OCTOBER, 1936

RADIO RETAILING

McGRAW-HILL PUBLISHING COMPANY, INC.

25 CENTS PER COPY

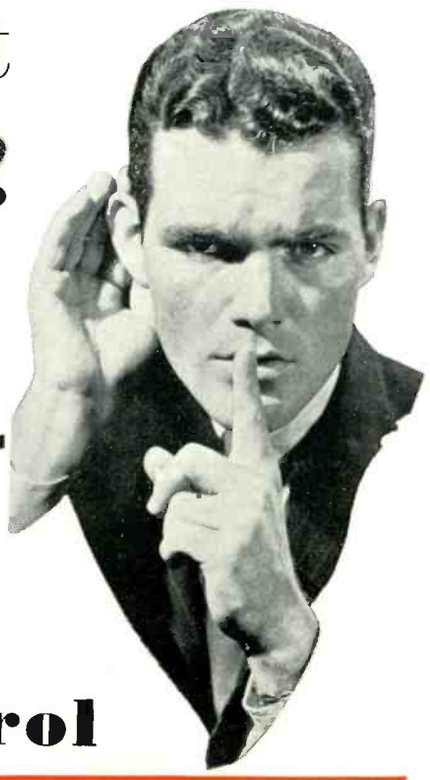
Patent applied for

Perfect Smooth Taper.

Pure Silver Shortouts for Switch Action.

New Spring Wedge Prevents Loose Terminals.

You Can't Hear It!



The YAXLEY Replacement Volume Control is really SILENT

Believe it or not, the SILENT replacement volume control is here — perfected by Mallory-Yaxley engineers. Score another scoop for Mallory-Yaxley products — and for Yaxley Universal Replacement Volume Controls.

Velvety smooth in silent operation, the new Yaxley is Volume Control perfection. Mallory-Yaxley engineers have developed a "non-rolling" roller with a specially designed Mallory-Yaxley "Silent M" construction that eliminates the slightest noise. And here's what this construction does:

1. The roller rocks so its contact face always presents uniform contact pressure to all portions of the resistance element.
2. Sharp point contact between moving arm and roller insures a high unit pressure to penetrate any oxide film and insure a low resistance noiseless joint.
3. The non-rolling roller wipes any possible dust and dirt from the resistance element—keeps it clean and silent.
4. The moving arm has just the right pressure to insure perfect contact without damaging the microscopic carbon grains of the resistance element.

Use Yaxley Silent Replacement Volume Controls and help yourself to a slice of reputation as "the best radio man in town." Yaxley supplies the Silence — you will get the Praise. Get busy today. Get in touch with your distributor.

YAXLEY MANUFACTURING DIVISION

P. R. MALLOR & CO. Inc. MALLORY

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

YAXLEY

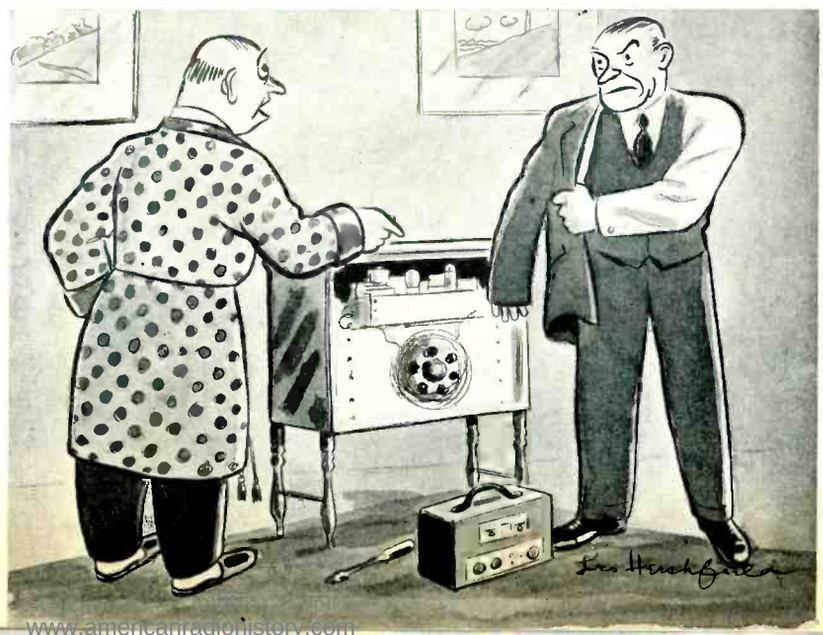
RADIO RETAILING

OCTOBER, 1936

In This Issue

SALES STATIC . . . .

"THREE BUCKS? WHY IT ONLY TOOK YOU TEN MINUTES!"



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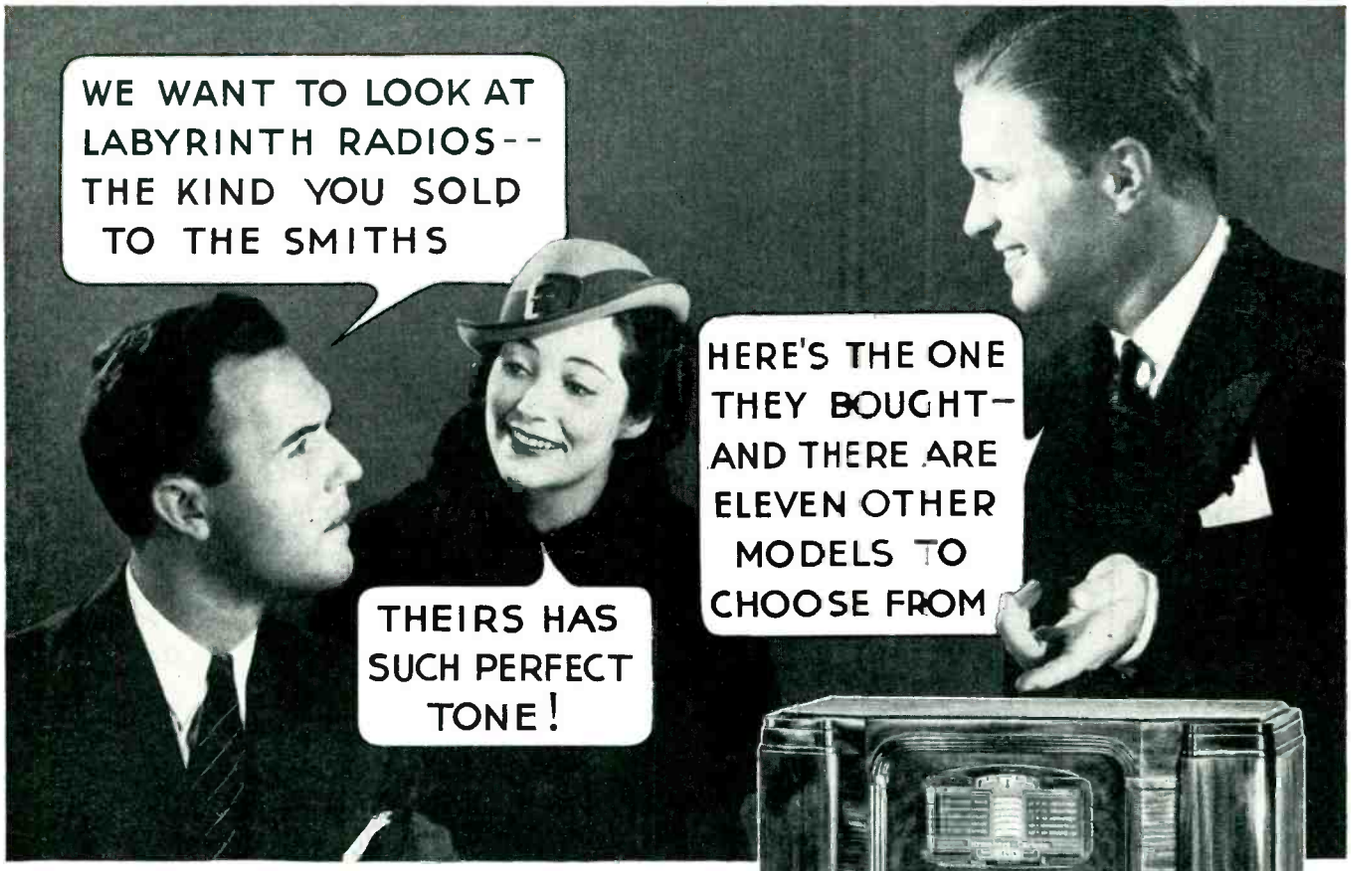


EVERY LABYRINTH RADIO SOLD SELLS *MORE!* THE GREATEST BUSINESS BUILDING FEATURE THE INDUSTRY HAS *EVER KNOWN!*

LIKE a landslide, gathering momentum as it goes, sales of Stromberg-Carlson "Labyrinth" radios are sweeping the country. Every one sold brings more prospects to dealers' stores—prospects who are ready and eager to buy.

No other recent development in radio history has done so much for radio. To the radio owner the Acoustical Labyrinth gives a naturalness and fidelity of tone he never dreamed possible. To the radio dealer it gives the most powerful sales weapon ever offered the radio trade—a feature whose value can be shown and understood.

In Labyrinth radio, dealers have an exclusive patented feature that marks a milestone in radio progress—available in twelve of the season's most beautiful models.

Stromberg-Carlsons range in price from $49.95 to $985. Labyrinth models from $119.50. (Slightly higher in Southeastern States and West of the Mississippi.)

STROMBERG-CARLSON TELEPHONE MFG. CO., ROCHESTER, N. Y.

NO. 150-L FIVE RANGE. Walnut finish. Beam Power. 15 watt output. Equipped with Labyrinth.

"There is Nothing Finer Than a Stromberg-Carlson."

Labyrinth RADIOS

The long, winding passageway of the Acoustical Labyrinth takes the place of the usual box like cavity in the cabinet which is the source of the exaggerated boom in low tones. It gives you deeper bass notes, with a new fidelity and increases the volume capacity and accuracy of the loud speaker. Shown in No. 145-L Radio.

Stromberg-Carlson

"UP TOP"

NBC celebrates a decade of delivery! In Quantity and Quality of Programs, its Networks rank first

Through ten years, the National Broadcasting Company has hewed to its stated purpose in entering the field of broadcasting:

> "The purpose of the National Broadcasting Company will be to provide the *best programs available* for broadcasting in the United States."

NBC Network programs, in this decade, have won the largest audiences in the world, as evidenced by polls among radio listeners. Every hour, from early morning to late at night, the pick of the country's programs can be heard—over NBC Networks!

These programs help sell sets for dealers . . . the more expensive type of sets. It is a proven fact, according to dealers themselves, that "Better Programs Help Sell the Better Sets." And *NBC has the programs.*

This year—NBC's Tenth Anniversary—affords the finest all-star radio schedule ever offered to your prospects and customers. When you demonstrate a fine set, tune in an NBC program. It's your guarantee that your set will get the best possible break with listeners!

NATIONAL BROADCASTING CO., INC.

A Radio Corporation of America Service

NEW YORK · WASHINGTON · CHICAGO · SAN FRANCISCO

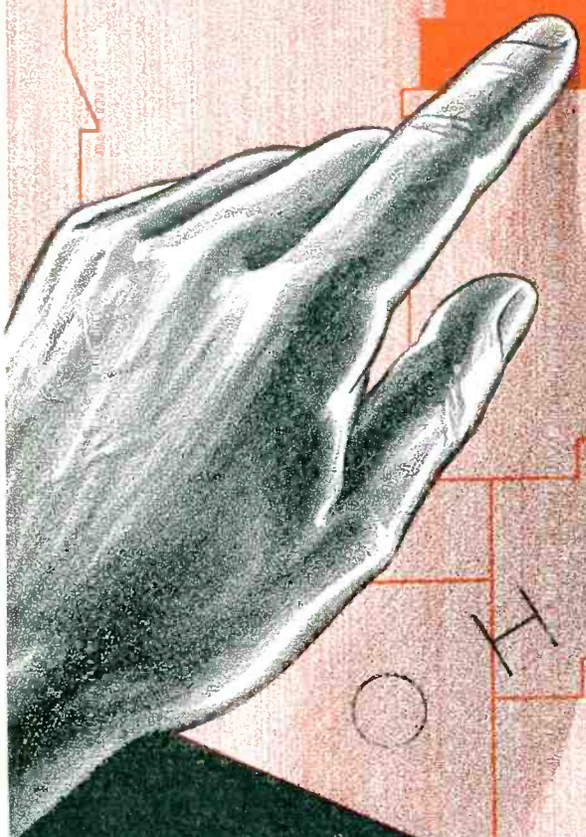
Battery Set Sales? Power Charger Sales?

Let's take a look at LICKING COUNTY (OHIO)

4,027
TOTAL FARMS

3,269
NON-ELECTRIFIED FARMS

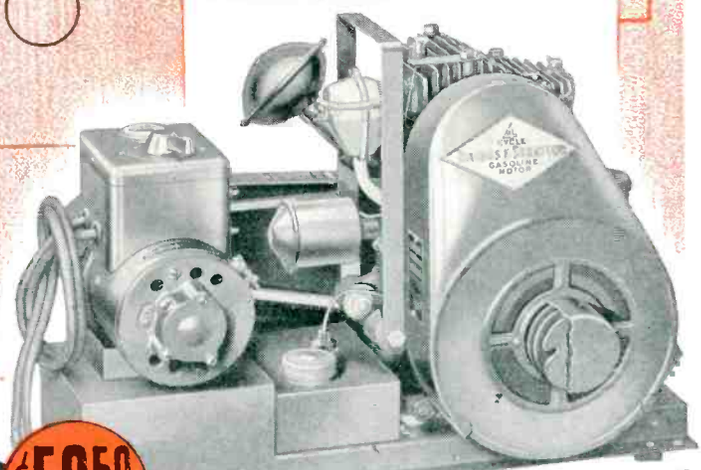
LICKING COUNTY



NOW—HOW ABOUT YOUR COUNTY?

In the first place, there are over 5 million non-electrified farm homes in the U. S. A. Your county, just like Licking County, Ohio, has its share of this huge market . . . there are battery set and Power-Charger prospects all about you—extra business—profitable sales—that can easily be yours.

These sales will come much easier, too, when your prospect learns that the famous Briggs & Stratton 4-cycle gasoline motor powers the Power-Charger. It is the same motor that drives over 500,000 washing machines—that furnishes the power for several hundred thousand garden tractors, light farm machinery, etc. . . . It is the same Briggs & Stratton Motor, that, for 25 years, has set a standard for outstanding performance, rugged reliability and economical operation.



Fills the Power Needs Beyond the Power Lines

The Power-Charger is the first completely equipped plant of its type. Provides full-time radio reception—electric lights up to 200 watts—power to drive small farm equipment—for only a few cents a day. No other battery charger combines all its features.

$59.50 F.O.B. MILWAUKEE

BRIGGS & STRATTON CORP., MILWAUKEE, WIS.

Power BRIGGS & STRATTON MILWAUKEE, WIS., U. S. A. Charger

BRIGGS & STRATTON CORP., Milwaukee, Wis.
Send complete information at once on the 6-volt, 200 Watt POWER-CHARGER.

Name of Radio handled.....
.....Dealer.....Distributor
Firm.....
Street Address.....
City.....State.....
Signed.....RT-5

RADIO RETAILING

OCTOBER, 1936

O. FRED. ROST, Editor

A SHOWDOWN ON SHOWS

STRIPPED OF ALL ARTIFICE, subterfuge and the pliant platitudes of paid press agents, examined solely with the interests of the radio industry as a *national* enterprise in mind, the record of so-called "national" set "trade" shows held in recent years supplies irrefutable proof that affairs of that type have ceased to be a factor in the promotion of sales *nationally*.

It is true that the evolution of radio included a period when a national trade show could be justified.

That was during the gold-rush stage of its development, when radio definitely had caught the public's fancy, when new manufacturers were crowding into the field, when new sets, new circuits, new loud speakers, new accessories were the order of the day. Then the trade show could properly serve as the central market place for the industry and as such it attracted wholesalers and dealers from far and near.

●

TODAY THE GOLD-RUSH ERA and the wash-out of weaklings which followed are behind us. The radio industry has become stabilized to a remarkable degree and its products enjoy wide public acceptance. However, its competitive tempo has been speeded up to such a degree that it would be suicide to wait for any annual trade show at which to line up outlets for the national distribution of radio sets.

Instead, each important manufacturer establishes and maintains his national distribution through national advertising coupled with direct and constantly maintained contact between his sales force and wholesalers and dealers. In addition, manufacturers have learned how to capitalize the fact that the industry is served by a broadly functioning trade press through which distributors and dealers are kept constantly informed of new developments, new sets, new products and new sales ideas.

Radio shows or exhibitions held in recent years have not been national in scope and they have been trade shows in name only. Exhibits there were of little assistance to the manufacturer in putting new distributors or dealers on his list, but instead were useful chiefly in stimulating local interest in radio sets and building local sales. Only a few local dealers benefited from those shows.

●

THEREFORE IT SEEMS that the time has come when "national" trade shows should be removed from the radio set manufacturers national schedule of promotions. Then those huge expenditures of money, travel, time and effort which they absorbed can be diverted to activities that will help those thousands of dealers who up to now have not been permitted to share in the benefits because they were not located in a show city.

However, as it has been demonstrated that in large cities radio shows or exhibitions have real value in building retail sales locally, local interests should be willing to sponsor such a show and local distributors and retailers should be the exhibitors. Whether its management should be left to a professional promoter or a local trade group, such as the radio or electric club or the electrical league, should take the initiative, are matters of detail. It is certain that the radio industry has reached the point where radio-set shows should be made a local problem because the need for a *national* trade show definitely has passed.

Admiral GOES WITH 11 TUBE C

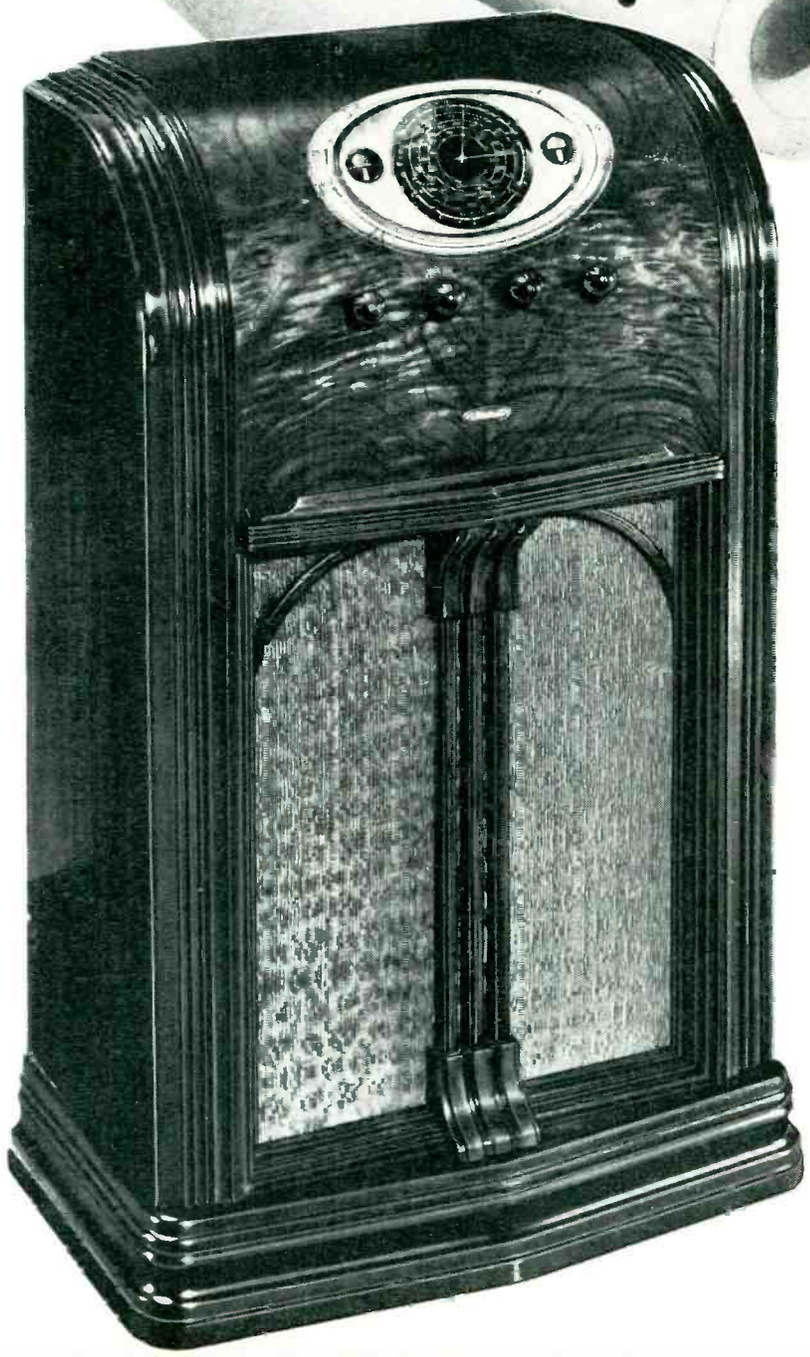
11 TUBE TILT-TUNER

12 TUBE TILT-TUNER $99.50

Prices THAT STOP 'EM!

Features THAT SELL 'EM!

- *TILT-TUNING*—A sensation from coast to coast. Everywhere folks are saying "goodbye to back-benders . . . give me a tilt-tuner!" And no wonder . . . standing or sitting it's the easy way to tune.
- *11" OVAL DIAL*—Most beautiful ever designed. Dial figures in large, easy-to-read gold letters on translucent blue glass background.
- *"FINGER FLICK" STATION SELECTOR*—Nothing like it! Accelerating "fly-wheel" gives split-second tuning with a "flick" of the finger. 5 seconds . . . instead of the usual 20 or 30 seconds . . . to go from 540 KC to 18,000 KC.
- *VISUAL STATION INDICATOR*—Cathode-ray or miniature x-ray tube permits you to "see" when your set is perfectly in tune. Acts like a station "stop-light."
- *MINUTE-HAND FOR CLOCK-LIKE TUNING*—Just like looking at your watch and noting the time. Instead of logging in kilocycles, etc., let the pointers "tell-the-time." Small, conventional pointer acts as "hour" hand; special larger pointer serves as "minute" hand.
- *OTHER FEATURES*—and detailed specifications in our free booklet. Mail coupon on opposite page.



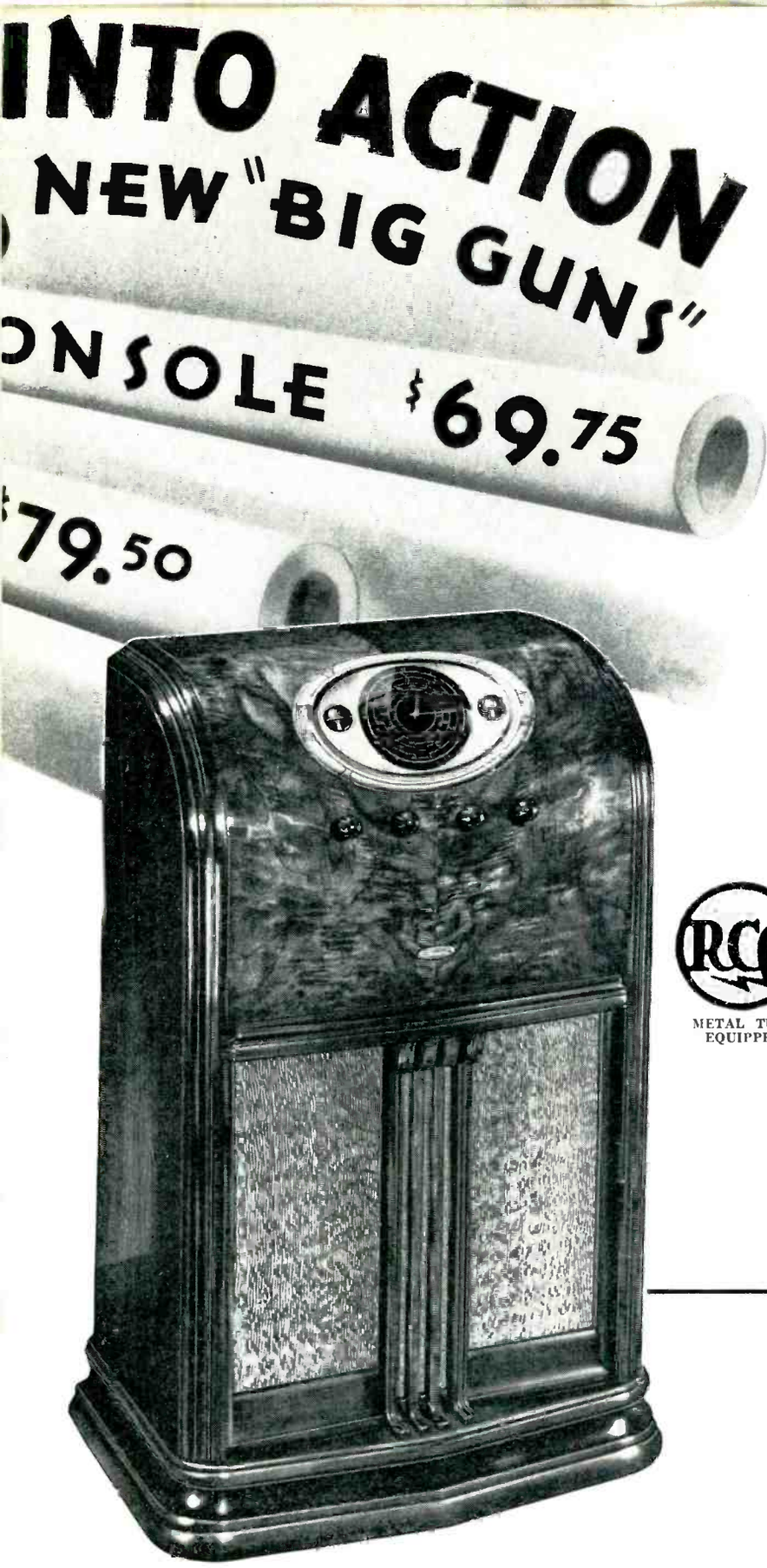
A Complete Line

Admiral offers a complete line for home, farm and auto . . . AC, AC-DC, Battery and Auto . . . 16 models . . . 4 to 19 tubes . . . 540 to 18,000 KC . . . $19.95 to $175.00 . . . the biggest value in radio today!

CONTINENTAL RADIO & TELEVISION CORP.

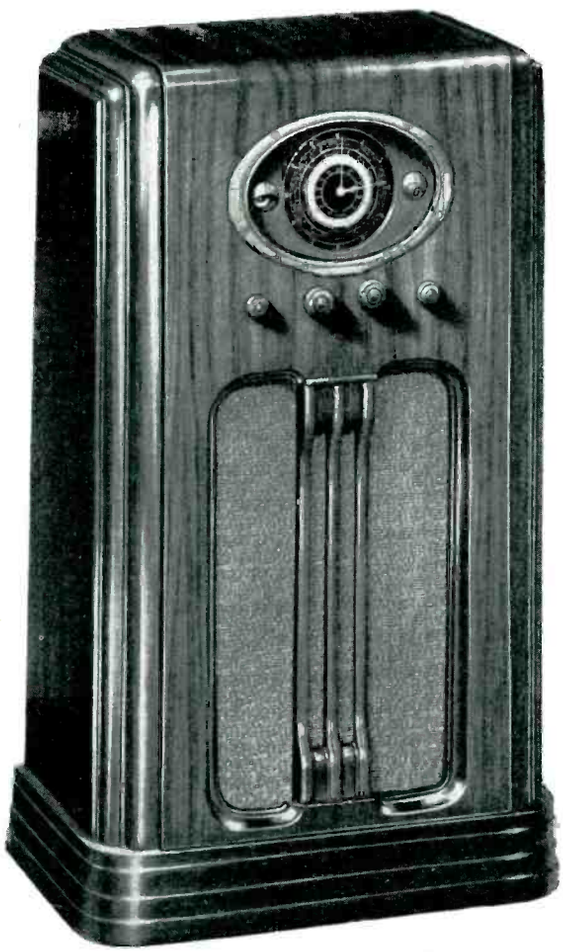
325 W. Huron St.

CHICAGO ILL.



Admiral Model AM 786
11 Tube Console $69.75

■ Meets all competition, and then some! 3 continuous all-wave bands (540 to 18,000 KC) . . . simplified tuning control (see opposite page) . . . full floating 3 gang condenser . . . automatic volume control . . . hi-gain superheterodyne circuit with 3 stages of amplification . . . absolute 2 microvolt sensitivity . . . built-in filter . . . automatic antenna tuning . . . completely shielded circuits . . . push-pull high fidelity audio system . . . 7½ watts of clear undistorted power output . . . variable tone control . . . 12" heavy duty, plug-in superdynamic auditorium type speaker . . . housed in beautiful, tone-seasoned, trouble-free cabinet.



RCA

METAL TUBE EQUIPPED

Admiral Model AM 787
11 Tube Tilt-Tuner $79.50

■ Stop 'em . . . shock 'em . . . bring 'em in by the hundreds. 11 tubes at $69.75 will certainly do it. Then "step 'em up" to the even more profitable 11 Tube Tilt-Tuner at $79.50. You'll have little difficulty convincing customers that "tilt-tuning" is worth the difference. No more back-bending. No more "daily dozen" every time you bring in a different station. Large oval dial is conveniently tilted for easy reading. Standing or sitting, it's "tipped top" tuning. Chassis is the same as Model AM 786.

Admiral Model AM 488
12 Tube Tilt-Tuner $99.50

■ What a radio! 13 watts of clear undistorted power—twice the output of any other set under $100. Compare for yourself. Has beam power push-pull output stage using 2 6L6 beam power amplifiers. Also automatic tone control. Otherwise, chassis is the same as Model AM 787. Housed in beautiful, eye-catching tilt-tuning console.

MAIL COUPON TODAY

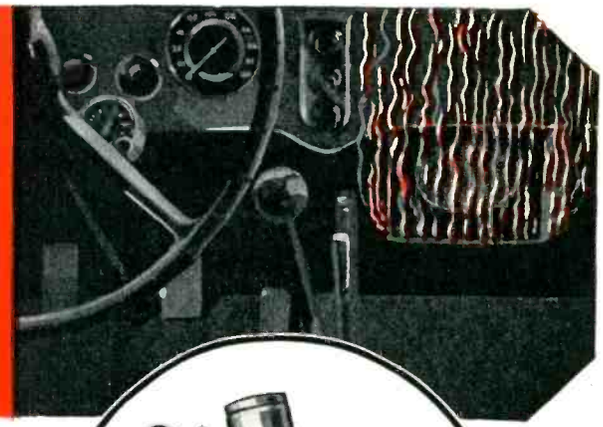
Our new booklet gives detailed specifications covering all the new Admiral Models. Mail this coupon for your free copy today. There is no obligation. Send to Continental Radio & Television Corp., 325 W. Huron St., Chicago.

Name .....

Address .....

Forget Temperature Troubles

P. R. MALLORY & CO. Inc.
MALLORY



Replacement Condensers are Temperature Proof

High temperatures cause no small part of condenser troubles in the field. Yet hot climates and hotter temperatures under the hoods of motor cars, never bother condenser performance when the Replacement Condenser is Mallory.

Here's where quality construction à la Mallory really shows its stuff. Mallory Replacement Condensers are built to resist condenser troubles caused by high temperatures—such as increased leakage, lowered series resistance and lower sparking voltage of the electrolyte. Life tests at room temperatures mean nothing to Mallory. Every Mallory Replacement Condenser is oven-tested at 140° Fahrenheit before leaving the plant—as severe a life test as anyone could devise.

Ability to resist high temperatures is just one of Mallory's outstanding features. Surge-proof, Humidity-proof—with greater efficiency and smaller sizes—with the famous Mallory Universal Mountings—Mallory Replacement Condensers offer condenser quality that you just cannot get elsewhere.

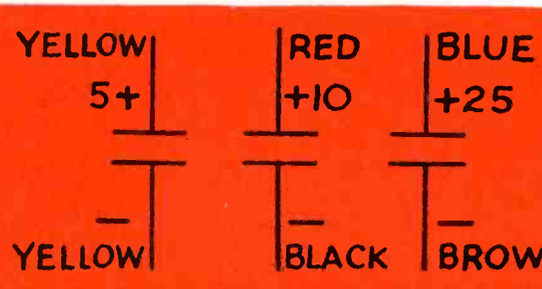
Invest 20 Minutes in Reading and Save Hours in Servicing

Twelve pages of The Mallory Replacement Condenser Manual (reading time; 20 minutes) tell you how to do those tough jobs with simple, easy effectiveness—Show you how to use the Mallory Universal Application method to gain profits and save time. If you haven't received a copy, write us today and we'll send you one by return mail. You cannot afford to be without it.

Service men everywhere are enthusiastic over Mallory's help for service men—"gives me the best service"..."your Condenser hit the spot"..."Your Manuals are splendid helps"..."Highly satisfactory performance"... Comments like these pour in every day. Service men everywhere agree that Mallory-Yaxley parts and Mallory-Yaxley service give the finest help to service men that ever has been offered.

Mallory Universal Replacement Type UR 182—is typical of Mallory Universal Application

UR 182



P. R. MALLORY & CO. Inc.
MALLORY

P. R. MALLORY & CO., Inc.
Indianapolis Indiana
Coble Address—PELMALLO

YAXLEY

October
1 9 3 6

THE RADIO MONTH

RETAIL SALES RISE

Retailers, big and little, are under way with the biggest sales drive that we have seen since 1929, and it is evident that the push will continue with accumulating force right up to the end of the year. The reason is easily found. Retail sales in all lines have been rolling along at a fast pace. Variety stores are equaling 1929 record figures, the mail order houses are hanging up new all-time records each month, retail sales in rural areas are running 13 per cent ahead of 1935 and 38 per cent over 1934. These figures show that the public is buying much more freely and naturally intelligent retailers are bending every effort to keep the ball a-rolling. Radio retailers can get their share of every consumer's dollar that is spent if they join the procession and make a drive for sales. It is up to the retailer to see that radio gets its share of the consumer's dollar.

A SAMPLE

The Time: September 1936; *The Place*: A midwestern city credited in the 1930 census with 110,000 inhabitants; *The Occasion*: One of the mail order houses was opening a new retail store. We know that due allowance must be made for the "following" or so-called consumer acceptance, which mail order houses enjoy. However, it must be remembered that many nationally advertised radio sets enjoy equal consumer acceptance. Furthermore the advertising space used by the mail order house in announcing the special "opening" sale of radios was no larger than that often used by single dealers, namely two columns wide and seven inches high. *The Results*: In the three days of the special sale, (Friday, Saturday and Monday) they sold 583 radio sets, of which by far the largest part cost around $50, while a 5 tube midget set advertised at $8.98 drew 88 buyers.

A RECORD IN RECORDS

Believe it or not, the phonograph record business is staging a comeback of landslide proportions and as it must definitely rank as a brother, cousin, uncle or what-have-you of the radio set, the wide-awake radio retailer should look into the situation. In some cities, dealers are making as much profit on sales of records as they are on radio sets, to say nothing of the very handsome profits that they make on electric phonographs and record-playing attachments.

TRAILER SELLING

The possibilities of using one of the modern house trailers as a moving sales room for radios is overlooked by most of the radio dealers who operate in rural territories. In our travels recently we found one such dealer who had sold seven sets, total over $300, in one day by that method. Another radio retailer who also handled pianos closed three piano sales on one Saturday, which totaled $745, and he got all but $130 *in cash* while of the two pianos traded in he sold one the next day at no loss. Those trailers cost only a few hundred dollars and in the hands of a first class salesman should prove a very profitable investment as well as an effective method for off-setting cut-price competition, because you have your prospect all to yourself.

GREEN WOOD

Set manufacturers are having serious trouble with the furniture concerns who supply cabinets because the latter are switching production capacity to straight furniture items and keep set manufacturers waiting. Then there has been widespread complaint over cabinets that literally fall to pieces while still in the stock room or soon after being sold to the consumer, because the cabinet makers used green, unseasoned wood that, after drying out, would not hold its shape nor stay in place. All that means serious complaints, no end of annoyances, costly replacements, and a lot of extra back-and-forth correspondence and shipping. The upshot of it all may be an industry-wide redesigning of cabinets for the use of other materials such as plastics, wood compounds, composition board, etc.

SNIPERS ROUND-UP

The Federal Trade Commission has moved toward a clean-up of manufacturers and dealers of radio sets, tubes and appliances who are charged with sailing under false colors. They used such well known names as Marconi, Edison, Bell, Victor, and Bronswick in various combinations and without the consent of the legal owners of those names. The F. T. C. also cited six concerns who supplied the name plates and escutcheons that involved the improper use of those names. On October 23 the respondents will have a chance to defend themselves, and if unsuccessful they will get a cease and desist order which should remove much of the undesirable type of competition from which many radio dealers have suffered.

EDITOR

NOISE IS COSTING US

Dollars and Cents Incentives For Effecting a Cure

THE RADIO INDUSTRY . . .
Radio Noise Reduction can increase sales of sets, parts, accessories and service

THE APPLIANCE MAKER . . .
Radio Noise Reduction can constitute a new, saleable design feature, aid consumer goodwill

THE PUBLIC UTILITY . . .
Radio Noise Reduction can increase load from existing receivers, put more sets in homes

THE BROADCASTER . . .
Radio Noise Reduction can swell audiences, step up actual program circulation

THE CAR MANUFACTURER . . .
Radio Noise Reduction can make it easier for showrooms to move accessory radios

THE COMMUNITY . . .
Radio Noise Reduction can encourage local buying, put more money into the pocket of local shops

By W. MacDonald

RATTLING in the radio industry's closet is a skeleton. For several years the shortwave feature has been widely touted to the consumer and has produced much of our replacement business. Yet every manufacturer, every distributor and every dealer knows that despite good set design man-made electrical noise renders the shortwaves virtually useless to the customer in many locations. In a survey just completed 80 per cent of all purchasers of modern receivers told "Radio Retailing" they were dissatisfied with results above the broadcast band.

Just how much business this dissatisfaction has cost the industry we hesitate to estimate. Some contend that its elimination could double our sales. Certain it is, in any event, that with the trend toward inclusion of higher and higher frequency ranges in new sets any past loss will soon be considerably multiplied.

The technical facts concerning

MONEY

ELECTRICAL GARBAGE spewed into the air by household appliances, commercial equipment and automobile ignition renders the shortwave feature virtually useless on 80% of modern receivers

man-made noise have long been understood. We know what causes most noise. We know how to build instruments with which to trace it down. And we know how to make inexpensive filters to stop noise at its source. The rub comes in our inability, so far, to induce all the many interests contributing to and concerned with this problem to formulate a practical plan for its solution.

