

Radio Sales and Service

The National Magazine for Radio Dealers and Servicemen



\$2.00 per year

February 15, 1931
Circulation 48,000

The Last Word in Radio— Model 245



of the
**Austin A.
HOWARD
Corporation**

Retail price—
Clock model with
tubes

\$89⁵⁰

SMALL BUT MIGHTY

If your prospects know music, demonstrate the Model 245 to them! Compare the performance of this inexpensive compact receiver, designed and built by Austin A. Howard, a pioneer builder of fine radios, with the most expensive model on your floor!

An oversize dynamic speaker, perfect baffling and a push-pull audio system using two 245 tubes, combine to give unsurpassed beauty of tone and fidelity of reproduction.

Get out of the profitless "price sales" rut. Use the irresistible appeal of this beautiful receiver to sell the most discriminating buyers.

Build for tomorrow by selling the Model 245—a receiver that will stand up and deliver wonderful music. A favorite with everybody who hears it. Every set sold sells others through sheer merit of performance.

Write today for complete information on our profit-making Dealer Plan.

This Coupon brings the Story

**AUSTIN A. HOWARD CORPORATION,
1725 Diversey Parkway, Chicago.**

Please send the Dealer Plan and complete information on the:

- Model 245 with Clock
 Model 245 without Clock
 Model 245 with Coin Attachment

Name

Address

A few territories are now open for capable representatives to sell the Austin A. Howard Corporation line. State experience and qualifications in first letter.

No other has IT!

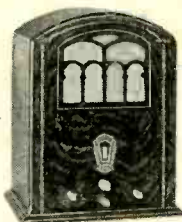


Only the NEW Silver-Marshall Superheterodynes have an extra-sales feature like the Extension Speaker Jack—making it possible for the owner to have the receiver in the living-room and an additional speaker in the kitchen, bedroom, the den, or anywhere in the house. The extension speaker cord plugs right into the chassis • Now that receivers sell "with tubes"—here is your extra sale! And it is an exclusive

SILVER-MARSHALL FEATURE

THE designer of the first popular Superheterodyne in the whole world, the founder of screen-grid reception in America, the first licensee to bring out Superheterodynes exclusively, the manufacturer of the famous S-M auditorium amplifiers, short-wave receivers, tuners, and auto sets—has lapped the field again! He has produced a complete line of powerful Superheterodynes ranging in list price (with tubes) from \$79.90 to \$124.90. Even the smallest of these receivers can be ranged beside the most expensive console set and out-perform it station for station and tone for tone.

Write your name and address on a corner of this page—mail it to us—and we will see that you immediately receive complete, detailed data on this "extra sale" line.



COMPACT MODEL—eight tube (three screen-grid) Superheterodyne chassis with every possible advanced feature. Lists complete, at

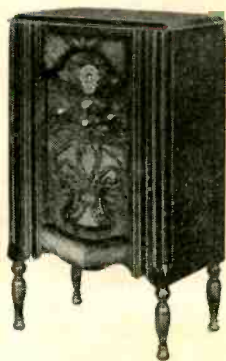
\$79.90

8 SUPERHETERODYNES

CADET MODEL

—console-type cabinet, powerful eight-tube Superheterodyne chassis with tone control, absolute 10 kilocycle selectivity, local-distance switch, illuminated drum dial. Lists complete, at

\$89.90



SILVER-MARSHALL

SUPERHETERODYNE

RADIO

6401 West
65th Street . . .

Chicago
U. S. A.

To answer an advertisement, tear out page and pin to letterhead

WELLSTON GOLD TEST AERIAL

Gets
Greater
Distance!

Reduces
Static and
Hum!

The
World's
Smallest
Aerial
2½ by 5 inches
in Size



IMPROVES RADIO RECEPTION

Gets Greater Distance—Eliminates all other Aerials

This NEW-IMPROVED WELLSTON GOLD TEST AERIAL is just a mere handful, yet it eliminates both the inefficient outside and inside aerials. Heralded far and wide as one of the greatest innovations introduced to the radio industry since radio itself, this new improved model follows closely upon the success attained by its predecessor—the original WELLSTON GOLD TEST AERIAL which at present is giving satisfactory service to enthusiastic thousands of radio owners throughout the world. It brings in distant stations with crystal clear tone quality and greater volume—gives selectivity without distortion and helps to eliminate overlapping of stations, noise and electrical interference.

It Will Never Wear Out

Made of emerald green genuine solid Condensite with binding posts to match this NEW AND IMPROVED WELLSTON GOLD TEST AERIAL is of the filtered type endorsed by radio engineers. Although small enough to fit the palm of your hand, it has a capacity equivalent to 54 ft. of best grade aerial wire strung 50 ft. high in the air. It is absolutely non-directional, non-corrosive and guaranteed never to wear out. It does away with all lightning hazards and because it does not connect into a light socket, all AC hum and line noise is eliminated. Once installed no further attention is required.

JOBBERS — DEALERS Wanted Everywhere!

We have an unusual money-making proposition to offer Jobbers and Dealers on this new and improved type of aerial. Exclusive territory open. Complete dealer service — circulars, window displays, counter cards, coupled with a strong national advertising campaign. Write at once for full information, including SPECIAL LARGE DISCOUNTS, Price List, Etc.

Easy to Install

It is a simple matter to install the WELLSTON GOLD TEST AERIAL—even a child can do it in a minute's time. No extra tools are needed. Place it anywhere—inside on the back of the radio cabinet. Once installed no further attention is required.

For Sale by Leading
Radio Dealers

Price **\$2.50** (Retail)

The WELLSTON RADIO CORP., St. Louis, Mo.

To answer an advertisement, tear out page and pin to letterhead

The D.C. Radio Problem Is Now Solved!

The New
JANETTE

TYPE CA-20-F

**ROTARY
CONVERTER**
Does the Trick



RETAIL
PRICE
\$49⁵⁰

NOW you can sell A. C. receivers for use in direct current districts of large cities—for use on farm lighting systems—and for use on board ships.

The new Janette type CA-20-F Rotary Converter makes five hundred thousand farmers who own direct current light systems, as well as hundreds of thousands who live in the direct current districts of large cities, all prospects for modern A. C. receivers.

This new Janette operates quietly—converts D. C. into A. C. for operating all-electric

receivers. Has double wound a armature—perfect filtering—causes not a trace of ripple or interference in the set.

Lowest Price Ever Offered

\$49.50 retail—with attractive dealer discounts. Includes filter, cord, plug, and A. C. receptacle. This low priced converter brings A. C. radios within the reach of the most modest purse.

Mail this Coupon for Complete Information

JANETTE MANUFACTURING COMPANY
558 W. Monroe St., Chicago, Ill.

We want to know all about the new Janette Rotary Converter and the market it makes for A. C. Sets.

Name.....
Address.....
City..... State.....

To answer an advertisement, tear out page and pin to letterhead

Program

N. F. R. A. Convention— Indianapolis, Ind.

MONDAY, FEB. 16, 1931

9:30 A. M.—Official Opening—J. Newcomb Blackman, President National Federation of Radio Associations.

Introduction of Delegates.

Address of Welcome—Vice-President Indianapolis Radio Trade Association.

President's Address—J. Newcomb Blackman.

Appointment of Convention Committees, Nominating Committee, Resolutions Committee, Coordination Committee, Next Annual Meeting Place Committee, Appointment of Sergeant-at-Arms.

Report of Executive Vice-President, H. G. Erstrom.

10:45 A. M.—Adjournment to Divisional Meetings.

Retailers' Meeting (See Retailers' Program).

Wholesalers' Meeting (See Wholesalers' Program).

12:15 P.M.—2:00 P.M.—Luncheon. President Indianapolis Radio Trade Association.

Address of Welcome—Mayor of the City of Indianapolis.

Address by Morris Metcalf, President Radio Manufacturers' Ass'n.

Address by W. J. Damm, President, National Association of Broadcasters.

2:00 P. M.—Divisional Meetings—Wholesalers' and Retailers' Divisions.

7:30 P. M.—Pow-Wow.

TUESDAY, FEB. 17, 1931

9:00 A. M.—12:30 P. M.—Divisional Meetings. (See Wholesalers' and Retailers' Programs).

12:30 P. M.—2:00 P. M.—Luncheon.

2:30 P. M.—5:00 P. M.—Report of Radio Wholesalers' Association, Harry Alter, President.

Report of Retailers' Meeting—Henry M. Steussy, Chairman Retailers' Group.

Report of Trade Press Conference.

Short Speeches by Nationally Prominent Men.

Report of Resolutions Committee.

Report of Coordination Committee.

