in catalog available from International Resistance Co., 401 N. Broad St., Philadelphia, Pa.

Complete listing of grill cloths, hardware, cements, paint finishes, and service accessories is in catalog 30A available from Nash Radio Products Co., 5437 Lisette Ave., St. Louis, Mo.

Catalog of television, communication, and broadcast receiver kits and associate parts. Meissner Mfg. Co., Mt. Carmel, Ill.

Catalog of microphones, pickups, stands and accessories. Catalog No. 12. Astatic Microphone Lab., 830 Market St., Youngstown, Ohio.

Descriptive literature on: "B" power supply equipment showing capacities and performance characteristics; AC-DC gas-electric plants; rotary converters, and centrifugal pumps. Pioneer Gen-E-Motor Corp., 466 W. Superior St., Chicago.

Catalog 205 listing and illustrating hardware, metal cabinets, parts, etc.,

with illustrations; available from Insuline Corp., 30-30 Northern Blvd., Long Island City, N. Y.

Broadside for jobbers displaying names of leading dealers who are selling Phico Conservador refrigerators. Philco Radio & Television Corp., Tioga and C Sts., Philadelphia, Pa.

Brochure on Cinaudagraph installation at New York World's Fair. Cinaudagraph Corp., Stamford, Conn.

Catalog 162A describes electrolytic motor starting capacitors and 162B shows DyKanolor motor starting capacitors. Cornell-Dubilier Electric Corp., South Plainfield, N. J.

Up-to-date vibrator guide covering all makes of auto and battery operated receivers. P. R. Mallory & Co., 3029 E. Washington St., Indianapolis, Ind.

Catalog lists transformers for all amateur and replacement purposes plus special units. Includes charts for determining correct transformer to use. Standard Transformer Corp., 1500 N. Halsted St., Chicago.

Details and prices on line of electric plants for supplying AC and powering radio transmitters. D. W. Onan & Sons, 689 Royelston Ave., Minneapolis, Minn.

Line of inter-communicators and paging systems are described and illustrated in pamphlet available from Regal Amplifier Mfg. Corp., 14 W. 17th St., New York, N. Y.

Illustrated catalog of the crystal, dynamic and carbon microphone line including special information on uni-directional mikes is No. 152 available from Shure Bros., 225 W. Huron St., Chicago.

Catalog of magnetic, and electrodynamic speakers and output transformers are illustrated in bulletin No. 391. Included chart shows power loss due to mis-matched impedances. Oxford-Tartak Radio Corp., 915 W. Van Buren St., Chicago.

Supplement to regular tube databook brings 73 recently announced types to servicemen, etc. Available only with data book from distributor or Raytheon Production Corp., 55 Chapel St., Newton, Mass.

A small spiral bound booklet with tube base diagrams of every tube manufactured to present time. Price, ten cents. Tung-Sol Lamp Works, Inc., 95 8th Ave., Newark, N. J.

"Practical Television," a 40 page booklet on the RMA Standard Television signal, television receivers, and video test patterns. Price, 25c. RCA Mfg. Co., Front and Cooper Sts., Camden, N. J.

Catalog and handbook illustrating and describing motor and other maintenance equipment and electrical specialties. Includes 64 hints on commutator care, operation of D.C. generators, definitions of electrical terms and engineering tables. Ideal Commutator Dresser Co., Sycamore, Ill.



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