The radio industry itself, acknowledging the biggest stake, is powerless to correct man-made noises by itself. At least one private fortune has been dissipated in the attempt. Nor can the consumer solve the problem, even if he would take the initiative. It is far too expensive for the individual to "go alone." Solution requires the cooperation of at least the electrical appliance manufacturer, the broadcaster, the automobile maker and the public utility. And these interests need not be appealed to on the begging basis of sheer philanthropy. *For it is now becoming clear that each may contribute effort to solution of the radio noise problem while directly serving his own dollars and cents interests.*

Noiseless Appliances Coming

Industry groups which have heretofore contemplated campaigns to quiet existing household appliances have always dropped the idea because of their conviction that there was little to gain so long as noisy new equipment continued to be sold. Probably, any campaign against noise must, therefore, start here.

Up to the present time none but the hypocritical have condemned the appliance maker too seriously for failing to quiet his equipment. For while the noise problem might be considered one of some age by the fast-moving radio industry it is really just reaching proportions sizable enough to warrant redesign of electrical equipment. But the public is starting to ask questions. Particularly in connection with oil-burners we hear this. And it is building up sales resistance for the appliance that might readily be avoided.

Some burner makers are aware of this fact. Gilbert and Barker, for instance, completely filter every unit. This company assures us, furthermore, that freedom from radio noise has not only nipped many complaints in the bud but *has given them an additional important design feature to advertise.* Other oil-burner manufacturers are leaning toward so-called noise-free ignition transformers, running high-tension leads through fuel tubes for shielding and, in some cases, even adjusting the length of offending leads so that noise is, to a certain extent, balanced out. Several of these may shortly go "whole hog," including efficient line filters to keep racket out of the 110 volt circuit.

Among cleaner manufacturers, we understand that Hoover already includes a radio filter in its highest-priced model, has been playing around with simple filters for less expensive machines. Sweeper-Vac, we are told, puts filters in all export models going to Switzerland and other countries insisting that incoming machines be so quieted.

A few appliance makers, realizing that the drawing of the consumer's attention to the freedom of their wares from radio noise might conceivably better competitive position, could start the ball rolling almost overnight. The cost is not prohibitive. According to Tobe Deutschmann, of Canton, Massachusetts, an acknowledged expert on the subject, it would cost the average oil-burner maker $1.50 or less to silence his machine, whereas the consumer would have to shell out $15 for the same job after the unit was installed. An electric razor, we are further informed, costs no more than 25 cents to quiet at the factory, $1 or more after it gets out in service. And machines such as cleaners, mixers and dryers, using series motors, may be equipped with filters in the factory for 20 cents or less. The same job would cost $2.25 out in the field.

Domestic electrical appliances cause 45 per cent of the noise encoun-

tered by radio listeners throughout the country.

Utilities Losing Load

Faulty power lines are responsible for little of the existing radio noise and where such trouble does occur the Utility is generally quite willing to trace it down and correct it. While some do not go out of their way to look for trouble until it is called to their attention by a protesting consumer group, it is our impression that noise-campaigning citizens have had little difficulty enlisting the cooperation of power companies for corrective work on their own line equipment in the past and are likely to have even less in the future.

But the Central Station could go even farther. Any drive to eliminate noise caused by domestic appliances already installed in the home needs centralized, local leadership which has heretofore been sadly lacking. Dealers cannot supply it because of their too obvious commercial interest. And consumer clubs rarely generate either the financial or the managerial ability to hold the reins. It is our opinion that the Central Station could, *with profit to itself,* supply such leadership.

Curiously, radio is the one major appliance with distinctly valuable load building properties that has fallen into the Utility's lap, asked little promotional aid in return. Consider the periodic effort power companies put behind "Better-Light-Better-Sight" campaigns to secure the additional load of adequate lighting, the money and effort they expend to induce the public to use electric ranges and water heaters. Then think how little promotional effort has been put behind radio, a device that not only is an excellent load-builder in its own right but, in addition, keeps home lights on longer while in use.

Just how much extra load elimination or reduction of local noise could effect in the average locality no one is yet prepared to prove. (We hope to have figures on the subject shortly.) A recent "Yankee Network" survey indicated, however, that people of metropolitan Boston used their sets an average of 3 hours and 24 minutes daily. Station WTMJ in Milwaukee checked its average audience at 3 hours and 20 minutes. Assuming an average power rate of 5 cents per kw. hr. and an average load per set of 80-watts, the increased sale of power per 1,000 sets would be $720 per year if these receivers were used just 30 minutes more per day. And we have the assurance of an experienced filter manufacturer that a utility could obtain equipment with which to silence these 1,000 sets (electro-medical equipment excluded) for less than $700.

We fully appreciate the average Central Station's desire to let sleeping dogs lie, its aversion to stirring up of the consumer which might necessitate expensive follow-through. *But it is also our firm conviction that additional load available from existing receivers, aside from the number of new receivers which would inevitably be sold, now justifies re-examination of the case for noise-elimination.* One New England utility already seriously contemplates action, may use its purchasing power to supply the consumer with filters at low cost. Just how much and what kind of cooperation from local radio dealers and servicemen, city fathers and consumer clubs must be obtained in order to make such a campaign economically feasible is now under consideration.

Broadcasters Misjudge Audience

Two surveys indicating the destructive power of noisy electrical equipment in typical towns have come to our attention this month. In Framingham, Massachusetts, with approximately 5,000 radios in use, one doctor uses an old electro-medical unit which disturbs reception for from 8 to 10 blocks, affecting at least 200 receivers. A local rubber factory, whose equipment for some reason or other transmits noise over phone and light wires, causes objectionable background disturbance in from 400 to 500 sets and some sets are completely unusable during daylight hours. Two printing presses in the downtown area swamp sets used in this important demonstration district.

In Millinocket, Maine, the following radiating appliances were found: 19 oil-burners, 10 washers (these machines do not ordinarily create noise when in good condition), 11 sewing machines, 6 drills, 8 vacuum cleaners, 3 dental engines and 12 miscellaneous appliances.

Here are conditions sufficiently aggravated to warrant utility attention.

Broadcast stations obviously have an important stake in this problem of radio noise reduction. Their time is sold primarily on the basis of circulation. *And circulation means the number of people in their claimed area who actually listen, not just those who have radios in satisfactory working order.*

Broadcasters have always shown themselves quite willing to promote noise-reducing campaigns and many have donated time to the subject in the past. Promotion of this kind is invaluable but experience tells us that it is not enough. Without a plan backed by electrical appliance manufacturers, Utilities and all other groups concerned, no amount of promotion can do more than rub salt in the consumers' already tender wounds.

Here are some figures regarding the distance noise from electrical equipment may travel. They should interest any broadcaster engaged in computing his actual audience: An oil-burner operating from 12 seconds to 30 minutes (depending upon its make and adjustment) can radiate up to 350 yards. A sewing-machine used from 15 minutes to 1½ hours at a stretch may radiate from 50 to 125 yards. An unfiltered drill used between 5 and 30 minutes on the average job has been known to transmit noise 50 to 150 yards. A dental engine used intermittently for 1 to 5 minute periods sent out interfering signals which competed directly with entertainment for 150 yards. A cleaner used in the average home anywhere from 1 to 3 hours at a clip frequently radiates 40 to 100 yards. Some hair clippers and driers, on from 3 to 5 minutes generally send noise 25 to 75 yards. A water pump running 5 to 20 minutes has been known to disrupt service 25 to 75 yards away. A drink-mixer running 5 to 20 minutes set up noise over a similar area. A meat-grinder frequently radiates as much as 300 yards. Printing presses running steadily for 8 hours or more sometimes lay down a barrage of background noise 250 yards from the plant. And electro-medical apparatus of the old type may lay down a stronger signal than broadcast stations in their primary service areas for from 1 to 5 miles, running from 25 to 45 minutes.

We have reason to believe that when the industry is set up to take care of the mechanics of noise elimination broadcasters will be readily persuaded to cooperate for their own good.

Car Makers Have Stake

Toughest noise-maker to tackle on the basis of possible dollars and cents gain to the cooperating industry is undoubtedly the automobile. Ignition noise, not particularly troublesome on broadcast frequencies, is, on the other hand, increasingly destructive as we go to higher and higher

(*Please turn to page* 40)

FIGURES

RADIO RETAILING'S MONTHLY BUSINESS BAROMETER

TIME SALES UP

According to figures released by National Advertising Records gross revenue from time sales over *NBC* red and blue networks topped all previous records during the month of August, reaching a total of $2,422,431, exceeding revenue received during August 1935 by 19.8 per cent.

3-STATE RETAIL SUMMARY

Last month, we published 1935 retail sales data on Maine, Montana, Arizona, as released by the Department of Commerce. Here are additional reports:

In *West Virginia* 177 household appliance and radio stores sold $3,982,000 worth of merchandise, employed 796 full and part time, paid these employees $885,000. There were 32 additional outlets classified as radio dealers, selling $509,000 worth of merchandise, employing 65 full and part time, paying these employees $82,000.

In *South Dakota* 86 household appliance and radio stores sold $1,245,000 worth of merchandise, employed 220 full and part time, paid these employees $215,000. There were 26 additional outlets classified as radio dealers, selling $145,000 worth of merchandise, employing 22 full and part time, paying these employees $14,000.

In *South Carolina* 72 household appliance and radio stores sold $2,197,000 worth of merchandise, employed 339 full and part time, paid these employees $413,000. There were 22 additional outlets classified as radio dealers, selling $210,000 worth of merchandise, employing 39 full and part time, paying these employees $25,000.

As in the figures published last month, active proprietors and firm members are excluded from the payroll figures in these three states.

FACTORIES REPORT GAINS

Roy Davey of *American-Bosch* informs us that orders for this line placed by distributors in July totaled 52.7 per cent of all received during the entire second half of 1935, says this will be the most prosperous year in the company's 12-year history.

E. F. McDonald, Jr. of *Zenith* advises that sales in the five months through September 30 promise to top those received during the full fiscal year ended April 30, 1936, that output is being stepped up, September production exceeding any single month in the concern's history. He further reports that company profit in the quarter ended July 31 topped any three months in previous history and that sets listing above $69 now account for more dollar volume than those priced lower.

C. S. Tay, manager of the *Crosley* Distributing Corp. of Chicago wires that total sale of products bearing this trademark in his area at the close of August topped volume for the entire year 1935. A 32 per cent increase in business is reported for these first eight months.

OVERHEAD

From a study of profit and loss statements received from 66 musical instrument stores selling radio, total net sales $1,760,700 and typical net sales $14,900, *Dun & Bradstreet* secures the following averages (shown in percentages of net sales):

Cost of goods sold, 56.4 per cent. Total overhead expense, 40.9 per cent, broken down as follows: Salaries of owners and officers, 13 per cent. Salaries and wages of employees, 9.2 per cent. Rent, 4.1 per cent (80 per cent of concerns reporting). Advertising, 1.6 per cent. Light and heat, 0.9 per cent. Taxes, 0.7 per cent. All other expense, 11.4 per cent. Average profit, 2.7 per cent.

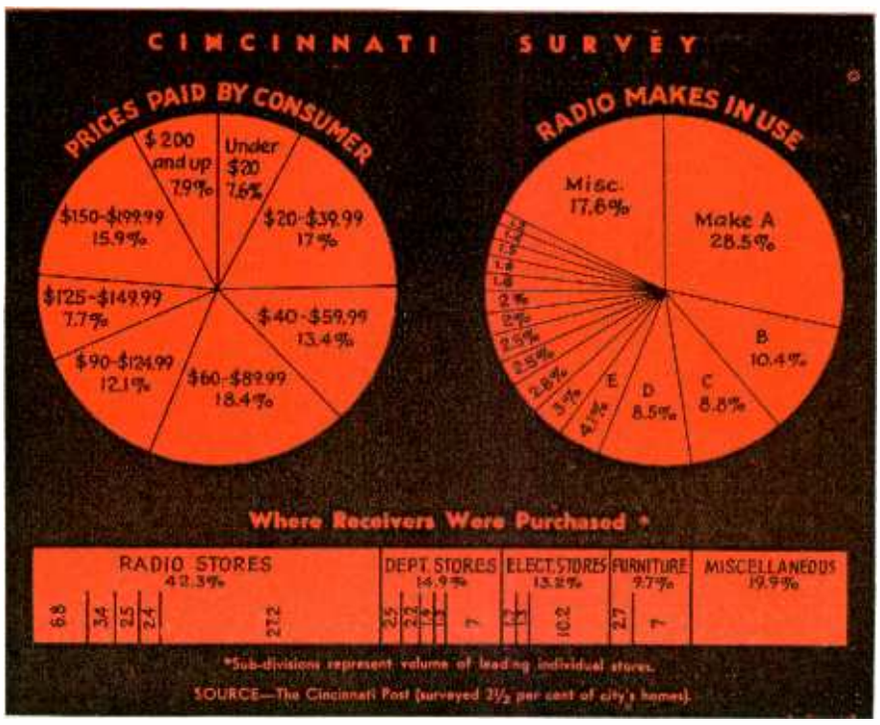
AGE OF RURAL RADIOS

(Sets in use as of March 1, 1935)

Year Made	Percent
1929 or earlier	26.1
1930	12.7
1931	10.1
1932	12.1
1933	13.8
1934	21.6
1935	3.6

Number of Tubes	
4 or less	5.6
5 to 7	69.9
8 or more	24.5

SOURCE—FCC (result of mail questionnaire to 86,000 rural listeners and 30,000 fourth-class postmasters. 46,586 replies received, 32,671 found useful).



KEEP THEM

ZENITH MEANS McDONALD . . . To see E. F. McDonald, president of the Zenith Radio Corporation, in action in his office is to realize that he actually has his hand on the helm and steers the ship with a deep and practical knowledge of all the problems involved. He knows the radio industry from the ground up, because he started with it almost on the ground floor and has been part of it while it grew to its present tremendous proportions. In common with other successful manufacturers, Commander McDonald has made it his business to follow through with his product and find out how his distributors and dealers sell it, how they operate, what difficulties they encounter, what they need in order to do a better sales job.

It follows, that when Commander McDonald discusses problems of the radio industry, one may be sure that he has the dealers', as well as the manufacturers', position in mind.

Therefore *Radio Retailing* welcomed the opportunity to record Commander McDonald's views on the possibilities of using forced obsolescence of present cabinet styles as the means of increasing the sales of sets beyond the normal new and replacement volume.

RADIO dealers and distributors can stay in business only so long as they sell enough radio sets at a large enough margin to pay for their general overhead and running expenses. They begin to make a net profit when the total margin exceeds total expenses. However, they really start to cash in in a big way only when manufacturers provide them with sets that in appearance and performance emphatically transcend all others, automatically making everything that went before obsolete.

Therefore a set manufacturer is not doing the right kind of a job for his dealers and distributors unless he succeeds in creating that kind of an all-transcending obsolescence-producing line often enough to keep them in the big-profit class most of the time.

Those are not the words but that line of straight thinking is applied in all his policy making by Commander E. F. McDonald who is at the helm of the Zenith Radio Corporation as its very active president.

To talk with "E. F." (he is just plain Gene to his closer friends) means time well spent because when it comes to radio manufacturing he "has something on the ball," and what he has to say is worth listening to. Particularly so since he never talks merely as a manufacturer but as a producer who knows that the stuff he makes can't bring repeat orders unless the dealers who contact the consumer can sell it and—sell it at a profit.

In other words, Commander McDonald is a merchant as well as a manufacturer.

He points out that outside of foodstuffs the retail goods that get bought most frequently, are the fastest movers, make the biggest profits for manufacturers and merchants, are the lines that are out-styled, obsoleted, tagged as ancient most frequently.

"Women," says E. F., "who are the final deciding factor in over 80% of all retail purchases as such also decide as to which radio set papa, hubby, brother or sweetheart is to buy. They are style conscious. They buy new hats, new dresses, new coats, not because the ones they have are worn out but because manufacturers brought out a new style and of course they don't want to appear outmoded, oldfashioned, out-of-date—But, have the radio manufacturers ever done anything as a group, to make last year's radio set look antiquated, old fashioned, out-of-date? The answer is emphatically NO!"

Then Commander McDonald took his interviewer to his office window and pointed to a fine looking roadster. It was the kind of a car that had looked smart and snappy when it was new, looked well groomed now, undoubtedly would be capable of giving good service for years and years to come.

"See that Packard roadster out there," said Mr. McDonald, "I bought it three years ago. There is a new Ford right back of it. Now, anyone looking at those two cars knows at once that mine is an old car. Why? —because the automobile manufacturers have adopted new designs that obsolete and in fact *automatically obsolete* all previous models that came before. The difference is obvious.

"I speak particularly of streamlining—the streamlining first of fenders and now of bodies and while we may leave aside the question about what was actually gained in efficiency by streamlining, there can be no question about a more pleasing design and the many advantages which that offers from a sales standpoint, particularly when we remember that it means highly increased eye appeal and that eye appeal is what makes people buy.

"That's the kind of thing that radio manufacturers have not done and I think they could well take a page out of automobile history and copy it."

Then "E. F." walked over to one of the latest model consoles. "Here" he said, "is as fine an instrument as we know how to build. The inside

DISSATISFIED

New Cabinet Ideas Are the Most Effective Stimulant To Replacement

says

Commander E. F. McDonald, Jr.

President, Zenith Radio Corporation

in the first of a series of interviews with important industry executives by O. FRED. ROST

He works hard when he works and plays hard when he plays. Being a lover of the sea, most of his playing is done on or near the water. This candid camera study shows him "shooting the sun" on his 185-foot yacht Mizpah, which he makes his home during most of the year.

of it represents the last word in design and construction, just like the inside of my car out there, its motor and chassis are perhaps as efficient as any built today. Yet, I contend that this console should be in the eyes of the highly style-conscious public as obsolete as my car is.

"In fact, I contend that the wall console type of radio never had any reason for its existence. It just happened, like Topsy, and year after year radio manufacturers have copied each other and continued to produce this unhandy type of radio."

Of course a man like Mr. McDonald would not invite a leading question by an opening, big as a ship's hatch, without being ready with a pertinent answer and so the interviewer's, "Well, what shall we do about it?" was exactly what he was waiting for. He was prepared for it.

He answered:

"I have just returned from the New York show where I found that the models most talked of were the end table type of models, and I think its quite natural that this should be the case. After all, the radio belongs alongside the easy chair or a davenport, and even though one may not want to sit down, I contend that the end table radio is an easier model to tune standing up because you are always looking down squarely at the dial and that is certainly easier than getting down on your knees to do it."

Then Mr. McDonald described how he had watched public reaction to the end-table type, not only at the New York show, but in his Michigan Avenue show room and in dealer's stores and he recalled how nine out of ten women showed instant interest in the end-table. He said that they liked the idea of having the radio conveniently built into a needed unit of useful furniture with highly decorative appeal, that the great handiness of the tuning dial was popular because it ended the need for stooping down.

Mr. McDonald continued:

"I believe that there is no one thing that will contribute more to the prosperity of radio dealers and distributors, than a revolutionary departure from the type of radio cabinets that the public has begun to consider as conventional types. Let the manufacturer scrap their present notions about cabinets and styles and strike out boldly with a new conception of housing for the chassis, that will tag all previous models as obsolete, and then watch sales grow."

"Naturally our experience with the end table makes me feel that in that unit lies the opportunity for bringing about the style obsolescence of all existing cabinet types. In fact it is my feeling that if all manufacturers get behind the end-table models we would most certainly create a new style trend.

"That trend could be accelerated so effectively through aggressive promotion of the new style by many manufacturers that within a short time in the eyes of the radio public consoles would be clearly marked as 'obsolete' so that the women, who do the final deciding will be as eager to show off with the new type end-table radio as they are generally eager to show off with a new bonnet on Easter Sunday.

"Just what such effort would produce in the way of extra sales of course is a matter of conjecture, but it is certain that the sales volume of the whole industry would be affected favorably and that means every dealer and distributor would benefit through increased sales and resulting larger profits."

In conclusion Mr. McDonald said, "While I am pleased to note that both Philco and Emerson have just come out with new end table models, I really believe that the time is here for the whole industry to get together and popularize this type of radio. The trend toward the end table is indicated just as surely as are the trends toward airflow automobiles and modern streamlined trains."

DISPLAY ..... MANAGEMENT .....

THE FRONT—Standing out like a sore thumb by comparison with more conventional fronts, this one is designed to encourage high-class trade without discouraging people who must cut corners

▲

▼

THE BACK—This auto-radio installation and service "shed" combines utility and advertising effectiveness. In the foreground: Sangree himself (in shirtsleeves) checks out an installation converted into a sound system for advertising purposes

Dealer Designs Tomorrow's Store Today

INSIDE—Five repairmen work on home radios as well as car sets in a room just behind the front office

HARRISBURG—Out of a downtown, one-room shop with only curbside auto-radio installation and servicing facilities into this modern, two-story brick structure in a lower rent area went George V. Sangree. And up went business.

Different from run-of-the-mill stores in appearance because it was designed especially to house a retail radio business, this shop attracts well-to-do prospects without discouraging people who must cut corners. The front and back are equipped with effective signboards, constitute excellent and permanent ads. And the floorplan lends itself admirably to rapid installation and repair practice.

In front, just to the right of the entrance, is a combined office and customer waiting room. Back of the office is the service shop. And back of the shop, in a permanent, built-in "shed" reached from both the service department and office is

the installation department, which may also be reached by car from the street.

Unused space, not yet occupied due to recent completion of the building, may be used later by Sangree when expansion of business warrants. Or, in lean times, it may be rented to help defray overhead expenses.

In business five years, Sangree sells only automobile radios, but services car sets and home receivers too. Should he decide to sell home sets too, which may be a natural outcome of increased following due to auto-radio activities, the window at the left and the room behind it may readily be devoted to this department. It would merely be necessary for the prospect to turn left through a doorway just inside the main entrance instead of right into the existing waiting room.

Last Minute Ads

OSHKOSH — Catch the weather, the season, or the event right on the nose. That's what A. E. Steves, head of Steves Electric Co., does in his newspaper advertising, resorting to "too late to classify" advertisements.

"Three hours ahead of press time, any day in the week, we may suddenly decide to hold a small sale," Steves said. "It sort of depends on how we feel, or how the weather is. If it's hot and sticky we may decide to feature a hot weather item. If it's cool and fall-like, so that you want to get out of doors and go driving, we feature automobile sets. We try to sense the proper time for inserting such advertisements.

"We can do that with 'too late to classify' advertisements, which our newspaper will accept up to 11:30 o'clock on the day they are to appear. Of course we use regular display space also.

"On one such advertisement quite recently, we sold 15 car sets—and the ad cost us only $8! It was getting toward the end of the season and on a Friday morning, when the weather was nice, we telephoned to the newspaper long about 11 o'clock. We took a 'too late to classify' ad, and told our story in plain type with no cuts or illustrations."

By a "too late to classify" advertisement Steves means one which appears in the classified advertising columns, but which reaches the newspaper so close to dead line time that it cannot be listed in the proper department provided because of lack of time.

TRICK FOLD — Here's the way the 1935 circular looked, folded, from the front. It was printed in red and blue, on heavy white stock

SPREAD OUT — Here's the schedule itself, as seen when the circular is opened out

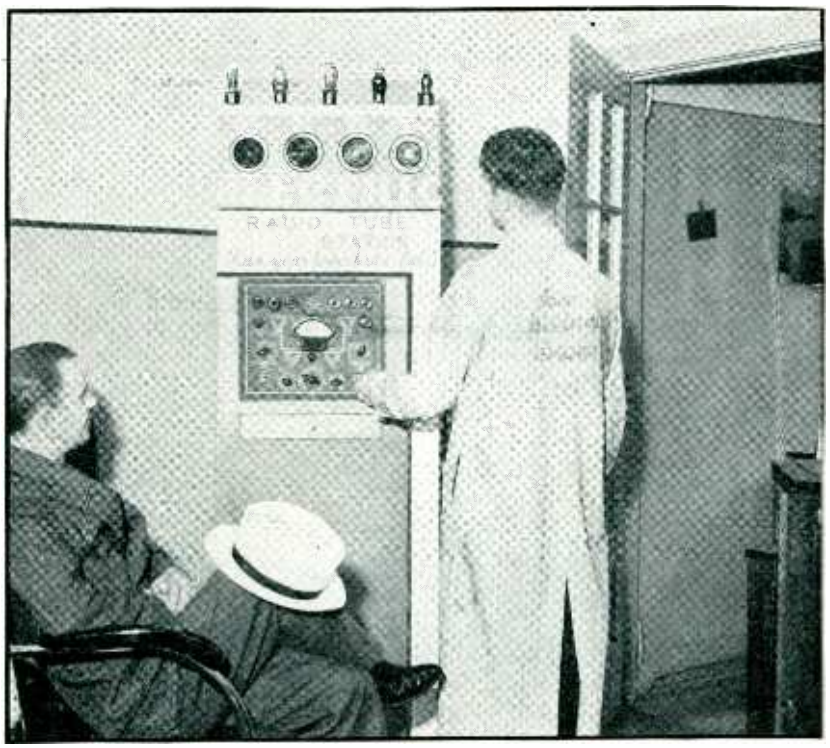
ADVERTISING — And here's the back of the folder. Any good printer can work out the folds and copy layout from these illustrations

Football Schedule Peps Up Direct Mail

SEATTLE—From Sherman, Clay & Company, active radio-music house, comes the reproduced combination football schedule and direct-mail radio ad.

Football is big business during the autumn season, contends the sales manager of this concern, and one method of snapping up interest in radio among fans unable to attend the games is to distribute such circulars. Schedules can be obtained from sports editors of any good newspaper.

Sherman, Clay build several window displays around football during the 1935 season, included cards suggesting that people interested come into the store for the schedules. These were, further, advertised in local newspapers and resulted in a healthy increase in store traffic.



TUBE TEST PLUS COMFORT—No leaning on the counter for the customer who brings tubes to Don Kress of Chicago for test. Don offers a chair while he works a shop designed checker equipped with a noise-indicating speaker (upper left) and colored bullseyes labelled "Bad", "Weak", "Good"

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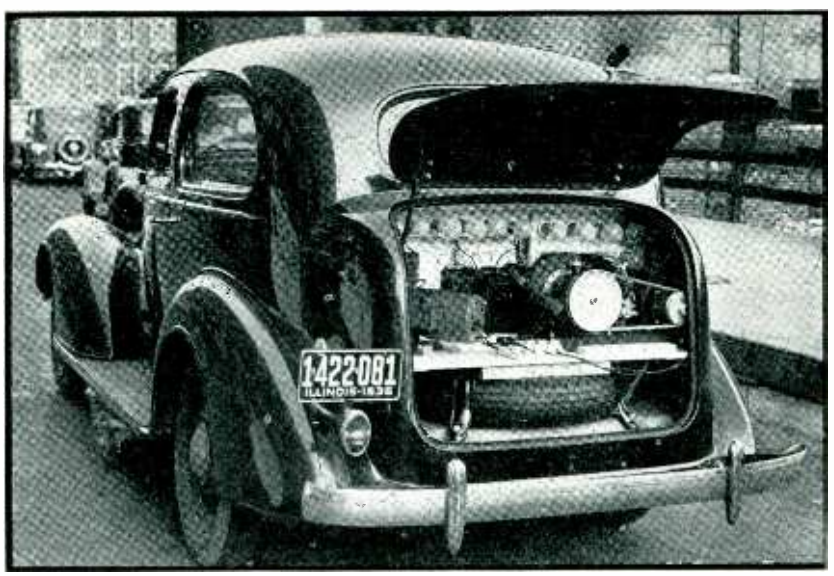


POWER PLANT DEMONSTRATOR — Installed in the luggage compartment of a salesman's car the illustrated Pioneer 200-watt, 12 and 6 volt d.c. plant and 300-watt, 110 volt a.c. plant permit effective demonstration in districts away from power lines. A battery and switches are provided for starting and a bank of lamps included to illustrate smoothness of output. An additional plant equipped with a carrying handle is carried inside the car so that its use in operating small machinery mechanically may be readily shown

Employment Agency

ELMIRA—Writes Harold F. Jenkins, sales manager for Fred C. Harrison: "When our company first placed salesmen on the road, about two years ago, selling radio replacement parts, they reported many service men doing business in communities too small to produce a satisfactory volume of business. In other communities, dealers selling tubes, and complete radios were at a loss as to where to obtain competent men to make repairs on machines which they had sold. Most of these small dealers could not afford to employ a repairman on a full time basis.

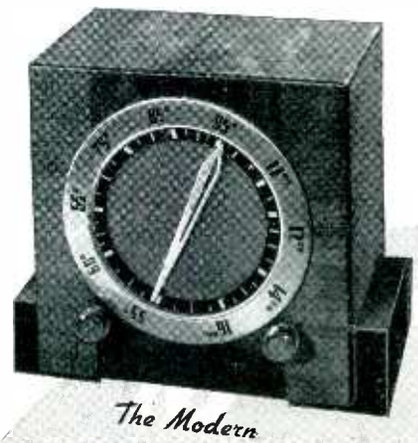
"Realizing that this unbalanced condition might be remedied, we mapped out a system where servicemen in the small communities, with not enough to keep them busy were notified of all the dealers in neighboring towns who might give them repair work. In addition, our road salesmen spent considerable time bringing the parties together. The result has been more than satisfactory for all concerned. We can definitely point to at least twenty-five of such accounts, who, when we first became acquainted, were doing only part-time servicing, but are now well towards the top of our list in monthly purchases. For a small amount of work on our part, we have not only increased our sales, but obtained a loyalty from these men, which will assure us of their steady patronage.

"In addition, we have been so successful in obtaining full time work for servicemen with some of the dealers in the larger cities, (about 40 placed in 2 years), that we now have an application form which can be filled out and filed with us as reference when we find an opening for a good man.

"Incidently, we have found that the most valuable, and most hard to find repairman is one that is also good on both refrigeration and auto-radio. Such a man can find a good paying position in this section at any time. A serviceman who cannot, or will not work on car radios, has the hardest time finding a position through us. We do not file applications except from men residing in the territory covered by us, southern New York, and northern Pennsylvania, although we have placed men in positions outside this area.

"This may all seem rather far fetched for a parts concern, but as part of our policy of being of real service to our clients, it is one of the main reasons for our steady growth. The boys really appreciate our help in bettering their living conditions, and the result is more business for us."

THE KADETTE Clockette



The Modern

The Colonial

The Sheraton

PATENTS APPLIED FOR

THE RADIO IDEA OF THE HOUR!

The "Modern" Model 21—fashioned of rich figured and straight grained walnut contrasted in modern styling. Polished golden dial and ebony finished cradle.

The "Colonial" Model 22—Exemplifies the period in combining solid maple top and sides with quartered, matched figured maple front and brushed gold dial.

The "Sheraton" Model 23—cased in matched grain polished mahogany veneer with golden dial in harmonious contrast.

$19.95

COMPLETE WITH TUBES AND ANTENNA

5-TUBES *in only half the space!*

Count on Kadette to come through with "timely" ideas! Conventional radios abound—but, as usual, Kadette steps out and does it different!

At the New York Show, the new Kadette Clockette stopped them. Yes Sir! No bigger than a small sized clock yet containing a powerful 5 *tube* chassis.

Clever designing is what did the trick. See how the tuning dial and grille are combined. A striking, new idea —lending to radio the charm and character of rare period clock designs —greater ease of tuning—large, full Dynamic Speaker with 100 per cent operating freedom—and an uncrowded 5 tube chassis.

Three exquisitely beautiful "period" models. Dial rim of metal—handsomely finished in black and gold. Operates on AC or DC. Tunes 1600 to 540 kilocycles. Size 8″ high—7½″ wide—5″ deep.

Only Kadette dealers can cash in on this ingenious, fast selling idea. Here's the opportunity to give the public something different—something more beautiful—better performing—at a feature price.

Don't waste a minute—sell this radio idea of the hour!

INTERNATIONAL RADIO CORP., 514 William St, ANN ARBOR, MICH.

Creators of Quality Compacts

Turn Your CUSTOMERS Into VOLUNTEER SALESMEN

NEW BUSINESS

By George

MUCH has been said about "using the user" to expand retail radio sales. Too little has been done about it. Many dealers, it is true, secure leads through satisfied customers. But this is generally hit-or-miss and rarely planned.

Use of the user should be deliberate. It is, in fact, essential in our field for these reasons:

1. **Financial inability of the average dealer to spend much money on newspaper advertising**
2. **Lack of sufficient store traffic and high cost of cold canvassing**
3. **Need for profitable business rather than mere volume, and**
4. **Importance of the user as a replacement buyer, aside from his ability to furnish leads**

Examine the following figures relating to sources of new business, compiled from the March to June sales records of a typical retail store. Salesmen noted sources on the back of all sales tickets:

Repeat orders from old customers	**16%**
Recommended by old customers	**27%**
Direct results of particular ads	**11%**
Transients	**8%**
Reputation	**38%**

New business, it will be seen, may be roughly divided into two classes: (In order to permit this simple division I split sales obtained through reputation equally between the two groups.)

Group 1—Repeat sales, recommendations, reputation	**60%**
Group 2—Advertising, transients, reputation	**40%**

The first group obviously is the one to shoot at. It produces business at the lowest promotional cost. The type of sale resulting is, also, invariably superior from the profit standpoint because confidence in the firm is already at least partially established in advance of the actual contact. Starting with the confidence of the prospect, it is easier to consummate the sale of a larger and more profitable item.

Naturally, customers must be kept satisfied if they are to be used as the spearhead in a new business campaign. That is why department stores all over the country play up the slogan: "The customer must be satisfied." Such stores attribute their growth and very existence to rigid adherence to this policy in fact as well as in fancy. So, also, do many chains.

Small Customer Commissions Desirable

In order to induce satisfied customers to supply leads in any quantity it is my opinion that they must be paid for such effort, preferably in cash. Here are several methods of using the user which have to my knowledge been used successfully by radio and appliance concerns:

Methods of "using the user" to obtain leads, and the cost thereof, are discussed in this 4th of a series of articles for salesmen and salesmanagers

AT LOW COST

M. Solomon

One sent a small booklet to every customer. It measured 1½ by 3 inches, contained ten coupons with stubs. The outer cover bore these words: "Save this book. It is worth $30 to you. Read inside for further information." Within the booklet these words were printed: "The inclosed coupons are worth three dollars each when presented to us at the time of a purchase. We will pay this sum to you if the party who presents the same makes a purchase of $30 or more. Just fill out the coupon and tell your friend to present it at the time of purchase. Valid only when signed by you."

The coupon looked like this:

No.	Date .....
Date given to	This will introduce Mr. .....
.....	Recommended by ..... Acct. No. ....

These booklets brought in business from the very first. A number of customers determined to earn the entire cost of their original purchase by distributing them to friends. A flood of volunteer salesmen was loosed upon the public at no fixed payroll cost. Many prospects who would probably not have been contacted by the store were unearthed.

The effect of booklet distribution was continuous and not spasmodic. Cost? It was directly proportional to the amount of business secured, in this case 2.7 per cent of sales. The average unit of radio sale was $65. Refrigerators averaged $140. Washers $59. Not a cent was paid out for missionary work or special supervision.

Here is the approximate cost of obtaining new business by three methods, compiled from the records of the concern in question:

Coupon books	3%
Outside salesmen	10%
Advertisements	40%

A similar plan was used several months ago by a concern doing a great deal of auto-radio installation and repair work in addition to set selling. A tag bearing a detachable coupon was attached to the steering column of every car leaving the shop after radio repair or installation. In addition to operating instructions for the receiver it bore the following message: "Do you want to earn $2.50? Send in a friend with this tag. Write your name and address in the space provided. If your friend purchases an auto-radio we will write you a check for $2.50."

Another store uses the user without expense of any kind. A salesman is stationed at the cashier's window. Every installment customer coming in to make a payment is greeted by name and then, before he leaves, escorted

(Please turn to page 46)

GET MORE TUBE BUSINESS

WITHOUT INVESTING YOUR CAPITAL

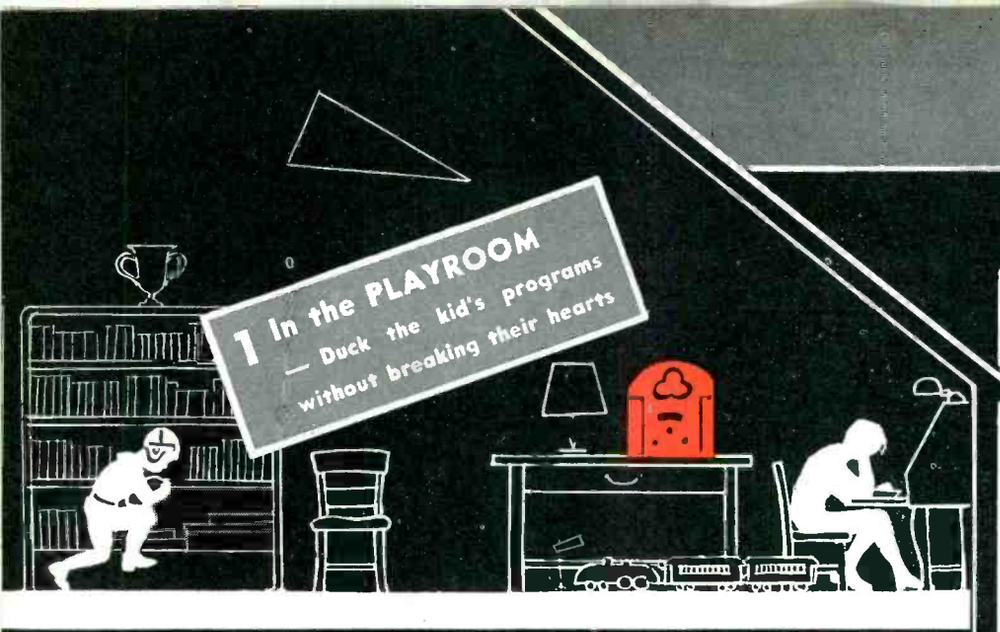
Carry a balanced and adequate stock of Tung-Sol high quality tubes to supply your locality . . . it is the only line of tubes sold nationally on consignment.

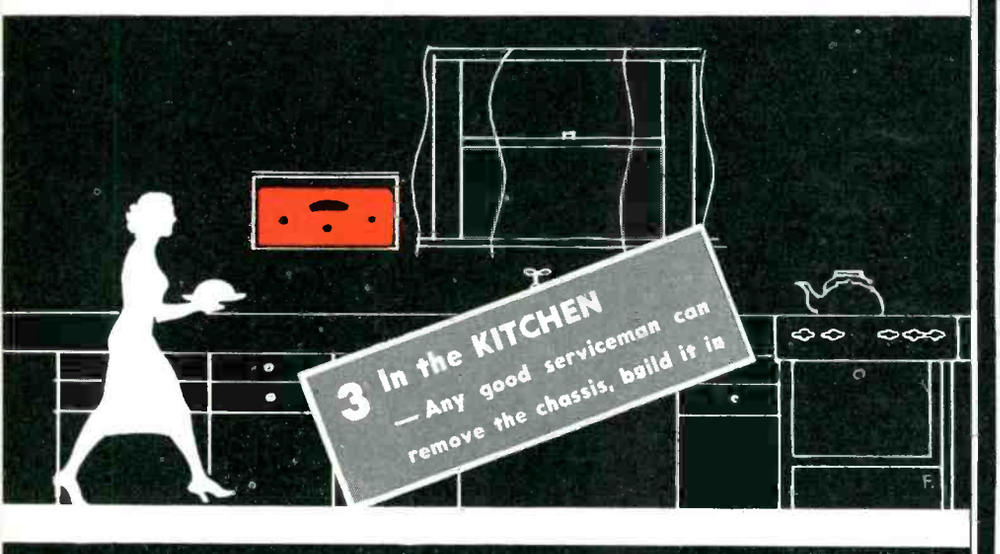
There are still desirable locations where independent service organizations who can meet requirements may be appointed as Tung-Sol agents. Ask for the name of your nearest Tung-Sol tube wholesaler.