Report of Nominating Committee.

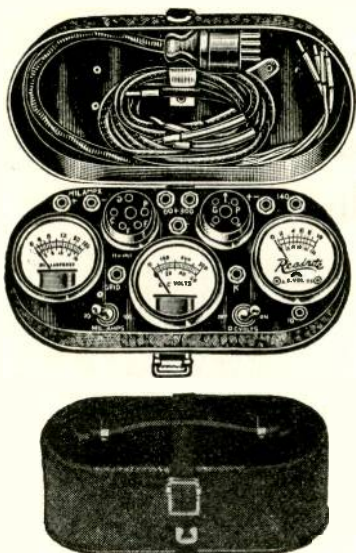
Election of Directors.

5:00 P. M.—Adjournment.

8:00 P. M.—Annual Banquet followed by Surprise Party.

Turn Page For Wholesaler's and Special Meetings

NEW READRITE SET AND TUBE TESTER No. 245-A



Newly designed to meet the servicing needs of all types of radio receiving sets. Used by experts. Adaptable for every kind of socket test. Also continuity of circuits, a.c. and d.c. and all tubes, including screen-grid, pentode and rectifier. Checks line voltage. Furnished with charts, curve values and full instructions. Accurate. Compact. Simple to use. Seamless steel case finished in beautiful baked enamel.

No. 245-A Closed

No. 245-A For Servicing Sets, \$20.00

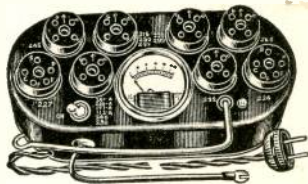
No. 400 For Counter Tube Testing \$20.00

\$12 NET

Order one or more today. If not at your jobbers we will ship direct.

Readrite

NEW READRITE COUNTER TUBE TESTER No. 400



A new tester that gives dealer and customer the required tube value information. Definite grid change shift provided for mutual conductance test. Eight sockets for testing all tubes, including the new 2 volt tubes. Connects to a.c. supply. Simple to use. Accurate. Dependable.

Handsome finished baked enamel steel case. All parts completely shielded. For use wherever tubes are bought, sold or used. Complete with tube chart. Be sure to order yours today.

Catalog covering our line of many Servicing Instruments for a.c. and d.c. will be sent upon request.

READRITE METER WORKS

Established 1904

20 COLLEGE AVE.

BLUFFTON, OHIO

To answer an advertisement, tear out page and pin to letterhead

Program

N. F. R. A. Convention— Indianapolis, Ind.

Wholesaler's Division Meet- ings—Radio Wholesalers Association

MONDAY, FEB. 16, 1931

11:00 A. M.—Official Opening of Third Annual Convention—Harry Alter, President.
President's Address—Harry Alter, President Radio Wholesalers' Association.
Report of Executive Vice-President, H. G. Erstrom.
Round Table Discussion.

12:15 P. M.—Adjournment for Luncheon.

2:15 P. M.—Report of Tube Committee—J. Newcomb Blackman, New York.
Report of Set Committee—David F. Goldman, New York.
Round Table Discussion of Committee Reports.

5:30—Adjournment.

TUESDAY, FEB. 17, 1931

9:15 A. M.—Radio Retailers Insurance Service Men's Problems—Chairman Technical Committee. Wisconsin Radio Trade Association.
Round Table Discussion.

12:15 P. M.—Adjournment.
Luncheon.

TUESDAY, FEB. 17, 1931

9:15 A. M.—Report of Traffic Committee—Francis E. Stern, Hartford, Conn.
Report of Membership Committee—Howard J. Shartle, Cleveland.
Report Supplementary Line Inquiry Committee—Robt. Himmel, Chicago.
Report of Nominating Committee.
Discussion of Future Plans.
Election of Directors, Radio Wholesalers' Association.
12:15 P. M.—Adjournment.

Special Meetings

Board of Directors, National Federation of Radio Associations and Radio Wholesalers' Association—Breakfast,
8:30 A. M.—Daily.

SUNDAY, FEB. 15, 1931

Board Meeting of National Federation of Radio Associations.

2:00-4:00 P. M.—Tube Committee Meeting R.W.A.
Set Committee Meeting R.W.A.
Supplementary Line Inquiry Committee R.W.A.
General Committee Meeting R.W.A.

4:00 P. M.—Board Meeting of Radio Wholesalers' Association.
Local Association's Secretaries' Forum—

MONDAY, FEB. 16, 1931

Trade Press Conference—
TUESDAY, FEB. 17, 1931

Retailers' and General Meetings on Page 4.

Radio Sales and Service

The National Magazine for Dealers and Servicemen

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Contents—February 15, 1931

Features

N.F.R.A. Convention Program.....	4
Editorials	8
World's Largest Broadcasting Studios.....	12
News of the Month.....	28
New Products	40
Jack and Larry.....	44
Tube Merchandising Contest Extended to February 25....	47

Merchandising

The Pendulum Swings Back.....	10
A January Window Display.....	15
Novel Canvass Puts Dealer 28% Over Quota.....	16
New Tubes—New Batteries Open Farm Market.....	18
\$50,000 Volume On Tubes.....	20
Tube and Set Merchandising Aids.....	23
Is the Radio Salon Worth While?.....	25
Discovered: 500,000 New Prospects for A.C. Sets.....	34
Profitable Allied Lines.....	35

Servicing

Sound Profits	30
Cash-In on Home Recording.....	38
Servicing Literature You Need.....	45
Getting Your Share of Tube Replacements.....	47
My Most Unusual Service Problem.....	48
Interpreting Set Analyzer Readings.....	50
How to Make an Ohmmeter.....	55
RADIO SALES AND SERVICE Servicemen's Diagrams	54, 56, 58, 60, 62, 64

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R. D. Allbright, General Manager

John S. Meck, Technical Editor

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Radio Sales and Service

The National Pocket Magazine for Dealers and Servicemen

Chicago, February, 1931

Tubes Are Over-the-Counter Merchandise

RADIO tubes can and should be sold over the counter. Everyone who owns a radio set needs tubes sooner or later. Unfortunately, radio merchants have not educated their customers to the necessity of having a spare set of tubes on hand. Those dealers who have sponsored the idea—there are a few of them—have found that as soon as a customer is shown how easy it is to renew tubes he can at once be sold spares, over the counter.

The big job is for dealers to remind customers to keep spares on hand at all times. No one can tell just when a tube will burn out or cease to operate. When this does happen, if there are spares in the house, there need be but a very short interruption in the program. The more users of radio are taught to appreciate this, the greater the tube business will be. Radio tubes are decidedly reminder merchandise and there is therefore a tremendous possibility for reminder purchases—over the counter.

Why Radio Tube Stores!

Neglected opportunity frequently means lost opportunity! Radio tube stores are springing up in many metropolitan areas. Why? Because radio dealers have been so intent on set merchandising that they have neglected to ask their customers to buy tubes. Tube merchandising requires practically no added investment, no additional rent—just a sales and service force that is tube conscious!

Tube replacement business on the sets you sell is your legitimate business. The correct performance of sets in service demands that you give them a fair share of attention. Aggressive tube merchandising will aid tremendously in keeping your overhead down!

If you don't sell tubes to your trade somebody else will, and he will get a good chance at the next set sale, too!

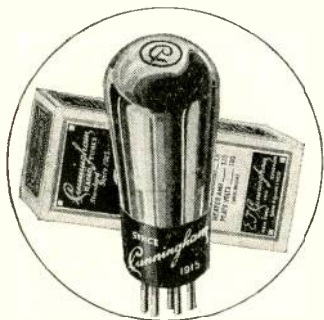
After the Midget?

Now that midget radio set merchandising has apparently hit the depths, what comes next? Read the story on page 10 of this issue.

Cunningham RADIO TUBES

Quality still paves the way to increased profits

WITHOUT ballyhoo and without false stimulant, the Cunningham Company has planned a sound, common-sense sales and merchandising campaign aimed to result in increased profits for you.



Standard Since 1915
If you are not now on our mailing list and receiving sales helps, we shall be glad to add your name — just write us.

Every effort is directed at helping you sell more radios, more accessories and more Cunningham Tubes at greater profits to yourself.

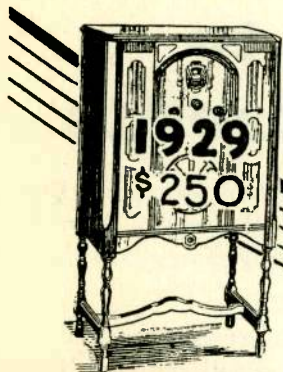
Nation-wide newspaper and magazine advertising, snappy window and counter sales helps, and hard-hitting direct mail shots make up this tube selling campaign.

E. T. CUNNINGHAM, INC.
New York Chicago San Francisco
Dallas Atlanta

The Pendulum Swings Back

FROM high priced consoles ranging from \$150.00 to several hundred dollars in price, the

these small sets has created a frenzy of midget manufacturing only equalled in the days when radio first became popular and when the radio business consisted of countless hundreds of mediocre plants that sprung into existence overnight—plants, the majority of which were obliterated when sta-



popular radio demand has gone to the inexpensive midget. From \$250.00 to \$29.50, the price has dropped like a plummet.

And as usually happens in connection with a sharp reaction of any kind, the pendulum has over-sprung. The trend toward low price has gone much beyond the place where low price is commensurate with good value. Up to the present time the midget market has been any man's market.

The overwhelming demand for

bility was reached—plants that passed out of the picture when seasoned engineering, planned production, and mass sales effort began to function.

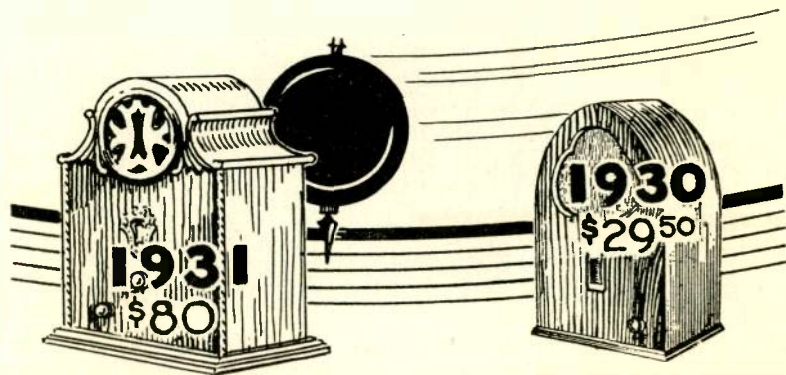
Until recently the midget business has been primarily handled by small manufacturers—manufacturers who could get into production almost overnight, too quickly for the large companies to follow. Until recently the midget appeal has been price—price so drastically emphasized that the staid

in Midget Merchandising

and proven manufacturers have hesitated to risk their reputations by following it.

But today the picture is changing. Nationally known companies with their reputation to maintain are going into the midget business, building sets worthy of their

volume, and tone quality—sets that the most discriminating dealers can sell with every assurance of satisfactory operations—sets that will sell and stay sold and, most of all, sets that will yield to dealers a substantial profit that will not be eaten up by service.



names—sets built first of all to give performance at a price commensurate with performance and quality.

As a result, 1931 has already seen a considerable number of small, compact, inexpensive sets that perform, providing selectivity,

The new sets are inexpensive—under \$100.00. Lots of radio for the money in performance, appearance, and reliability. This is the midget that is coming in 1931; the compact, inexpensive, but thoroughly reliable instrument that is coming to stay.

The World's Largest Mid-West "Radio City" With Stupendous Facilities

WHEN improvements are made in radio broadcasting it is an event of major importance to the merchandising of radio sets.

broadcasting center, and in view of the increasing number of programs emanating from the Chicago studios, the National Broad-



World's Largest Building, Merchandise Mart, Chicago.

One of the most outstanding of recent events in the improvement of broadcasting facilities was the opening of the stupendous new studios of the National Broadcasting Company in Mid-West "Radio City" on top of the world's largest building, the Merchandise Mart in Chicago.

Because of the rapidly increasing importance of Chicago as a

casting Company has built up an organization in Mid-West "Radio City" that is now one of the most complete in the broadcasting world.

The new Mid - West "Radio City" occupies two floors with a total area of more than sixty-six thousand square feet. In it are housed six of the finest and most scientifically constructed broad-

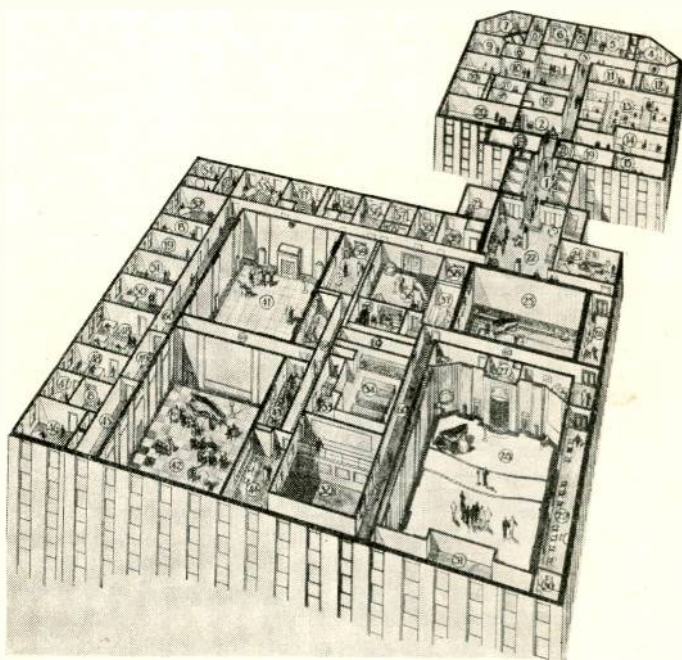
Broadcasting Studios

Goes On The Air

For Radio Entertainment

casting studios in the world. One of these, Studio "A," is the largest in existence. It is seventy-two feet long, forty-seven feet wide and twenty-six feet, six inches

high. In addition, there are literally scores of offices. These latter house all of the various departments that have become nec-



Bird's eye view of Mid-West "Radio City"

No. 42—Studio E
No. 71—Studio C
No. 36—Studio F

No. 28—Studio A
No. 41—Studio D
No. 25—Studio B

essary for a complete broadcasting service.

The four larger studios are literally floating rooms. Briefly described, they are a box within a box. They rest on springs. Four of the studios have sound locks at the entrances. These locks are small vestibules with two sets of doors lined with lead. When one door is opened, sound to and from the studio does not carry through the second door.

Visitors to the studios observe the broadcasting in the finest and most novel studio observation rooms yet designed. Each observation room is separated from the studio by glass screens of three large sets of plate glass of varying thicknesses.

More than two hundred miles of wire are involved in the technical operation of the studios.

The new quarters contain a master control room which has the largest control panel in the world. In the plant department is a small radio store. In this are found all pieces of mechanical equipment, such as tubes, etc., used in broadcasting operation. All equipment is in duplicate to prevent delays in the transmission of programs. There is even a large battery room which, at a moment's notice can supply independently all the power needed.

Another deviation from the usual is a specially furnished and decorated clients' audition room. This room is intended to represent a living room in a private home, and its purpose is to permit the client to hear auditions of his program in a home atmosphere. The

same idea is carried out in Studio "F" which is furnished in much the same way.

This studio is to be used for broadcasting by nationally and internationally known speakers, and the surroundings are intended to put them at their ease. It has been found that the large studios have a tendency to confuse speakers who have not previously broadcast.

The radio programs produced in these studios are transmitted by wire to the broadcasting stations which are connected in various groups for chain broadcasting. In this way, coast-to-coast networks, with Mid-West "Radio City" as a center, can be arranged and rearranged to meet the demands of each individual chain program. With about 600 broadcasting stations in the country and with an estimated expenditure of \$50,000,000 for radio entertainment during the current year, it is obvious that a tremendous force is at work, from coast to coast, to create new and growing demands for radio receivers. No event of local or national importance occurs without its being broadcasted to the public. Educational features, religious services of all kinds, political speeches and an endless variety of entertainment are on the air day and night. Radio dealers should not overlook the merchandising value of radio entertainment. It should be sold as part of the set. No home can afford to miss the world events in which they can participate by radio, without effort, and at cost of about 1 cent per hour.

A February Radio Window Display

By GEO. J. COWAN

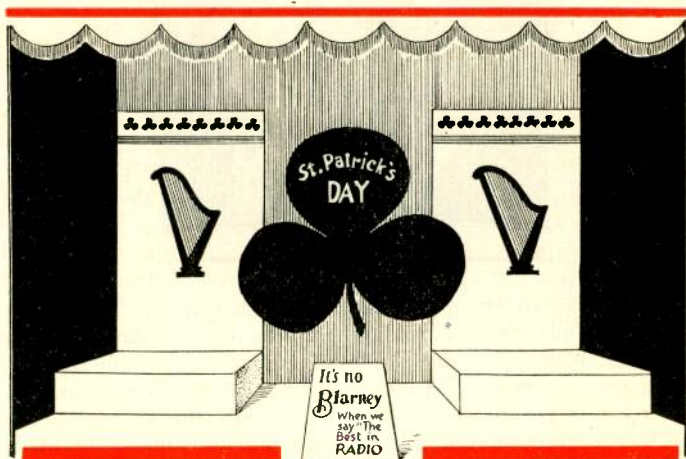
THE experienced display man watches the calendar very carefully, and finds that each month generally has one or more days of an outstanding nature that can be tied up to the window advertising of that month.