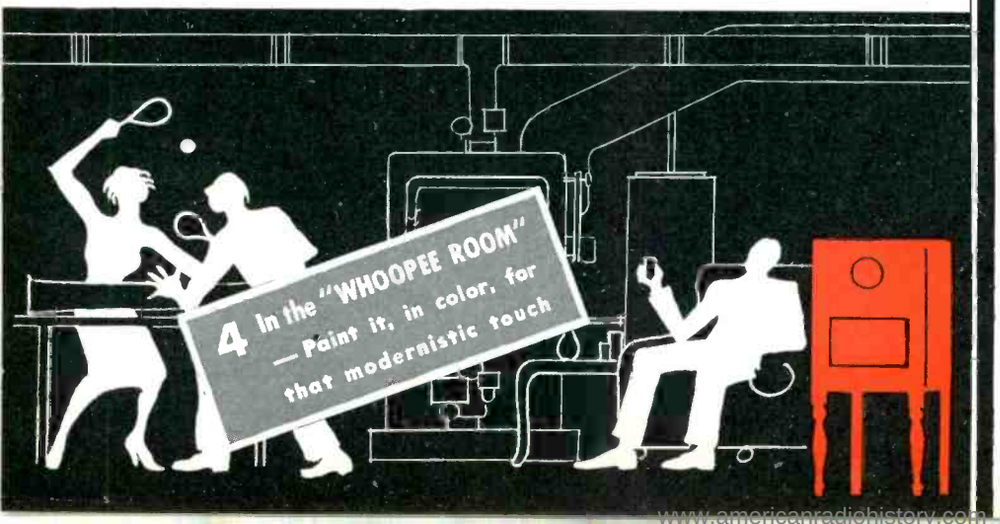
TUNG-SOL

Tone-flow radio Tubes

TUNG-SOL LAMP WORKS, INC.
Radio Tube Division
SALES OFFICES: Atlanta, Boston, Charlotte, Chicago, Dallas, Detroit, Kansas City, Los Angeles, New York.
General Office: Newark, N. J.







4 WAYS to use 2 RADIOS

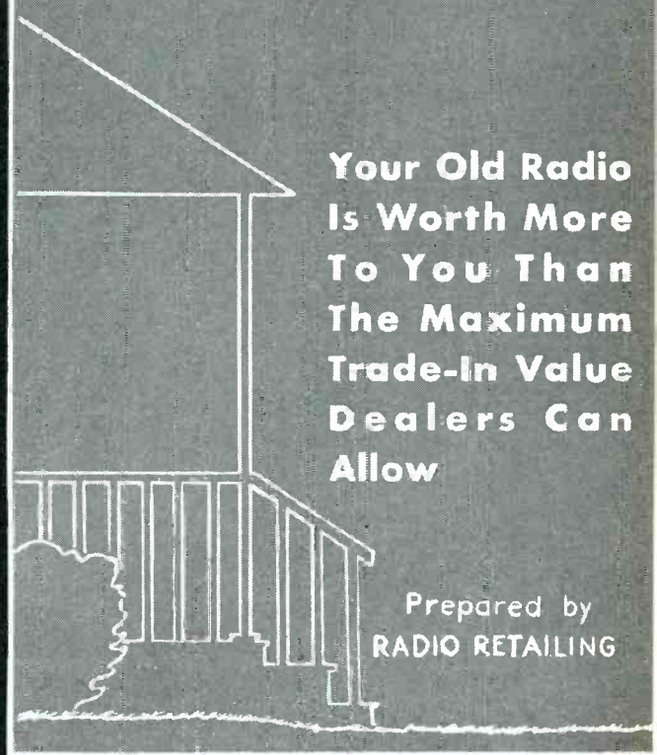
When you buy a new set install the old one —

In the PLAYROOM

In the BEDROOM

In the KITCHEN or

In the "WHOOPEE ROOM"



Your Old Radio Is Worth More To You Than The Maximum Trade-In Value Dealers Can Allow

Prepared by
RADIO RETAILING

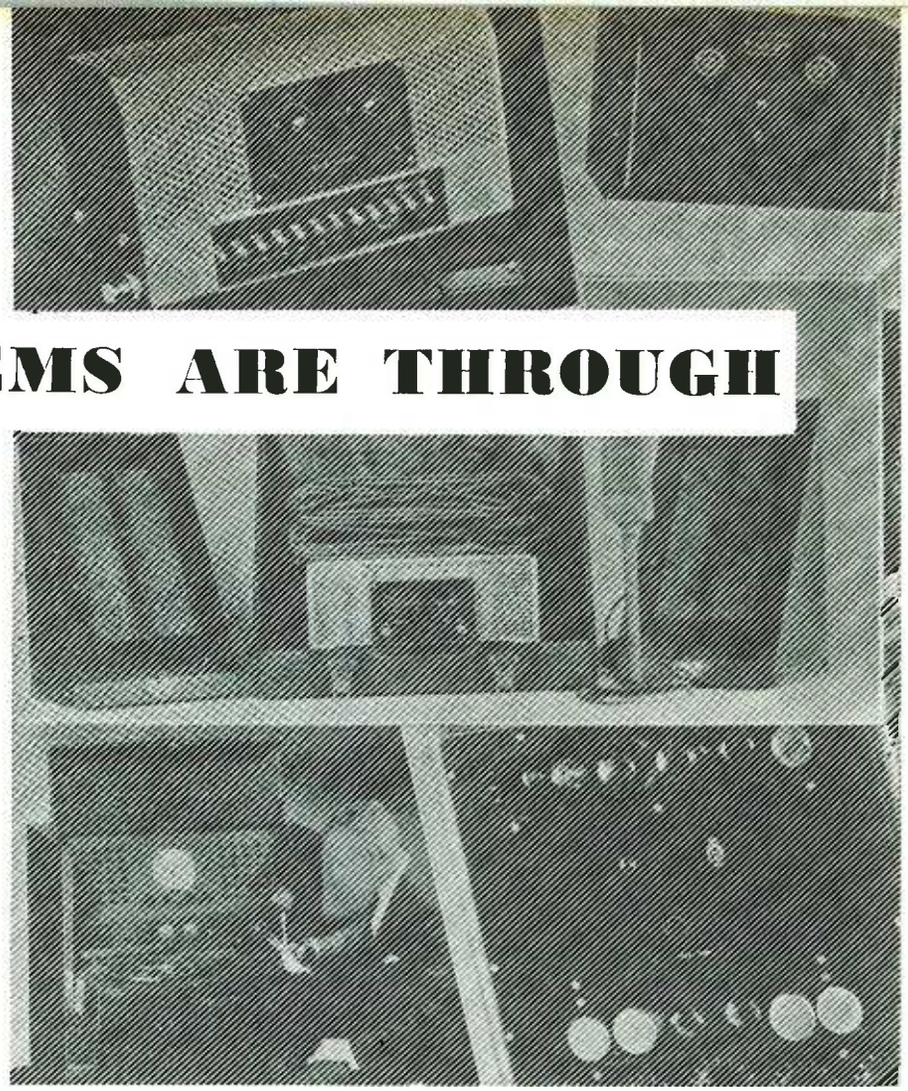
Why SALES AMMUNITION Pages?

Many questions asked by the consumer are difficult to answer because of his limited technical knowledge and inability to visualize.

Pictures are easier to understand than words. And most people believe much of what they see in print. So each month we endeavor to be of direct help to salesmen attempting to close a deal, or to make one stick, by picturing the answer to a specific question which introduces selling resistance.

SALES AMMUNITION pages are designed to be shown to the consumer.

HOME-MADE SOUND SYSTEMS ARE THROUGH



By

Harvey P. Rockwell, Jr.

ARE you one of the retailers who still build sound equipment? If so, then you may not want to read this article. But, on second thought, maybe you do.

In the early days tailor-made units were not available. For some applications it was necessary to build up systems; but not so today. You wouldn't think of trying to build a broadcast receiver. Nor is there any longer a legitimate excuse for building sound equipment.

We have discussed in the two "Radio Retailing" articles preceding this one how sound sales are made. Now, lets discuss the selection of manufactured merchandise. A mighty good rule, at the start, is to carefully look over the various makes, checking for the following points:

1—Quality of equipment
2—Reputation and prestige
3—Manufacturing facilities
4—Service
5—Universality of equipment

Take a few minutes to determine this now, — it will save you many regrets and hours of wasted time later on.

When sound equipment is once installed, the user expects it to work without continual failures. Hence, the quality of the equipment is most important and there is no saving in putting in second rate equipment, if you must spend the major portion of your time thereafter in maintaining and servicing it. That time is your moneymaking time — DON'T WASTE IT!

You can no longer expect to build equipment to compete either in price or ease of operation with that of a reputable manufacturer. The reasons for this can easily be understood. The manufacturer has complete facilities and many men all working with one thought in mind — namely, to produce the most saleable equipment possible. They, of course, can purchase the parts much cheaper than you can. They have machines to assemble the parts much quicker than you. Their engineers spend all their time trying to improve the equipment and make it more adaptable to existing conditions: Their test facilities and knowledge of new tubes and new parts is far ahead of yours.

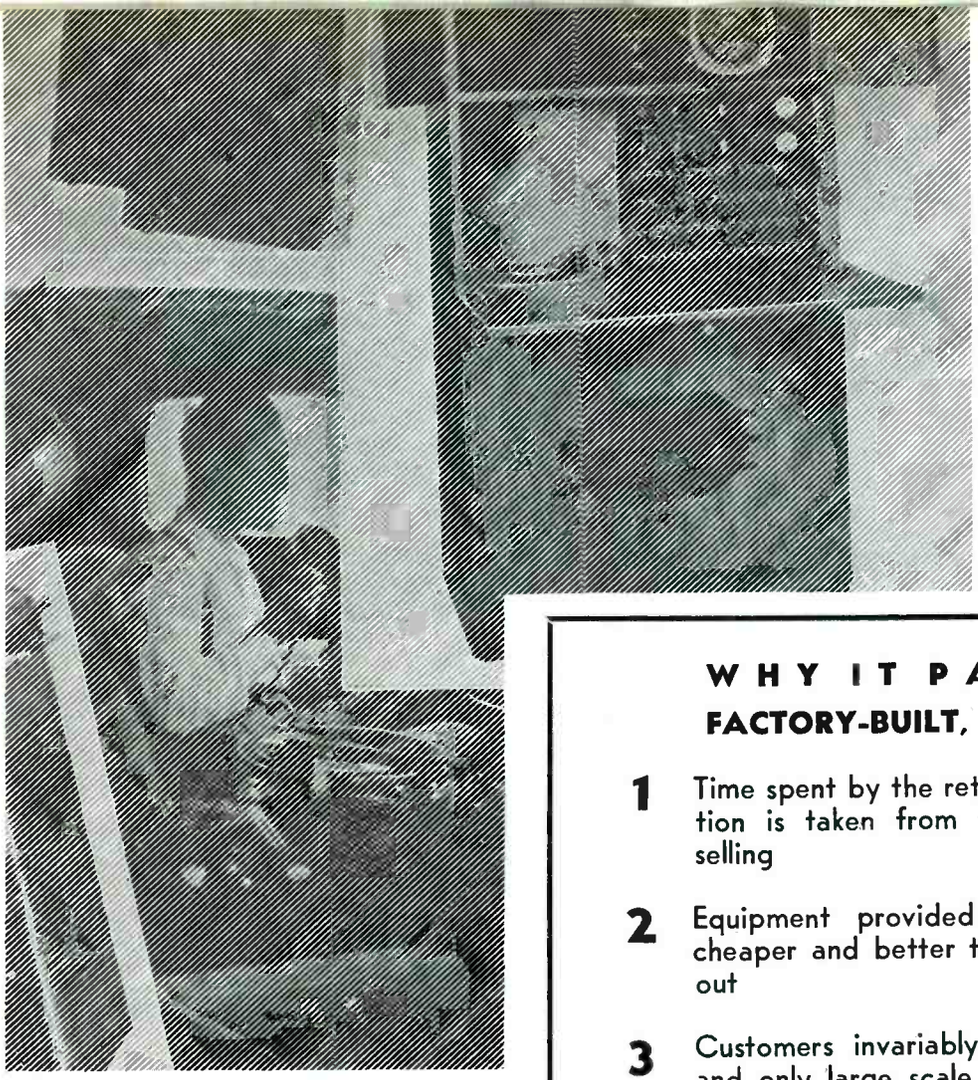
The manufacturer's reputation is national, while yours is local. Because of his advertising, it will be much easier to sell such equipment. The manufacturer has probably sold equipment to broadcasting companies or government agencies. Capitalize on his reputation and prestige.

THIRD OF A SERIES on sound equipment. The first appeared in August, the second in September

Let's look at the manufacturing facilities of the sound equipment maker. You know that in general, when a customer decides to put in a sound system, *he wants it yesterday.* Therefore, you don't want to be held up on delivery by inadequate manufacturing facilities. The better manufacturer will also have better inspection facilities so that rejection is much less likely.

Service is an essential. It entails many ramifications — service before and after the sale, service on repair, etc. We'll grant that in many instances you will be able to repair the units yourself. Occasions do arise, however, where experience beyond your own is needed. Several manufacturers offer what amounts to an engineering service that is very helpful at such times. Not that you will need this on the vast majority of jobs, but when a special job comes up, it is a mighty useful service to have. Manufacturers usually supply bulletins and other pertinent data that is also very helpful.

The last consideration is universal equipment. This may be desirable where you have installed a permanent job for a customer. He may need a portable job to work either with the permanent one or separately. Let's take a case in point. A club may have a large ballroom and several smaller rooms. The permanent installation may be made in the large room, while the portable can be moved from one of the smaller rooms to the other. If the club has a banquet, requiring both the large and



No radio dealer would even think of building the radio receivers he sells today . . . and sound, too, has passed the roll-your-own stage, quantity manufactured units such as these answering every consumer need economically and effectively

small room, the speeches made in the large room may be piped to the smaller rooms — if the equipment is properly designed. On the other hand, if a heterogeneous assortment of apparatus is employed, it is difficult to joint the units together.

We now have the standards by which the manufacturer should be judged. Once you find a manufacturer to fit these specifications, you need not worry too much about his price. *These considerations are far more essential than price.* It is wise, insofar as possible, to standardize on equipment of one manufacturer so that if trouble occurs in one piece of equipment, you can replace it with a similar piece while the repair is being made.

There are several additional points that it is well to consider. Perhaps the most important is the appearance of the installation. Though we are dealing with semi-scientific apparatus, is there any reason why it should not be attractive? How many times have you gone into a hotel with a sound system and noticed the speakers either hanging from the ceiling or projecting from the wall. Either consciously, or unconsciously, you have resented these unsightly things. On the other hand, if you are aware of a sound amplifying system without being able to see it, there is an entirely different feeling. With a little thought, the speakers, and if necessary, even the amplifier, can be concealed in the decorations. Built up equipment rarely looks as well as complete, matched units.

Another very important consideration in an initial installation is the possibility of expansion in the future. Whether or not the customer is disposed to consider it at first, it is well to keep this point in mind. By positioning outlets and wiring properly, much trouble and extra work will be avoided in the future. This is particularly useful in hotels. In most cases, they will sooner or later want centralized radio, which means a very fine piece of business for you. Also, leave space for a radio tuner as well as a record changer, because, ultimately, your customer will want both of these units.

Request complete information from each sound equipment manufacturer. Study it for the points we have discussed. You will then be in a position to know which one can help you most.

WHY IT PAYS TO USE FACTORY-BUILT, MATCHED UNITS

1. Time spent by the retailer on design and construction is taken from the more important job of selling
2. Equipment provided by manufacturers is now cheaper and better than any small shop can turn out
3. Customers invariably want delivery "yesterday" and only large scale production can render such service
4. Flexibility of design employed by large manufacturers facilitates easy later sale of accessory equipment
5. Factory-built units have a more finished appearance, command better prices
6. Big companies provide advisory engineering service much needed by the average retailer
7. Nationally advertised products have prestige which assures increased consumer acceptance

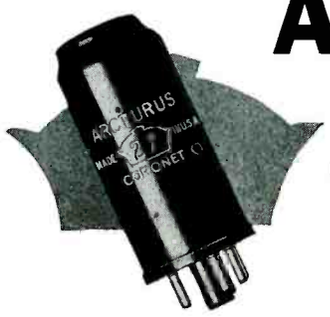
Can you sell ALL 4?

Can you meet any customer's demands? You can with the ARCTURUS Line!

For ARCTURUS gives you ALL 4: the *Glass* Tube; the "*G*" Tube; *Coronet* —"the perfected Metal Tube"; and the Coronet for replacing glass tubes. Each is a leader in its field—a tube you can rely on for performance and generous profits.

The company that has pioneered 7 of the 8 fundamental developments in a.c. tubes — ARCTURUS — alone provides a 4-way sales and profit set-up! See your Arcturus Jobber or write today for full details of this *4-way profit line.*

ARCTURUS RADIO TUBE CO., NEWARK, N. J.

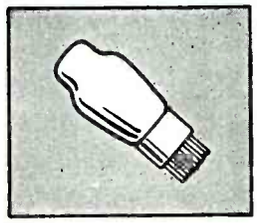


ARCTURUS

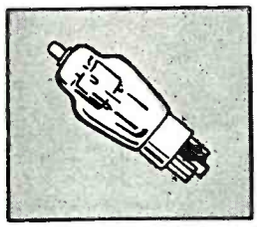
GLASS—"G"

CORONET—The Perfected Metal

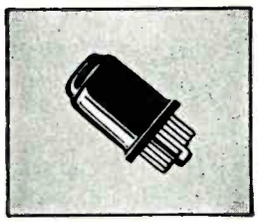
RADIO TUBES



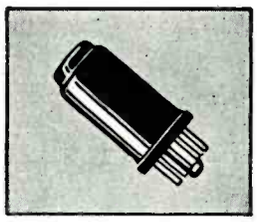
Millions of **Arcturus Glass Tubes,** *used initially in radio receivers, create a* natural *replacement market for Arcturus Dealers and Servicemen.*



More **"G" Tubes** *of Arcturus manufacture are in use today than any other make. Here is a* big *market for you.*



The active demand for **Arcturus Coronets— "the perfected Metal Tubes"** *— indicates the preference of the trade and consumers for a tube they* know *will give the same efficient service as other Arcturus Tubes.*



And **Arcturus Coronets — for replacing glass tubes** *— are new, exclusive, made to order to boost your sales and profits.*

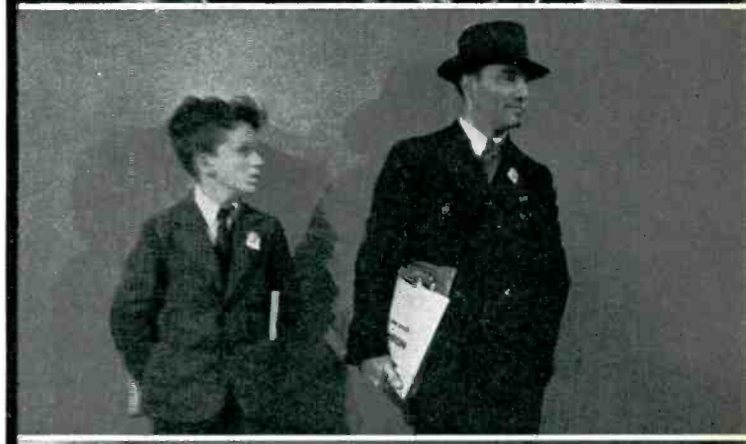
ON THE FIRING LINE

Radio Retailing's candid cameraman snaps key men behind well-known trademarks at the New York service show

TESTER TYCOONS Burlingame (left) and Sargeant of Supreme

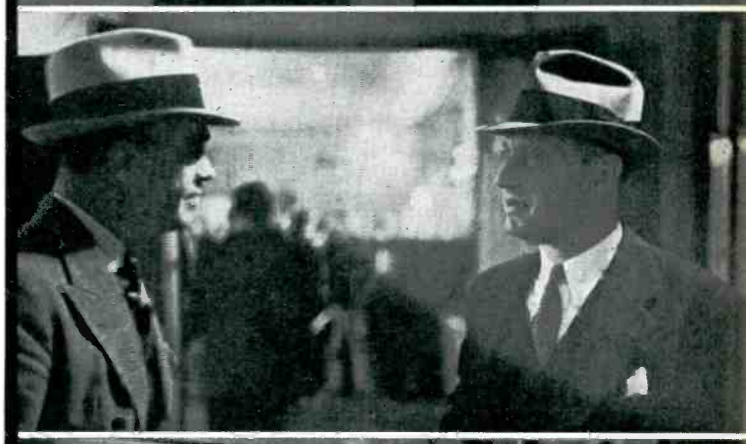
P. M. MAGNATE . . Andrews of Continental Motors

SCHULTZ AND SON Burt Schultz and his dad Dave of Raytheon



METER MASTER . . Miller of Weston

. . CONTROL CHAT Moss (right) of Electrad and adman Farrell



MAN AT WORK . . Pomeranz of Micamold Products

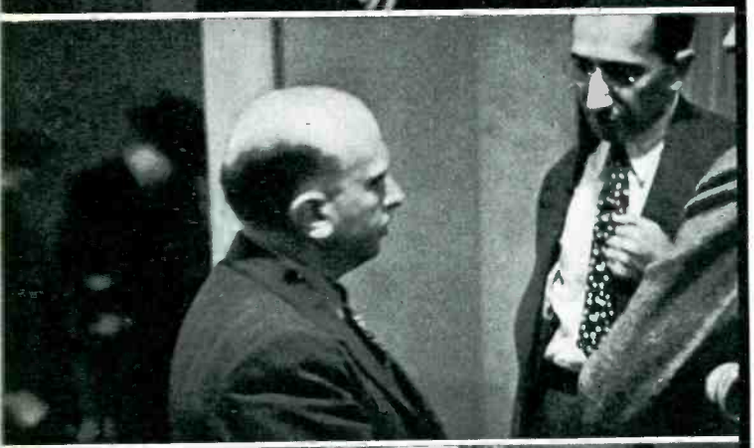
. . TALKING SHOP Golenpaul (right) of Aerovox and his New England rep Harry Gerber

OF CHICAGO . . . . Erwood of Webster-Chicago

More Candid Camera Shots

NEW EASTERN SALESMANAGER . Harper of Clough-Brengle

CONDENSER CONFAB . . . . . Gotthold (left) and Harter of Solar



. . . MIKE MENTOR Ruttenberg of Amperite

FRIENDLY COMPETITION . . . . . Berard (left) of Ward-Leonard and Siegel of Ohmite

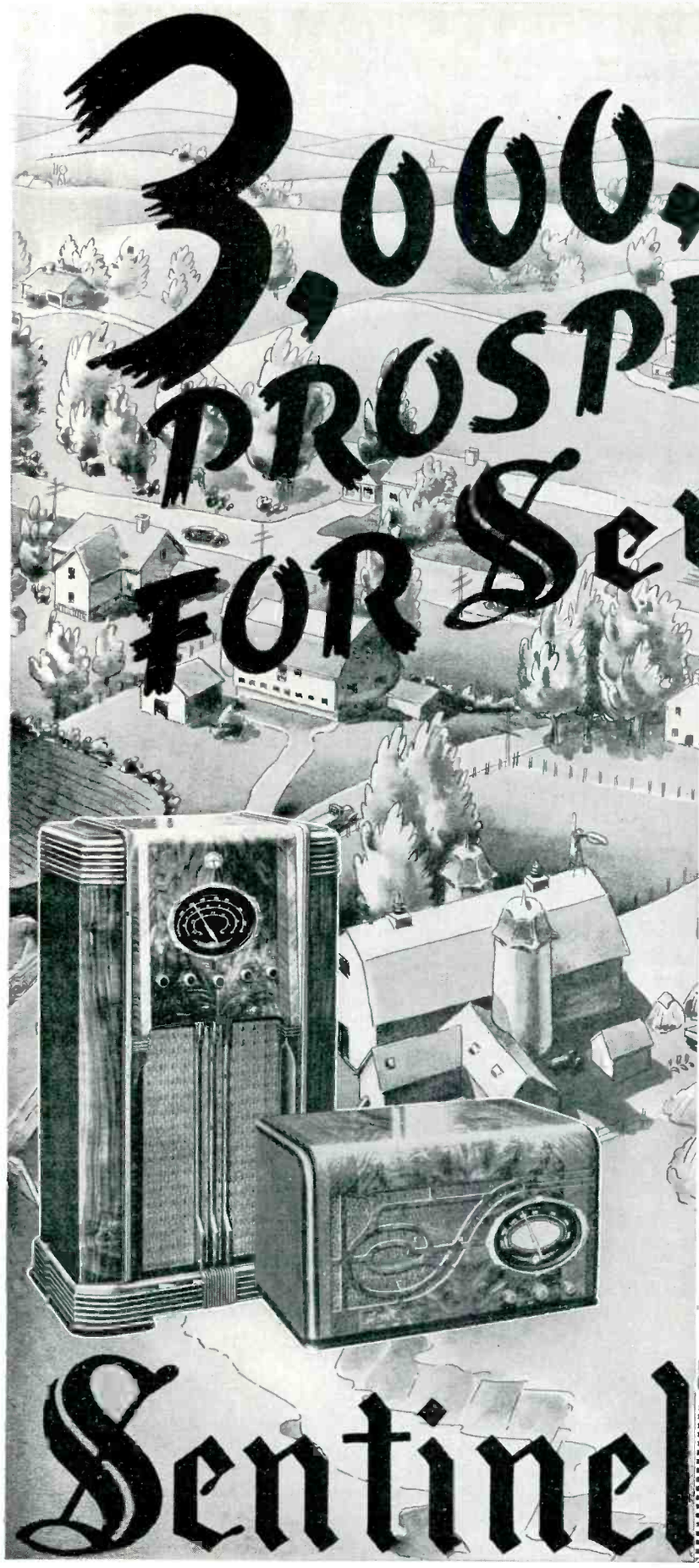
. . FAMOUS NAME Dubilier of Dumont Electric

CUSTOMER QUERIES . . . . . Koch of Simpson Electric

. . . TRAFFIC JAM Le Bron of Tilton

DEMONSTRATING. Osmun of Centralab

3,000,000 PROSPECTS FOR Sentinel



This waiting market, and the 1937 SENTINEL, the most outstanding FARM RADIO ever built, is the GREATEST combination for profit ever offered the radio dealer.

Off the high lines, on farms in every part of the country, are 3,000,000 prosperous farmers (farm income this year is the highest since 1929) who will buy radios this season. 3,000,000 good prospects who know SENTINEL as the Pioneer Farm Radio and are reading SENTINEL advertising in the leading farm magazines. Hundreds of thousands of satisfied Sentinel owners help you sell to this tremendous market.

With every new feature found on the finest city radio — with amazing performance — with the Sentinel Farm Powr Generator and Wincharger to eliminate battery charging annoyance — with new P. M. Dynamic speakers in all models — with Tel-Eye Tuning — with models as low as $29.95 complete with batteries — this 1937 Sentinel Line is made to order for this GREAT farm market, the finest and most complete Farm Radio Line ever presented. Fourteen Models to choose from — for two, six and thirty-two volt operation.

Get your share of this business. Send in the coupon today for full details.

THESE OUTSTANDING FEATURES MAKE SENTINEL THE LEADING FARM RADIO.

- 2, 6 and 32 volt Models
- Prices start as low as $29.95 complete with batteries.
- New Permanent Magnet Dynamic Speakers.
- Tel-Eye Tuning.
- Foreign Reception.
- New Consolette Cabinet.
- Attractive modern cabinets.
- Distinctive new Oval Multi-Colored Dial.
- Farm Powr Gas Engine Generator and Wincharger Deal.

MAIL THIS COUPON

Sentinel Radio Corporation
Dept. RR-10, 2222 Diversey Pkwy, Chicago, Ill.

Gentlemen: Please rush me complete details of the 1937 Sentinel Farm Radio Line.

NAME .....

ADDRESS .....

CITY ..... STATE .....

Sentinel

ALSO, 28 OUTSTANDING SENTINEL A. C. MODELS PRICED FROM $18.95 TO $110.00

BUILDING A SHORTWAVE WINDOW

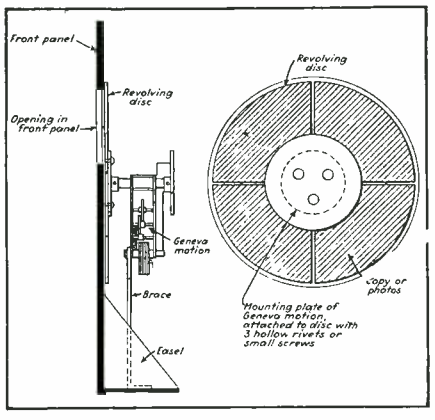
How to dramatize the megacycles with motion and light

By I. L. Cochrane

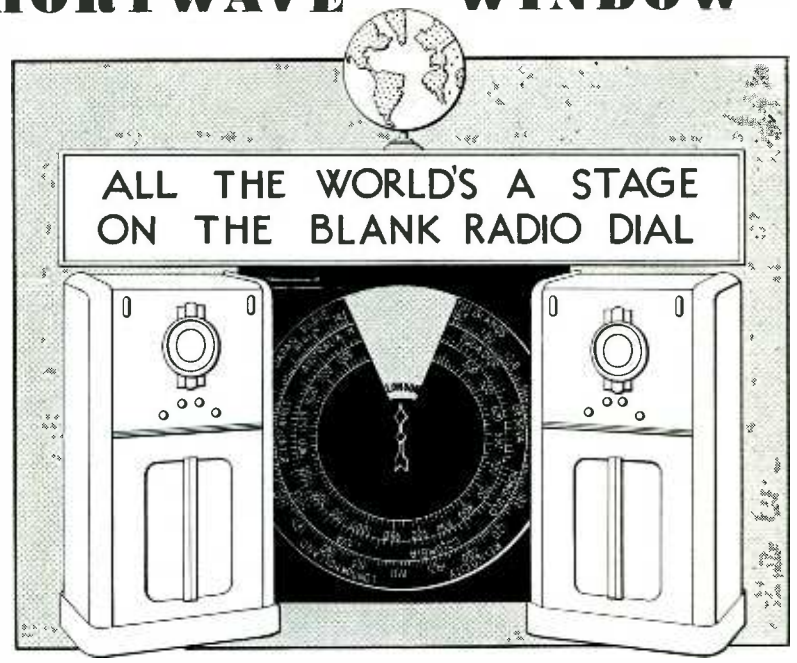
INTEREST in foreign affairs was never more intense than it is today; the drama of world events grips the mind of almost everyone. However, a mere statement that one may bring in broadcasts from the Land of the Midnight Sun, from under the Southern Cross and everywhere in between, is apt to fall flat—and so it is good merchandising to dramatize the megacycles with motion and light.

By referring to page 23 of the August number of *Radio Retailing* the reader will see how a start-and-start display is operated by a simple mechanism. The display described on this page is an extension of that same mechanically operated idea. However, this time short waves are featured on the revolving disc with the aid of colored lights and radium paint—plus a shadow box.

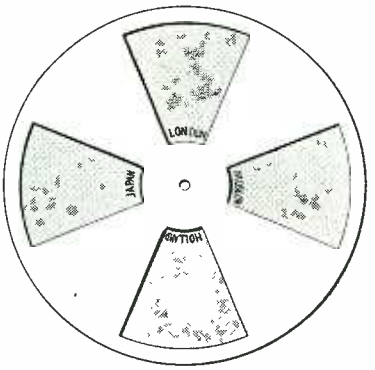
Place two console radio sets two to three feet apart, depending upon the size of your window. Across the top put a sign card supported by easels, and a globe map above the sign. At the rear bring up the motion display. Then, with heavy cloth or cardboard, cover the top of this enclosure. The arrangement forms a shadow box necessary to take advantage of the colored lighting used in a display of this character.



Mechanical details of the rotating mechanism. See page 23, August issue for additional data



Consoles form two sides of a simple shadow-box. A sign and cloth or cardboard cover the top of the inclosure and the motion display itself constitutes the rear



LEFT—The immovable front panel. Typical dial readings are put in with luminous paint. One section is cut out to show each of the four successive sections of the revolving disc. RIGHT—The revolving disc. Translucent photographs or drawings of typical foreign scenes, lighted from the back, are arranged to rotate.

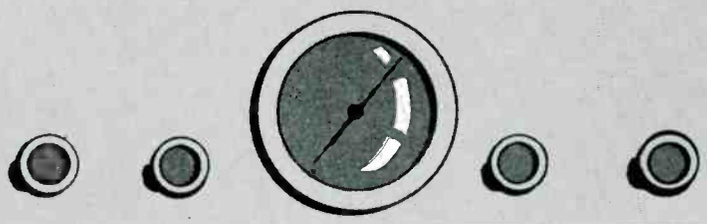
When making the disc, cut out the four copy segments, and replace them with pieces of tracing cloth, lettered in opaque black. Outside of the changes in copy and the substitution of translucent segments, the mechanical features of the display are exactly the same as described in August. However, for best results do not make it more than three feet in diameter.

Naturally, the effectiveness of the entire display in this setting depends upon the use of colored lights behind the lettered segment after it turns into view. A board on which has been placed six to ten lamp sockets, inside of an open-front box slightly larger than the segment to be illuminated, takes care of that feature. As red fights natural and window lighting better than any other color, it will be well to make red the predominant color. For a changing color tone, three continuously burning red lamps with a mixture of blue, green, amber and white, on quick-acting flasher buttons, will produce a color scheme changing rapidly from light red to purple. By changing lamps around you will find the most suitable combination. However, a cluster of continuously burning red lamps only has been used by department stores and found to be very effective.

A piece of coarse-mesh black scrim stretched across the front of light box helps to diffuse the lighting. Also plenty of ventilation must be provided in the lamp box. Nail wooden strips on the bottom and drill holes between, and more good-size holes at the rear top.

FINANCE RADIOS

and your entire line *locally* through C.I.T.



NEAR YOU, perhaps in your own community, there is a C. I. T. Local Office ready to give full service in the financing of radios and other home appliances.

Using C. I. T., you secure for all your instalment sales the speedy, personalized service which cuts red tape and saves your valuable time.

Furthermore, you can now offer your customers a combination C. I. T. Budget Plan sale of any two or more acceptable articles in one contract.

More than a dozen leading radio manufacturers and many appliance manufacturers are now providing their dealers with the C. I. T. Budget Plan. For quick credit service and purchase of paper—

Call the Nearest C. I. T. Office

Abilene ⌣ Akron ⌣ Albany ⌣ Altoona ⌣ Amarillo
Asheville ⌣ Atlanta ⌣ Augusta ⌣ Bakersfield
Baltimore ⌣ Bangor ⌣ Bay Shore ⌣ Beaumont
Beckley ⌣ Billings ⌣ Binghamton ⌣ Birmingham
Boise ⌣ Boston ⌣ Bridgeport ⌣ Bronx ⌣ Brooklyn
Buffalo ⌣ Butte ⌣ Camden ⌣ Canton ⌣ Cape Girardeau
Carbondale ⌣ Cedar Rapids ⌣ Charleston
Charlotte ⌣ Chattanooga ⌣ Chicago ⌣ Cincinnati
Clarksburg ⌣ Cleveland ⌣ Columbia ⌣ Columbus
Cumberland ⌣ Dallas ⌣ Dayton ⌣ Denver
Des Moines ⌣ Detroit ⌣ El Paso ⌣ Erie ⌣ Evansville
Florence ⌣ Fort Wayne ⌣ Fort Worth ⌣ Fresno
Glens Falls ⌣ Greensboro ⌣ Greenville
Hagerstown ⌣ Harrisburg ⌣ Hartford ⌣ Hempstead
Hickory ⌣ Houston ⌣ Huntington, W.Va.
Indianapolis ⌣ Jacksonville ⌣ Jamaica
Jamestown ⌣ Jersey City ⌣ Johnson City ⌣ Kansas City
Knoxville ⌣ Lexington ⌣ Lincoln ⌣ Little Rock
Los Angeles ⌣ Louisville ⌣ McAllen ⌣ Manchester
Memphis ⌣ Miami ⌣ Milwaukee ⌣ Minneapolis
Mobile ⌣ Montgomery ⌣ Montpelier ⌣ Mt. Vernon
Nashville ⌣ Newark ⌣ Newburgh ⌣ New Haven
New Orleans ⌣ New York ⌣ Norfolk
Oklahoma City ⌣ Omaha ⌣ Orlando ⌣ Paducah
Paterson ⌣ Peoria ⌣ Perth Amboy ⌣ Phoenix
Philadelphia ⌣ Pittsburgh ⌣ Portland, Me.
Portland, Ore. ⌣ Portsmouth ⌣ Poughkeepsie
Providence ⌣ Raleigh ⌣ Reading ⌣ Reno ⌣ Richmond,
Ind. ⌣ Richmond, Va. ⌣ Roanoke ⌣ Rochester
Rockford ⌣ Rome, Ga. ⌣ Sacramento ⌣ St. Louis
Salisbury ⌣ Salt Lake City ⌣ San Antonio ⌣ San
Diego ⌣ San Francisca ⌣ San Jose ⌣ Savannah
Scranton ⌣ Seattle ⌣ Seminole ⌣ Spartanburg
Spokane ⌣ Springfield, Mass. ⌣ Springfield, Ohia
Stockton ⌣ Syracuse ⌣ Tampa ⌣ Texarkana ⌣ Toledo
Tucson ⌣ Tulsa ⌣ Utica ⌣ Washington ⌣ Watertown
West Palm Beach ⌣ Wheeling ⌣ White Plains
Wichita ⌣ Wilkes-Barre ⌣ Wilson ⌣ Worcester
Yakima ⌣ Youngstown ⌣ Zanesville

C.I.T.