The month of March gives us St. Patrick's day. This enables one to put in a very definite color scheme of green and decorations

cut out of heavy cardboard. These harps are painted in gold. At the top of the panels are arranged small shamrocks cut out of green paper.

The panels and the platforms in front of them look especially pleasing if covered with silver paper or silver oil cloth.

This window is planned for the showing of three radios of the



of shamrocks and harps. It also enables one to use the clever wording on the show card, "It's no Blarney when we say The Best in Radio."

In the drawing on this page is shown an artistic manner of assembling a large shamrock cut out of wall-board, and two wall-board panels on which are fastened harps

console type. One in the center, and one in each corner placed on the platforms. Midget receivers might be featured if set on appropriate stands or small tables.

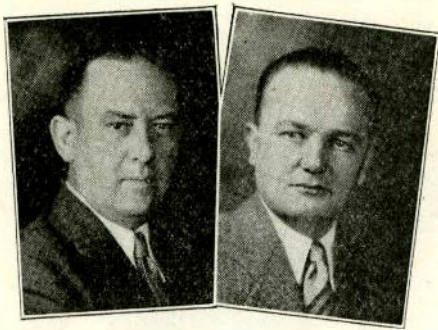
This decoration can be used against any permanent background you may have, and when used in a window with an open back,

(Continued on Page 59)

Novel Canvass Puts

Cooperative Campaign with Broadcaster Nets Many Hot Leads for Sales Force

By Richard Renolds



C. E. Saviers

M. Stampfli

THE H. E. Saviers and Son Company of Reno, Nevada, recently conducted a house-to-house canvass which enabled them to go twenty-eight percent over the quota for their territory.

The usual approach on canvass campaigns was not employed. To tell the housewife that a certain company is checking music instruments in a city generally scares off the woman for she fears that her name and the information she gives will be used to sell her later on. Saviers avoided this difficulty by financing a canvass for the local broadcasting station.

A cooperative deal was arranged between the music company and

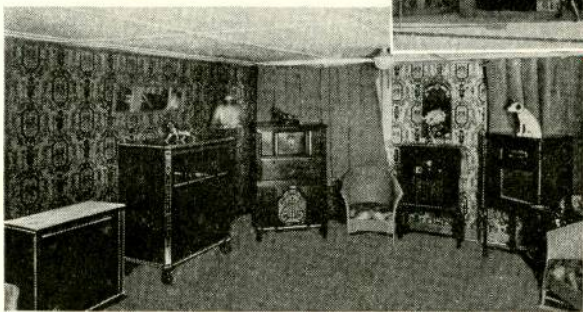
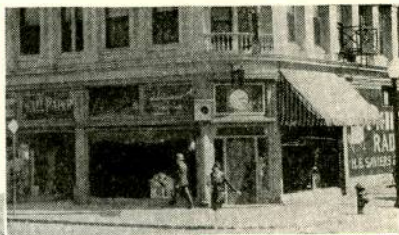
the radio station. The broadcasting company wished to ascertain the number of radio listeners in the area, but to them alone it was not worth the cost. They gave the campaign plenty of publicity, while Saviers financed and conducted the canvass.

No Selling During Campaign

The canvass was a 100% success for both parties. Every home in the city was visited and valuable information secured which would not have been forthcoming so completely had Saviers used their name. People did not fear any salesmanship from a broadcasting station. The whole campaign was completed in three weeks.

Dealer 28% Over Quota

It Worked in Reno
Try It in Your Town



Saviers' is attractive inside.

If a home was vacant, the information was listed on a card containing the address; if the lady was not at home, the card was held and a later call made.

Eight university students were employed by the day and managed by a company official. The city was equally divided into eight districts, taking in apartments and residential hotels as well as homes.

The following information was secured:

"Name; address; Do you own a radio? Make; A. C. or battery; Are you planning on buying one? When? Do you listen to KOH? Do you experience any trouble in listening to KOH? (squeals, howls, etc.)."

The reverse of the card was blank for remarks or further in-

formation relative to other musical instruments or type of radio the questioned contemplated buying.

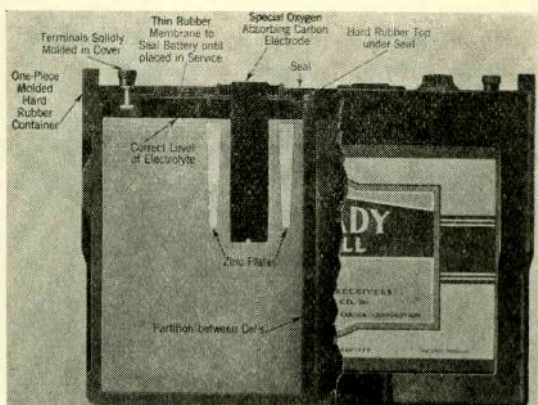
Half of Homes Without Radios

It was found that forty-nine per cent of Reno residents had radios. Out of the forty-nine per cent it was found that sixty-eight per cent of the homes had radios handled by Saviers.

The cards were kept by the music company and formed a prospect file which was not worked upon until sufficient time had elapsed to allow people to disconnect with any idea that the canvass was a subterfuge. Hot prospects, of course—those who were ready to buy a radio at once—were contacted, but no mention

(Continued on Page 63)

New Tubes—New Batteries



The New Air-Cell Battery

A NEW and revolutionary type of radio receiver, the result of three years' experimenting in an effort to design a satisfactory set for use in homes not served by power lines, is available for the farm market this season.

All the features of the old type battery set which led to its failure as a solution to the problem of radio reception in rural sections have been eliminated. The result is that farmers, for the first time since the beginning of broadcasting, will enjoy the radio on a basis of equality with city dwellers as far as economy, service, quality of reception, and convenience are concerned.

The new type sets, which already are being manufactured by many of the country's largest manufacturers, will to all intents

and purposes operate just like alternating current sets, in that a simple switch will turn it on and off with no rheostat or other adjustments necessary.

Two new scientific developments have made possible this latest innovation in the radio world. A new type of vacuum tube has been perfected which operates satisfactorily on only two volts, together with a battery with tremendous reserve power and, what is even more important, with constant voltage throughout a long life.

The new battery is termed "air cell" because it uses special carbon electrodes as "lungs" to breathe the essential life giving oxygen into the battery directly from the air. Heretofore, the only means of supplying batteries

Open Farm Market » » »

with oxygen has been to place a certain amount of oxygen-bearing chemicals or minerals in the cells. With an unlimited supply of oxygen available, the new battery is said to have remarkably long life. It will run a seven tube, two volt receiver for well over one thousand hours, or, on the basis of three hours daily use, at least a year.

Even more important than the long life of the battery is its constant voltage feature. This has made possible the designing of two-volt tube receivers without manually operated rheostats, filament voltmeters, or other devices intended to safeguard the tubes against premature burn-out due

to over-voltage resulting from accidental misadjustment of the rheostat. All such a receiver needs for filament control is a simple off-on switch, just like an a.c. set.

The following manufacturers are now building radio receivers utilizing the air-cell battery:

Brunswick Radio Corp.,
New York, N. Y.

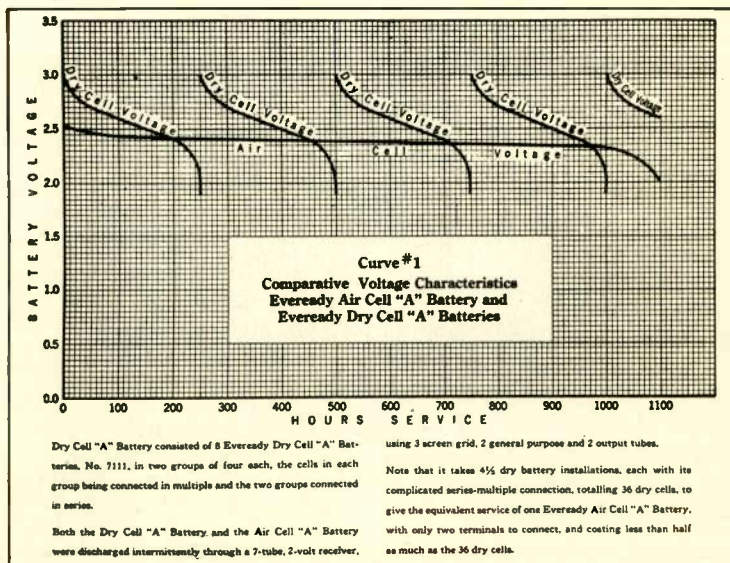
Electrical Research Laboratories,
Chicago, Ill.

F. A. D. Andrea, Inc.,
Long Island City, N. Y.

General Motors Radio Corp.,
Dayton, Ohio.

Lincoln Radio Corp.,
Chicago, Ill.

Silver-Marshall, Inc.,
Chicago, Ill.



\$50,000 Volume

on Tubes!



Members of the Tri-Par Staff are Trained to Sell Tubes! — Stanley M. Lersch Tells Why the Tube Business Is Big Enough to Go After **P**

By GEO. F. MASSEY

IN anything like a normal year the Tri-Par Radio Co., Inc., with stores at 110 North Wells Street and 3118 Lincoln Avenue, Chicago, does a retail tube volume of fifty thousand dol-

lars. There's a mark for big-city dealers to shoot at. And the example is not without value to radio merchants in smaller places. This huge stream of tube business runs at the rate of something like





a thirty-five-time turnover. Most retailers in every line permit themselves to dream such dreams, but they are seldom realized at the end of the year. Yet the Tri-Par people are not especially impressed by their tube merchandising performance; they think it might be better.

How do they do it? Well, there's no mystery or magic about their achievement. Their method is without intricacy. It's largely a matter of keeping tubes in mind as well as radio sets. The latter present the big volume opportunity, of course, which is why so many dealers neglect the former. Without apologies to the advertising fraternity, the members of the Tri-Par staff, service and sales, have made themselves "tube-conscious." The deep secret is no deeper than that. Perhaps this explains the workability of the plan.

The down-town store is on the western edge of Chicago's roaring Loop; the north-side place, on Lincoln Avenue, commands more of a neighborhood clientele. At headquarters probably a thousand tubes are carried at a time in the tube department and about two hundred at the north-side store. Five shelves are given over to the tube stock in each establishment. The stock revolves constantly.

Tubes are tested free. The invitation is extended on every occasion and in every direction. Battery-set owners come to the Tri-Par stores for tubes. Is their business spurned? Not in the least. Almost any time it may blossom into bigger business. Of course, they go down on the prospect list.

Servicemen Sell Many Tubes

Because they are trained to do so, the Tri-Par servicemen—there are three of them out of both

stores—sell plenty of tubes. Every serviceman disposes of several tubes every working day. When he brings in fifteen or twenty dollars' worth of tube business a day he knows that his place on the pay-roll is just that much more secure. So these servicemen know how to sell as well as to serve. Unlike others of their craft rather frequently encountered, they do not hesitate to sell the set-owner tubes when, as servicemen, they know that set needs new tubes. They have found that at least half the so-called "trouble" lies in the attempted use of tubes which have given all the

average of seven or eight tubes, here is another sales channel that helps account for the heavy Tri-Par tube volume. For all tubes placed in new sets the company gets the regular retail price. About twenty percent of the models sold currently are midgets.

Store Meetings Profitable

Every morning at eight o'clock Mr. Lersch meets his servicemen and salesmen. Then they plan the day's campaign and bring up points developed in the work of the day before. To these store meetings, as much as anything else, Mr. Lersch attributes the remarkable results of their tube ef-

Refer Your Service Department to Service Section Starting on Page 45.

service a respectable tube should be expected to yield.

Five years ago the Tri-Par Radio Co., Inc., was started by three partners; hence the "Tri-Par." Their first store, devoted largely to the sale of parts, was at the present location on North Wells Street. Two partners remain in charge of the business, which was successful from the beginning. Their names are Victor Blum and Stanley M. Lersch. Mr. Blum has charge of the office end; Mr. Lersch of sales and service. About a year and a half ago they opened the uptown store.

Extra-tube business amounts to nearly fifty percent of the tube volume. Many sets are bought by the company without tubes. Since approximately two thousand sets are bought and sold in a good year and since each requires an

average of seven or eight tubes, here is another sales channel that helps account for the heavy Tri-Par tube volume. For all tubes placed in new sets the company gets the regular retail price. About twenty percent of the models sold currently are midgets.

Every morning at eight o'clock Mr. Lersch meets his servicemen and salesmen. Then they plan the day's campaign and bring up points developed in the work of the day before. To these store meetings, as much as anything else, Mr. Lersch attributes the remarkable results of their tube ef-

ports, which results, he believes, are not any more remarkable than they should be. "We hire servicemen with the sales viewpoint," he says.

"First, of course, they must be good servicemen, seasoned by experience. Two of our service staff have been with us two years each and they had done good work before they joined us; the third has been here six months. These men are married. Each has a home and car of his own. Before coming to Tri-Par he had proved his ability to get ahead. And here we do and say everything we can to heighten his ambition. None of our trio expects to be a serviceman all the rest of his life.

"Nor do we want him to be. Now and then we draw his attention to the good money that some

(Continued on Page 63)

Radio Merchandising Aids

The literature listed below will be sent free (except when otherwise marked) to readers of RADIO SALES AND SERVICE. Check the items in which you are interested. Write your name, company, and address on the coupon provided on the next page. Tear out the page and mail to us.

Nine-Piece Window Display

Eight attractive colors including a large tube cutout, five small tube cutout, and two window streamers. A very flexible unit to fit into any size or type of window. Also price cards, window transfers, blotters, movie slides, folders, mats, and electrotypes. Arcturus Radio Tube Co.

Sylvania Business Book

An interesting brochure covering the merchandising plan back of Sylvania Products, including a trip through the Sylvania factory. Also a collection of sales building ideas for radio dealers, and a complete description of Sylvania sales assistance. Sylvania Products Co.

Even Though You Have Direct Current

A pamphlet telling how A. C. radios may be operated from D. C. lines with the use of a low price converter. Janette Mfg. Co.

Profits from Radio Furniture

Description of a merchandising plan that enables radio dealers to make profits from a new line of radio furniture and artistic radio cabinets. Ottawa Furniture Co.

Grebe Consumers Circular

Attractive folder in two colors which gives helpful hints to radio buyers regarding things to consider in selecting a radio. A. H. Grebe & Co., Inc.

Fada Radio Flashograph

A novel feature of Fada dealer helps. Flashes off and on in lights and has nine colors. Size 30 inches wide and 44 inches high. Mechanically illuminated escutcheon of a Fada set in giant size with a mechanical device which flashes seven different stations on and off. F. A. D. Andrea, Inc.

Merchandising Helps

A bulletin by Crosley giving complete descriptions of the various Crosley Sales Helps; including novelty items, signs, newspaper advertisements, and other matter. Crosley Manufacturing Co.

The Better or You Don't Pay

A 12-page portfolio which tells the complete story of the Better or You Don't Pay advertising program. A booklet that contains everything you want to know about this new merchandising angle. Ceco Manufacturing Co., Inc.

The Magic of High Vacuum

The story back of De Forest radio tubes, and a De Forest characteristic chart. De Forest Radio Co.

Lyric Sales

Portfolio contains information, photographs, and attractive descriptions of Lyric radios, together with complete dealer sales plan and descriptive pamphlets. All American Mohawk.

Tung-Sol Radio

Bulletin describing Tung-Sol dealer program and giving attractively illustrated description of Tung-Sol tubes. Tung-Sol Radio Tubes, Inc.

January Good News

Gives analysis of 1931 tube market together with complete listing of RCA sales helps. To promote the sales of RCA Radiotrons, including window displays, socket layout guide, Radiotron interference book, blotters, leaflets, postcards, sales letters, broadcast station directory, novelty advertising items, and strong sales ideas. RCA Radiotron Corp., Inc.

Minuet End Table Receiver

Literature describing the Minuet new idea of cabinets. Includes attractive illustration demonstrating their use. Gulbransen Co.

 Power Amplifiers for Sound Distribution

An attractive catalog which gives information regarding the application of sound distribution systems, together with catalog information on an extensive line of power amplifiers, panels, transformers, turn-tables, and other accessories. Webster Electric Co.

 Coin Operated Radio

A high quality compact mantel type radio receiver equipped with fool proof attachment for coin control. Austin A. Coward Corporation.

 Hygrade Sales Helps

Literature describing radio tube window displays as a reminder—Radio Tube Merchantman—and complete assortment of material for promoting sales of Hygrade Tubes. Hygrade Lamp Co.