C. I. T. CORPORATION • NEW YORK • CHICAGO • SAN FRANCISCO
A UNIT OF COMMERCIAL INVESTMENT TRUST CORPORATION
CAPITAL AND SURPLUS MORE THAN $100,000,000

HELPING DEALERS TO WIDEN THE SCOPE OF THEIR BUSINESS

NEWS

PEOPLE • PRODUCTS • PLANS

RMA To Run Two Parts Shows

IRE Still Studying Suggested Joint Sponsorship. IRSM Participation Definitely Out

NEW YORK—Interviewed by "Radio Retailing" here for amplification of a statement released following a late September RMA meeting to the effect that RMA, IRE and IRSM might join hands in the sponsoring of two 1937 trade shows for radio part, accessory and tube exhibitors, executive secretary Bond Geddes of the Radio Manufacturers Association stated, just in time to make our deadline, that:

1. The RMA would definitely sponsor a National Parts Show at Chicago in the spring or early summer of 1937.
2. The RMA would develop, later, plans for another Parts Show to be held in the Fall at New York.
3. Neither show would include radio *set* exhibits.
4. IRSM participation, discussed with a representative of this organization, is now definitely "out."
5. IRE participation, discussed with representatives of this organization, is still tentative.

The shows, states Mr. Geddes, will not be confined to RMA members but will be open to non-members makers of parts, accessories and tubes. It will, he further advises, be the objective of the RMA to secure maximum attendance of parts distributors, dealers, engineers and servicemen and to provide exhibit space at the lowest possible cost.

IRSM SHOWS CONTINUE

NEW YORK—K. A. Hathaway, executive secretary of the Institute of Radio Service Men, contacted by "Radio Retailing" just prior to publication, informs us that the IRSM is already receiving space reservations for two 1937 shows, similar in character to those sponsored for the past few years by this organization.

The first, to be held at the Hotel Sherman, Chicago, April 2-4, will be called "National Radio Industry Trade Show." The second, to be titled: "New York Radio Industries Trade Show," will take place at the Hotel Victoria, New York, in the fall.

Audible Arts Discontinued

PHILADELPHIA—The Radio Institute of Audible Arts, founded by Philco, has been discontinued. According to the founder, the aims of the Institute, namely, to stimulate wider and more active appreciation of good radio programs among the American people and to encourage the fullest utilization of radio as an instrument of entertainment and education, have in great part been accomplished.

Promoting IRSM Show

F. W. Lester (left) and Neal Bear are doing much scurrying around in the interest of the IRSM'S Fourth Annual Cleveland Radio Trade Show, to be held in the Hotel Cleveland, November 1 and 2. A telephoto demonstration staged by Acme News and N.E.A. is to be the feature

Directors and Delegates of NRSA

Meeting in St. Louis, September 7 and 8 were the following directors and delegates to the Second Annual conference of the National Radio Service Association: Seated (left to right): T. F. Stephenson, secretary of the board and southwest director; W. H. Warmington, past president; B. L. Lewis, president and eastern director; P. E. Provost, vice-president and New England delegates; R. G. Hanna, treasurer and Northwest director. Standing: J. F. Stoll, middle west director; F. Templeman, delegate; E. H. Olsen, executive secretary, R. K. Viles, Minneapolis delegate; E. F. Polsky, St. Paul delegate and Ralph Pringle

NBC's First Program

In the lobby of the RCA Building in New York, this interesting display commemorating ten years of NBC broadcasting has just appeared. Artists performing on the network's initial program, November 15, 1926, were: B. A. Rolfe, Will Rogers, George Olsen, Walter Damrosch, Tita Ruffo, Mary Garden, Harold Bauer, Ben Bernie, Cesare Sodero, Albert Stoessel, Edward Franco Goldman and Weber and Fields

How Colleges Stand on Football Broadcasts

The magazine "Broadcasting," quoting John Bently of the Lincoln State Journal, which is part owner of KOIL, KFAB and KFOR, gives the line-up of important colleges relative to this season's broadcasting of football games as follows:

These Schools Broadcast (Either Sponsored or Sustaining)		These Ban Broadcasts	
Arkansas	Northwestern	Alabama	New Hampshire
Baylor	Notre Dame	Clemson	New Mexico College
California	Ohio State	Colo. Mines	New Mexico
Chicago	Oregon State	Colo. State	North Carolina
Columbia	Oregon	Colorado	Oklahoma
Dartmouth	Pennsylvania	Conn. State	Penn State
Georgia	Rice	Cornell	Rhode Island
Idaho	St. Louis U.	Delaware	Tennessee
Illinois	Southern Methodist	Denver	Utah State
Iowa	Stanford	Duke	Vermont
Iowa State	Texas A. & M.	Harvard	Virginia
Kansas	Texas Christian	Kentucky	Virginia Mil. Inst.
Kansas State	Texas	Maryland	Virginia Polytech
Louisiana State	Army	Mass. State	Washington & Lee
Michigan	U. of Cal., Los Angeles	Mississippi	Western Maryland
Michigan State	Navy	Montana State	West Virginia
Minnesota	Washington State	Nevada	West Virginia State
Missouri	Washington	Nebraska	Wyoming
Montana State	Yale		

BRACH FORMS LYNCH DIVISION

NEWARK — Arthur H. Lynch, Inc., has just been consolidated with the L. S. Brach Manufacturing Corporation, of this city, and its subsidiary, Radio Wire and Cable Company. Mr. Lynch himself joins the Brach organization in an advisory capacity and the sale of Lynch products already on the market and others in process of design will be continued as usual.

Antenna and other products marketed by Lynch will henceforward be labelled: "Product of the Lynch Division of the L. S. Brach Manufacturing Corporation."

RADIO BOOSTER ELECTS

LOS ANGELES—At the regular semi-annual meeting of the Radio Booster Club of Southern California No. 1, held August 7th, the following officers were elected: Lew Sperry, president; H. W. Dunham, vice-president; Harry A. Lasure, secretary-treasurer. The club is composed of manufacturers' agents of radio parts and equipment.

The club is now preparing a complete list of manufacturer's agents of radio parts and equipment in Southern California, telling what lines these men handle.

ZENITH GETS PATENT

CHICAGO—The Patent Office has just granted to president E. F. McDonald, Jr., of the Zenith Radio Corporation, patent No. 2,052,238, which covers split-second tuning. It is Zenith's intention, according to advertising manager Edgar G. Hermann, to offer licenses to other companies desiring to use this dial system.

RMA SEEKS JAP TARIFF

WASHINGTON—To protect manufacturers of carbon resistors against cheap products now entering this country from Japan the RMA Board of Directors has authorized an effort to secure a protective tariff and, if possible under President Roosevelt's executive powers, an immediate order against this competition from inferior products.

RMA headquarters will work with a special committee comprising Arthur Moss, of New York, Fred Williams, of Philadelphia, and John E. Schunck, of Lakewood, Ohio. Japanese resistors, according to the association, are being sold at about one-half the price of American products.

Electronic Labs Reorganized

INDIANAPOLIS—On September 24 Electronic Laboratories, Inc. was granted a petition for reorganization by the United States District Court here. This petition was filed by the company voluntarily. According to William W. Garstang, the company found itself short of working capital due to continual increase in business and decided to take the step as a protection to its creditors.

Reorganization, says Garstang, will in no way affect the operation of the business and will, in fact, assist it in its future expansion and operation. Volume of business in September was the largest in the history of the firm and October orders are expected to exceed any previous October by 100 per cent.

Crosley Salesmen Drive Away Contest Prizes

Seventeen dealer and distributor salesmen, winners in a Crosley refrigeration sales contest for July and August, drove as many prize Chevrolet cars away from the factory on October 6. Runners-up received refrigerators, radios, watches. In the group photo (pick 'em out yourself!) are the lucky seventeen: John Schaffer, W. J. Probst, Lew Block, Dennis L. Slayback, Gerald H. Weinrich, J. P. Rosauer, Herbert D. Frank, A. L. Finger, D. A. Gathmann, G. J. Warbis, C. B. Grime, Si Brown, Barney W. Paull, Joseph Hirsch, Sam Baskin, Henry Hodeck, C. F. Sohmer

Triumph Goes Direct

J. J. McCarthy, president of the Triumph Mfg. Co., who has just announced a new test equipment sales policy. After October 10 all equipment will be sold at a factory direct price. Stating his reasons for the adoption of this plan, McCarthy says: "Sales of our equipment going direct have more than trebled in the past six months. We are opposed to long, drawn-out, time-payments with high interest rates and hereafter our prices will be based on cash orders. Savings to the dealer and serviceman may run as high as 36 per cent"

New N-U GSM

R. M. Coburn, who has just been appointed general sales manager of the National Union Radio Corporation of New York. Coburn's first contact with radio was during the World War, when he served as an operator in the Navy's aviation division. Later, he turned out his own custom-built receivers, became district manager for Kolster and later general sales manager for Ware. For the past few years he has been with N-U in the capacities of sales statistician, office manager and, more recently, assistant sales manager

AMERICAN-BOSCH SPRINGS NEW BROADCAST STUNT

SPRINGFIELD, MASS.—Using broadcasting to reach consumers is an old story. But using the same medium and the same program to sell radio dealers simultaneously is the newest sales idea being employed by distributors for American-Bosch CentrO-matic sets.

The plan centers around a series of one-minute spot dramatizations, electrically transcribed, which the factory furnishes to its distributors and dealers. The distributor arranges for the broadcast of one of these announcements at a certain time every day, preferably three o'clock in the afternoon. A little before three distributor's salesmen call on dealers and set up sample sets. The dealer then hears an entertaining dramatized human interest broadcast that tells him the sales features of the set, which the set itself backs up.

The records, thirteen of them recorded by popular NBC artists, with space left for dealer's or distributor's announcement, may, of course, be used by dealers to sell the consumer within the store by playing them on a reproducing machine.

Globe-Union Name Change

MILWAUKEE—C. O. Wanvig, president, announces that the name of the concern which he heads, formerly Globe-Union Mfg. Co., has been changed to Globe-Union, Inc. Stockholders also ratified a simplification of the corporate structure. This was necessitated through the growth and development of the company during the past few years and the fact that various operating companies in several states have been absorbed by the organization.

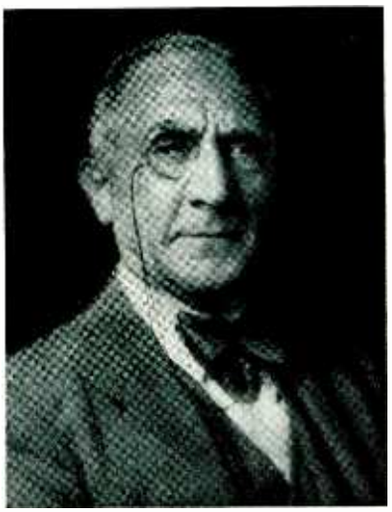
Hereafter, all factories—Atlanta, Cincinnati, Dallas, Los Angeles, Memphis, Milwaukee, Philadelphia and Seattle, and the various operating divisions including batteries, Centralab Radio Parts, spark plugs and roller skates—will be operated by the same executive control.

McIver Leaves G-E

BRIDGEPORT—J. W. McIver, for several years manager of appliance promotion for General Electric, has resigned to join Maxon, Inc., advertising agency. Duties formerly assigned to him have been apportioned among the appliance divisions of the Bridgeport organization, in accordance with a decentralization of promotion effort recently inaugurated.

W. D. Yates will handle composite promotion and exhibits, G. H. Libbey will promote G-E Hotpoint heating devices and sunlamps, C. T. Wandres will push radio, J. K. Kay will have home laundry equipment, W. E. Sawyer gets electric cleaners, E. A. Macaulay will have fans and D. B. Holister, clocks.

New Halson V. P.



Says M. Openshaw, newly elected vice-president of the Halson Radio Manufacturing Corp., in response to our letter asking for an *informal* snapshot: "I golf not, neither do I fish. I never do vacation, so my serious recreation . . . is booking orders that aren't measly . . . and selling Halsons is quite easy!"

Appoints N. Y. Mgr.

Here's John S. Meck, general sales manager for Clough-Brengle, who announces opening of a New York branch office and warehouse at 53 Park Place, to be under the direction of Sam Harper, former central district sales manager. Meck announces, also, appointment of Ray Perron, formerly with Tobe Deutschmann, as New England territorial manager with offices in Taunton, Mass., and appointment of Maurice F. Taylor of Silver Springs, Md., as Washington, Virginia and Maryland manager. Russel O. Lund, formerly with Thordarson, takes over the C-B central district

300% INCREASE in 2 YEARS!

RAYTHEON

TRADE MARK

MAKERS OF THE FAMOUS 4-PILLAR TUBES

The past two years have seen the most hectic scramble ever known in the tube business. Some of the weirdest merchandising schemes ever conceived have been tried on the retail trade.

During that time RAYTHEON'S original sound policies have not varied.

Uniform prices have been maintained. Protection for jobber and dealer has been maintained. RAYTHEON tube sales have never been "forced". RAYTHEON tubes are not advertised at "cut" prices.

The policy of keeping RAYTHEON tubes from 6c to 11c more profitable per tube for the dealer has been maintained.

The policy of elaborate and practical dealer merchandising cooperation with outstanding sales helps has been maintained.

RAYTHEON'S high standards of uniformity, close tolerances and quality have never been lowered.

Licensed set manufacturers equip their sets with RAYTHEON tubes because the name RAYTHEON insures trade and consumer quality appeal, and higher comparative set unit prices with less sales resistance.

The fact that these sound policies are successful is proven by the 300% increase in RAYTHEON'S business during these two trying years.

Protect your tube profits with RAYTHEON!

THE MOST COMPLETE LINE—ALL TYPES OF GLASS, OCTAL BASE, METAL AND AMATEUR TRANSMITTER TUBES

RAYTHEON PRODUCTION CORPORATION

420 Lexington Ave., New York, N. Y.
445 Lake Shore Drive, Chicago, Illinois
55 Chapel Street, Newton, Mass.
555 Howard Street, San Francisco, Calif.
415 Peachtree Street, N. E., Atlanta, Ga.

RCA LAUNCHES CONTEST

CAMDEN—A $56,000 prize contest for the best 25-word statements on the subject "Why I Like the Magic-Voice Radio" will be the major theme of RCA Victor's newspaper advertising during the month of October, according to Thomas F. Joyce, advertising and sales promotion manager.

Beginning October 4, the contest runs for four consecutive weeks, with 10,210 awards valued at $14,000 being distributed weekly The country has been divided into five sections, so that separate prizes may be distributed weekly in each of these sections. Each week, for four weeks, the company will award a total of ten console radios, fifty table models, fifty record players and 10,100 china salt-and-pepper shakers in the shape of the famous Victor dog.

From one to three large-space insertions have been scheduled in approximately 200 newspapers in over 150 cities and distributors are running tie-in ads. The Magic Key program over the NBC network Sunday afternoon will also plug the contest.

PILOT STAGES CONTEST

LONG ISLAND CITY—The Pilot Radio Corporation is in the midst of a "Do-You-Know" contest for the consumer, is running considerable space in newspapers calculated to bring the public into stores representing the line. The consumer is asked to answer many questions calculated to aid sales.

Judges in the contest, which closes November 10, carries $1,500 in prizes, are: W. MacDonald, Managing Editor of "Radio Retailing," Franklin Johnston, Editor of "American Exporter" and Hugo Gernsbach, Editor of "Radio Craft."

Burgess Buys Thordarson

Well-Known Battery Maker Secures Controlling Interest in Transformer Concern

FREEPORT, ILL.—Dr. C. F. Burgess, president of the Burgess Battery Company, announces purchase of a controlling interest in the Thordarson Electric Manufacturing Company, of Chicago. Thordarson is to continue making transformers for the radio and neon sign industries. Chester H. Thordarson, founder of the company, will act as president, assisted by Jackson Burgess as vice-president.

The newly elected Thordarson board of directors consists of Dr. C. F. Burgess, chairman, C. H. Thordarson, Benjamin S. Reynolds, John Dern and Trig Thordarson. D. J. Teare has been appointed treasurer and Rose M. Crones, secretary.

An intimate friendship of over thirty-five years' standing between Dr. Burgess and Mr. Thordarson had much to do with the purchase of the majority interests of the well-known transformer firm. It was at the suggestion of Dr. Burgess that Mr. Thordarson started his collection of rare books, many of which are the only copies in existence.

Emerson Display at Atlantic City

NEW YORK—Emerson is to have a display at Atlantic City this year. It will form part of the E. I. DuPont DeNemours & Company exhibit and will feature the Gemloid dial. Models F-133 and L-141 will be featured.

Transformers, Too

Dr. C. F. Burgess, maker of dry-cell batteries, who now also controls companies making acoustic equipment, electrical controls, water softeners, electronic devices, special industrial metals and transformers

WEBSTER LISTS APPLICATIONS FOR SOUND EQUIPMENT

Gives 57 Uses Helpful to Retail Trade

CHICAGO — Fifty-seven specific uses for sound equipment are listed in a new survey conducted by The Webster Company of 3825 West Lake Street. Useful to retailers engaged in the business of unearthing prospects, these are as follows:

Airports, Railroad Stations, Bus Terminals—For announcement of arrival and departure, special announcements, call systems, etc. *Amusement Parks, Baseball Parks, Band Stands, Football Fields, Stadiums, Race Tracks, etc.*—For announcements, speeches, music systems, control and handling of crowds, etc. *Auditoriums, Sports Arenas, Skating Rinks, Ballrooms, Lodges, Commercial Clubs, Convention Halls, etc.*—For announcements, scoring call systems, paging music entertainment, rebroadcasting, entrance ballyhoo, car calling. *Cemeteries*—For supplying or amplifying music in grounds, for supplying chimes from recordings for chapel services, for portable use on various occasions.

Churches — For public address in main room and adjoining rooms, for supplying chimes in lieu of bells, for recording sermons, for music rebroadcasts. *Exhibi-*

Raytheon Displays for Store or Window

To dealers handling its line of four-pillar tubes the Raytheon Production Corporation offers these novel, free displays designed for use in the store itself or the show window. They are approximately two feet wide by two and one-half feet high, are heavily constructed and provided with easels. The surface of the display at the left is specially processed so that chalk may be used for writing in items

tions, Carnivals, Fairs, Side Shows, Circuses, Tent Shows — For general announcement and ballyhoo at entrance and in grounds, for supplying music, judging events, portable systems for side shows, music system for special acts. *Restaurants, Road Houses, Barbeque Stands, Cook Houses, Concessionaries*—For music, announcements, ballyhoo, calling orders, instructions. *Factories, Department Stores, Brokerage Offices, Large Business Offices* — General announcements, paging, rebroadcasts, call system. *Hotels*—For radio in guest rooms, amplification in main rooms, music in dining rooms, paging, for use of speakers at conventions. *Hospitals* — Radio for patients, paging system, radio for nurses' home, amplification at instruction classes.

Schools, Colleges — Centralized radio, rebroadcasts, for auditorium use, for individual classroom, for central talking to any one or all of rooms, for principal to listen in on activities, music, recording. *Ships* — Centralized radio for passengers, paging system, general announcements, for amplifying music, for general entertainment, also meets requirements of Department of Commerce for safety on ships of certain size and purpose. *Garages* — To call car wanted and thus speed up delivery of parked cars, calling for information on repairs, paging.

Other obvious uses are in: *Apartment Houses, Armories, Assembly Halls, Auction Rooms, Ballrooms, Clubs, Court Rooms, Dining Rooms, Docks and Wharves, Night Clubs, Office Buildings, Roof Gardens, Sound Trucks, Swimming Pools, Gymnasiums, Trailers, Vaudeville and for Window Demonstration.*

Norwalk Makes Complete Coil Line

SOUTH NORWALK, CONN.—The Norwalk Engineering Corporation of this city now manufactures a complete line of radio coils, including r.f. units and chokes as well as i.f. coils. Edwin A. Gelein is president and treasurer; Kenneth W. Jarvis, vice-president and secretary; Russel M. Blair, chief engineer and James Hobusch, production superintendent.

KEN-RAD PLANT PROGRESSING

OWENSBORO, KY.—Work is progressing rapidly on an addition to the main Ken-Rad plant here. When completed, this addition will add substantially to available space needed, principally, by certain departments of the metal tube division.

Fada Shown in Cincinnati

CINCINNATI—More than 100 radio dealers attended a private showing of 1937 Fada radios, held in the Netherland-Plaza late in September by the Fisher-Aeschbach Company, recently appointed a distributor. A. H. Schrage, president, served as toastmaster.

STEWART-WARNER CONVENTION NEARS

CHICAGO — Presentation of the new Stewart-Warner refrigeration line will take place at a distributors' convention scheduled to start October 29 and continue through October 30 at the Drake Hotel.

The program, of interest to top executives as well as the salesmen employed by their organizations, will include a complete analysis of the company's new finance plans. Displays are to show, in detail, construction features of the new line.

John F. Ditzell, radio and refrigeration sales manager, is urging his distributors to mail in reservations for hotel accommodations early, pointing out that there are several other conventions in town, crowding the hotels.

Wurlitzer Eliminates Subsidiary

NEW YORK—The Rudolph Wurlitzer Manufacturing Company, a New York corporation, has been liquidated and is to be dissolved. All of its assets have been transferred to, and the liabilities have been assumed by, the Rudolph Wurlitzer Co., effective October 2.

Business will be carried on as usual. Manufacturing and selling will continue to center around the executive setup at North Tonawanda, to which all communications should be addressed.

Stromberg Trailer in Chicago

ROCHESTER—After completing a seven thousand mile tour of the Rochester division, the Stromberg-Carlson demonstration trailer pictured in "Radio Retailing's" September issue has moved on to Chicago, from which city it will proceed to points in Illinois, Iowa and parts of Michigan and Indiana.

The Rochester division swing included 135 towns.

J. F. D. MOVES

BROOKLYN, N. Y.—The J. F. Distributing Company, maker of wires, cables, antennas and the novel Remote-O-Cable Replacer designed to permit rapid work on auto-radio flexible control cables, has just moved to larger quarters at 4111 Fort Hamilton Parkway. This is the third expansion move of the company, according to Julius Finkel.

Krich-Radisco Expands

NEWARK—Krich-Radisco, Inc., has opened new, ultra-modern quarters at 422-432 Elizabeth Avenue, and held open-house on September 10 and 11.

Emerson Execs

Ben Abrams (right) and Nate Hast of Emerson check in at the company's exhibit at Grand Central Palace

Seattle Service Show

Snapped at the Northwest Radio Technician's convention late in August: Left to Right: Guy A. Hurd, president, Radio Service Society; Gene N. Henderson, show manager; Clyde Ellis, editor of the Radio Technician

Boosts Crosley

Harry M. Sadler, for more than twenty years prominently identified with the furniture and electrical appliance industries, has just been made general manager of the Anchor Lite Appliance Company, Pittsburgh distributor for Crosley

JOBBER APPOINTMENTS

Emerson—For the Rocky Mountain region, Idaho, Utah, northeastern Nevada and western Wyoming: *W. H. Bintz Company,* Salt Lake City. For all of Maryland: *Electrical Products, Inc.,* Baltimore. For central and southern Indiana: *Peerless Electrical Supply Co.,* Indianapolis. For northern Indiana: *South Bend Lumber Co., Inc.,* South Bend.

Grunow—In Boston: *J. H. Burke Company.*

Horton—In Detroit: *Electrical Specialties Co.* In Los Angeles: *Fey & Krause, Inc.*

Stromberg—For central Tennessee, east of the Tennessee River: *Middle Tennessee Electric Co.* For eastern Tennessee: *The Graybar Electric Co.,* Knoxville.

Turner—In Illinois: *L. G. Cushing Co.,* Chicago.

Utah—In Milwaukee: *Central Radio Co.* In Green Bay, Wis.: *Ne-je-lo Radio Supply Co.* In Chicago: *South Side Radio Co.* In Green Bay, Wis.: *Ne-je-lo Radio Radio Co.* In New York City: *Fisher Distributing Co.* In Philadelphia: *Romar Radio Co.* and *Philadelphia Radio Supply Co.* and *Herback & Rademan Co.* In Brooklyn, N. Y.: *J. F. Distributing Co.* In Mt. Vernon, N. Y.: *MacRadio Co.* In Perth Amboy, N. J.: *Bennett's Radio Supply.* In Newark: *Aaron Lippman & Co.* In Schenectady: *M. Schwartz & Son.* In Troy, N. Y.: *Page Radio Shop.*

C.I.T. ADS AID TRADE

NEW YORK—Large space newspaper advertisements now appearing here and in other large cities over the signature of the Commercial Investment Trust Corporation call attention of the consumer to the fact that good radios, once a luxury, are now available to all. Two convincing reasons why this is so are shown: (1) Reduction in receiver prices due to increased volume of business and resultant reduced production costs, and (2) the development of new instalment buying finance plans.

The public is offered a free 16-page booklet entitled "Buying Out of Income," explaining the merits of C.I.T.'s budget plan.

SARNOFF HONORED

NEW YORK—David Sarnoff, president of the Radio Corporation of America, was guest of honor at a Ritz-Carlton dinner late in September, given by employees of the Corporation and its service companies to mark his 30 years in the radio industry.

More than 300 employees of the Corporation presented Mr. Sarnoff with an inscribed platinum watch. Members of the Veteran Wireless Operators Association presented a scroll. General James G. Harbord, chairman of the board, presided and read messages of congratulation, including one from Senator Guglielmo Marconi.

RCA Products, Soup to Nuts

Here's the in and out of two new streamlined trailers built for RCA-Victor at $25,000 each. Measuring 37½ feet overall, designed by John B. Sanger, nationally known industrial designer, they contain a complete display of the company's products, including complete police transmitters. The two trailers will tour Eastern and Southern states, according to advertising manager Tom Joyce.

KELVINATOR EXPANDS PLANT

DETROIT—Complete plans for a $600,000 plant expansion program were announced last week by the president of the Kelvinator Corporation, George W. Mason. Work will start at once, according to Mr. Mason, on construction of two new buildings with a total floor space of 304,000 sq.ft. They are to be completed in three months and will permit a 25 per cent increase in capacity.

Apollo Contest Under Way

NEWARK—Immediately following its participation in the $60,000 contest staged by the Crosley Radio Corporation and its distributors, ended August 31, the Apollo Distributing Co. of this city inaugurated a two-months' contest starting September 1 and running until October 31. Conducted in behalf of Shelvador refrigerators, the contest is already well under way.

"Hit Parade" Featured In Windows

Tying in with its popular "Hit Parade" program, broadcast by NBC, Lucky Strike is supplying its dealers with this effective window display. It's good for the cigarette business and it also helps the radio business

Bombay Distributor Opens New Showroom

From D. R. D. Wadia, director of the Automobile Company, Ltd., Bombay, India (one of "Radio Retailing's" oldest foreign subscribers), comes this photo of notables attending the distributing firm's opening of new, 3,500 sq. ft. showrooms: Seated (left to right): Mrs. C. B. Selhna, H. H. The Maharaja of Limbdi, Mrs. D. R. D. Wadia, H. H. The Maharaja of Morvi, D. R. D. Wadia and Mrs. C. S. Dinshaw. Standing, second, third and fifth from left: C. B. Selhna, station director of VUB, Sgt. H. J. Dent, champion DX listener and C. S. Dinshaw

Reader's Starts Shelvador Drive

HOUSTON—Reader's Wholesale Distributors, Crosley representative, has inaugurated a unique contest in cooperation with dealers in this area. One hundred prizes ranging from a refrigerator down to smaller items are being offered to the public for estimates of the quantity of food held by a Shelvador.

More Men For May

NEW YORK—D. W. May, district radio sales manager of the General Electric Company, has just appointed two additional district representatives for the line in this area. Paul Lippman will handle part of Brooklyn and Pat Seracino will work on special accounts throughout the metropolitan area.

Demonstrates Emerson

John Klein, salesman on the staff of the Auto Equipment Company, Emerson distributor in the Colorado territory, walks right up to his dealers' door with one of the new battery portables playing, stirs up interest even before he starts to sell

Moroccan Pioneer

From Norman M. Simons of New York, traveling in Europe, comes this interesting picture showing how a distributor in Meknes, French Morocco, promotes the sale of Pioneer Air-Flow chargers. Simons has a wide swing mapped out for himself and says he will be lucky to get back to the States by Decoration Day

BROADCAST BRIEFS

NBC advises that two international broadcasting records were broken in August. . . . Foreign pickups totaled 87, the largest of any month in the chain's history. . . . Germany contributed 52, marking the highest monthly total ever received from any one country. We are told, further, that from 1931 to 1935 August has been the month in which music has reached its highest percentages. . . . Last month the trend was continued, with music comprising 67.7 per cent of all August program hours. . . . This is the highest figure reached during the first eight months of 1936. WNAC of Boston, incidentally, has just joined the NBC red network. And KYW of Philadelphia has just applied to the FCC for permission to increase power to 50,000 watts.

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CBS announces the affiliation of WHIO of Dayton, operating full time with 5,000 watts during daylight hours, 1,000 watts at night on 1,260 kc. . . . The same men own the Dayton Daily News and the Springfield News, so both newspapers may be expected to support coming broadcasts. Stewart-Warner will push its radios over this chain each Monday evening until December 14, incidentally, taking the air at 8 p.m. E.S.T. and rebroadcasting on the Pacific coast at 9 p.m. P.C.T. The Hammerstein theatre, in New York, we hear further, becomes the chains Radio Playhouse No. 3.

•

WOR reports a total of 1,411,181 pieces of mail received since the first of the year, up to and including August 29. . . . During a similar period in 1935 the mail response totaled 531,576 pieces of mail. . . . A nice, healthy increase of 165 per cent.

•

WORLD advises that in addition to XEW of Mexico City, the following new stations have just subscribed for transcription service: WJW of Akron; KWBG of Hutchinson, Kansas; KRLH of Midland, Texas; KRLC of Lewiston, Idaho; KID of Idaho Falls; KMO of Tacoma; KGY of Olympia, Wash.; KUJ of Walla Walla; KVOS of Bellingham, Wash., and KPQ of Wenatchee.

BC Distributors Elect Jagoe

VANCOUVER, B. C.—Allison M. Jagoe, head of the Vancouver firm of Radio Sales and Service, Ltd., had just been elected president of the British Columbia Radio and Electric Appliance Distributors' Association. Other new officers are: C. C. Smith, vice-president; C. S. Crosby, secretary-treasurer; W. C. Clarke, Lester White, Frank Boyle and Stewart Smith, members of the advisory committee.

Tentative plans for a Vancouver "Radio Week" are in process of formulation.

VIKING TO MANUFACTURE

NEW YORK—The Viking Products Corporation of 330 West 42nd Street, heretofore interested in both the distribution and manufacture of electrical products, has discontinued its wholesaling activities and will henceforward devote itself exclusively to manufacture of Moon-Glo electric clocks, a new line of Foto-Cloks, interior electric displays, directional and exit signs and devices, reflectors, fixtures and special lighting equipment, according to E. D. Story, vice-president.

The Wholesale Division has been sold to the Westinghouse Electric Supply Company of New York.

Two New RCA Promotions

CAMDEN—Ralph B. Austrian and M. F. Burns, widely known motion picture and radio executives, have been elected assistant vice-presidents of the RCA Manufacturing Company, according to an announcement by G. K. Throckmorton, executive vice-president.

Austrian, with headquarters at 411 Fifth, New York, will maintain contact with motion picture producers and theatre circuit operators in the East, in behalf of RCA Photophone equipment. Burns will establish similar contacts with producers and large exhibitors on the West Coast, with headquarters at RCA's Hollywood studios.

C-D Condensers Flew With Richman

NEW YORK—Cornell-Dubilier dykanol-filled condensers were used in the Dayton Products Company's radio compass, which flew with Harry Richman and Dick Merrill on their flight in the "Lady Peace" to Europe and return. The flight offered an excellent opportunity to test the moisture-resisting qualities of the condensers.

RCA Appoints District Men

CAMDEN—Paul C. Richardson, manager of field activities for the RCA Manufacturing Company, announces the following appointments: E. W. Isenhower has been made head of the Los Angeles branch. E. J. Rising heads up the San Francisco office. Both men report to James E. Francis, the company's Western Division manager.

Weisser Joins Emerson

NEW YORK—Charles O'N. Weisser, well known West Coast radioman, has been appointed to the Emerson sales staff. Weisser's experience dates back to 1922, when he joined the C. D. Tuska Company, later taken over by Atwater Kent.

Davey of Bosch

Roy Davey of American-Bosch, smoking his ever-present pipe, looks over the crowd looking over his merchandise at the recent Grand Central Palace show in New York

Studies Aerovox Plans

Dr. Waterman (right) of the Aerovox engineering staff, discusses with Fred W. Clarke, managing director of the Continental Carbon Co., Ltd., of Melbourne, Australia, the latter's plans to manufacture condensers under the American concern's patents and processes in the distant country

Displays Sparton

Following the factory's lead, the Cleveland Distributing Company has purchased and equipped this "Junior" display truck, will send it out to the country Fairs in behalf of Sparton radios and refrigerators. It carries Sylvania tubes, Easy washers and ironers, too

NOISE IS COSTING US MONEY

(*Continued from page* 12)

frequencies and can seriously retard development in the region of the important, new ultra-highs.

To this group it has been repeatedly pointed out that noise generated by ignition should be corrected at its source, while cars are in process of assembly, in order to maintain consumer goodwill. This is admittedly weak and in view of the fact that shortwaves are only now assuming major importance we must admit that car manufacturers could scarcely be blamed for not taking this suggestion too seriously. *Now, however, we call attention of the car maker to the fact that many new cars are equipped with radio by his own branches, and that cars designed to be quiet might conceivably sell easier to the radio-interested consumer.* Cars are not blessed with many features distinguishing them from competition and the inclusion of noise-eliminating filters or ignition wiring minimizing interference could be used to advantage as a sales-builder.

Busses and trucks, even worse offenders than passenger cars, are a subject on which the usually fertile imagination of men in the radio industry interviewed while gathering material for this article refuses to "click." Bus operators go out of their way to avoid mass consumer criticism and would probably do their part in any genuinely national campaign. Truck operators appear to be, at least temporarily, beyond reach. And we hesitate to recommend legislation, knowing full well that it would be extremely difficult to enforce.

Legislation Hard to Enforce

From many consumer and trade organizations, particularly those in small towns, we have received requests for sample ordinances calculated to correct the radio noise situation by law. We have always hesitated to supply such documents for it is our conviction that such legislation is not only extremely difficult to enforce but, also, frequently creates consumer antagonism that definitely militates against solution of the problem it is intended to solve. Location of noise sources is not simple, even when the operators of offending machines leave them running while measurements are taken. It is virtually impossible when some crusty, rugged individualist turns machines off every time the trouble-shooting truck with its direc-

(*Please turn to page* 43)

ZENITH
AGAIN FIRST

ZENITH last year enjoyed a greater increase in public acceptance than any other major radio manufacturer.

As a result last year was ZENITH'S greatest year in its history, including 1929.

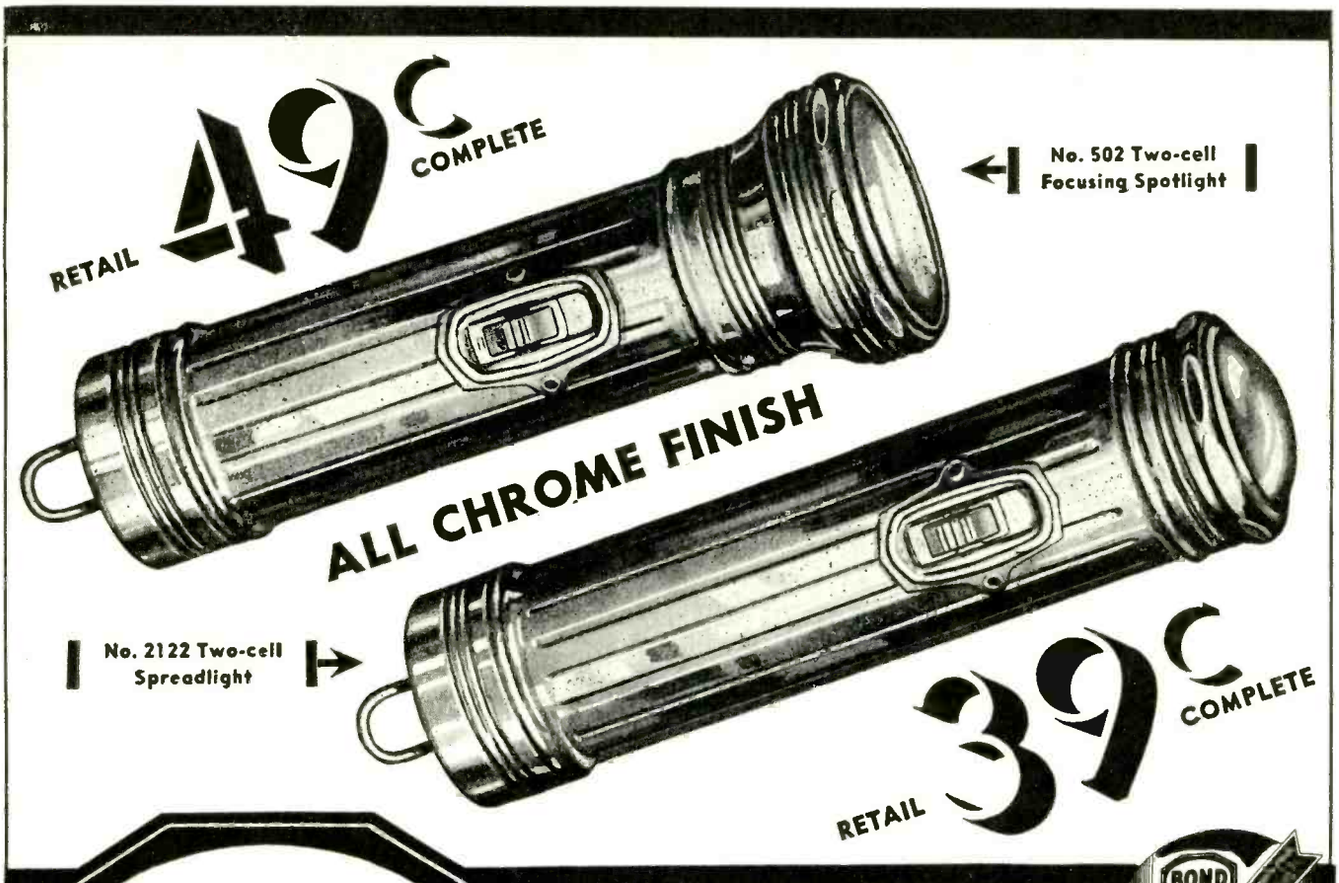
ZENITH repeats and is again this year experiencing its greatest increase. (222% first 4 months over last year.)

ZENITH'S sales of its new models for the first five months of this fiscal year (May, June, July, August and September) have exceeded the entire twelve months' sales of last year, its greatest year in history.

No other major radio manufacturer can make the above statements.

There is a reason — Merit of product — The public is demanding ZENITH.

AMERICA'S MOST COPIED RADIO
ALWAYS A YEAR AHEAD



BOND

REG. U.S. PAT. OFF.

New High-Power VALUES!

Super-Speed Turnover and Profit

EXTRAORDINARY quality by Bond, to retail at chain and mail-order prices. All-metal, *full-chromium finish,* Two-cell Floodlight and Two-cell Focusing Spotlight. Buy now. Bring customers back home with Bond timely *Leaders.*

NO. 502 BOND SPOTLIGHT

Comes packed in TWO displays of SIX each, and priced to retail at 49c each complete, when purchased with 48 No. 102 Bond Mono-cells in Deal No. 490.