 Radio Stars of Today and Radio Log

An attractive brochure showing many leading radio stars with brief description of their career and present connections. Also list of principal broadcast stations in the United States and Canada alphabetically arranged by call letters. Price \$1.00. National Union Radio Corp.

 What Would It Be Worth to You to Know What 1931 Will Bring?

An attractively illustrated broadside describing the radio business possibilities for 1931 and Clarion Sets. Transformer Corporation of America.

 A Radio Story in Pictures

A beautifully illustrated version of a day with the Sentinel Portrola, from morning exercises to the end of the evening. United Air Cleaner Corp.

 Dealer-Consumer Contact

A concrete plan to build for the future through immediate sales based on actual experience gained through actual Dealer-Consumer Contacts. A resume of the radio market every dealer should have. E. T. Cunningham, Inc.

 Dealer Helps

An interesting assortment of literature containing dozens of inspiring sales ideas. Also descriptions of washing machines, electric flat irons, electric ironers, vacuum cleaners, fans, and window display material. Graybar Electric Co.

 Tube Sales Ideas

A booklet of proven, practical radio tube sales stimulants. How to arrange window displays and special campaigns to increase tube sales. E. T. Cunningham, Inc.

 Midget Superheterodyne Receivers

A broadside describing a new line of midget superheterodyne receivers, and the plan offered dealers by the manufacturer. Silver-Marshall, Inc.

 1931 Dealer Helps

A very complete volume of dealer helps for set sales. An analysis of the charged conditions which make the radio business different today and information which if applied will considerably increase any dealer's business. The Sparks-Withington Co.

 Gold Test Dealer Plan

A complete plan, including window displays and other dealer helps for merchandising the Wellston Aerial. Wellston Radio Co.

Tear out page and mail to
RADIO SALES AND SERVICE
549 W. Washington St., Chicago, Ill.

Name

Firm

Address

Is the Radio Salon Worth While?

By ERNEST A. DENCH

THE radio dealer who is wondering whether his showroom layout is capable of improvement will find a lot of mental nourishment packed between the covers of "The Business Biography of John Wanamaker" (Macmillan's). Joseph H. Appel is tedious at times, but plentifully sprinkled among the several hundred pages are ideas and thoughts that are well worth "the price of admission."

For proof we submit the following paragraph which sums up Wanamaker's successful policy in a nutshell.

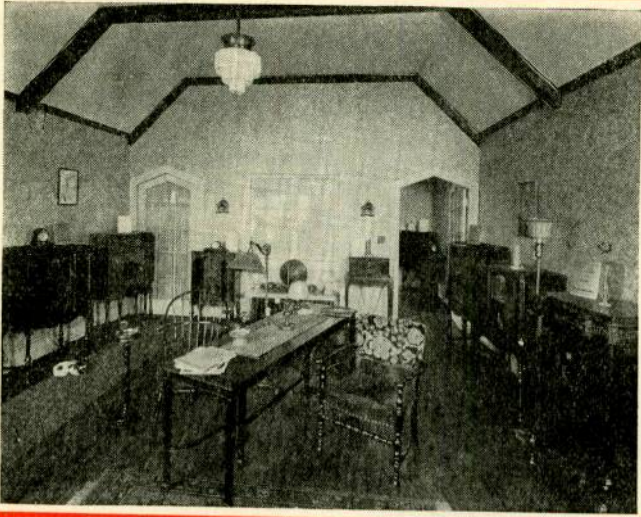
"He was a merchant who 'staged' his stores, dramatizing

them, making them living panoramas of commerce, colossal productions of the thought and craft of man, with lavish exhibits and decorations and display rooms and auditoriums, that confused those who ask of everything—"Does it pay?"—those that do not realize that profit is a by-product of service."

Today there are twenty thousand and one retailers following the trail pioneered by this merchant prince, who, in 1906, originated the model home exhibit plan of merchandising with "The House Palatial" at his New York City store.



*The attractive new salon
at Hanford's*



*The homelike interior of
Burnett's radio salon*

Not all retailers are equipped to slavishly follow the Wanamaker method, but the fundamentals are within adaptive reach of one and all. In the radio trade this is the homelike environment of the demonstration showroom.

In Favor of Booths

The "Does it pay?" critic is respectfully referred to the Parks Music House Company, Hannibal, Missouri. "We could not really serve our trade without the use of private booths. This demonstration method enables us, as far as possible, to visualize the instrument in the home," declared Mr. E. A. Parks.

The Salon Closes the Sale

From booths to an open showroom suggestive of the living room is but a short step in radio merchandising progress. Hanford's, Inc., Sioux City, Iowa, are

entitled to be as proud as a peacock over their modern radio salon. The generous rear half of the store is railed off with white enameled woodwork and cream curtains, with a wicket entrance. The railing is about as high as a regular garden fence, but the cream curtains closely draped from the top of the railing to the floor, give the home aspect rather than that of the outdoors.

The salon is furnished with the artistry of an interior decorator. A French Wilton carpet in a rich brown and tan is spread over the entire floor. An upholstered lounge with chairs to match. An end table graced with a dainty lamp and objects d'art. A beautiful tapestry panel on the wall. Such are the important factors in making the visitor sense the home atmosphere of the salon. Cabinet

types of radios seem to fit in this room as naturally as the other pieces of furniture.

To exhibit the radio cabinet work in an ideal manner, so that all harsh shadows are eliminated, the salon is equipped with an indirect lighting system. The equipment includes built-in wall lighting outlets of the pocket type—a combination of chromium-plated metal and diffused glass. The torchieres against the walls are in brown finishes. The ceiling fixtures are of the inverted type.

One drawback to the room illusion is the large supporting pillar about midway in the showroom. This is painted in the same finish as the woodwork and the walls. To make it less unsightly, the two main sides (four-fifths of the way up) of the pillar are adorned with modernistic metallic plaques. Suspended from these plaques are two wrought iron brackets, each holding a veneered basket filled with artificial trailing flowers.

One incongruous touch to this salon is the floral arrangement topping the woodwork across the entire rear. There is a considerable gap between here and the actual ceiling; so it is filled in with an attractive layout—veneered window boxes, filled with artificial flowers. In a home this would be a wall paper frieze or painted mural work, either of which would have been far more appropriate than these flower boxes.

The right hand side of the salon is the showroom space allotted to the other line carried by

Slusser Coin Radio Attachment



Turns
Listeners
Into
Profits

Capitalize the tremendous possibilities for profit by applying Slusser Coin Radio Attachments to radio sets! Every popular place is a prospect for a Slusser equipped radio set. Wherever people congregate one of these devices will prove profitable to dealers.

The Slusser Coin Radio Attachment is entirely automatic, requires no wiring, and plugs into any outlet. The set operates only when a nickel is inserted. A nickel plays for six minutes. A number of nickels can be inserted at once, giving continuous operation. Cash in on it!

Write today for prices, discounts, and complete description.

R. & R. APPLIANCE CO.
304 N. Main St. * Findlay, Ohio
Sole Factory Representative

this firm—electric refrigerators. The front page is practically monopolized by a large half tone of the homelike showroom, below which is the important information:

"Radio Models displayed in appropriate surroundings in our Reception Rooms.

We invite you to pay a visit to the Oldest and most Modern Radio Showrooms in Ridgewood."

The remaining three pages of this 8½ x 11 folder (printed on white enamel stock in black) are taken up by separate full page illustrated advertisements for the three different brands of radio stocked by this dealer.

> > News of

Cunningham Convention

NEW YORK, N. Y. — Optimism regarding the 1931 outlook for radio business was the key-word of sales talks at the four-day annual convention of district managers and salesmen of E. T. Cunningham, Inc., radio tube company, just concluded here (Jan. 9-13) at executive headquarters of the organization.

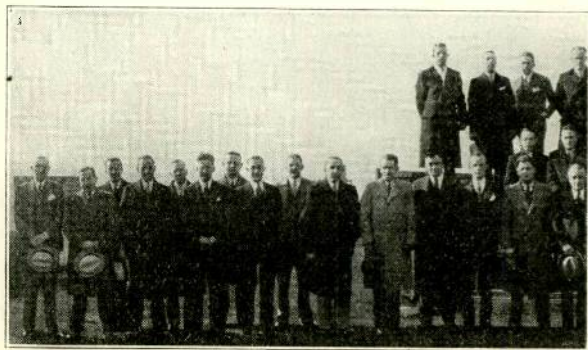
In a talk outlining general prospects for the radio industry, E. T. Cunningham, president of the organization, gave it as his opinion that the depression was definitely "past history" and that the future held every promise of a steady though slow, improvement.

"There has taken place throughout the industry, in all its phases," he continued in detail, "a very thorough and necessary house-cleaning. Our troubles of the past year have not been caused so much by poor business as by the fact that business has been conducted on a profitless basis. Uneconomic

methods of distribution and poor merchandising have been two primary ills of the radio business in the past, which 1931 and the years to follow will not see repeated. In consequence of the lessons learned there is every reason to believe that the end of the present year will see conditions in the radio line, as well as those of business generally, vastly improved over what they have been during the past twelve months. And what is even more important, perhaps, is that we shall see conditions based upon sounder economic principles than has been the case at any time since the turn of the century."

Among the important topics discussed by sales executives and department heads at the convention sessions were: radio tube merchandising; dealer helps and advertising; sales stimulants; problems of tube engineering design and testing; warehousing; servicing; and other allied subjects.

*Cunningham
Convention
Leaders*



the Month < <

Among some of the leading figures of the Cunningham convention, shown below are:

C. R. King, Vice President and Assistant General Manager, N. Y.; Frank M. Burns, Vice President and General Sales Manager, N. Y.; Harry Goodwin, District Sales Manager, Boston; H. A. Edwards, District Sales Manager, Minneapolis; E. R. Haines, Eastern District Sales Manager, N. Y.; F. H. Larabee, Assistant District Sales Manager Western District, Chicago; J. W. Cocke, District Sales Manager, Dallas; W. R. Cunningham, District Sales Manager, Philadelphia; H. E. Harding, District Sales Manager, Chicago; L. F. Randolph, Assistant General Sales Manager, N. Y.; E. Lloyd Sutton, District Sales Manager, San Francisco; P. M. Jefferys, District Sales Manager, Atlanta.

Majestic Distributor

CHICAGO, ILL.—Vernon W. Colamore, of the Grigsby-Grunow Company, announces that Harry

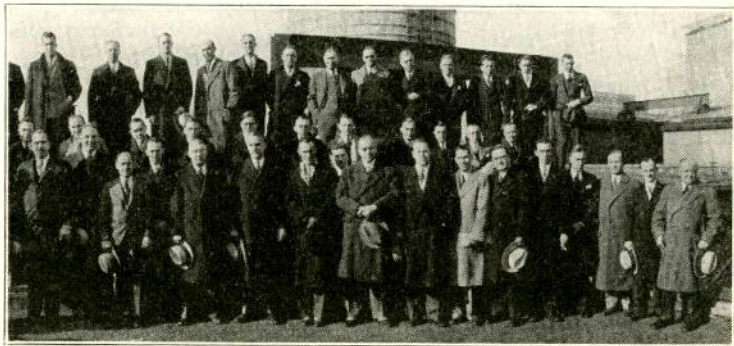
Alter has been reappointed distributor of Majestic Radio and Refrigerators. This action closely follows upon the presentation of the new Majestic line of super-heterodyne receivers.

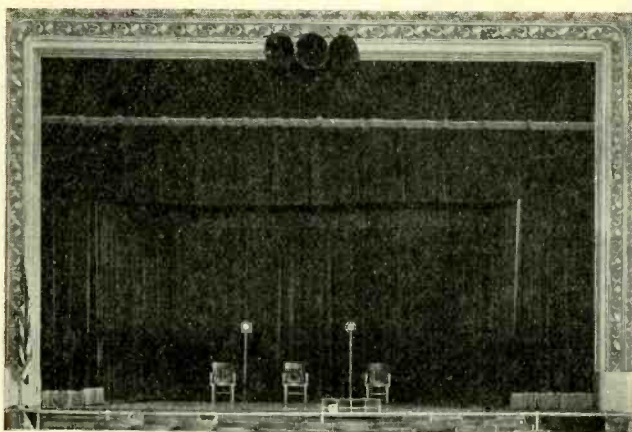
De Forest Announces New Tube Replacement Policy

PASSAIC, N. J.—The matter of establishing an equitable and satisfactory policy on tube replacements, which has been a problem of the industry from the beginning, has been faced by the DeForest Radio Company of Passaic, N. J., in its new tube replacement policy just announced to distributors.

It is definitely the attitude of the DeForest Radio Company that prompt replacement to dealers (through distributors) should be made on all tubes which may in any way prove defective or of inferior quality within a reasonable period of time, from date of manufacture or shipment. They pro-

(Continued on Page 63)





A typical school installation (Courtesy Webster Electric Co., Racine, Wis.)

Sound Profits

Are You Getting Your Share of the Profits from Sound Installations?

EVERY hotel, hospital, amusement park, ballroom, school, lodge hall, large restaurant, as well as countless other locations in your town is a prospect for a sound installation of some kind. A progressive eastern dealer recently sold a splendid installation to a hand laundry. The laundry proprietor was jubilant with the increased production that resulted.

Technical Aid

Make a survey of your own

PROFITS THAT STAY PUT

Power Amplifier.....	\$245.00
Auditorium Speaker...	55.00
Microphone and Trans.	60.00
Phonograph Pick-up...	15.00
Phonograph Motor...	25.00
Tubes	39.00
Miscellaneous Supplies	25.00

Total Received.....\$484.00

Profit on merchandise
at 40%.....\$193.60

Against this charge eight hours labor. The rest is profit. *No trade-in, no free demonstration or other expense.*

community. You'll find plenty of prospects. Go after every one, and don't be afraid of the big jobs. If you need technical help, call on the factories supplying sound equipment. They'll be glad to carry on with the job, without lessening

your profit.

In addition to the profit from the sale of equipment, there is considerable profit to be made on electrical installation work. You may do the work yourself or let it on

SEND THIS DATA TO MANUFACTURER

Dimensions of each hall or room to be supplied with sound. If equipment is to be used in an auditorium, include seating capacity on main floor and balconies.

Type of program, i.e. radio, record, or microphone.

Power supply available (voltage, frequency).

contract, depending upon the facilities of your organization.

Even the smaller jobs are well worth while. For example, take this installation in a Chicago junior-high school.

Schools Use Radio Programs

This school wanted to take advantage of the many educational programs that are broadcast specially for school instruction. So a decision was made to purchase equipment for presenting these programs to the students in the school auditorium.

Synchronized Movies

This dealer, when told of the plan, suggested that by purchasing the proper equipment it would be possible to use radio, phonograph, and microphone pickups on the same system. The possibility of synchronizing the movie equipment for talking pictures was even included in the plan.

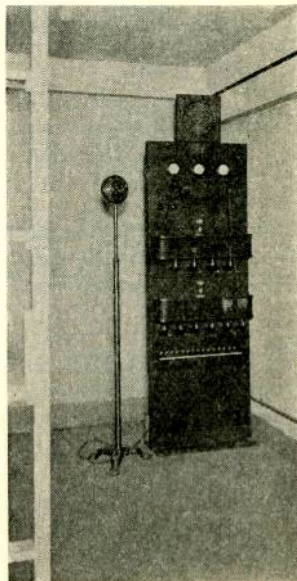
Knowing the requirements of the system, his next step was to determine what size power amplifier was needed. Measurements were taken to determine the area of the hall. It was found to be

50 ft. wide and 95 ft. long. The seating capacity of the main floor was 1,200 and the balcony 400, making a total capacity of 1,600.

Manufacturer's Recommendation

This information was turned

(Continued on Page 59)



*Amplifier Panel in Milwaukee Jail.
(Courtesy Webster Electric Co.)*

— Blowing Our

"Your articles are read at all our sales meetings. We find them a good business builder. It is the topic of our meetings which is discussed pro and con. Keep the good work up!"—*N. N. Wallack, Washington, D. C.*

—◆—
"I sure do think you have a fine magazine for radio servicemen and salesmen."—*E. L. Simmons, Ennis, Texas.*

—◆—
"Your magazine is very instructive, interesting, and entertaining."—*R. M. Avery, Framingham, Mass.*

—◆—
"For the last several months we have received your magazine and want to take this opportunity to tell you how much we like it, and now with the service data it is doubly valuable."—*C. A. Humpeler, Chicago, Ill.*

—◆—
"You have the dandiest little book called RADIO SALES and SERVICE."—*Morses Music Store, Wareham, Mass.*

—◆—
"Please note the enclosed sheet, taken from your excellent trade journal."—*A. C. Albrecht, Billings, Mont.*

—◆—
"Your magazine has been coming to me, and I have enjoyed each issue very much—certainly hope it will continue to come to me."—*J. W. Brewer, Sinton, Texas.*


—◆—
"We enjoy RADIO SALES and SERVICE very much and find lots of good ideas contained in it."—*Westinghouse Elec. Supply Co., Evansville, Indiana.*

—◆—
"We have received your little book and we think the world of it . . . it is as good a book as anyone interested in radio would want to read."—*J. W. Swanson, McAdoo, Pa.*


Own Horn!