NO. 2122 BOND SPREADLIGHT

Comes packed in TWO displays of SIX each, and priced to retail at 39c each complete, when purchased with 48 No. 102 Bond Mono-cells in Deal No. 390.

Two in Each

DEAL NO. 490

12 No. 502 Two-cell Spotlights with 48 No. 102 Bond Mono-cells.

Retail value	$8.28
Deal net cost	$5.52
Your profit	$2.76

Two in Each

DEAL NO. 390

12 No. 2122 Two-cell Spreadlights with 48 No. 102 Bond Mono-cells.

Retail value	$7.08
Deal net cost	$4.76
Your profit	$2.32

BOND ELECTRIC CORPORATION

New Haven, Conn. • Chicago, Ill. • Houston, Texas • San Francisco, Calif.

(*Continued from page 40*)

tional antenna turns into the block.

Legislation may be useful in keeping a recalcitrant minority in line. But it cannot begin to do the entire job. Such legislation is, in our estimation, enforceable in connection with commercial and semi-commercial equipment, rather than domestic appliances. The following ordinance, for example, is doing a job on electro-medical equipment in Los Angeles, was adopted by the city largely because of the activity of the Music Trades Association:

THE PEOPLE OF THE CITY OF LOS ANGELES, CALIFORNIA, DO ORDAIN AS FOLLOWS:

Section 1. It shall be unlawful for any person, firm or corporation to operate in the City of Los Angeles any apparatus generating or causing high frequency oscillations which interfere with radio broadcast receiving apparatus or wireless receiving apparatus between the hours of 6 o'clock P. M. and 11 o'clock P. M. except that a person duly licensed to practice medicine, osteopathy, chiropractic or dentistry by the State of California, in a case of absolute emergency arising in the course of practice of his profession and which case demands immediate treatment between the afore-mentioned hours may operate or cause to be operated under his direct supervision any machine necessary to give emergency treatment in such case.

Section 2. Any device or apparatus such as Violet Ray machines, machines using the Tesla Coil or principal, X-Ray machines and Diathermy machines which interfere with the intelligibility of reception under all the following conditions shall be considered as coming within the terms of this ordinance:

(a). Such device or apparatus must be situated one hundred (100) feet or more from the radio receiving equipment with which it interferes.

(b). The radio receiving equipment interfered with shall be operated at a volume comparable to a person speaking in a normal tone of voice.

(c). The broadcasting station whose program is being received when the interference occurs must have a power output of at least one (1) kilowatt and must be located not more than twenty-five (25) miles distant from the receiving set.

It is expressly understood and provided, however, that this ordinance shall not apply to radio stations either broadcast, commercial or amateur, licensed by the Federal Government and/or which are engaged in interstate communication or to public utilities under the supervision of the State Railway Commission.

Section 3. The Chief of the Electrical Division of the Department of Building and Safety or his duly authorized Deputies, shall have the right to enter upon any premises at all reasonable hours for the purpose of inspecting the installation and working of all apparatus coming within the terms of this ordinance, and it shall be unlawful for any person, firm or corporation to interfere with the Chief of the Electrical Division of the Department of Building and Safety or his duly authorized Deputies, in making said inspection or to refuse to permit the said Chief or his Deputies to enter the premises for such purposes.

Section 4. When an inspection and test shall have been made by the Chief of the Electrical Division of the Department of Building and Safety or his duly authorized Deputies and it is found that equipment or apparatus coming within the terms of this ordinance is being operated in violation of this ordinance the person or persons responsible for the operation of such equipment shall be notified in writing to discontinue the use of such machine or to make additions, repairs or modifications thereof in order that the same may be operated in a manner which complies with the provisions of this ordinance. The mailing of a registered letter addressed to the owner or operator of the machine at the premises where the machine is located shall constitute a sufficient notice for the purpose of this ordinance. In the event that the owner or operator of such machine or apparatus does not, within forty-eight (48) hours after receipt of notice to repair or discontinue the use of such machine, either entirely discontinue the use of such machine during the hours the use of such machine is prohibited by this ordinance, or repair the same so that it complies with the provisions of this ordinance, such owner shall be deemed to be operating such machine or apparatus in violation of the provisons of this ordinance and such persons shall be subject to the penalties hereafter provided for such violation.

Section 5. Any person violating any of the provisions of this ordinance shall be deemed guilty of a misdemeanor and upon conviction thereof shall be punishable by a fine of not more than five hundred ($500.00) dollars or by imprisonment in the City Jail for a period of not more than six (6) months, or by both such fine and imprisonment.

No One Group Has Answer

So far, we've considered only the major sources of interference. There are others. Take traffic signals, for example. We have it on good authority that the City of Lake Placid, New York, has already spent $35 apiece to quiet 6. These devices, incidentally, could have been quieted by their maker for under $5 per unit. Certain blinkers on Massachussets highways are being equipped with filters as an experiment. Fifty have so far been filtered at a cost of $7.50 per unit for materials alone. The labor cost of installation in the field must run considerably in excess of this figure. Quieting of such blinkers while in the process of manufacture would have saved 80 per cent of the parts cost, eliminated most of the labor cost. Railways frequently create electrical interference. Little is known about its extent or any plans which may be under way to effect a cure.

Obviously, no one group has the answer to the radio noise problem. It spreads throughout several industries. Concerted effort is essential.

Investigation discloses, for example, that 6 consumer-formed radio clubs in different cities paid $200 or more plus the salary of a trained trouble-shooter for three weeks to map sources of local interference during 1935. Yet in not one instance were these sources of interference cleared up after the surveys were completed! Consumer clubs could not swing such a campaign alone.

One filter manufacturer took the initiative, attempting to get the ball rolling through radio trade channels. Authorized filter service stations were set up throughout the country, men especially trained to do this work. The results were disappointing. For while the campaign attracted many radio servicemen, too many simply intended to ride on the crest of the wave instead of doing a sales job to create that wave.

Stations WEEI and WBZ ran a campaign not so long ago in behalf of noise elimination, pulled 250 letters a day. Most of these were from consumers, who lost interest when they were told that racket could not generally be eliminated by installing filters at the set but that offending machines themselves must be tinkered with. *The average consumer, we are convinced, does not yet realize that most radio noise originates in his own or his neighbor's home.*

Radio set manufacturers have done all they can to make new receivers inherently quiet, installing adequate shielding, supplying and promoting the use of noise-reducing antennas. Some have even gone far out of their way to educate the public relative to noise by calling attention to it in their instruction manuals. More than this the set manufacturer obviously cannot do without deliberately spotlighting a reception evil which definitely retards sales. And such spotlighting would be indeed foolhardy until all interests concerned were ready to correct the evil by strong cooperative action.

Here are the major groups which must take hold of the problem . . . together . . . before any noise-prevention and elimination campaign can get to first base:

1. The radio equipment manufacturer
2. The radio trade
3. The broadcast industry
4. The electrical appliance manufacturer
5. The individual community
6. The automobile manufacturer
7. The public utility, and
8. The consumer himself

Co-ordination of these groups must be stimulated, undoubtedly, by the radio industry itself. In view of the growing importance of shortwaves the job should be started immediately. Noise-prevention is sufficiently important to warrant the best thought of each and every member of the radio business.

"Radio Retailing" injects into the subject as its initial contribution this thought: *Each and every interest directly or indirectly causing the continuance of man-made noise, as well as those suffering most directly from it, has a definite and important dollars and cents stake in solution of the problem.*

No interest need be appealed to on the basis of sheer philanthropy.

The Music

SOUND ENGINEERING

In years gone by, Enrico Caruso as Canio in the opera Pagliacci, thrilled audiences with the rich melody of his voice. His drum and costume you see above. Today, more than a decade after Caruso's death, his magnificent voice still stirs music-lovers the world over —coming to them on Victor Records with all the glory of old . . . recreated by the sound engineering of RCA!

RADIO CORPORATION OF AM

EVERYTHING IN RADIO FOR SERVICE IN COMMUN

Millions Want ...*when they want it!*

Another RCA product, Victor Records, provides music to suit every mood—bringing the world's greatest artists to America's homes!

In Victor Records, too, RCA sound engineering plays an important part!

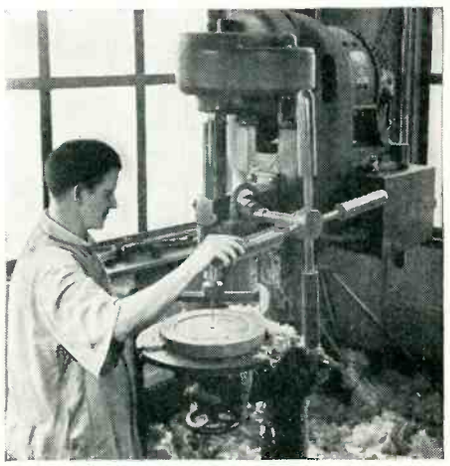
For more than thirty years there has been a forward march of painstaking experiment, tireless research and careful development in our sound recording laboratories. These years have produced, among other "firsts," Victor High Fidelity Records—and phonograph-radios and electric phonographs which at last bring precise, truthful reproduction of these records. This—climax of sound engineering—is something never before accomplished!

Just as every move is double-checked in record manufacture, so the other divisions of RCA work with the same year-long caution and exactness to insure products worthy of the RCA trademark.

In addition to instruments for the reproduction of Victor Records in the home, RCA services make sound film equipment, amplifiers and loudspeakers for public address systems. Notable achievements in sound reproduction that have come from RCA include the Dynamic Amplifier, which restores true volume range to record performance and the Rotary Stabilizer, a device highly essential for high fidelity reproduction of sound motion pictures.

RCA is the only organization engaged in every phase of radio. Hence RCA *knows* radio—knows most about sound engineering in the industry. This has given the public *confidence* in the RCA name. That's why dealers find it wise to identify themselves with RCA. They make more money.

Remember—RCA has produced more "firsts" in radio than anyone else. For RCA has always *engineered sound*—just as some day RCA will *engineer sight!*



RCA'S RECORDING "FIRSTS"

include:

First with Orthophonic recording... First to sign up important artists... First to use commercially flat disc talking-machine records... First to perfect sound-on-film method for synchronized talking motion pictures... First to demonstrate commercial practicability of home sound picture apparatus using sound-on-film system with 16 mm. standard amateur film.

First with new system of noiseless recording for motion picture field... First to recreate old records, adding new orchestration... First to increase range and more delicately shade tone in sound motion pictures by development of High Fidelity recording.

First to use the now famous Victor Higher Fidelity process to make phonograph records.

RCA MANUFACTURING CO., Inc. • RCA COMMUNICATIONS, Inc.
NATIONAL BROADCASTING CO., Inc. • RCA INSTITUTES, Inc.
RADIOMARINE CORPORATION OF AMERICA

Listen to "The Magic Key of RCA" on NBC Blue Network every Sunday, 2 to 3 P. M., E. S. T.

ERICA · *Radio City* · NEW YORK

ICATIONS . . . BROADCASTING . . . RECEPTION

NEW BUSINESS AT LOW COST

(*Continued from page 21*)

around the store to look over new lines. A standard and rigid policy of the store, this has caused many people who previously bought radios and refrigerators to buy washers. And, in addition, even where they are not prospects for new merchandise it induces them to mention such new products to friends who may be in the market. The most logical first buyers for any new article handled by a store are its old customers. Furniture stores, particularly, capitalize on this fact.

Two practices have proven particularly effective for me. I insist that salesmen endeavor to get the name and address of people who buy tubes, pilot lights, accessories and service. Men are instructed to determine the make, model and age of radios in use, if possible. Names obtained in this way have long constituted the most effective mailing list possessed by the shop. It is surprising how many dealers still neglect to obtain names and addresses of good prospects.

Customers who bought sets two or more years ago and purchasers of midgets, regardless of the age of their sets, are contacted every six months as a matter of course. This is not an occasional effort but a regular, year in and year out policy.

Volunteer Salesmen Swell Profit

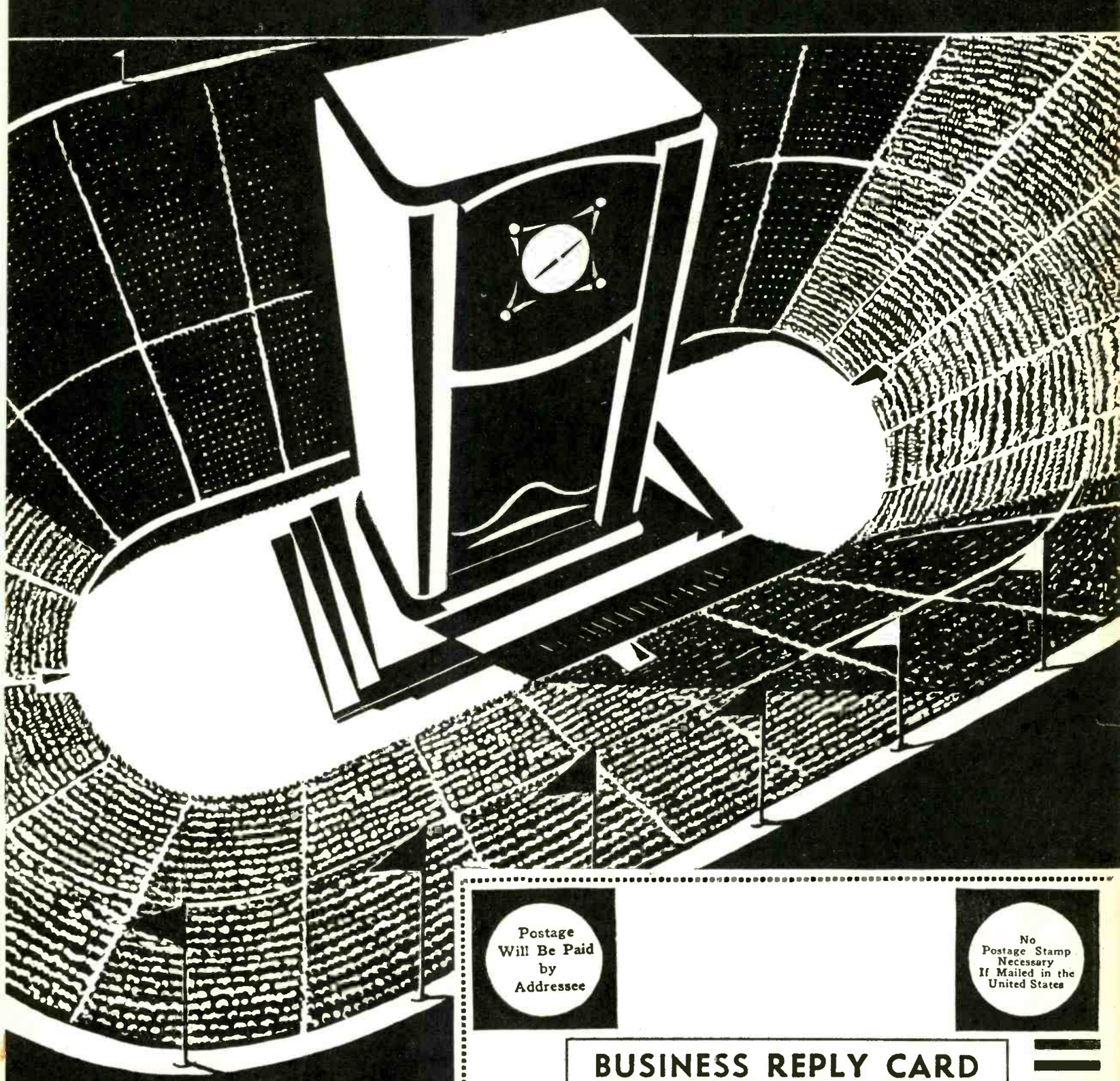
All of these plans aim directly and deliberately at the problem of securing new business at low cost. Variations are possible but, in my estimation, some method of using the user is essential to the continued success of any retail radio operation.

Large specialty sales organizations allow from 6 to 7 per cent for newspaper advertising. This form of promotion is necessary even where effective use of the user is developed. For through it the firm's reputation is strengthened and we know that reputation affects the attitude of both buyer groups discussed earlier in these pages.

But advertising cannot do the complete job of bringing in new business all by itself and do it at a profit. It was never intended for this purpose.

Use the user!

RADIO RETAILING'S PREVIEW of NEW PRODUCTS



A Complete Review of New Merchandise and Current Literature

Postage Will Be Paid by Addressee

No Postage Stamp Necessary If Mailed in the United States

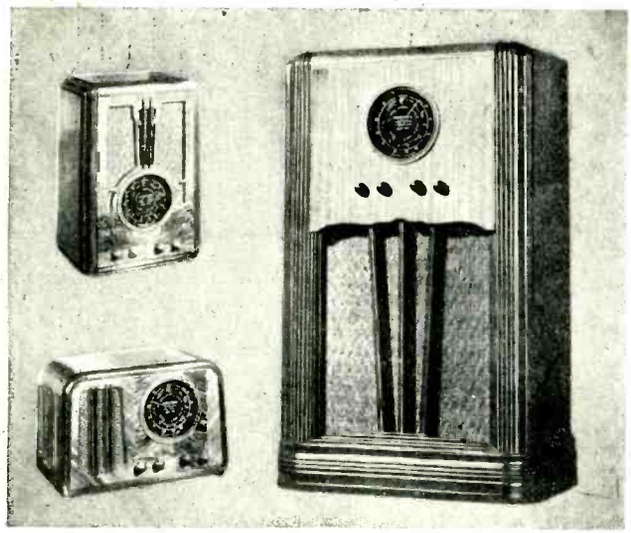
BUSINESS REPLY CARD

FIRST CLASS PERMIT NO. 64, SEC. 510 P. L. & R. NEW YORK, N. Y.

RADIO RETAILING

330 WEST 42nd STREET

30th Floor NEW YORK, N. Y.



Stewart Warner Models 1731, 1721 and 1725

1 STEWART WARNER

Stewart Warner Corporation

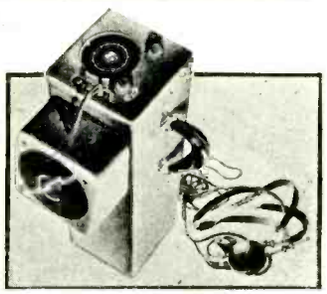
Models: 1731, 1735, 1721, 1725.

Description: Models, 1731 and 1735, table and console, employ 6 metal tubes and one glass tube as a tuning indicator tube. Twelve tuned circuits, single pentode audio system, three-band tuning (525-kc.-18.0 mc.), 6-in. Magic Dial, delayed a.v.c., automatic bass compensation.

Models 1721 and 1725, 6 octal base glass tubes, 11 tuned circuits, single pentode audio system, three-band tuning (525 kc.-18.0 mc.), 6-in. Magic Dial, shadow-beam tuner, a.v.c.—*Radio Retailing,* October 1936. Use post card for further information.

2 CROSLEY

Crosley Radio Corp.



Model: Portable radio.

Description: Shaped like a golf bag, but less than half the size, and carried like one. Only 1 ft. of antenna wire necessary. Equipped with speaker or headphones. Six tubes, including ballast tube. Uses dry cell batteries.

Price: With headphones, $37.50; with speaker, $39.95; with both, $43.50. —*Radio Retailing,* October, 1936. Use post card for further information.

3 ZENITH

Zenith Radio Corporation

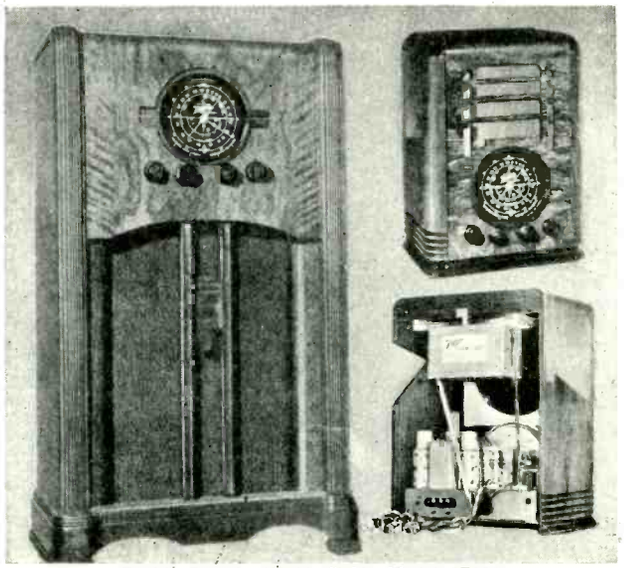
Models: Farm radios for 2 or 6 volts.

Description: Two table models and a console to operate from two volts of dry battery equipment or can be converted into 6 volts of storage battery power by adding the Zenith "Economy Pack". A special space is provided for this pack.

Model 5-F-134, 5 tubes, superheterodyne, table, 538-19,250 kc., 6-in. permanent magnet speaker, big black dial, Meta-glas tubes.

Model 4-F-133, table, 4-tube superheterodyne, 529-1712 kc., 6-in. speaker, big black dial.

Model 5-F-166, 5 tube superheterodyne, console, 538-19,250 kc., 8 in. permanent magnet speaker, big black dial, built-in antenna tuning system.—*Radio Retailing,* October, 1936. Use post card for further information.



Zenith Console 5F166, Table Model 5F134

4 GENERAL ELECTRIC

General Electric Co.

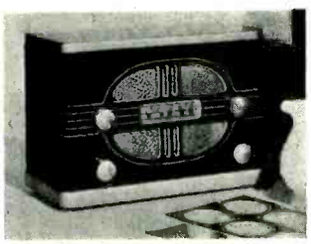
Models: Table type receivers.

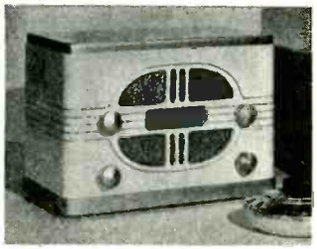
Description: Five new table type "individual" models in four color combinations.

Overall features, which are identical with each model, include: five metal tubes, two bands (540-4000 kc.), 6½-in. stabilized dynamic speaker, sliding rule tuning scale, tone control.

Model E-50, two-tone walnut finish; E-50W, white and gold finish; E-50R, red and gold finish; E50B, black and gold finish; E-52, two-tone walnut.

Prices: E-50, $22.50; E-50W, E-50R, E-50B and E-52, $24.95. — *Radio Retailing,* October, 1936. Use post card for further information.





CIRCLE NUMBERS - SIGN - AND MAIL

RADIO RETAILING
330 West 42nd Street
New York, N. Y.

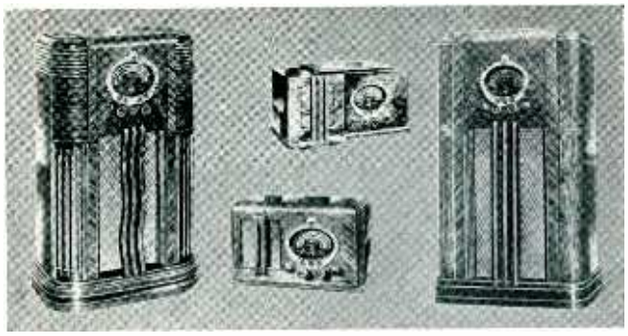
Gentlemen: . . . We are interested in knowing more about the products identified by the numbers circled below:

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	

SIGNED **TITLE**

COMPANY

STREET ADDRESS **CITY** **STATE**



Majestic 850, 86, 66 *and* 750

5 MAJESTIC

Majestic Radio & Television Co.

Models: 1937 line of radios.

Description: In addition to the sets described in September, the following are available: Model 65, 6-tube upright table; 66, 6-tube lay-down table; 75, 7-tube upright table; 86, 8-tube lay-down table. There are also the following consoles: Models 650, 6-tube; 750, 7-tube; 850, 8-tube, and 1050, 10-tube.

All have the following features: radio beam tuning on all bands, tuning range from 16 to 555 meters (10-tube set also has 8.5-16 meter band), illuminated tone-control position indicator; edge ray-lighted glass tuning dial, radio eye, illuminated volume control indicator, illuminated wave-band indicator and an acoustically treated cabinet interior. —*Radio Retailing,* October, 1936. Use post card for further information.

Emerson Model A-148

6 EMERSON

Emerson Radio & Phono. Corp.

Models: L-150 chairside set and A-148.

Description: Model L-150, chairside model, 5 tubes, a.c., allwave, 6½ in. dynamic speaker. Chair side consolette is made of pencil striped walnut curved to form an oval shaped cabinet. Has sliding drawer which,

Emerson Model L-150

when open, reveals a compartment for cigarettes and an ash tray.

Model A-148, 6 tube, a.c.-d.c., standard and state police calls, Gemloid dial, 6-in. speaker. Front panel slants for convenient tuning. —*Radio Retailing,* October, 1936. Use post card for further information.

7 ELECTRO-ACOUSTIC

Electro Acoustic Products Company

Models: Record case and cabinet.

Description: The Concerto Librarian is designed as a stand for the Concerto electric phonograph. May also be used as a record cabinet or library without the Concerto.—*Radio Retailing,* October, 1936. Use post card for further information.

8 CROSLEY

Crosley Radio Corp.

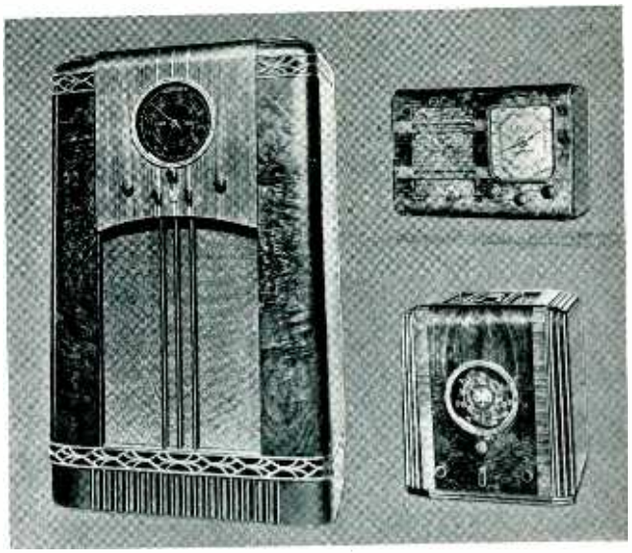
Models: Additions to 1937 line of sets.

Description: 15 tube console, 540-18,000 kc., 15 in. curvilinear speaker, Auto-Expressionator, Mystic Hand, six step fidelity control, metal tubes, Neon tuning indicator, Magna-Ceramic dial.

13 tube console, with all features of above. Also 11 and 12 tube consoles with same features but with 12 in. speaker.

Two 7 tube and a 9 tube console, 12 in. full-floating moving coil electro-dynamic speaker, 540-18,000 kc.

Prices: 15 tube set, $174.50; 13 tubes, $149.50; 7 tubes, $67.50 and $79.95; 9 tubes, $99.50. — *Radio Retailing,* October, 1936. Use post card for further information.



Crosley 15–16 Console, C629 and 744 table sets

9 KADETTE

International Radio Corp.

Models: Classic and Clockette radios.

Description: "Classic," cabinet of three plastics, each a different color. New exterior design, crystal-like grilles of translucent Tenite. Shades combine to create harmonious color combinations. Available in four color combinations including ivory, yellow and amber and, black, red and ivory. 6 tubes, 540-1724 kc., a.v.c.

"Clockette" combines the dial with the speaker grille. No larger than a small clock (8x7½x5 in.). Three period models offered: Modern, Colonial and Sheraton. A.c.-d.c., 540-1600 kc.

Prices: Classic, $29.50; Clockette, $19.95.—*Radio Retailing,* October, 1936. Use post card for further information.

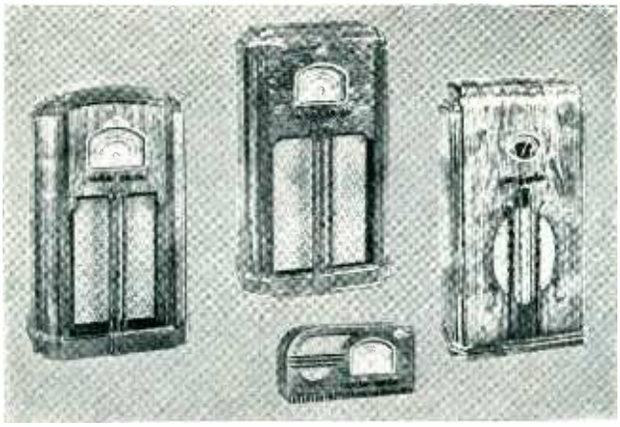
10 REMLER

Remler Co,, Ltd.

Models: 1937 line of receivers.

Description: 10 table models and 1 console. 4, 5, 6, 7, 8 and 12-tube sets. One for battery operation and one for a.c.-d.c. Both wood and molded cabinets available.

Prices: $19.90 to $84.50.—*Radio Retailing,* October, 1936. Use post card for further information.



Wells Gardner 30EL674, 37LL672, 37LL622, 26G678

11 WELLS GARDNER

Wells-Gardner & Co.

Models: 1937 line of receivers.

Description: Seven a.c. mantle and console sets, nine battery models and two auto radios make up the new line.

All a.c. sets cover three bands (528-18300 kc.) and use metal tubes. One has an entire metal tube line up and others use metal in combination with glass or metal-glass tubes.

The battery may be had for 2, 6 or 32 volt operation. Glass tubes are used except in one model which has four metal and three glass. Both 2 and 3 band models included.

The auto radios tune from 535-1575 kc. One takes six glass tubes and the other three metal and three glass. —*Radio Retailing,* October, 1936. Use postcard for further information.

12 CARRIER CALL

American Carrier-Call Corp.

Model: Two-way loudspeaking communication system.

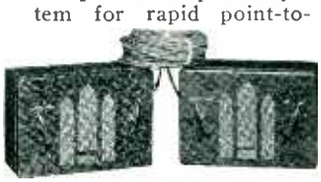
Description: No wires to install—simply plug each station into the light socket. Carrier frequencies carry the voice. May be moved from room to room placing the operator in immediate touch with any other station. Light weight and flexibility make this system adaptable to all types of service. Entirely self-contained in one small attractive cabinet. (9x6¼x5¾ in.) Shipping weight, 8 lb. For use on 110-118 v., 25-60 cycle a.c. or 110-120 v. d.c.—*Radio Retailing,* October, 1936. Use post card for further information.

13 SIMPLEX

Simplex Radio Company

Model: Radiophone communication system.

Description: Telephone system for rapid point-to-point communication, indoors or out. No special wiring necessary; as many stations as desired may be connected together and at any distance apart; ruggedly built for permanent service. Power consumption, 30 watts. A.c.-d.c. operation.



Price: Complete set, (2 stations), $39.95.—*Radio Retailing,* October, 1936. Use post card for further information.

14 ADMIRAL

Continental Radio and Tel. Corp.

Models: AM786, AM787.

Description: Model AM786, 11 all metal tubes, 16.4-550 meters, 11 in. oval dial, visual wave band and tuning indicator, fly wheel tuning, 12 in. Jumbo speaker, push-pull output of 7½ watts undistorted power.

Admiral Model AM786

Model AM787, technical description similar to above. Furnished with "Tilt Tuner Console". Phase inversion, Hi-fidelity audio system.

Prices: AM786, $69.75; AM787, $79.50. — *Radio Retailing,* October, 1936. Use post card for further information.

Admiral Model AM787

15 AIR-KING

Air-King Products Co., Inc.

Models: 1937 line of radios.

Description: Ten horizontal compacts, two self-contained portables, two upright table sets and a console. Both a.c. and a.c.-d.c. models included.

The two portables are available in five colors—black, alligator, tan, gray and blue.

Model 11F, upright table set, has two speakers.

Model 77, comes in various colors, including ivory, ebony, green, red, etc. A-c. or a.c.-d.c. 7 tubes.—*Radio Retailing,* October, 1936. Use post card for further information.

16 PORT-O-MATIC

Lehman Radio Salon, Inc.

Model: Portable combination radio and phonograph.

Description: Phonograph has a patented construction to play and change 8 records of any standard make automatically. Provides a half hour of continuous music. Felt lined receiving tray stores the records. The arm carrying the needle is automatically supported insuring accurate adjustment for proper tone reproduction.

Radio has self-contained aerial and covers from 530-1700 kc. and 5.8-16 mc. Operates on a.c. or d.c. or foreign currents. Comes in cowhide leather case.

Price: $99.50-$165. — *Radio Retailing,* October, 1936. Use post card for further information.

17 GILFILLAN

Gilfillan Bros., Inc.

Models: 1937 line of sets.

Description: 13 a.c. sets, two battery models, one a.c.-d.c. type and two auto-radios. The ten table sets are of horizontal design, and one has a carrying handle. Both t.r.f. and superhets. The 7-tube and larger sets have tuning eye. The larger table sets and four of the consoles have radio log dial.

Model 5TC, table radio-phonograph combination plays 12-in. or smaller records on RCA turntable and motor.—*Radio Retailing,* October, 1936. Use post card for further information.

18 CORNISH

Cornish Wire Co.

Model: No. 14 Noise Master allwave antenna.

Description: Brings in overseas signals stronger and eliminates manmade static on shortwave as well as broadcast band, the manufacturer states. Licensed under Amy, Aceves and King patents. Two other models available.

Price: $6.75.—*Radio Retailing,* October, 1936. Use post card for further information.

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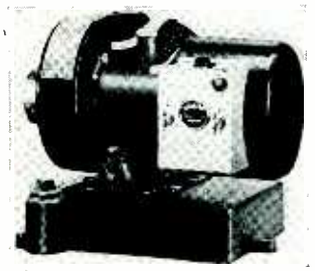


19 JOHNSON

Johnson Motor Company

Models: Generator.

Description: 300-watt, 12-volt "Iron Horse" generator for lighting and radio service. Charges 12-volt or 6-volt batteries; permits low cost installation (lighter wiring); has positive push-button starting. Only two normal size 6-volt batteries connected in series are required for continuous service. Has flywheel magneto ignition; variable output control from nothing to full capacity; governed, normal speed of 1800 r.p.m. per minute; ignition is completely encased to prevent radio interference. Built around the air-cooled 4-cycle Iron Horse gasoline engine.

Price: $65.00, less batteries. —*Radio Retailing,* October, 1936. Use post card for further information.

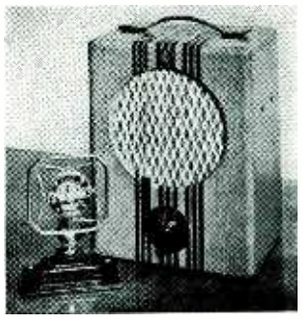
20 WARD

Ward Products Corporation

Models: 5-Watt commercial sound system.

Description: Class A, resistance, impedance coupled circuit; power output, 5 watts; 8-in. speaker, model 100 Electro-Voice microphone; airplane luggage cabinet, three tubes. Microphone and stand fit in cabinet. Ring detaches and fits all floor stands.

Price: $39.50.—*Radio Retailing,* October, 1936. Use post card for further information.



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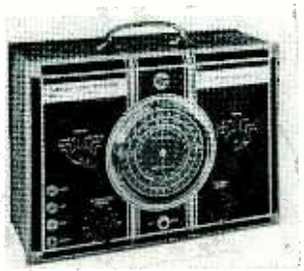
21 SIMPSON

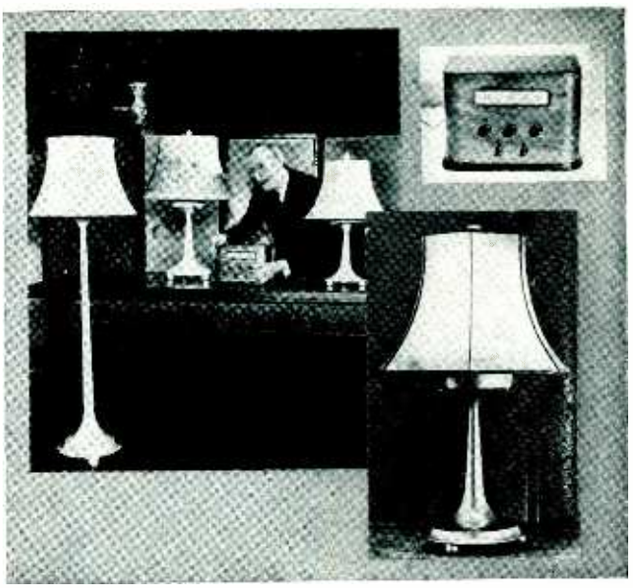
Simpson Electric Co.

Device: All-wave signal generator.

Description: Six bands from 94 kc. to 26 mc. Single rotary switch provides modulated, unmodulated, externally modulated signal or straight 400 cycle output. Attenuation from .5 micro-volts to .2 volts. Model 210 operates on 110 v. a.c., uses a 6J7 and 2-6C5 tubes, weight 24 lb. Model 211, battery operated, employs 2-30. Both measure 12 1/2x9 1/2x6 in., in crackle finished carrying case with handle.

Price: Model 210, $49; Model 211, $39.50.—*Radio Retailing.* Use post card for further information.





22 RADIO LAMPS

Radio Lamp Co. Inc.

Models: Speakers in lamps.

Description: The lamps are connected to the radio by means of a remote control box, which in turn is connected to the output tube in the receiver. A set includes 3 lamps—2 table and one floor model. The speaker is placed in the head of the lamp shaft which is used as an air column. The floor model reproduces the bass notes, the large table model the alto and the other table lamp the treble. Gives a three dimensional quality to the tone. May be used in combination with the radio speaker or separately. One lamp may be used to improve the tone of a radio. For example, if the set brings out the bass notes, a "treble" lamp may be used to "brighten" the tone. Come in three styles —Modern, Adams and George I urns. 6 and 10 tube radio chassis also available if needed.

Prices: Modern, $122.50; Adams, $165; George I, $117. Prices include 3 lamps and control box.—*Radio Retailing,* October, 1936. Use post card for further information.

23 SONORA

Sonora Electric Phonograph Co. Inc.

Models: Electric phonographs.

Description: "Concert Grand," equipped with new Sonora "Filtro," 13 in. Hi-Fidelity concert tone speaker, individual controls for volume and bass or treble compensation, a.c. motor, Piezo Astatic crystal pick up, acoustically perfected amplifying system including two 6L6 tubes.

"Baby Grand," 10 in. speaker, Piezo Astatic crystal pick up, tone control, Hi-Fidelity amplifying system using 6B5 tube, plays either 10 or 12 in. records with cover closed. A.c. or ac-dc operation.

Price: Concert Grand, $99.50; Baby Grand (a.c.) $69.50.—*Radio Retailing,* October, 1936. Use post card for further information.

24 SOLAR

Solar Manufacturing Corp.

Model: Molded Bakelite paper condenser.

Description: An economical paper condenser completely encased in Bakelite molded into "domino" shape. Mechanically and electrically stronger than the older tubular paper types, it is claimed. Capacity range: .001 mfd. at 1000 working volts to .25 mfd. at 200 volts.—*Radio Retailing*, October, 1936, Use post card for further information.

•

25 MOTOROLA

Galvin Mfg. Corp.

Model: M-116 "Topper" auto aerial.

Description: For steel and turret top cars; designed to eliminate the tire static problem; easily installed; two positions—for normal pick up and extreme sensitivity. When locked down in city will not hit obstructions such as garage doors; when out in country it may be snapped up to extreme sensitivity position.

Price: $2.95.—*Radio Retailing*, October, 1936. Use post card for further information.

•

26 WEBER-COSTELLO

Weber-Costello Co.

Model: World globe.

Description: Streamlined airplane base with new map, new type meridian and in a 10 in. new size. Follows the latest developments in type faces, coloring, typography, and cartography. More than 400 cities located on prominent airways as well as epoch-making flights are included.

Prices: Movable meridian, $3; semi-meridian, $2.25; full meridian, $2.50.—*Radio Retailing*, October, 1936. Use post card for further information.

•

27 WEDGE

Wedge Manufacturing Company

Model: Auto top aerial.

Description: Highly polished and die-formed, similar to the body trim molding. In mounting it is attached to the top of rubber vacuum posts and conforms to the contour of the top, accentuating the streamlined effect. Easy to install, no holes to drill.

Price: $3.85 complete.—*Radio Retailing*, October, 1936. Use post card for further information.

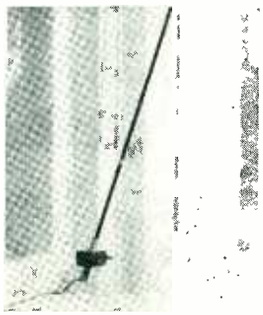
•

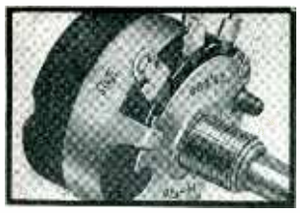
28 TOBE

Tobe Deutschmann Corp.

Model: "Windo-Pole" aerial.

Description: Pole type antenna which can be readily mounted at 45° or horizontal, to any window sash or sill. Extended length 8 ft. For permanent installation or demonstration purposes. Readily portable when collapsed. — *Radio Retailing*, October, 1936. For further information use post card.





29 IRC

International Resistance Co.

Device: Type "C" Metallized volume control.

Description: Unusually compact, with a hard metallized resistance coating permanently bonded to a moisture-proof Bakelite base. For use under the most severe atmospheric conditions. Immersion of the element in water does not affect the coating nor alter the resistance value perceptibly, the manufacturer asserts. A special "5-finger spring contactor", each finger silver plated, reduces the wear to a minimum and makes for quiet operation.

Available with or without switch in all resistance ranges with provision for two individual taps to be brought out anywhere along the element.—*Radio Retailing*, October, 1936. Use post card for further information.

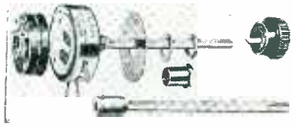
•

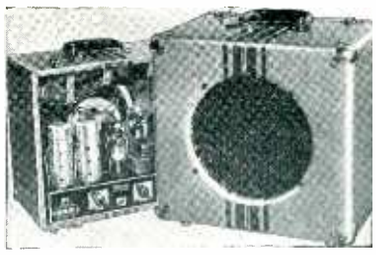
30 YAXLEY

P. R. Mallory & Co., Inc.

Model: Replacement volume controls.

Description: To insure silence, the following features have been incorporated in this new replacement volume control: perfect smooth taper, featheredged to insure electrical smoothness and applied to promote mechanical smoothness; pure silver shortouts for switch action, silver to silver contacts; perfect contact between moving arm and carbon element through special Yaxley "M" roller; low humidity and low temperature coefficient; highest current carrying capacity; uniform characteristics.—*Radio Retailing*, October, 1936. Use post card for further information.





31 CLARION

Transformer Corp. of America

Model: Portable sound system.

Description: Portable 5-watt sound system. Speaker, amplifier, microphone and desk stand in a luggage case measuring 12¾x12¼x8⅞ in. In operation the amplifier is removed from the case, the case then acting as a baffle for the speaker. Amplifier is of modern high gain type and the system may be used with any modern microphone including velocity, dynamic, diaphragm-crystal, and sound cell-crystal types.

Price: $59.—*Radio Retailing*, October, 1936. Use post card for further information.

32 CONSOLIDATED

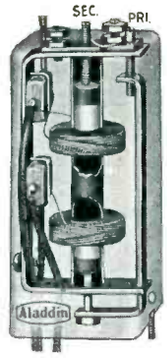
Consolidated Wire and Associated Corporations

Devices: Interference analyzer, "Rub-A-Tenna".

Description: Interference rectifier: a system of variable inductance and capacity when connected to a line in series with any offending device; will indicate the proper and most effective type of filter to be employed. Various capacity and inductance combinations are available in this manner, any of which can be supplied separately by the manufacturer.

"Rub-A-Tenna", a rustproof, rubber covered auto aerial. Constructed of a special metallic mesh that will not sag, bend or collect snow or mud. Attaches under running board, 42 in. long by 6 in. wide; designed especially for turret top cars when high sensitivity is desired.

Consolidated also manufactures a complete line of allwave antennas and couplers, all size paper and electrolytic condensers, antenna and standoff insulators, all types of wire and extension cords.—*Radio Retailing*, October, 1936. Use post card for further information.



33 ALADDIN

Aladdin Radio Industries, Inc.

Device: Model L Polyiron core i. f. transformer.

Description: High stability and performance secured through the use of movable polyiron core to resonate coils. Fixed capacitors replaces variable trimmers, further aiding stability. Enclosed in 1 3/8 in. aluminum shield, both primary and secondary tuning adjustments made through top. Available to suit any type of circuit. — *Radio Retailing*, October, 1936. Use post card for further information.

•

34 MAGNAVOX

Magnavox Co.

Device: Dynamic speaker.

Description: Designed for 6L6 operation, 15 in. curvilinear cone, 18 watt field. Standard voice coil impedances 6 ohms, 7.9 ohms, 10.5 ohms measured at 400 cycles. Provision for hum neutralization. Will handle 20 watts average signal power. Frequency response, 40 to 6,000 cycles.

Price: $30 list. — *Radio Retailing*, October, 1936. Use post card for further information.

35 MONARK

Monark Battery Co.

Model: Radio battery.

Description: Special radio battery for farm radios and lighting plants. Ample number of extra plates eliminates need for frequent recharging; interlocking grids; specially cooked cedar separators; precycled, ready for immediate service; built-in hydrometer; one-piece rubber case; wing-nut terminals. — *Radio Retailing*, October, 1936. Use post card for further information.

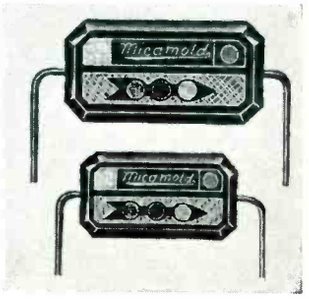
•

36 MICAMOLD

Micamold Products Corp.

Devices: Molded paper and mica condensers, carbon and wire resistors.

Description: Bakelite cased paper condensers, sizes from .001 to .1 mfds. in 800 volt to 3,000 volt ranges, list 20c. to 30c. Midget carbon resistors available with or without bakelite insulation, ½ and 1 watt sizes, 100 ohms to 5 megohms, list 15c. and 20c. Precision wire wound bakelite cased pigtail resistors available in 1 and 2 watt sizes ranging from 1 ohm to 6,000 ohms, list 20c. — *Radio Retailing*, October 1936. Use post card for further information.



37 UNIVERSAL

Universal Microphone Co.

Models: Portable recording machine.

Description: Eliminates all waver at 33 1/3 rpm. transcription speed and 78 r.p.m. phonograph speed. Records equally well in either direction and cuts lines at 90, 110 and 130. Contains complete switching arrangement for head-set monitoring, either from the playback or the cutting head. 16-in. turntable. The entire recording mechanism may be lifted from the case as a self-contained unit without disconnecting rods, springs or wires. — *Radio Retailing,* October, 1936. Use post card for further information.

•

RCA SONOTONE

RCA Manufacturing Co., Inc.

Model: Hearing Aid.

Description: Equipment to be attached to the radio for the hard of hearing. Easily connected by means of an earphone adapter, attachment being made to the voice coil of the speaker. After installation, the radio may be operated either with or without the Sonotone unit, or the Sonotone unit may be operated without the radio speaker being in operation.

Prices: Air conduction unit, $25; bone conduction, $21; earphone adapter, $3.50, lorgnette handle $4, headband $1. — *Radio Retailing,* October, 1936. Use post card for further information.

•

39 READRITE

Readrite Meter Works

Devices: Signal generator-analyzer.

Description: Model 540-740 signal generator-analyzer, five bands covering 110 to 20,000 kc., plug in coils with built in trimmers, switch for modulating signal. Volt-ohm-milliammeter unit, 1,000 ohms per volt. Triplet meter, ranges 10-50-250-500-1,000 volts a.c. and d.c. milliamperes 1-10-50-250 ma. Resistance low scale, 300 ohms; high scale up to 2.5 meg. Fully shielded for static and magnetic fields, in black crackle case.

Price: $36 net.—*Radio Retailing,* October, 1936. Use post card for further information.

•

40 CLOUGH-BRENGLE

Clough-Brengle Co.

Device: Model 88 vacuum tube voltmeter.

Description: Ranges, 0-10, 0-100 as a peak voltmeter; 0-1.2 volts r.m.s. range with direct connection to the tube. Input tube on the end of a 30 in. extension cable making possible direct connection to the gridcap, reducing capacity. Housed in black crystalac carrying case.

Price: $42.50 net with tubes. —*Radio Retailing,* October, 1936. Use post card for further information.

41 GE

General Electric Co.

Device: Pocket size voltmeters, ammeters and milliammeters.

Description: Permaloy moving vane, magnetic damping, knife edge pointer, mirror scale for accurate reading. Fully shielded, measures 5½x3½x2 in., in a Textolite case. Available in all voltage and current ranges. — *Radio Retailing,* October, 1936. Use post card for further information.

•

42 FERRANTI

Ferranti Electric, Inc.

Model: AC-DC circuit tester.

Description: For communications field; a.c. and d.c. voltage, a.c. and d.c. mils,

and ohms can be measured. Five a.c. voltage scales: 0-15, 0-150, 0-300, 0-450, 0-600 volts. Six d.c. voltage ranges: 0-3, 0-15, 0-150, 0-300, 0-450, 0-600 volts. The a.c. range is 0-1 mil and the d.c. ranges are: 0-1, 0-7.5, 0-30, 0-150, and 0-750 ma. Resistance ranges are: 0-50,000, 0-150,000, 0-750,000 ohms and 0-7.5, 0-15, and 0-30 megohms. Clearly marked rotary switch at the front for range selection. Weighs only 14 oz., can be carried in the pocket.— *Radio Retailing,* October, 1936. Use post card for further information.

43 MEISSNER

Meissner Mfg. Co.

Device: Multiband all wave coil assembly.

Description: Three, four or five band operation in ranges from 3.8 to 2,000 meters. Can be adapted to any circuit. Complete with all coils, switches and padders; fully wired. *Radio Retailing,* October, 1936. Use post card for further information.

•

44 AMPERITE

Amperite Corp.

Model: Boom stand.

Description: Silently adjustable in a vertical or horizontal position by slight pressure of the hand. Can, therefore, be placed at any height or at any angle. No adjusting screws required. Useful in placing mike in unusual positions quickly. Chrome or gun metal finish. *Radio Retailing,* October, 1936. Use post card for further information.

•

45 JMP

JMP Mfg. Co.

Devices: Tube checkers.

Description: Model C111, portable or counter style, checks all types of glass and metal tubes for shorts, leakage, output. Large easy reading fan type meter with "Good-Bad" scale, counter model weight 18 lb., portable 10 lb.

Price: Portable, $21.95; counter style, $29.95. — *Radio Retailing,* October, 1936. Use post card for further information.

46 TRIUMPH

Triumph Mfg. Company

Devices: Tube checker, unit analyzer.

Description: "Visograph," counter model tube checker. A special oscillator circuit along with an illuminated indicator permits seeing as well as hearing tube conditions. Tests all types of glass, metal and met-glass tubes.

"Portalab," portable analyzer consisting of signal generator, tube checker and multi-range voltmeter housed in leatherette carrying case. Each unit may be removed from the case and used as a separate instrument. The tube checker unit is identical with the Visograph but lacking the visual and aural tests.

Weighing 45 lb. the unit offers ample room for storing small tools and parts.

Price: Portalab, $65.55.—*Radio Retailing,* October, 1936. Use post card for further information.

•

47 RADIOTECHNIC

The Radiotechnic Laboratory

Device: Tube checker.

Description: Checks all type metal and glass tubes for shorts, leakage, output and noise. A headphone plugged into the instrument allows the customer to listen to the tube noises. Spare sockets provided to allow for new tubes. Finished in ivory, red and chrome and available in portable and counter style.

Price: Portable, $39.00; counter style, $41.00.—*Radio Retailing,* October, 1936. Use post card for further information.

•

48 SUNDT

Sundt Engineering Co.

Model: Neobeam oscilloscope.

Description: Electronic measuring device using a gaseous discharge tube to make sound visible. The exact wave pattern is traced on the 4 in. calibrated screen with clear definition between amplitude and frequency. The image is reflected on a revolving mirror so as to sweep the image horizontally across the line of vision. One microvolt input is sufficient to produce a full scale deflection of the image on the 4 in. calibrated screen. Measures 8¾x10x13 in. Weight, 25 lb.

Especially adapted to the rapid study and demonstration of audio frequencies at low cost; schools find it suited for the demonstration of a.c. phenomena, sound, pitch, wave form, etc. In the music school it permits a scientific approach to the study of music as the student can see as well as hear how the sound should appear. Amateurs and servicemen use it for checking wave form, modulation, distortion, etc.

Price: $40.—*Radio Retailing,* October, 1936. Use post card for further information.

•

49 ARTCRAFT

Artcraft Luggage Co.

Model: Covered cases.

Description: Fabric or leather covered cases for portable radios, speakers and amplifiers.—*Radio Retailing,* October, 1936. Use post card for further information.

50 BOND

Bond Electric Corp.

Models: Spotlights and Spreadlights.

Description: 2-cell Spreadlight, all metal, full chromium plated case.

2-cell all-metal chromium plated spotlight with candlelight feature, ring hanger and safety switch.

Prices: Spreadlight, 39 cents; Spotlight, 49 cents.—*Radio Retailing,* October, 1936. Use post card for further information.

•

51 GILFILLAN

Gilfillan Bros., Inc.

Models: Refrigerators.

Description: Three lines—standard, intermediate and de luxe. All have twin cylinder compressor, evaporator, Seeger cabinet, de luxe finish, touch bar door opener, semi-concealed hinges, 10 point cold control, useable top, oversize radiator condenser, acid resisting porcelain, and built-in automatic light.

The intermediate and de luxe models also have deep tray, rubber tray and split section shelf. The de luxe models have Hydrator and food baskets.—*Radio Retailing,* October. 1936. Use post card for further information.

•

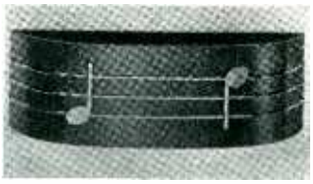
52 RITTENHOUSE

H. Rittenhouse, Inc.

Model: Electric door chime.

Description: Junior model for home, apartment, office. When button is pressed a single melodious chime signal responds.

The single bar chime mechanism is concealed in a handsome casing with decorative musical notes on the facing. Finished in four attractive color combinations: red with chrome, black with chrome, ivory with gold finish and green with gold finish.



Larger two-tube models also available.

Price: Single bar chime, $3.50; two tube chimes, $6 and $7. — *Radio Retailing,* October, 1936. Use post card for further information.

•

53 NEACO

General Insulated Wire Corp. Div. of National Elec. Appl. Corp.

Device: Cord Set.

Description: Has screwless type plug and is equipped with rubber one-piece soldered plug. All units individually wrapped in cellophane and boxed in "see thru" container. Gold label 10,000 cycle cord guaranteed for one year, 7½ ft. long.

c.—Radio Retailing, October, 1936. Use post card for further information.

54 EASY

Easy Washing Machine Corp.

Models: Electric washers.

Description: New line of streamlined white washing machines, especially styled for the modern interior. Complete with wringer or patented damp-dryer (which eliminates the necessity for wringer), the machines are streamlined inside as well as out with their operative principle reduced to the extreme of simplicity in the form of the patented Easy spiralator washing action. Four models in line.—*Radio Retailing,* October, 1936. Use post card for further information.

NEW LITERATURE

55

Radio Code Practice Sets, aerials and aerial equipment are shown in *Fleron's* Circular No. 659.

56

Second Edition 1936 Catalogue of *Aerovox* condensers and resistors for radio and allied applications is just off the press. One section is devoted to exact duplicate replacement condensers.

57

Perpetual Catalogue with flat binding rings and numerical list showing 575 part numbers has been put out by *General Transformer.* Additions and changes are supplied as issued.

58

Novel Counter Display Signs which carry sales messages tying in with *Cornell-Dubilier's* advertising and merchandising campaigns are now available.

59

Microphone "Data Sheets" giving complete technical information on each model made by *Shure Bros.* will be sent upon request.

60

The "Challenger Series" of *Garod* radios is completely described and illustrated in its new handy size pamphlet.

61

A Cellophane Window Box, something new for radio parts, encases *Solar's* Domino paper capacitors. An attractive red and black folder tells all about this new departure in packaging.

62

Volume Control Guide published by *Centralab* not only lists the complete line but contains standard resistance curves, volume and tone control circuits and other material helpful to the serviceman.

63

Auto Radio Installation and servicing, new edition, has been compiled by *Hygrade-Sylvania.* Contains chapters on auto antenna equipment, battery polarity grounds for all makes of cars, tube complements and i.f. frequencies as well as hundreds of practical service hints.

64

Streamlined World Globes engraved with the latest political and physical data are fully described and illustrated in *Weber-Costello's* new catalogue.

65

The Origin of Insulated Materials, their histories and uses are covered in Catalogue No. 11 of *William Brand,* maker of many types of insulation.

66

Receivers, Transmitters, Parts and service test equipment are covered in the Blue Ribbon catalogue *Wholesale Radio* is distributing. Over 150 pages with 2,000 illustrations. The inside is split up into sections with the set section in rotogravure.

67

Capacitor Construction — both electrical data and dimensions are given in detail —is emphasized in *Solar's* new catalogue No. 3-C. Contains charts, specifications and data helpful in laboratory work.

68

Radio Log showing American and foreign stations and illustrated with photos of more than 50 radio stars is offered by *National Union.* Small charge. Business card printed free on 250 copies or over. Circle number to receive information on how these logs may be obtained.

69

Electrify is the catch line on *Pioneer Gen-E-Motor's* leaflet describing its portable power plant. Full specifications on the complete line are given.

70

Interference—its causes and cures—is the subject of Servicing Engineering Bulletin No. 103 supplied by *Continental Carbon.* Its line of Filtercons is illustrated and described.

71

Metallized Controls — volume, tone, potentiometer—are pictured and described in *International Resistance's* new color, 4-page folder. The 4 standard curves in which they are regularly supplied are shown together with a list of the types for every radio requirement.

72

Replacement Vibrator Guide —catalogued by make of car and cross indexed—may be obtained from *Electronic Laboratories.* Invaluable to servicemen and dealers.

73

The Sound Advisor is the name of *Operadio's* house organ. Devoted to all 'round discussion of sound and public address work. Circle number to have your name placed on the mailing list.

74

Testing Equipment Details are shown in *Supreme's* new catalogue. Complete specifications of each model and explanation of the S.I.C. easy payment plan.

75

Condenser Developments as well as price reductions on standard items are featured in the 1936 condenser catalogue just issued by *Sprague.* Of particular importance are the 2 pages devoted to a plan for cashing-in on interference elimination profits.

76

Recommended Test Procedure on electrolytic condensers is covered in *Magnavox's* new Engineering Bulletin. Presents a series of test and test procedures governing standardized commercial types.

77

Condensers and Resistors— plenty of technical data and a catalogue of the line is incorporated in *Micamold's* green, black and gray folder.

78

Air Conditioning for home and office. *Continental Motors'* folder on its Kleenaire equipment gives much valuable information for the dealer considering adding air conditioning to his line.

79

Orchestral Reinforcing Systems are explained in *Electro-Acoustics'* new folder. Description and prices of its equipment are shown.

80

Plastic Solder and associated products are covered in *Kester's* leaflet. Explains advantages of a plastic solder.

81

Typical Audio Systems, determination of transformer ratios, method of coupling several speakers to a transmission, these are a few of the interesting topics in *Thordarson's* Servicemen's Guide.

82

World Globes, in all styles and types, (there's one in the form of a reading lamp), are pictured in the new catalogue just issued by *Cram.*

83

Sets Pictured in *Freed's* mailing piece, effectively done in blue and white, illustrate this company's table models.

84

Public Address Equipment line of *Transformer Corp.* (Clarion) is fully pictured and described in its new loose leaf folder.

85

Generator Information of interest to dealers in farm areas particularly is contained in the folder issued by *Johnson Motor.* A splendid sales aid well illustrated with photos and wash drawings showing uses, etc.

86

Auto-Radio Antenna Instruction sheet showing features and giving installation details on its "Topper" aerial for turret top cars is offered by *Galvin*.

87

Headphone Kits, which simplify wiring of a set for headphones, are fully described and illustrated in *Cannon's* new leaflet. Wiring diagram and instructions are included.

88

Condenser Replacement Index, a mighty handy aid to the serviceman, has been put out by *Cornell-Dubilier*. Lists sets by name of manufacturer, gives original part number, C-D part number, capacity and working voltage, specifications, dimensions and prices.

89

Radio Sets making up the new *Majestic* line are illustrated and described in a pocket size leaflet. Features of the line are sketched and explained.

90

A Set Catalogue suitable for mailing, printed in red and white, may be obtained from *Belmont*. Covers full line of radios.

91

"6L6 Operation Data showing effects of power supply regulation" is the name of the new engineering bulletin just released by *Ken-Rad*. Contains valuable information for servicemen and technicians.

92

Polyiron Data Sheet giving story of Polyiron, its uses and advantages as well as specifications and applications of the full line of transformers made by Aladdin will be sent upon request. Circuit diagrams and "shadow" photos showing construction are included.

93

Wall and Window Sign, 5x3 ft., in red and green canvas has been made up by *Clough Brengle*. Features "Genuine Factory Service" with its cathode ray oscillograph. Stamped post cards featuring "Factory Tune Up" also available. Circle number for prices and details.

94

20-in-1 Floor Display offered by *RCA* may be used as a unit in the store, or a portion may be set up in the window, another portion in the aisle, etc. It really is 20 displays in one. Each unit is an individual stand and may be made up in innumerable combinations. RCA also offers billboard posters, streamers, illuminated signs. Circle number for information as to how these may be obtained.

95

Soft, Natural Colors and attractive women add beauty to utility in *RCA's* booklet on its line. One of the most magnificent folders we've seen so far. Sets are pictured against home backgrounds and the technical features are dramatized.

96

How to Choose a Radio, issued first last year by *Stromberg-Carlson,* has been completely revised with new-up-to-date copy and illustrations. Explains in an unbiased manner what the prospective purchaser should look for in choosing a radio.

97

All-Wave Antennas and how to install them is the subject of *Premax's* interesting 4-page leaflet. Pen and ink sketches trace the steps necessary in erecting various types. Unit Stock Plan to reduce inventories is explained.

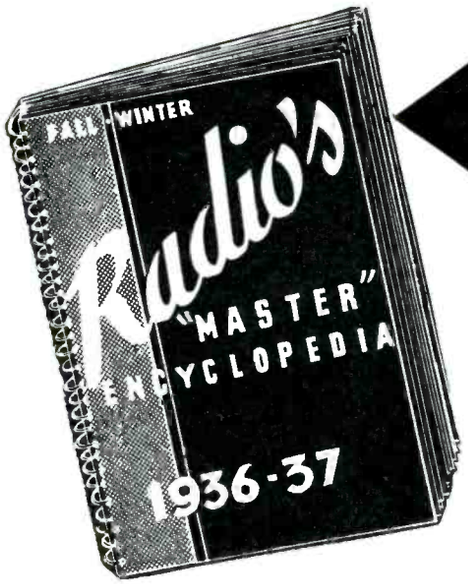
98

Specifications of *Readrite's* four Ranger-Examiner portable servicing instruments will be found in its two-color circular.

99

Sound Engineering Manual compiled by *Webster-Chicago* covers every phase of sound engineering from details of microphone construction to complete installations. Contains 18 diagrams. Slight charge to cover mailing. Webster-Chicago has also compiled an up-to-date list of places where sound equipment may be used. Helpful to the dealer building up this end of his business.

FOR FURTHER, FREE INFORMATION ABOUT THESE SALES AND SERVICING AIDS USE THE CARD ON PAGE 48



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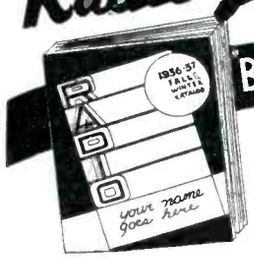

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"Watch me win this one . . . why, TOBE FLEXIDON will run second to me anytime. I've got everything . . . I'm self-supporting by leads, easier to install, and I'm not afraid of competition—I'LL WORK FOR LESS MONEY! Some folks say I'm too cocky, but facts are facts. Just look at my specifications!"

TOBE FLEXIDON

SAYS:

"My record does all my talking for me, and I'll mix it up with TOBE TUBIDON or *any* condenser, for that matter. I'm not saying who'll win, but I've got a good idea. How can they beat my big feature of being *flexible* . . . if one section breaks down due to overload, that doesn't mean I'm finished by a long shot."

"TOBE" TUBIDON *vs* "TOBE" FLEXIDON

We consider TOBE TUBIDON and TOBE FLEXIDON such ultra-fine condensers that we just can't imagine how either can lose in this big fight for condenser supremacy. But the answer is up to you . . . compare their advantages: TOBE TUBIDON is tubular-shaped, up to 525 volts, self-supporting, easier to install, and *lower* in *cost.* TOBE FLEXIDON is rectangular-shaped, up to 525 volts, space-saving design . . . with the big feature of *flexibility* (the fact that if one section breaks down, it is necessary to replace *only* the broken section.)

Which do you favor in this big battle? Note how they shape up . . . read the exact specifications. *Remember that both are topnotchers* . . . thoroughly moisture-proof, double-jacketed, asphalt impregnation and heavy wax seal, added protection against developing open circuit or high resistance contact . . . all the features born of skillful manufacture and long experience.

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	TUBIDON	FLEXIDON
VOLTS	35-50-200-525	200-525
MFD.	35v.—5 to 50 50v.—5 to 25 200-525v.-1 to 16	1 to 16 (single) (multiples up to triple eight)
MAXIMUM SIZE	2-¼" x 1"	3-¼"x1⅝"x1 $\frac{5}{16}$"
MINIMUM SIZE	2-¼" x ½"	2-⅛"x⅞"x⅞"
TYPE LEADS	solid bore tinned copper wire	insulated tinned copper wire
LEAD LENGTHS	2-½"	6"
MOUNTING	self supporting by leads	metal eyeletted tabs
PRICE (typical 8 mfd.-475v.)	$.75	$.95

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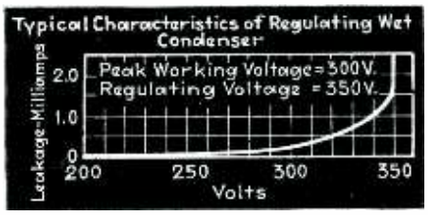
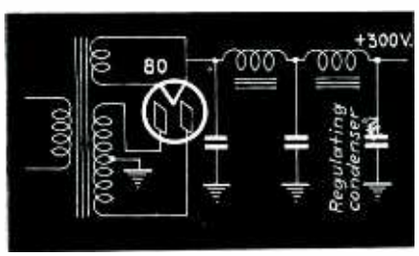


Voltage Regulating Condenser

A method of utilizing the leakage characteristics of the "wet" type electrolytic condensers as a voltage limiter is entirely new to the radio field. Heretofore this leakage was considered a detriment. Now, however, as outlined by the Aerovox Corporation, the surge voltage during heating periods of a receiver can be greatly reduced by taking advantage of this fact.

Under normal operating conditions this new type of condenser has a very low leakage value. When the voltage is increased beyond the normal peak voltage, the leakage current rises (Fig. 1), first slowly, then faster, until a point is reached where the condenser "scintillates." This consists of the repeated breakdown of the insulating film which is formed on the positive foil. After the breakdown the film is reformed and the process repeated.

This condenser should be connected

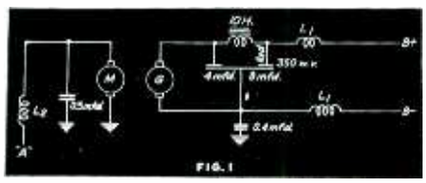


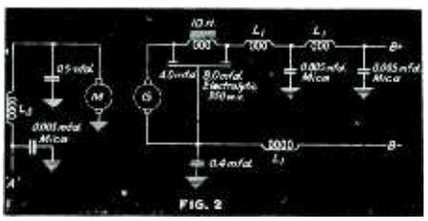
on the output of the supply so as to take full advantage of the resistance of the filter chokes to provide sufficient voltage drop when scintillation occurs. If it were placed near the rectifier, an undue amount of wear would result since the voltage drop would be limited to the rectifier alone, causing shortened life to this tube and the condenser as well.

•

Genemotor Filters

Filtering a Genemotor supply has always been a problem to serviceman and experimenter alike. We publish two Pioneer filter circuits. Fig. 1 shows a standard type filter which is very effective in the average installation and





is suitable for filtering supplies in broadcast receivers and P.A. work, while a special short wave filter (Fig. 2) is necessary when it is desired to operate five meter equipment such as tranceivers. Each of these units provides for both A.F. and R.F. filtering.

The R.F. chokes L1 remove any possibilities of radiation from the unit itself and are of the standard 3 millihenry layerwound type. In the primary circuits, L2 and L3 prevent radiation from the low voltage brushes, consisting of 48 and 50 turns of No. 14 DCC respectively. Both are layerwound, 11/33 inches inside diameter and about ¾ inches long. The three .005 condensers shown in Fig. 2 should be a good mica variety for best results. Paper condensers at these points generally prove ineffective. All other condensers may be paper or electrolytic type.

It is of extreme importance that all leads be as short and direct as possible and all ground connections be firmly soldered so as to prevent direct radiation from the wiring or filter components themselves. Furthermore, the entire filter and Genemotor should be housed in a sturdy metal container which has been thoroughly grounded to the frame of the car.

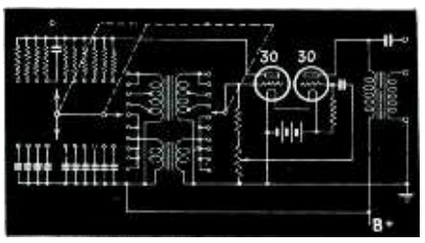
LOOK FORWARD . . .

•

Semi-Variable Audio Oscillator

From Communication Products, Inc., comes a new idea in audio oscillators. Ten fixed frequencies, from 50 to 20,000 cycles are available by rotating a gang switch.

Different values of capacity and resistance are switched into the circuit,



permitting oscillation at many standard frequencies. The circuit illustrated, shows a '30 oscillator tube in an inductive feedback circuit. A second '30

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● The sales possibilities of Teletalk are apparent after you have used it in your own business. Its advantages become so obvious, its operation so convincing that selling is a pleasure as well as a profitable undertaking. You'll agree that every business and every professional man in your community needs Teletalk.

Teletalk is an amazingly simple appliance, consisting of two or more (up to six) of the attractive units shown in the illustration. Installation is completed by merely placing the units anywhere desired, connecting them with a wire, then plugging into the light socket. Communication is carried on between the Teletalk stations by pressing the control lever down to talk, then releasing to listen. No extra units, no separate microphone.

Operates on either AC or DC; is absolutely humless; has a variable volume control, and unusually faithful voice reproduction. It is priced far lower than the conventional type of communicating system—low enough to fit the pocketbook of the small business and the professional man.

Here's a golden sales opportunity for you! Order from your jobber today. If he isn't handling Teletalk, write to us direct for complete information. Be sure you address your communication *Webster Electric Company,* Racine, Wisconsin. Export Department, 100 Varick Street, New York City.

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WEBSTER ELECTRIC SOUND EQUIPMENT

serving as an amplifier, isolates the oscillator from the load. An output transformer permits a 500 ohm connection for low impedance devices. Provision for a high impedance is included also, by coupling to the plate of the amplifier tube through a small capacity.

Attenuation is accomplished by a potentiometer in the grid of the oscillator, which varies the input to the amplifier and permits outputs from zero up to 5 volts on the high impedance terminals and to .5 volts at 500 ohms, according to the manufacturer.

•

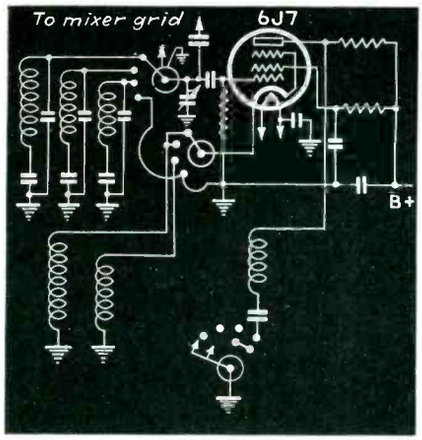
Cathode Feedback Oscillator

An oscillator that performs smoothly over a wide band of frequencies is incorporated in the new Fairbanks Morse model 91 and 120 allwave receivers.

Feedback, provided by a tickler coil in the cathode circuit, along with inductive coupling from the plate, is the fundamental to which smooth oscillation and lack of dead spots is attributed.

One tickler serves for both the broadcast and police-amateur bands. A second tickler being switched in for the shortwave band by the range switch. In the ultra short wave position the cathode taps on the tuned grid circuit which permits oscillation on the high frequency end of the band. In addition, a small coil, inductively coupled to the grid coil, is switched into the plate circuit, which, in turn, aids oscillation on the low frequency end.

Fig. 1 shows the oscillator circuit of model 91. The circuit of model 120 is almost identical, except that provision is included for increasing oscillation at the low frequency end of all bands. This is accomplished in by passing the plate of the 6J7 tube to ground through the padding condensers of the tuned grid circuits.



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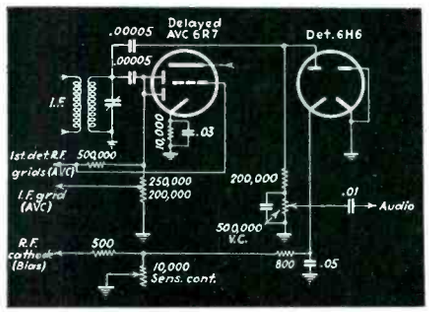
Tube Delayed AVC

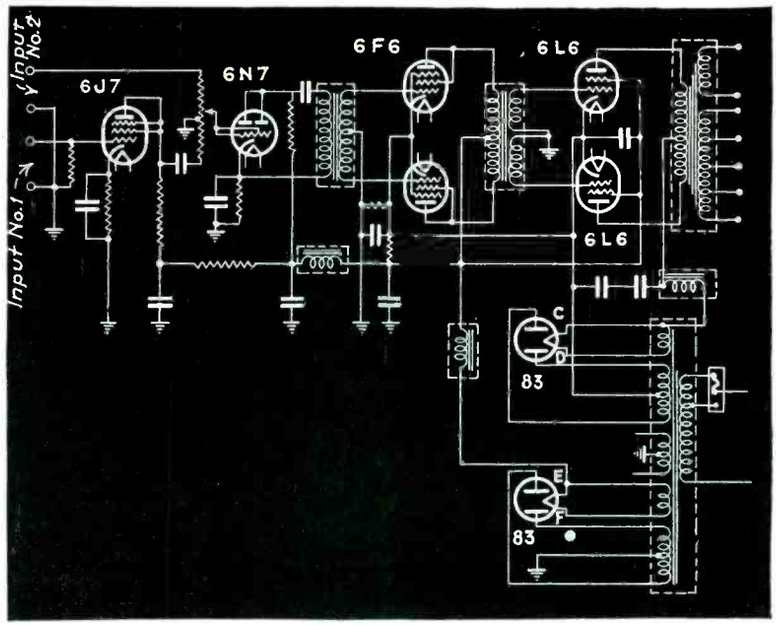
Novel use of a 6R7 to provide delayed avc action is found in the Motorola "Golden Voice." R.f. is fed to one diode plate of a 6H6, rectified and passed from the arm of a 500,000 ohm volume control to the audio. This circuit is conventional except for the fact that the detector bias



and also the bias to the first r.f. stage may be manually varied at the 10,000 ohm sensitivity control to adjust noise level and avoid overloading.

R.f. from the same i.f. transformer secondary is, simultaneously, fed to the two parallel-connected diode plates of the 6R7. Signal current is rectified and develops across the series 250,000 and 200,000 ohm fixed resistors, applied from this avc divider network to first, detector, r.f. and i.f. grids in preceding stages.

Production of this avc voltage is, however, delayed by application of bias from the first detector, r.f. grid return point to the triode section control grid of this same 6R7. Despite the fact that the triode plate circuit operates directly from the high voltage supply, and has no load, it is obvious that the amount of cathode bias present at this tube is governed almost entirely by the current flowing in the triode plate circuit through the 10,000 ohm cathode return resistor. Hence the triode section of the 6R7 may be said to control the diode section's avc production, holding down automatic bias until the signal becomes reasonably strong.



Novel 6L6 Biasing

Bias voltage for an output stage is obtained by novel circuit connections in a new 60 watt amplifier by Jefferson.

Two power supplies provide the necessary voltages for all stages, one supplying speech, driver and all screen and bias voltages, the other, the plates of the 6L6 output tubes only.

A 6J7, followed by a 6N7 high gain speech stage excites a pair of 6F6 driver tubes connected as triodes. They in turn drive the 6L6 output tubes at the same time providing a means of biasing the 6L6 grids. This is accomplished by self-biasing the driver in the usual manner of placing a resistor in series with the cathodes. Then by connecting these cathodes to those of the 6L6 tubes, the voltage drop created in this resistor is used to bias the 6L6's as well.

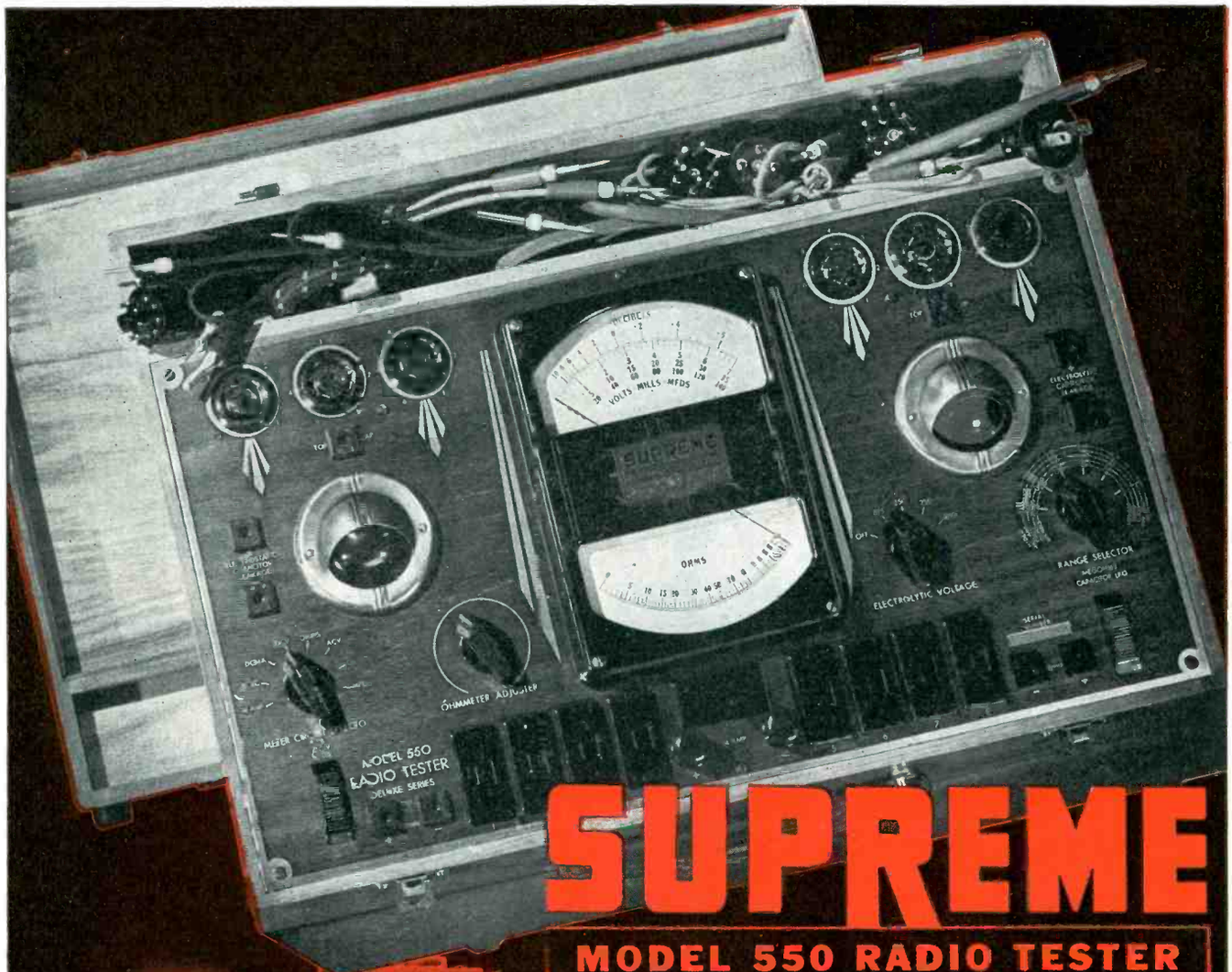
The improvement in regulation of the output stages power and bias supply voltages, by elimination of the cathode bias resistor, allows greater output and less distortion than could be obtained with the usual methods.

•

Inverse Feedback Amplifiers

Since the impedance of an output transformer and speaker does not offer the same load to the output tubes at different audio frequencies, serious frequency distortion is present in most audio amplifiers. Compensation for this can be made by either of two methods; a resistance-capacity filter, or, the more effective methods using inverse feedback.

When energy is fed, in the proper phase, from the plate circuit back to the grid, degeneration takes place. This has the effect of improving the overall



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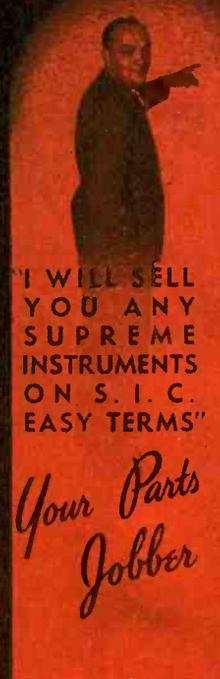

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This impressive instrument performs the operations of 12 essential servicing instruments: Radio and P. A. analyzer. Electrostatic and electrolytic capacitor leakage tester. Multi-range ohmeter. Multi-range DC voltmeter. Multi-range AC voltmeter. Multi-range DC milliameter. Multi-range decibel meter. Multi-range output meter. DC ammeter. Condenser capacity meter. A total of 43 ranges and functions.

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It accurately checks all circuits for voltage, current and resistance.

Allows test of all types of tubes by by comparative "Grid-shift" method. Makes accurate tests of all electrolytics at rated voltage from built-in DC power supply. Also measures capacities from 0-14 mfd. Neon tube shows leakage or shorts in all paper, mica or oil capacitors. Provides point-to-point resistance and voltage measurements. All resistance, voltage, capacity and current readings are secured through the 9 conductor analyzer cable. Tests made without removing chassis from the cabinet. Oak finished metal panel is housed in a solid quartered oak carrying case.

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frequency response of an amplifier by reducing the plate resistance. When this principle is adapted to high sensitivity pentodes, the result is the characteristic uniform frequency response

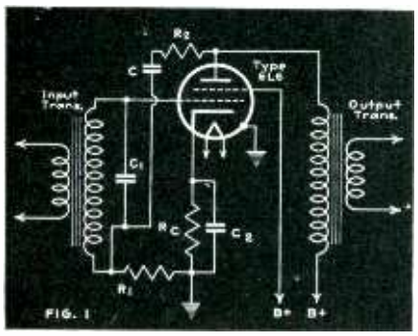


FIG. 1

of a triode amplifier while the high sensitivity and output of the pentode are retained almost completely.

Degeneration can be introduced into a circuit in many ways. In a single tube amplifier it can be obtained simply by removing the cathode resistor bypass condenser. However, in a circuit of this type, the results obtained would not warrant such procedure. In a typical instance, using a single 6L6 tube, the distortion was reduced approximately one-half while the required input signal had to be doubled, the output being reduced approximately 10 per cent.

Practical circuits for a single and push-pull amplifier using partial inverse feed-back are shown in Figs. 1 and 2. Nearly all the A.C. voltage developed across the load appears across R1 and R2 when the capacity of C is high. Part of this voltage is applied in series with the input signal, which makes it appear to the tube as though its normal plate resistance (internal) were shunted

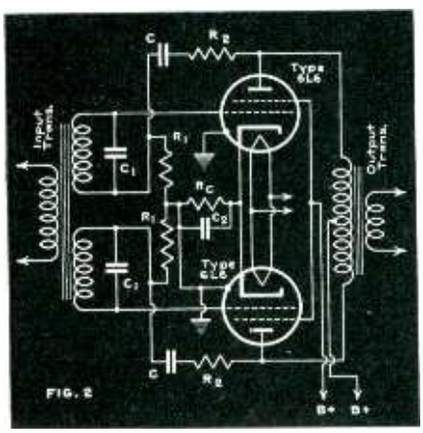


FIG. 2

by a resistance whose value is dependent wholly on the percentage of degeneration.

A certain amount of precaution must be exercised with both these circuits. The conventional resistance coupled input cannot be used since the signal voltage must be in series with the feed-back voltage for proper operation. Nor is this circuit suitable for amplifiers that are designed for grid current operation, as the high value of R1 would cause appreciable grid circuit distortion. It might appear that the primary of the output transformer could be tapped at the proper point, or that a third winding added to obtain the necessary feed-back voltage. Attempts to use such schemes may be unsuccessful because of phase shift due to leakage inductance.

Tests indicate that the shunting effect on a speaker load by two 6L6 tubes with 10 per cent degeneration is comparable to that which can be obtained by two low resistance triodes in a similar circuit without degeneration. At the same time the power sensitivity of the inverse feed-back circuit was approximately twice that of the triode amplifier.

•

New Tubes

Two new tubes have been recently placed on the market. They are:

6B8—A metal duodiode high gain pentode, similar to the 6B7. To be used as an amplifier, detector or a.v.c. tube

Heater voltage	6.3
Heater current	.3
Plate voltage	250
Screen voltage	125
Grid voltage	—3
Plate current	10
Screen current	2.3
Plate resistance	600,000
Amplification factor	800
Mutual conductance	1325
Grid voltage for cutoff	21

1K1—a new battery type ballast tube rated at 550 milliamperes. A direct replacement for types 5H1, 10AB, LL125.

•

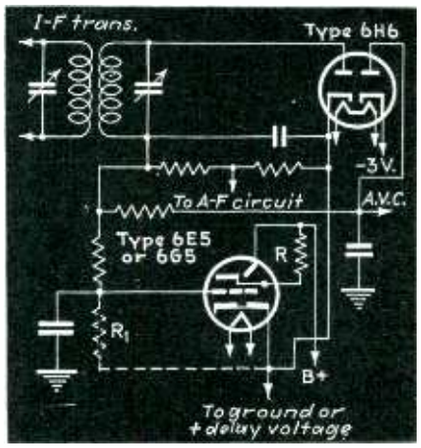
Electron Ray Circuit Improvements

Connection of the 6E5 or 6G5 electron ray tube is usually made direct to the avc supply voltage. When this voltage is too high, it necessitates tapping down somewhere on the diode circuit. If this is not done, all but the weakest signals will cause the shadow angle to overlap, thereby destroying the tuning action of the eye. However this method of tapping cannot be used in delayed avc circuits as the eye would not operate until the signal voltage exceeded the delay voltage.

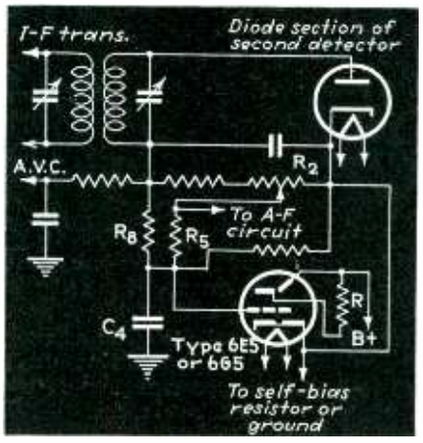
Numerous circuits have been devised to overcome these difficulties. Fig. 1 shows RCA's connections to a delayed avc detector. The control grid of the eye connects to the audio diode circuit through its own filter network. In the event that overlapping occurs, resistor R. may be connected as shown to reduce the voltage on the grid of the tube without destroying the output of this stage.

Lack of sensitivity is most common in tuning indicators when precautions are taken against excessive control voltage. Fig. 2 shows a method whereby extremely high sensitivity may be had on weak signals without overshooting the tuning indicator when a strong signal is selected.

The control voltage is taken off the volume control R 2 which is part of



the diode load resistor. An audio filter (R 5 and C4) is provided in order to reduce the chances of the signal modulation from actuating the eye. Resistor R8, is used to obtain an indication on the eye when the volume control is in zero position. Its value is determined by setting the control for normal audio output with a strong signal applied, then adjusting its resistance until the shadow angle is very nearly zero. When the audio amplification of a receiver is low, resistor R9 may be added to prevent overlapping at advanced settings of volume. Thus for strong signals the con-



trol voltage is limited by the volume control, while for distant reception the sensivitivity of the eye is automatically increased.

DESIGN AND USE OF VACUUM TUBE VOLTMETERS

By O. J. Morelock, Jr.
Radio Engineering Div.,
Weston Electrical Instrument Corp.

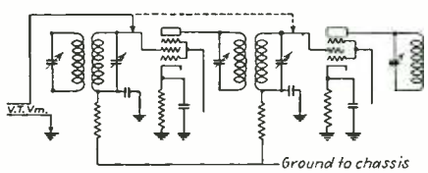


Fig. 1—Checking amplified a.v.c.

TO make measurements of radio frequency or audio frequency potential developed across resonant impedance circuits such as those in modern radio receivers is extremely difficult. A load of even one megohm or more may upset the impedance characteristics of such circuits.

About the only connection that can be made across a resonant r.f. circuit without upsetting potentials is the input, or grid to cathode, of another vacuum tube. As the impedance of a tube drawing no grid current is practically infinite no appreciable load is placed on the circuit under test by this arrangement and normal r.f. or a.f. conditions are not altered.

Fortunately, the vacuum tube, in addition to having almost infinite input impedance, may also be used as a rectifier. Potentials of any normally encountered frequency appearing across its input circuit may be readily rectified so that a direct current reading may be made by meter in the plate circuit. Instruments of this type are called vacuum tube voltmeters and these are becoming increasingly useful in radio service shops.

Servicing Requirements

In designing a meter of this type several points must be considered carefully. The requirements of the serviceman are:

1. The instrument should be as sensitive as possible so that small potentials, below 1 volt, can be measured in any of the r.f. or a.f. tube circuits.

2. It should have higher ranges to take care of r.f. measurements on superheterodyne oscillator circuits. Potentials as high as 16 volts will, in general, cover these measurements.

3. The meter should have a multiplicity of ranges to cover all ranges in between these two limits. These ranges are valuable in making measurements of gain per stage where a ratio of 20 to 1 in measurement is encountered.

4. D.C. readings up to 15 or 16 volts should be available to cover a.v.c. voltage swing.

5. The instrument should be a true vacuum tube voltmeter so as not to load any a.f., r.f. or a.v.c. circuit.

6. If operated from an a.c. line regulation to take care of fluctuations in line voltage should be included

Sensitivity of 1.2 volts full scale can be accurately obtained in an a.c. device. A meter with this range has a first large scale division of .2 volts. Readings down to .1 volt can be estimated but no scale calibration is usually available at this point. Using a 100 microampere instrument this sensitivity can be obtained with a single tube. The use of two tubes, one as an input and one as an amplifier, complicates ironing out of the frequency response of the

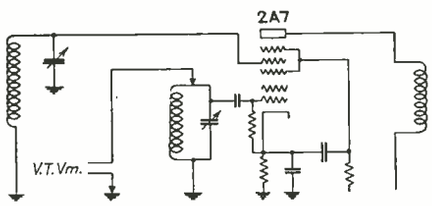


Fig. 2—Reading superhet oscillator output

instrument. Sensitivity of 1.2 volts full scale is adequate for most types of radio frequency measurements. On an oscillator such as the Weston Model 692 a small direct reading can be obtained on the vacuum tube voltmeter when connected directly across the oscillator output terminals on the broadcast and intermediate bands. In taking gain or resonance measurements, if there is any gain at all in the first coil or tube circuit, a very good reading will be available on the vacuum tube voltmeter scale.

Circuit Connections

In connecting the instrument for a circuit measurement, the grid circuit

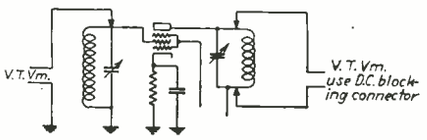


Fig. 3—Resonating receiver coils

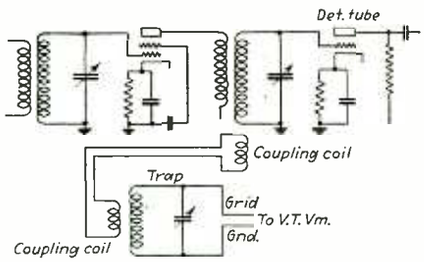


Fig. 4—Adjusting trap circuits

of the vacuum tube in the voltmeter must be kept closed at all times. On our own instrument this is done by keeping the grid lead in position, connecting back through a 10,000 ohm resistor and an OPEN-CLOSED switch. With the switch in the closed position, the tube is held down to 10,000 ohms, thus eliminating any pick-up from electro-static or electro-magnetic fields. When the meter is connected across a closed circuit such as a coil or resistor, this switch is opened and readings taken. If measurements at high frequencies are to be taken, this lead is usually removed entirely and with as short leads as possible from the grid of the tube to the coil, shunt capacity is kept at a minimum.

If measurements are taken across grid circuits where d.c. bias is present, a small blocking condenser and circuit closing grid resistor are used to keep d.c. out of the tube circuit. In inserting this condenser, if the meter is calibrated for direct readings in effective volts this condenser will change all indications to peak volts. As most readings are comparative, a multiplying factor of .707 to change the peak readings to effective readings need be used only when actual measurements in volts are required. This condenser is especially needed when taking measurements across grid circuits that are a.v.c. controlled as the d.c. bias from the a.v.c. circuit applied to the receiver tube will also work the grid of the vacuum voltmeter tube unless a blocking arrangement is used. In taking measurements of this type a.v.c. can, of course, be eliminated by removing the a.v.c. tube or by grounding the a.v.c. lead to the chassis, but this is not always convenient.

A.V.C. Measurements

Alignment and adjustment of a.v.c. receivers can be handled accurately and rapidly by making use of a vacuum tube voltmeter as an a.v.c. indicator. Receivers equipped with a.v.c. will fre-

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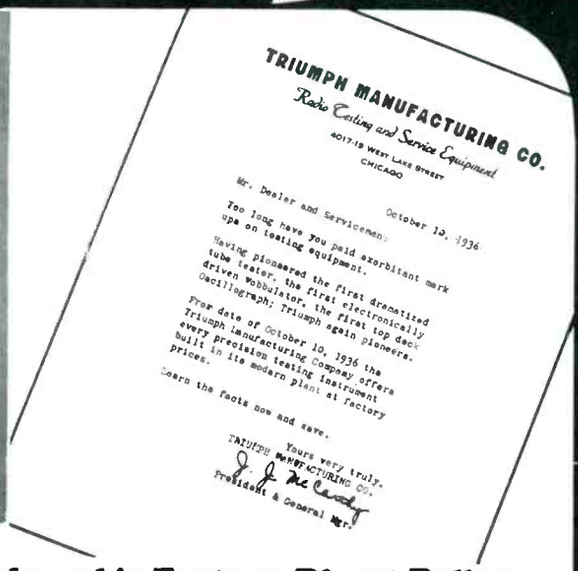

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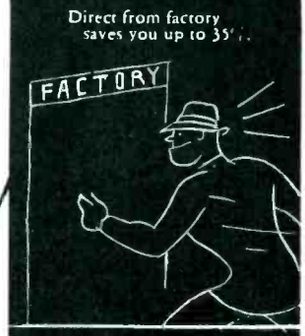

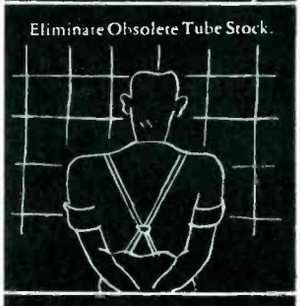

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quently cause trouble due to erratic operation of this part of the circuit. If a particular tube grid is not being a.v.c. controlled, the action of the other tubes will tend to try and make up for the high gain in this stage when a strong signal is presented to the receiver. This will usually result in distortion and also broad tuning.

The writer encountered a set with these two characteristics and after checking tubes and the potentials on the

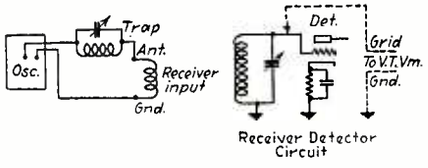

Fig. 5—Checking trap efficiency

tubes found that this difficulty continued. Further tests with a meter of this type showed that a short circuit appeared at the ground end of the coil in the first i.f. tube grid circuit, causing this tube to be operating at full gain all the time. By connecting the vacuum tube voltmeter to the grid of this tube and tuning in a strong signal, or supplying one from an oscillator, no change in grid bias showed up on the meter. A check of this coil circuit showed up the short and the difficulty was quickly cleared.

On some receivers a.v.c. amplification is used. In such cases with the oscillator connected to the first detector tube and a signal tuned in, the trimmers that rectify the amplifier tube circuits should be adjusted for maximum a.v.c. voltage, this being indicated directly on a meter of this type. Figure I illustrates how the meter can be connected to the tube grids. By running the signal generator up and down a.v.c. action can be completely checked on these circuits.

Superhet Oscillators

One of the most important measurements that can be made on a superheterodyne receiver is that of oscillator performance. Quite often dead spots appear in these receivers for no particular reason and this usually can be traced to a point where the oscillator stops functioning for one or two divisions on the receiver dial. Only two connections are required to test the radio frequency voltage of the oscillator tube. The grid side of the vacuum tube voltmeter is connected to the stationary plates and the oscillator tuning condenser and the ground side next to the chassis. The vacuum tube voltmeter will then read the radio frequency volts across the oscillator tuned circuit. See figure 2.

With the receiver turned on, a reading somewhere between 6 and 16 volts will usually be obtained across such a circuit. By watching the instrument and turning the receiver tuning dial slowly from one end of the broadcast band to the other, the instrument can be watched for a sudden drop to zero which will indicate a dead spot or spot where the oscillator stops functioning.

Oscillator circuits are far from flat in potential and may vary as much as 200% across the tunning band. This is due to the change in 1/c ratio as the tuning condenser is unmeshed. This change is to be expected in most receivers but the oscillator should keep on showing at least 5 volts all the way through the band. The set can then be switched to any of the short wave bands and readings taken.

Model 669 vacuum tube voltmeter has a flat frequency response from 40 cycles to 50 megacycles, and therefore, readings will be accurate up through and including all the short wave bands. Quite often a sudden dip will be noted in oscillator potential and this is usually due to the load placed on the oscillator tube by the natural period of one of the coils in some other one of the r.f. circuits. If these dips are very pronounced, dead spots will probably be found later on in these positions when the oscillator tube drops off in

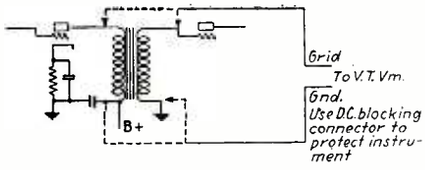

Fig. 6—A.f. transformer voltage gain characteristics

mutual conductance or the plate voltage drops with lower rectifier emission. If the oscillator stops functioning at any point, the tube should be tested and the plate voltage checked.

This trouble is sometimes due to a change in resistance of the oscillator grid leak or of an intermittent open in the oscillator grid coupling condenser. These two parts should be checked and if intermittent operation is still apparent, the plate voltage on the oscillator tube should be increased.

Gain Per Stage

Tests of this type are of extreme value in all types of receivers, as such measurements tell definitely how much work each tube and its associated circuit is doing. To make these tests an oscillator having a reasonably high output voltage and good attenuation characteristics should be connected to the antenna and ground posts of the receiver under test.

With the oscillator turned on and a signal tuned in, the vacuum tube voltmeter can be connected directly across the grid circuit of the stage to be measured. If it is an r.f. or i.f. stage, the leads from the meter to test circuit should be kept short so as to keep capacity at a minimum. If the grid circuit in question is a.v.c. controlled, a.v.c. action should be stopped or the blocking condenser set-up should be used. Turning the oscillator to its full output and tuning in the signal, a reading should be obtained on one of the ranges of the vacuum tube voltmeter. This reading should be noted and the meter connected to the grid of the following tube. The ratio of the two readings will be the gain in volts across this particular stage.

In making this measurement the circuit under test may be thrown slightly off resonance by the tube capacity placed across the circuit. In this case the shunt trimmers for this circuit should be slightly readjusted to compensate for the added tube capacity if exact readings are required. Reference should be made to figure I to show how these readings are taken across an i.f. stage.

Resonating Receiver Coils

With a meter of this type each individual coil of a receiver may be checked for resonance with its tuning condenser by referring to the circuit of the Fig. 3. The vacuum tube voltmeter is connected directly across the grid circuit and the oscillator tuned to the required resonant frequency. The padder, trimmer, or air dielectric condenser should be adjusted until a sharp resonant point is noted by a peak reading on the voltmeter scale.

While taking measurements across plate tuned circuits, care should be taken to protect the input of the vacuum tube voltmeter from the d.c. plate potential applied to the receiver tube. The meter should be connected either directly across the plate coil or through the d.c. blocking condenser to the chassis of the receiver.

When making the final adjustment for resonance on such a circuit it may be found that a slight readjustment of the trimmer condenser will be required after the voltmeter is removed due to

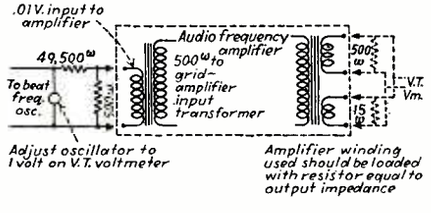

Fig. 7—A.f. fidelity curve setup

the slight capacity of the vacuum tube in the voltmeter. However, this correction can be made by moving the vacuum tube voltmeter on to the next stage and readjusting the trimmer of the first stage to give maximum readings across the second circuit.

Trap Circuits

The first requirement for making adjustments of this type is an r.f. voltage of sufficient magnitude to give ample readings on the vacuum tube voltmeter. If the frequency of the trap circuit to be adjusted appears in the

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broadcast band, then a tuned r.f. receiver can be set up and turned on, with the oscillator connected to the antenna and ground terminals. By setting the oscillator control to the frequency required for resonance of the trap circuit and tuning the receiver to this frequency, considerable voltage can be built up across the second or third receiver stage.

When adjusting the oscillator be sure to set the attenuator at the maximum position using the high output jack. A small coupling coil of 10 to 20 turns, having roughly the same diameter as that of one of the tuned r.f. coils, can be wound up quickly and placed over the end of the receiver tuning coil. With the same number of turns on the other end of this coil brought out at a convenient place on the bench or table, a field can be set up for adjusting the trap circuit. See Figure 4. The coil and condenser forming the trap circuit should be connected directly across the input to the vaccum tube voltmeter with the coil brought out from the receiver coupled closely to the trap circuit. The trap padder should be adjusted for maximum deflection on the vacuum tube voltmeter.

If the trap is to be resonated with a fixed condenser, turns should be removed from the coil one at a time until a maximum reading is obtained. If it is convenient to get at the coils in the tuned r.f. receiver, the trap circuit can be adjusted by placing it directly in the field of the receiver coil.

To make sure that the efficiency of the trap circuit is good, the trap should be tested for continuity at other frequencies. To do this the trap should be connected as shown in Figure 5, in series with the test oscillator and with the receiver and oscillator tuned to a frequency other than that to which the

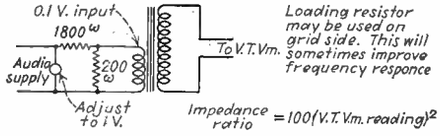

Fig. 8—Determining a.f. transformer ratios

trap is adjusted, a reading should be obtained on the vacuum tube voltmeter. If no reading or a very low reading is obtained, it is obvious that the trap circuit will not pass to a great extent, frequencies on each side of the resonant point. This can generally be corrected by using a smaller coil and a larger condenser.

The degree of attenuation of the trap circuit on any frequency can be measured by taking a reading with the trap in series with the oscillator and then shorting out the trap circuit and noting the second reading.

If the trap circuit is to be designed for frequencies somewhere in the intermediate band then a superheterodyne receiver should be set up and the oscillator connected from the grid of the first detector tube to the chassis. The amplification obtained in the i.f. section of the receiver can then be used to build up the voltage as mentioned in the previous paragraphs.

Audio Frequency

Tests for audio gain per stage can be made quickly and rapidly by making use of a meter of this type. The audio output jacks on a standard oscillator may be connected directly across the input to the detector circuit, thus producing a constant audio input for this tube.

The vacuum tube voltmeter is connected across the grids of the audio tubes if gain throughout a complete stage is to be determined. For gain or step-up ratio across a transformer only, the circuit of Figure 6 should be used. In making these connections be sure to use the d.c. blocking condenser to protect the instrument from the plate voltage. The voltmeter can then be moved along to the primary and secondary windings of the transformers in succeeding stages and readings taken

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If the overall gain measurements are to be determined in decibels, the voltage ratio can be converted to these units using any of the d.b. charts available. It should be remembered when calcuating the overall d.b. gain of an amplifier or the audio section of a receiver, that the input and output impedances should be figured at the same level. In other words, if an amplifier is equipped with a 500 ohm input, and the output terminates in a speaker voice coil, the reading taken across the speaker voice coil should be referred back to the reading that would have been obtained were it a 500 ohm output. If this correction is not made, then care should be taken in stating the overall gain of the amplifier with reference to the two different impedances. The input should be referred to as so many decibels across a 500 ohm line, while the output reading will be a given decibel indication across a 15 ohm impedance.

If the gain of the amplifier is to be tested at some other frequency, a beat frequency oscillator should be connected across the input to the amplifier and readings taken at other audio frequencies. If fidelity curves are to be run, they can be taken by making use of the circuit in Figure 7. In this particular circuit a pair of resistors are used in conjunction with the meter to obtain a 100 to 1 attenuation at the amplifier input. The vacuum tube voltmeter should be connected across the output of the beat frequency oscillator and the reading adjusted to 1 volt. By making use of the two resistors, when 1 volt is available at the output terminals of the amplifier, .01 volts or 10 millivolts will be feeding into the input transformer. In this way if the amplifier has a fairly high gain, accurate readings of input and output can still be made using the direct ranges on the vacuum tube voltmeter.

This method of testing an amplifier for frequency response is quite accurate in that a single meter is used, a meter that has an extremely flat frequency response extending far beyond the audio spectrum.

Audio transformer ratios can also be measured quickly by making use of the circuit in Figure 8. This figure shows the method of measuring impedance ratio or frequency response characteristics on a 200 ohm to grid audio transformer. When taking measurements of this type, the transformer should work into and out of the correct impedance for which it was designed.

It will be noted from the figure that 200 ohms appear across the input whereas the transformer secondary works into the grid circuit of the vacuum tube voltmeter. If the transformer name plate specifies a definite secondary impedance, say 10,000 ohms, then a 10,000 ohm carbon resistor should be connected across the secondary using this same type of circuit. If, no specification of resistance is given but merely a requirement for working into a grid circuit, then the meter can be used directly without a loading resistor. If, however, the correct loading resistors are not used, the frequency characteristic and impedance ratio of the transformer will not correspond to the actual conditions under which the transformer will work in the amplifier or receiver.

Voltmeters of this type can be used in many other circuit measurements. Some of these include the potential drop across r.f. chokes and resistances. The actual filtering action of condensers can be measured by connecting the voltmeter across such units and noting the r.f. drop. If the r.f. voltage across a by-pass condenser is extremely low, then it is obvious that this condenser is doing its job correctly in keeping the r.f. return path at as low a resistance as possible.

In taking measurements with an instrument of this type, the only general precautions are to be sure that no electrostatic pick-up is appearing on the grid of the tube causing an error in the reading.

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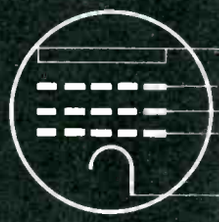
ACTUAL SOCKET VOLTAGES

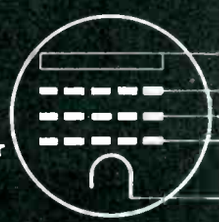
(Measured to chassis with 1000-ohms-per-volt D. C. Instrument)

6J7 Oscillator



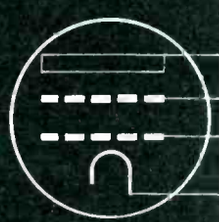
A.C. Sets	A.C.-D.C. Sets
150 to 220	75 to 90
0	0
150 to 200	70 to 90
-15 to -18	-5 to -9
0	0

6K7 I.F. Amplifier



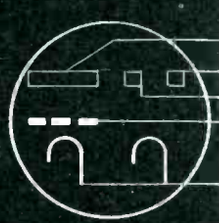
A.C. Sets	A.C.-D.C. Sets
230 to 255	90 to 107
0 to 7	0
100 to 125	90 to 107
0 to -3	0
0 to 8	3 to 7

6L6 Output



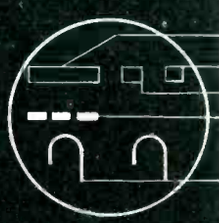
A.C. Sets	A.C.-D.C. Sets
255 to 280	90 to 107
250 to 268	90 to 107
0 to 16	0 to 11
0 to 15.7	0 to 10

6R7 Detector-Amplifier



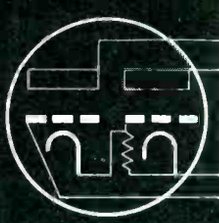
A.C. Sets	A.C.-D.C. Sets
130 to 175	55 to 75
Small	Small
3 to 5	1 to 2

6Q7 Detector-Amplifier



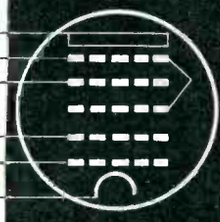
A.C. Sets	A.C.-D.C. Sets
80 to 130	55 to 75
Small	Small
2 to 65	1 to 2

6N6 Output



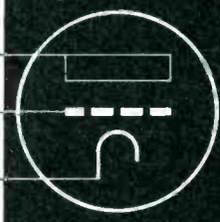
A.C. Sets	A.C.-D.C. Sets
220 to 285	90 to 105
230 to 290	90 to 105
0 to 4	0 to 2
0	0

6A8 Mixer



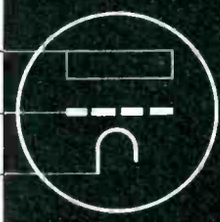
A.C. Sets	A.C.-D.C. Sets
245 to 260	82 to 107
95 to 130	50 to 65
0 to -0.2	
130 to 165	82 to 100
-5 to -20	
0 to 4.5	0 to 2

6C5 Amplifier



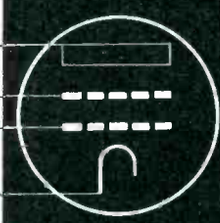
(Trans.)	(Res.)	
245-270	90-100	62 to 95
0	0	0
7 - 9	5	1.5 to 3

6F5 Amplifier



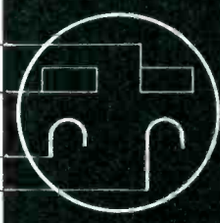
(Trans.)	(Res.)	
125	75	55 to 75
150	90	
0.2	0.2	0
0	0	0 to 1
1.5	1.5	

6F6 Output



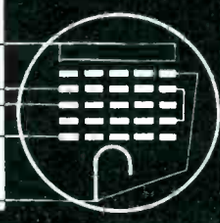
A.C. Sets	A.C.-D.C. Sets
225 to 245	90 to 107
250 to 260	90 to 107
-0.2 to -0.5	-0.1 to -0.2
0	0

6H6 Detector-A.V.C.



(Signal Volt.)	(Signal Volt)
-0.4 to -3	-0.1 to -1
-0.3 to -3	-0.1 to -1
0 to -3	0 to -1
0 to -3	0 to -3

6L7 Mixer

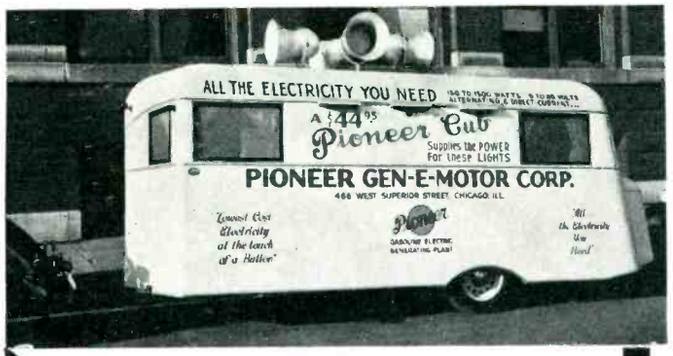


A.C. Sets	A.C.-D.C. Sets
250 to 270	85 to 105
75 to 100	50 to 65
-0.4	-0.2
-2 to 7	
0	0

Here's a new RADIO RETAILING service chart idea designed to speed up location of set trouble

95% of all receivers using the tubes illustrated apply voltages within the limits shown

Additional charts covering other tube functions, and other tubes, will appear in coming issues



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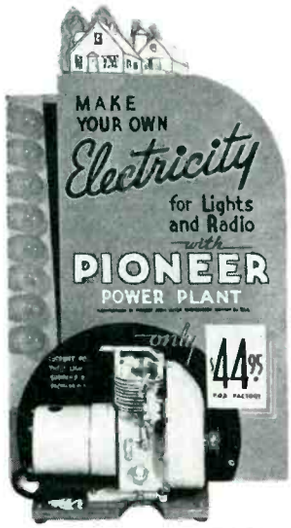
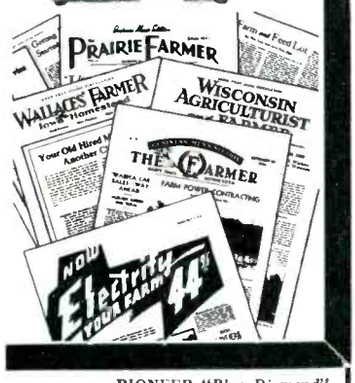
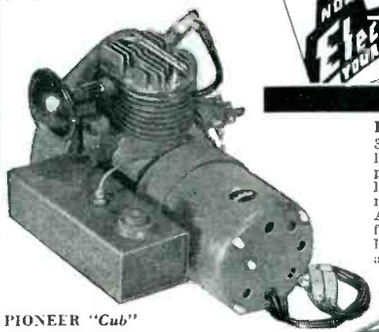




PIONEER POWER PLANTS



PIONEER *"Blue Diamond"* 300 watt 110 volt AC. The lowest priced "city" light plant on the market, $79.95 list! Operates standard AC radio. Ideal for PA work. Also has 50-watt DC winding for charging 6 volt batteries. Kick-pedal starting! Filter and remote control available.

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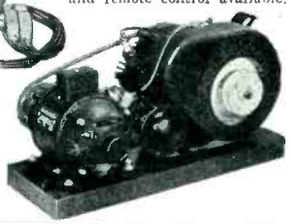

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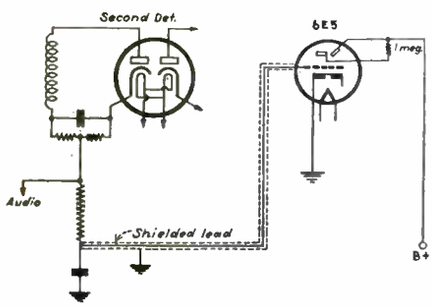
SHORTCUTS

Adding "Tuning Eye" to 6-Volt Battery Sets

By H. D. Hooton

The 6E5 tuning indicator tube, which has become almost a standard feature of the electric receiver, can be added to any 6-volt battery receiver. The connections are the same regardless of whether the second detector is of the heater or filament type of tube.

As the 6E5 tube serves no purpose other than a means of accurate tuning, it is advisable to place some kind of an off-on switch in its heater circuit so that



the current can be turned off when the signal has been tuned in properly. This may be a small toggle or rotary switch mounted directly on the chassis or, if the receiver uses the "flash" type of pilot light, the 6E5 leads may be run to the pilot light terminals and the tube will be automatically turned on when the tuning knob is rotated and turned off when it is released. The writer has found, however, that most customers prefer the extra switch rather than the automatic feature due to the fact that the tube requires a few seconds to heat up. This makes rapid tuning a little difficult. With the manual switch the indicator may be left on until the desired station is tuned in and then switched off.

•

Oscillator "Band-Spread"

By W. V. Ferry

Most radio service men are aware of the difficulty in making accurate adjustments of the average test oscillator frequency even though the dial is a good high ratio vernier type. In order that the adjustments might be more easily and accurately made, the author added "band-spread" to his oscillator by simply removing the round tuning knob and substituting for it an 0-100,360 degree calibrated dial plate and a pointer knob. The original calibration of the oscillator is not disturbed in any way, the "spread" dial being used as a vernier scale only. The amount of spread obtained will depend upon the ratio of the dial; in the writer's case the change is only about 15 kc. in the full 360 degrees of the scale.

In addition to making the adjustment of the oscillator much easier, the spreading dial is useful for checking the selectivity of any receiver when no oscilloscope is available. The procedure is very simple. The oscillator and output meter are connected to the receiver in the usual manner and the frequency of the oscillator varied by turning the vernier knob. Note the output readings for each setting of the oscillator from a few kilocycles below to a few kilocycles above the resonant frequency. If a curve of this reading is drawn it will be found that a surprisingly accurate picture of the selectivity of the receiver under test can be obtained in this manner. As the quality of most selective receivers depend upon the correct alignment of the tuned circuits, this test will also indicate to a certain extent the frequency response which can be expected.

•

Magnetic Speakers

By Marion L. Rhodes

Here's a tip for improving tinny magnetic speakers. An .02 mfd. condenser in series with a toggle switch and two small battery clips when connected across the speaker, will improve the response. To demonstrate to a customer, simply throw the switch. Various sizes of condensers up to .1 mfds. can be used for any desired tone.

A few of these gadgets carried in the tool-box will add a little additional profit to a job.

•

Curing Oscillation

By D. Hill

When a new set of tubes is installed in some of the late receivers, especially those using three high-gain I.F. transformers, oscillation or regeneration frequently takes place. The usual symptoms of this condition are "birdies" when tuning from one station to another, a high noise level or very poor or distorted tone.

The writer has found that in nine out of ten cases the trouble can be cured by simply turning over the chassis and, with the eraser end of a lead pencil, pushing the plate, screen-grid and diode insulated leads flat against the metal chassis. This limits their external field which helps to keep the feed-back down to the minimum.

A New Volt-Ohm-Milliammeter

MODEL 1200C

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RESISTANCE READINGS TO 7.5 MEGOHMS

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Model 1200-C has
Separate A.C. and D.C. instruments.
Tilting case for accurate reading.
Ohms scales separately adjusted.
Low loss switch (contact error less than ½%).
Low ohms scale requires but 6 2/3 milliamperes.
Accuracy both A.C. and D.C. guaranteed within 2%.
All Metal Case.

Scale Reads: D.C. 10-50-250-500-1000 Volts at 5,000 Ohms per volt; 250 microamperes; 1-10-50-250 Milliamperes; 1500 Ohms; 1.5, and 7.5 megohms; A.C. 10-50-250-500-1000 Volts.

Model 1200-A Volt-Ohm-Milliameter is same as 1200-C except has 2,000 Ohms per volt D.C. and reads resistance values up to 3 megohms. This is a very popular model as it contains a high torque instrument most suited for portable use.

Dealer Price $21.67

Model 1200-B—same as 1200-A but in addition uses copper oxide rectifier: A.C. volt readings 2-10-50-250-500-1000 at 1000 Ohms per volt.

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TRICKS OF THE TRADE

AK 55C

Intermittent operation, component parts apparently ok, voltages normal . . . Check secondary of output transformer by temporarily substituting a magnetic speaker. Trouble frequently does not show up on continuity test. Disconnect voice-coil while making this test.

AK 416-446-136

Intermittent or weak . . . shorted .1 mfd. condenser (marked No. 102) between 6F6 cathode and .1 meg. resistor, replace.

AK 469

Distortion, weak on low frequency end or fades out . . . replace .00145 mfd. fixed padder located under osc. coil with .001 and a small trimmer and tune same as regular low frequency trimmer; I.F. 130 K.C.

BRUNSWICK 15

Squealing . . . Usually due to poor contacts at condenser rotor. Contacts are very inaccessible. Drill a hole sufficiently large to permit insertion of a screwdriver through drum and chassis in line with the contacts.

COLONIAL 33-34

Intermittent . . . shorted or broken phono switch controlled by tuning condenser, replace.

CROSLEY 124

Oscillation, sounds like loose voice-coil, small capacity from 47 grid to 47 grid clears it up . . . Caused by inductive pickup by leads of 47 tube grids from audio transformer secondary. Remove leads from present position between detector and i.f. sockets and fasten with string or tape to mica condenser on side of chassis.

CROSLEY 7H3

Motorboating . . . Frequently caused by high-resistance ground connection in the shielded wire going to the grid cap of the 6B7.

EARL 21, 31

Noisy reception . . . Variometer used in these sets is insulated from chassis by means of a narrow bakelite strip. This strip and the variometer itself are held in place by two screws. Tighten these screws.

GE S-42B (RCA R-43)

Distortion at high volume . . . a few shorted turns on one side of primary of input transformer (No. 7265). Check by inserting milliammeter in each of p.p. plate leads and compare current peaks on loud signal. Any marked difference indicates defective transformer; replace.

GRUNOW 8A

Low volume, high plate current on output tube . . . Low resistance short of the output tube's bias resistor due to leakage from filter condensers through fibre protective covering to close-fitting can.

MAJESTIC 15, 55

Restoring lost sensitivity . . . Connect fixed condenser of about .0005 between the two stator sections of the pre-selector and tuning sections of the gang condenser. In other words, between the grid of the first tube and the secondary of the pre-selector coil. Realign.

MAJESTIC 60

Dead . . . Check for shorting of lead from 80 filament terminal to ground or to the 110-volt line. The rubber covering of this wire softens from heat or the line voltage taps cut through it. The set may test ok when checking with an analyzer and still not play.

MAJESTIC 70, 90

Neutralizing tool on hand too large in diameter to go through condenser adjustment holes at top of chasis . . . Remove hex bolts from neutralizing condensers and saw slits so that they may be turned with an insulated screwdriver.

MAJESTIC 66

Low or dead filament circuit . . . high resistance between fuse clips and riveted lugs. Solder each of the fuse clips to their mounting lug.

MIDWEST 11

Poor operation . . . .05 condenser from grid coil return to ground omitted in diagram and set, install and realign for increased gain. Replace the two ½ watt carbon resistors across the lugs of the speaker socket with 1 watt, orange resistor is 3 meg and blue 6 megs, check .1 mfd connected from their common ground for leakage.

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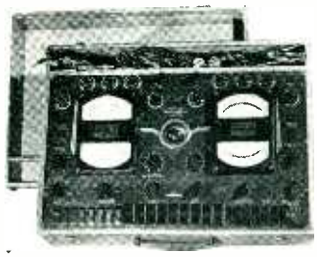

Model 585

$7.50 Down 22c per day
Deposit Refunded

At left above is the new Supreme DeLuxe Automatic. A high efficiency Tube Tester plus Multi-Meter functions. Ultra modern Quadrimeter with bi-indicating needles and dual view windows. A fine handsome piece of equipment given to you Free—the National Union way. At right is the new Supreme DeLuxe Diagnometer, designed for professional radio service engineers who prefer both tube and radio testing equipment in one compact unit. Features thirty-eight functions and ranges in all! You can get it Free the easy N.U. way. Other Supreme instruments also available. See your jobber or write for complete details.

Yes—FREE—The N. U. Way

The National Union Way makes the purchase of National Union radio tubes doubly profitable. Besides full protection on the highest quality radio tubes, each National Union tube purchased helps to earn free equipment. But, possession of the equipment is obtained at once with just a nominal cash deposit. (Deposit is rebated when required number of tubes have been purchased.) Over 50,000 completed deals with progressive radio dealers. Don't be misled. See your National Union jobber and get all the facts.

Other National Union Offers

In SOUND EQUIPMENT items available include 17-watt portable system, 10-watt portable system, 6-watt portable system, phonograph pickup and turntable, etc., all manufactured by Webster-Chicago.

In SHOP EQUIPMENT items available include stock cabinets, coats, display signs, etc. All items absolutely free the National Union Way. Get *full* details.

About National Union Radio Tubes

National Union manufactures a complete line of radio tubes in glass, metal and G-type. National Union's high quality has made them the outstanding favorite in the radio service profession. All sales policies have been formulated with the idea of making National Union radio tubes the ideal replacement tube for the radio dealer. This has been backed up with a selling program that means real support and help to the wide-awake dealer. Dealers and jobbers handling National Union radio tubes are the leaders in repair parts and service.

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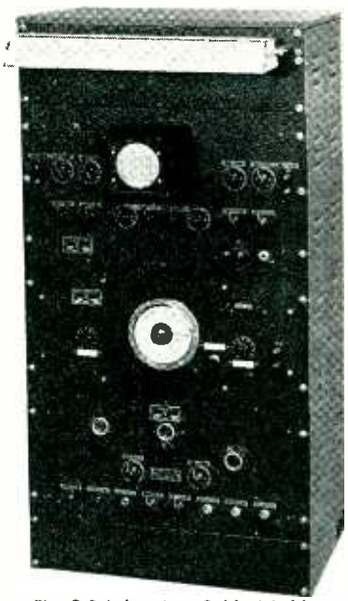
Let the prestige building ability of these massive complete laboratories build profits for you.

Cabinets are C-B green with silvered Lumaline floodlight and black front panels. Every dial, name plate, and control stands out to intrigue the customer's eye and build confidence in your work.

With the new C-B Easy Payment Plan you can bring this modern complete equipment into your shop for less money than you are accustomed to paying for a small portable instrument. Ask your jobber for full details or write today for the new descriptive bulletin.

Write for Descriptive Bulletin



The C-B Laboratory Cabinet holds any standard 19" panel in which form all present and future C-B Instruments are optionally offered. Buy the cabinet and one instrument. When more equipment is desired, the blank filler panels may be quickly removed.

The CLOUGH-BRENGLE CO.
2819 W. 19th St. Chicago, U. S. A.

There's a Big Market for This **TIME and STEP SAVER**

BELfone **B**
A COMPLETE INTRA-DEPARTMENT COMMUNICATING SYSTEM
for as Little as **$39.50**

for
stores
offices factories
residences restaurants
. . . any place where there's frequent communication between departments.

Just flip a key! . . . and talk back and forth with other departments. Conversation clear and distinct! Compact, neat and fool-proof unit simply plugs in light socket. Also costs remarkably little for multiple station systems. A demonstration sells it.
Write for "Profit-Making details

BELL *Sound Systems, Incorporated*
63 East Goodale Street, Columbus, Ohio

EXPORT OFFICE:
308 W. Washington
CHICAGO, ILL.

Janette Rotary Converters

The original D.C. to A.C. converters with all wave filters developed exclusively for radio and sound apparatus.

CAPACITIES:
35 to 3250 watts.
6, 12, 32, 115 and 230 volts D.C. to 110 or 220 volts, 1 phase, 60 cycle A.C.

Insist on a Janette
Ask For Bulletin No. 13-25

Janette Manufacturing Company
555 W. Monroe Street, Chicago, Ill., U.S.A.
Tel. Franklin 5174 Cable "JANETTECO"

PHILCO T-2

Motorboats while heating then dead . . . check for short between windings of second i.f. transformer by measuring the 75 diode plates to ground. Should be zero with aerial disconnected, negative with signal. If otherwise, remove coil and tape coil leads to prevent shorting.

FORD PHILCO (1934)

Distinct vibrator buzz that is hard to correct . . . Take out 75 second detector-a.v.c. tube. If noise stops suspect shaft collar holding volume control to case. Another check for this trouble is to find low settings of volume control more noisy than higher settings. Give collar another hard turn with a wrench to dig through paint and slight corrosion and also run a heavy, short piece of braid from low point of volume control to case and solder well. This will eliminate all buzz from this source.

FORD PHILCO (1936)

Volume decrease when control turned on full, distortion . . . open secondary on second i.f.; replace.

PHILCO AUTO RADIOS

Burned fuse and power transformer . . . vibrator sticking caused direct short on power transformer. Bend right angle lip on vibrator reed enough to clear magnet.

PHILCO MIDGETS

Vernier inoperative due to wear in ballrace . . . remove collar, pull out shaft being careful not to lose ball bearings, place small end of shaft on flat of vice and give several good taps with large hammer after having made sure condenser proper runs free in its own bearings.

RADIOLA 44, 46

Difficulty in aligning . . . Probably due to shorted turns on the small, universal-wound plate coil. Replace this coil.

RCA M34

Noisy . . . Check volume control cable shield at chassis for poor ground connection. It frequently loosens or breaks off near base of vibrator.

RADIOLA 80

Fading, especially at low frequency end of dial while tuning . . . Remove flaked cadmium finish from variable condenser gang plates by disconnecting leads, flashing with 300 to 400 volts d.c.

RCA VICTOR 261

Distortion, weak signals. . . . Look for 60,000 ohm 1 watt plate resistor overload. Usually caused by leaky or shorted 4 mfd condensers (red leads) located in capacitor can and connected to each end of this resistor. Replace resistor with a 2 watt unit, connect two new 4 mfd. dry electrolytics in place of suspected condenser, after clipping off red leads close to can.

RCA VICTOR 6-K-2

Intermittent cutting off of set and dial light . . . small rivet in center of band pilot light shorting to ground.

SILVERTONE 110

Unstable . . . tighten all ground screws throughout chassis, also those on gang condenser. Pigtail gang rotor. Replace 9000 ohm 5 watt carbon resistor (black and red) and 10,000 ohm 3 watt with a 10 watt. Also connect .002 condenser from detector plate to grid to reduce R.F. component in audio: reneutralize.

STEWART WARNER R-102A

Overload on strong signals . . . try different values cathode resistor (original 45,000) as this value often critical.

US 24

Hum, or set completely dead . . . Probably open second filter condenser.

ZENITH 730 SERIES

Intermittent or inoperative . . . shorted I.F. bypass from primary to secondary or shorted I.F. winding. Also to improve performance remove fine stranded enameled wires of I.F. coils where they pass through eyelets at base of coil form and run externally through spaghetti, sharpening I.F. resonance peak due to reduced coupling, realign. I.F. frequency is .485 K.C.

FORD V-8 NOISE ELIMINATION

Ignition interference . . . insert r.f. choke, made by winding 12 to 14 turns of 14 d.c.c. wire on ½ in. form, directly at the fuse terminal with other end direct to lead to set. This "Hot A" lead should be as *short as possible* and shielded right down to the set, grounded only at the set end. Try several small mica condensers from 50 to 250 mmf. between r.f.c. and open end of shield.

INDEX TO ADVERTISERS

OCTOBER, 1936

SEARCHLIGHT SECTION

Classified Advertising

McGRAW-HILL PUBLISHING COMPANY, INC., 330 West 42d Street, New York, N. Y. Branch offices: 520 North Michigan Ave., Chicago; 883 Mission St., San Francisco; Aldwych House, Aldwych, London, W. C. 2; Washington; Philadelphia; Cleveland; Detroit; St. Louis; Boston; Atlanta, Ga.

Play SAFE with

. . . in standard cartons of 10

MOLDED IN BAKELITE

● A modern high quality paper condenser completely encased in protective bakelite . . . superior in appearance and performance to ordinary paper tubulars. DOMINOES are small, flat, easy to use; *resist heat and moisture*; offer permanent capacity and full voltage protection. COMPARE!

●

Wide range of capacities up to .25 mfd. 200 volts, .1 mfd. 400 volts, .05 mfd. 600 volts.

SOLAR MFG. CORP.
599-601 Broadway, New York City

YOU CAN'T KEEP PACE

with "Model T" Training!

Write today for this helpful, illustrated booklet, "The Key to Successful Servicing." Get all the facts now!

A car ten years old is not more out-of-date today than are many radio service men. Radio service is becoming not only more technical, but also more highly competitive. The man who hopes to get ahead must have adequate MODERN training . . . NOW!

Advanced Home Study Training in
RADIO SERVICE & PUBLIC ADDRESS

Free!

We know what you men need and how to teach it. Insure your radio future by training now . . . in your own home. Start any time . . . take up to three years to complete. Terms as low as $5 monthly.

RADIO SERVICE INSTITUTE
Subsidiary of C. R. E. I.
Dept. RR-10 3308-14th St., N. W., Wash., D. C.

Particular Men Choose FOX Aluminum Trumpet Horns

Especially suited for directional sound and long distance coverage, and for outdoor use where extremely light weight and immunity from dangers of exposure and atmospheric changes are important. Three-piece construction permits convenient handling, storing and transportation.
Radial rib reinforcement assures great strength. Easily installed. The five-foot size is especially popular with sound truck operators.
Exceptionally realistic and brilliantly clear tone quality and volume found in no other type trumpet horn.
Write for catalog sheets and price.

FOX SOUND EQUIPMENT CORP.
3120 Monroe Street
Toledo, Ohio

New 1937 Model

HICKOK

STATIKTESTER

At a New Lower Price

Radio's Finest Service Unit ● Compact—Light Weight

Combines both the static and dynamic method of set testing in compact and simple form.

Measures all A.C. and D.C. voltages, capacity, resistance and current in all radio receivers.

Embraces the most accurate commercial Tube Tester made —indicates exact Plate Current and true Dynamic Mutual Conductance in micromhos. Test tubes under actual set conditions.

Special Features Include:

Highest Accuracy.

All A.C. voltages indicated on one separate scale.

Ohmmeter operates from power pact of tube tester. No batteries. Has a special low ohm scale.

Selector Unit enables operator to make all Dynamic and Static Measurements.

Large meter with long scale and oversize movement. Tube Tester section has two 3" meters which indicate plate current and micromhos simultaneously.

In tube testing plate current and diode current reads in standard manufacturers values.

Gas content indicated directly on Good and Bad Scale, and in actual microamperes at grid current.

Many other important, exclusive features.

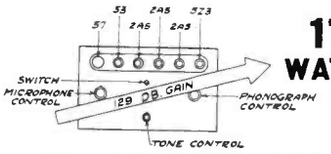
DEALERS NEW LOW NET PRICE $135.00

Deferred Payments If Desired.

Write for information about this and the complete line of Hickok Testing Instruments.

THE HICKOK ELECTRICAL INSTRUMENT CO.
10514 Dupont Ave. Cleveland, Ohio

THE LATEST IN PORTABLE SOUND SYSTEMS



Sound Schematic of Amplifier PA-417C

17 WATTS

- **CRYSTAL MICROPHONE** in Combination Floor and Banquet Stand
- **2-12" P.M. SPEAKERS** in Biased Cut Case
- **ONLY TWO CASES TO CARRY**

Microphone, Amplifier and Stand go in one case; Speakers in the other case.

Model PA-417C is the very latest design in portable sound systems. The crystal microphone is the new directional type with 25 ft. of rubber covered shielded cable. The microphone floor stand is the full size. When demounted it packs in same case with amplifier and microphone. Weight—41 lbs.

System is equipped with heavy permanent magnet speakers mounted in acoustically correct bias cut carrying case. Speakers can be placed on platform or hooked on wall. Total weight—21½ lbs.

Tubes, cables and all necessary accessories furnished with system. Very moderate price. Write for catalogue giving complete details or see your local jobber.

SYNCHRONIZED WEBSTER CHICAGO SOUND EQUIPMENT

STRICT DEALER POLICY
FULLY LICENSED
TIME PAYMENT PLAN

WEBSTER-CHICAGO
Section O-8, 3825 W. Lake St., Chicago, Ill.

Please send me more information on Model PA-417C.

I am also interested in sound systems for Rentals ....; Portables ....; Fixed Systems ....; Lower Power ....; High Power ....; Institutional Systems ....; Hotels ....; Schools ....; Inter-Office Communicating Systems ....; Factory Call Systems .....

Name .....
St. Address .....
City ....., State .....

Electrically and Mechanically Matched REPLACEMENTS

Matched dimensions, mountings, casings.

★

Matched electrical characteristics and connections.

★

Improved performance due to Aerovox standards.

★

Largest line of units listed and stocked.

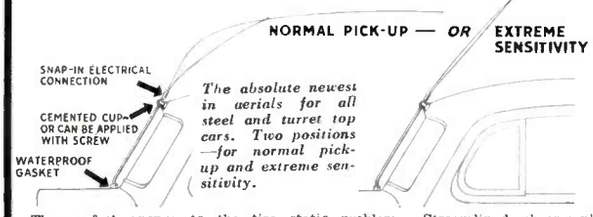
AEROVOX Exact Duplicate Replacement Condensers are precise copies of original set equipment. They look right, fit right, work right. Result: A satisfied customer, fair profit, prompt payment—and no return calls to "make good."

***New* CATALOG:** Just issued. More pages. More items. Lower prices. Ask your jobber for copy, or write us direct.

AEROVOX CORPORATION
74 Washington St. Brooklyn, N. Y.

THE *Motorola* TOPPER

"Tops" in Aerials for Turret Top Cars



The absolute newest in aerials for all steel and turret top cars. Two positions —for normal pick-up and extreme sensitivity.

The perfect answer to the tire static problem. Streamlined chrome-plated tempered steel shaft. When locked down in the city, it will not hit obstructions such as law garage doors. Out in the country, away from broadcasting stations, it is easily snapped up to extreme sensitivity position to give extra power and pick-up to the auto radio.

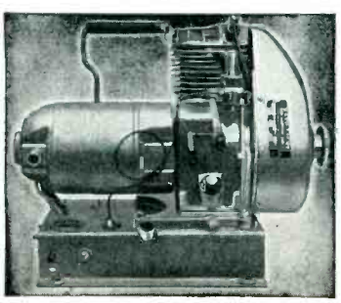
M-116 "Topper" Aerial, List $2.95—Send Orders to Your Motorola Distributor

GALVIN MFG. CORPORATION • Chicago

110 VOLTS AC ANYWHERE

With Katolight Jr. Complete light plant for $59.95.

Electricity at price anyone can afford. Dealers you can sell the Katolight Jr. Each plant sold creates lifetime user for lamps, motors, wiring, Radio and appliances.



6 V. 150 watt.....$59.95
12 V. 200 watt..... 59.95
32 V. 300 watt..... 72.00
110 V. 300 watt A. C. 87.50
110 V. 350 watt, A. C. Self-cranking 98.00

Ask about 450, 550, 750 and 1000 watt complete plants made by mfs. of AC & DC Plants, Diesel Plants, Generators, Rotary Converters.

Kato Engineering Co.
Mankato, Minn., U. S. A.

SEARCHLIGHT SECTION

EMPLOYMENT and BUSINESS OPPORTUNITIES—SURPLUS STOCKS—DISCONTINUED MODELS

UNDISPLAYED—RATE PER WORD:
Positions Vacant and all other classifications, 15 cents a word, minimum charge $3.00.
Positions Wanted (full or part-time salaried employment only) ½ the above rates, payable in advance.
(See ¶ on Box Numbers.)
Proposals, 50 cents a line an insertion.

INFORMATION:
Box Numbers in care of our New York, Chicago and San Francisco offices count 10 words additional in undisplayed ads. Replies forwarded without extra charge.
Discount of 10% if one payment is made in advance for four consecutive insertions of undisplayed ads (not including proposals).

DISPLAYED—RATE PER INCH:
1 inch $8.00
2 to 3 inches..... 7.80 per inch
4 to 7 inches..... 7.60 per inch
Rates for larger spaces, or yearly rates, on request.
An advertising inch is measured vertically on one column, 3 columns—30 inches—to a page. Radio Retailing

POSITION WANTED

Expert radio repairman, radio assembler and electrician. Experienced on all models of manufactured sets. Also repairing and assembling amateur sets. Can employ and operate all test equipment and meters, including heavy duty oscillator. Young man, single, will go anywhere. PW-208, Radio Retailing, 330 West 42nd Street, New York City.

New "SEARCHLIGHT" Advertisements
must be received by the 30th of the month to appear in the issue out the following month.
Address copy to the Departmental Advertising Staff
Radio Retailing
330 West 42d St., New York City

"SEARCHLIGHT"
IS
Opportunity Advertising
—to help you get what you want.
—to help you sell what you no longer need.
Take Advantage Of It
For Every Business Want
See SEARCHLIGHT of this issue.

SOUND - ON - FILM EQUIPMENT
New — Used — Rebuilt
16 mm and 35 mm
Startling low prices on projectors, screens, sound heads, amplifiers, microphones, portable projectors, arc lamps, rectifiers, generators, etc.
Write for details
S. O. S. CORP., 1600 Broadway, New York

PHILCO SERVICEMAN and Catalog of PHILCO Parts and Tubes—Sent Free on Request.
WILLIAMS PHILCO., INC.
800 S. Adams St. Peoria, Illinois

Get This
FREE
RADIO CATALOG
Over 10,000 items in this big catalog including radio receivers, nationally known radio parts and broadcasting equipment at lowest wholesale prices. A catalog of great value to dealers and servicemen. Write today for your FREE copy of this big catalog.
BURSTEIN-APPLEBEE CO.
1012-14 McGee St., Kansas City, Mo.

Ready ALLIED'S 1937 RADIO CATALOG

Every Service Department needs this up-to-the-minute Catalog! 152 pages packed with everything in radio, including the very latest developments. Over 10,000 exact duplicate and replacement parts—newest service test equipment, tube testers, oscillographs, analyzers, meters—radio books, tools — 37 new low-priced radio receivers—All-Wave, Dual-Wave and Short-Wave, from 5 to 19 tubes—AC, battery, 32 volt, 6 volt and auto sets; latest Public Address systems—America's most reliable Windcharger and Iluripower units—tubes, batteries, accessories, etc. You can fill every service need from this great new ALLIED Catalog, at lowest prices.

YOUR SERVICE DEPT. NEEDS IT
SEND COUPON
FAST, RELIABLE SERVICE

ALLIED RADIO
833 W. Jackson Blvd. Dept. 18-K
Chicago, Ill.
Send us your new 1937 Catalog (Free).
Name .....
Address .....
City ..... State .....

STOP SEARCHING! HERE IS YOUR "GUIDE"

Don't Grope Around In The Dark . . .
Send For This New Radio Buying Guide Today!
Here is the solution to all your radio supply problems . . . Here is your key to the fastest service . . . Lowest Prices . . . and the largest stock of Radio Repair Parts in the world! This Radolek new 1937 Radio "Profit Guide" is the most complete Radio Parts Catalog ever published . . . over 160 pages . . . bringing to you over 10,000 individual Repair Parts . . . hundreds of new items . . . a complete new selection of Radio Receivers, Amplifiers, Tubes, Tools, Books and Instruments . . . Everything you need . . . always in stock . . . ready for prompt shipment . . . at the right prices.

FASTEST SERVICE
COMPLETE STOCKS
LOWEST PRICES

YOU NEED THIS BIG CATALOG!
It's FREE! Send this coupon NOW! Radolek endeavors to restrict circulation of the Profit Guide to those actively engaged in the Radio business. Please enclose your business card or letterhead.

Rely on Radolek for "Everything in Radio"

RADOLEK
631 W. Randolph St. CHICAGO, Illinois.
Name .....
Address .....
Serviceman? ☐ Dealer? ☐ Experimenter? ☐

LETTERS

One-Man Boycott

I seldom write letters of this nature but seeing one on page 84 of the July edition starting me thinking. The letter referred to was from Victor Sivc of Little Falls, New York.

Mr. Sivc would like to have something done about "wholesale retailing." Well, something can be done and Mr. Sivc can help. But all other servicemen and retailers must help also.

The thing to do is for each and all of us to do our part and trust the other fellow to do the same. Following are the rules which I follow: (1) Whenever I write for a new catalog I use plain, white tablet paper and state that I am just starting up in the business. If I receive a catalog then I never order from it. (2) Although much standard merchandise is listed in most of these catalogs I never buy it either from the catalog or the manufacturer or any place else unless I cannot get any other make that will do. Above all, I will not sell tubes that are sold by "wholesale retailers." (3) I do not patronize anybody that does patronize these outlets and steer clear of all magazines and papers that advertise them.

QUINCY, ILL. "ELZY."

Presto

The writer is a member of the Town Council and we want to pass a radio interference ordinance so as to improve our town's reception. I told the fellows that I thought we could possibly get a sample ordinance from you. We would appreciate any help that you might give along this line.

YUMA, COLO. PAUL E. MORRIS
Yuma Electric & Fixit Shop

The opening article in this issue is made to order for you. Your letter and others like it, in fact, jogged us into action.

EDITOR

Premature Publicity

Every season, in November, our local association composed of radio and electrical jobbers and dealers in this community stage a four-day electrical show to enable the public to see all the latest developments in radio and electrical appliances.

This year, the entertainment committee thought it would be of considerable interest to the public if we were able to arrange a television demonstration. My purpose in writing you this letter is that by chance you may know of some company engaged in manufacturing television equipment or, perhaps, some school engaged in teaching this subject that would be interested in putting on this demonstration for us.

We enjoy the articles in your publication very much and trust you will continue the good work.

YANKTON, S. DAK. R. A. BOWYER, JR.
Dakota Radio Service Co.

Such a demonstration would, no doubt, swell your attendance. We might even hop a rattler and come to Yankton ourselves. But it certainly would not help sell radios. And, as yet, there are no televisors to sell. So what would you gain?

EDITOR

Don't Crowd, Gentlemen

In your July issue you had a page "Choosing an Antenna."

Would it be possible for us to get copies of this page? We would use several hundred. If it is not possible for you to print them, could you send the plate to us? We would either purchase it or return it to you.

We want to compliment you on your fine magazine and assure you it contains many dealer helps.

MINNEAPOLIS W. A. LUCKER

Any of our subscribers or advertisers may borrow plates . . . if they don't mind forming a line at our right. Or we'll reprint at cost if you prefer.

EDITOR

It's a Long Story

Read a descriptive article on your "sound equipment." This is entirely new to me. How can it be sold (this may be a silly question) but I will have to play ignorant. Send me full particulars. Would like to learn all about it.

SAN ANTONIO F. J. FINCK

Harvey Rockwell, Jr., the man who wrote the article you saw in our August issue, had another in September and writes a third this month. He intends telling the whole story. So stay with us.

EDITOR

So Would We

I would like to get a book on radio manufacturers, telling something about their size and, particularly, the different names that some of them place on their radios when these are sold to chain stores.

I have been a reader of your "Radio Retailing" for a long time but so far haven't seen anything like this in the magazine. If you haven't this at hand maybe you could tell me where to get it. I certainly would like to know who's trademark is whose.

LAUREL, MONT. J. B. COLLINS
Radio Sales & Service

Ok, We're Willing

The writer has just returned from Galveston where he handled a large sound job and while waiting for both sound trucks to return from Galveston picked up your magazine for August and read the story telling how to sell sound equipment on page 18 and 19.

Your thoughts in that article were very good and if each sound engineer would write about his sales experiences everybody would receive some good ideas, like I did, from your magazine.

HOUSTON G. H. CUNNINGHAM
Cunningham Radio Service

We Thank YOU

We wish to thank you for the engraver's proof of your editorial covering master antenna systems in the August issue.

Reprints are being mailed out to all the jobbers in our files.

NEW YORK T. LUNDAHL
Technical Appliance Corp.

Clip Those Coupons

As a subscriber to your "Radio Retailing" magazine I would appreciate information as to the names of concerns who specialize in printed matter pertaining to the advertising of service work and the sale of tubes. Interested particularly in blotters, circulars, etc.

I might mention at this time that I find your magazine very interesting, helpful and essential to keep me up to date in this business.

PROVIDENCE R. S. SKOOGLUND
Radio Sales & Service

Manufacturers of tubes, parts and testing equipment supply very excellent circulars of the type you describe, sometimes free of charge and sometimes at a very slight cost. That's why we published our description of new literature available in the September issue. And that's why we continue it this month.

EDITOR

THE OUTSTANDING STARS OF THE 1937 RADIO SHOW

Choose Crosley . . . AND PROFIT!

TUBE FOR TUBE . . . FEATURE FOR FEATURE . . . COMPARE THESE 1937 CROSLEY VALUES WITH ANYTHING ON THE MARKET!

FIVER—5 TUBES

2 Bands . . . 540-4000 Kc. Continuous . . . 5" Speaker . . . 3¼ Watts Output. **$19.99**

MODEL 525—5 TUBES

2 Bands . . . 540-4000 Kc. Continuous . . . 5" Speaker . . . 3¼ Watts Output. **$25.00**

MODEL 529—5 TUBES

2 Bands . . . 540-4000 Kc. Continuous . . . 5" Speaker . . . 3¼ Watts Output. **$29.95**

MODEL 629—6 TUBES

American-Foreign . . . 540-1710 Kc., 2350-7000 Kc. . . . 6" Speaker . . . 4 Watts Output. **$34.95**

MODEL 634—6 TUBES

American-Foreign . . . 540-1710 Kc., 6000-18,000 Kc. . . . 6" Speaker . . . 5½ Watts Output. **$39.95**

MODEL 744—7 TUBES

Continuous Coverage . . . 540-18,000 Kc. . . . 6" Speaker . . . 6 Watts Output. **$49.95**

Model 537 Console—5 Tubes

2 Bands . . . 540-4000 Kc. Continuous . . . 8" Speaker . . . 3½ Watts Output. **$39.95**

Model 759 Console—7 Tubes

Continuous Coverage . . . 540-18,000 Kc. . . . 12" Speaker . . . 6 Watts Output. **$67.50**

Crosley Plus Features

Look at this list of Crosley *plus* features that are the outstanding stars of the 1937 radio world. Every one is a powerful "seller" . . . everyone a headliner that will draw traffic and make quick sales for the Crosley Dealer.

AUTO-EXPRESSIONATOR
MYSTIC HAND
BASS AND TREBLE TONE COMPENSATOR
SIX-STEP FIDELITY CONTROL
HIGH FIDELITY METAL TUBES
CARDIAMATIC UNIT
MAGNA-CERAMIC DIAL
VIBRACOUSTIC SOUNDING BOARD
GIANT CURVILINEAR SPEAKER

THE NEW 1937 CROSLEY RADIO LINE

First, as always, with the best in radio, Crosley again sets the pace with the new 1937 Crosley Radio Line. As in the past Crosley is again the tough line to sell against . . . the fast-selling line to stock . . . the line you can sell from top to bottom with confidence and profit.

Everything is set for another Crosley Year in radio. See your Crosley Distributor today and take advantage of the sales opportunity that is yours with the Crosley Franchise and the new 1937 Crosley Radio Line.

Model 769 Console—7 Tubes

Continuous Coverage . . . 540-18,000 Kc. . . . 12" Speaker . . . 6 Watts Output. **$79.95**

Model 989 Console—9 Tubes

Continuous Coverage . . . 540-18,000 Kc. . . . 12" Speaker . . . 12 Watts Output. **$99.50**

Model 1199 Console—11 Tubes

Continuous Coverage . . . 540-18,600 Kc. . . . 12" Speaker . . . 20 Watts Output. **$109.50**

Model 644 Console—6 Tubes

American-Foreign . . . 540-1710 Kc., 2350-7000 Kc. . . . 12" Speaker . . . 4 Watts Output. **$49.95**

Model 649 Console—6 Tubes

American-Foreign . . . 540-1710 Kc., 6000-18,000 Kc. . . . 12" Speaker . . . 5½ Watts Output. **$59.95**

Model 1211 Console—12 Tubes

Continuous Coverage . . . 540-18,000 Kc. . . . 12" Speaker . . . 20 Watts Output. **$129.50**

Model 1313 Console—13 Tubes

Continuous Coverage . . . 540-18,000 Kc. . . . 15" Speaker . . . 25 Watts Output. **$149.50**

Model 1516 Console—15 Tubes

Continuous Coverage . . . 540-18,000 Kc. . . . 15" Speaker . . . 25 Watts Output. **$174.50**

★★★ WHATEVER HAPPENS YOU'RE THERE WITH A CROSLEY

CROSLEY RADIO

THE CROSLEY RADIO CORPORATION - - - CINCINNATI

POWEL CROSLEY, Jr., President

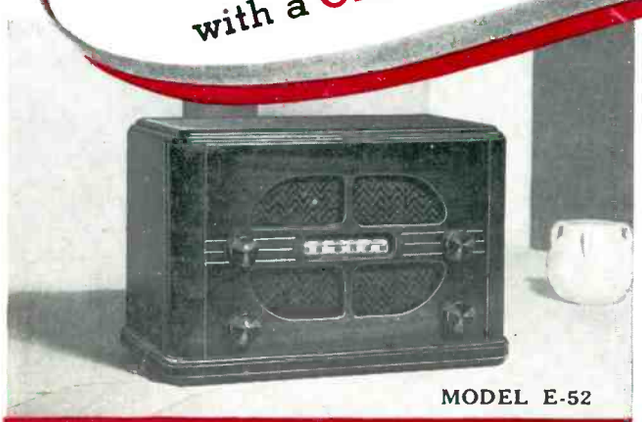
Home of WLW—the world's most powerful broadcasting station—70 on your dial.

(Prices slightly higher in Florida, Texas, Rocky Mountain States and west.)

Double Sales Angle

GENERAL ELECTRIC'S NEW *Individual** RADIO

with a CHOICE of COLOR Combinations in the $20.00-$25.00 price bracket



MODEL E-52

Gracefully styled in two-tone Walnut

MODEL E-50

Gracefully styled in four colorful finishes: Two-tone Walnut; White and Gold; Black and Gold; Red, Black, and Gold.

MODELS E-50 and E-52: Five G-E Metal Tubes • Two Reception Bands • Coverage, 540 to 4000 kc. • Single-plane Dial • 6½-inch Stabilized Dynamic Speaker • Tone Control • Three Watts Output •

POWERFUL TRAFFIC PROMOTER

There's *extra* store traffic waiting for you in the promotion of G-E *Individual* Radio models. A radio for each type of room in the home means additional sales and profit opportunities for you. With a G-E *Individual* Radio each member of the family may listen to favorite programs on his or her own *personal* radio. Just what home makers are looking for to add a spot of color, a touch of individuality to each room. And just what dealers need for tuning into greater profits.

SPECIAL COMBINATION PROFIT MAKER

(1) ONE COMPLETE SET OF 5 MODELS: One each of Model E-50 (two-tone Walnut); E-50W (White and Gold); E-50R (Red, Black and Gold); E-50B (Black and Gold); E-52 (two-tone Walnut).

(2) A colorful display merchandiser that dominates with sales-pulling force and beauty of design — *plus* fifty illustrated folders printed in two colors.

Get this complete and timely Merchandise Promotion Package NOW. See your G-E Radio Distributor for complete details.

FOR METAL TUBE RENEWALS, SPECIFY G-E

GENERAL ELECTRIC

*Individual** **RADIO**

APPLIANCE AND MERCHANDISE DEPARTMENT,
GENERAL ELECTRIC CO., BRIDGEPORT, CONN.