"I enjoy and reap great benefits from your magazine . . . it is full of helpful hints to the radio dealer."—*H. A. Marchion, Anaconda, Mont.*




"Wish to advise I appreciate your book very much and find it has lots of valuable information for servicemen."—*S. H. Brown, Crockett, Texas.*



"RADIO SALES and SERVICE is about the best in its line I have seen yet. More power to you!"—*Grover Fossum, Ashland, Wis.*




"I am a constant reader of your great little magazine."—*E. B. Jackson, Billmore, N. Y.*




"Hurrah for the data sheets!"—*K. E. Hughes, Houston, Texas.*



"I look forward to the coming of future issues. The Servicemen's Data Sheets are a great help to all servicemen."—*G. D. Cuckler, Wilsonville, Neb.*




"Your little magazine has more valuable information than any other magazine I have ever read or hope to read."—*F. A. Younker, Mason City, Iowa.*




"Your magazine is O.K."—*Hallowell & James, Hinsdale, Ill.*



"Your magazine is what we have been looking for."—*Meixner Service Station, Dayton, Ohio.*



"Best little magazine on the market. Check enclosed for year's subscription."—*L. F. Krajewski, Hoopston, Ill.*



"I sure get much information out of your little book. It occupies the place on my desk."—*Allan W. Panke, Louisville, Ky.*



"We have received your 'Midget' magazine and certainly think a lot of it. Find it easy reading and a good radio business adviser."—*Kay Radio Co., Brooklyn, N. Y.*



DISCOVERED

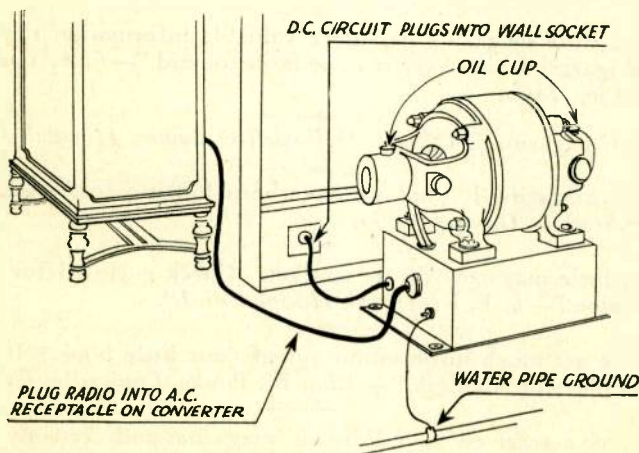
500,000 New Prospects for A. C. Sets

By C. E. CASE

FIVE hundred thousand prospects for A. C. receivers in one class of buyers seems incredible, but nevertheless it's true. There are today more than 500,000 farm electric light plants in operation in the country generating direct current to which heretofore it has not been possible to attach the modern A. C. all-electric sets. These radio users have been compelled to rely on D. C. receivers up to the present time, but a new development in the electrical industry now makes it possible to

cities, and for use on board ships.

The device is not new. Rotary converters have been used for years, usually converting A. C. to D. C. for the particular needs of industry. But even for the purpose of converting D. C. to alternating current for use in radio receivers these units have been in use for sometime. Unfortunately, up to the present time they have been quite costly—in fact so costly that they have been almost prohibitive. Furthermore, in many of these cases the operation has not



sell the thoroughly modern A. C. sets for use not only in connection with farm light plants, but in the direct current districts in large

been smooth enough to provide the correct current for ideal receptions.

(Continued on Page 61)

Literature On Allied Lines

The literature listed below will be sent free (except when otherwise marked) to readers of RADIO SALES AND SERVICE. Check the items in which you are interested. Write your name, company, and address on the coupon provided on the next page. Tear out the page and mail to us.

Electric Dishwashers for Home Kitchens

An illustrated description of the Conover Portable Electric Dishwasher for home kitchens, together with description of operating principles and literature for prospects. Conover Co.

The Universal Servant

A beautiful folder describing refrigerators and how to use them. Universal Cooler Corp.

Portable Ozonators

A booklet describing portable units for purifying the air in offices, stores, hotels, kitchens, restaurants, hospitals, banks, clubs, theaters, toilet rooms, and cold storage spaces. Air Conditioning and Engineering Co.

A Model to Fit Every Kitchen

An attractive folder describing Zerozone electric refrigerators, providing data and complete sales information. Also complete details of Zerozone dealer and distributor proposition. Zerozone Corp.

1931 ABC Line

A beautiful catalog showing complete line of porcelain washers, automatic ironers, and electrotable. Also details of construction and operation. Altorfer Bros. Co.

Carload Sale Plan

Details of a plan whereby a washing machine manufacturer will support a cooperative advertising plan in a dealer's community. The campaign is especially intended for communities of 50,000 to 150,000 population. Easy Washing Machine Co.

Haag Washers

A series of booklets describing the complete line of Haag Washers. There are models to meet every requirement. Low priced models, electrically, or gasoline operated, are an unusual feature. Haag Bros.

The New Barton Model K

An attractive circular describing the new model "K" and giving constructional data, together with illustrations of the Barton Electric Ironer. Barton Corp.

For the 20th Century Housewife

An attractive folder which shows the Merryway kitchen unit which beats, whips, slices, grinds, shells peas and lima beans, polishes, cracks ice, and freezes ice-cream. A veritable kitchen servant. Hoe Corp.

Believe It or Not

A prospectus of the Whirldry cleaner, a portable device for the home which simplifies the home dry cleaning problem. The Whirldry Corp.

You Can't Lose When You Play Hotpoint

An attractive three color broadside that gives complete data on the Hotpoint Spring Program. Includes a large number of special combination offers that are sure business winners. Also descriptive newspaper mats and various other Hotpoint sales helps available. Edison General Electric Appliance Co.

Princess Washing Machine

A folder describing the new Princess Washer, giving complete technical data. Grinnel Washing Machine Corp.

A Pleasure to Live

Attractive folder describing the market and sales appeals for an electric washer. Also complete information regarding Maytag Dealer Helps. The Maytag Co.

Lincoln Electric Clocks

Circulars covering a complete line of electric clocks. Electric Clock Corp.

Dexter Washers

The wrong and the right way to wash clothes, and how this story forms a powerful sales approach for Dexter Washers. The Dexter Co.

 Make the Listening Test

A circular describing the automatic Duo-Disc electric washer and the eleven features which make it an outstandingly profitable seller for dealers. Automatic Washer Co.

 Ozone Water Purifiers

A booklet which includes a treatise on clarification of water for drinking and dozens of commercial uses. United States Ozone Co.

 Work in the Air You Play In

An attractive brochure describing the Radi-ion process of air purification and its use in homes. Radi-ion Corp.

 Sunnysuds Imperial Washer

An attractive circular giving important features of Sunnysuds Washers, together with sales plan. General Utilities Manufacturing Co.

 The Way I Do It—House-keeping Is Fun

An attractive series of circulars describing methods of cleaning and disinfecting with a Royal Princess Vacuum Cleaner, also complete dealer sales plans. P. A. Geier Co.

 Copeland Dealer Sales Helps

A very complete line of literature describing Copeland dependable electrical refrigeration and outlining methods of developing refrigeration business in accordance with the Copeland program. Copeland Sales Co.

 All About Synchronous Electric Clocks

The information in this book is compiled for jobbers and dealers. Questions and answers that explain every detail of the service rendered by these clocks. Hammond Clock Co.

 Individual Water Systems

An attractive bulletin describing individual water systems for farms, suburban homes, and institutions. Contains valuable information on how to select correct units. Milwaukee Air Power Pump Co.

 The Woodrow "30"

A booklet describing Woodrow Washers of "stainless steel" which is fast becoming popular. Also a description of the churn which is designed to set directly on the washer. Woodrow Washing Machine Co.

 Sundstrand Electric Oil Burner

Attractive bulletin in color outlining the Sundstrand sales plan and showing the profit possibilities in the Sundstrand line. Sundstrand Engineering Co.

 Jane Oliver's Spot Book

A message to home owners from Jane Oliver containing data on dozens of stain-removing problems. Also attractive literature descriptive of Thor Electric Washers. Hurley Machine Co.

 Breaking New Records

Complete information on the new line of Telechron Electric Clocks. Direct mail pieces, counter and window displays, and newspaper campaigns are described. Warren Telechron Co.

 Broken Shackles

The true story of a woman who found freedom from ironing day monotony, beautifully illustrated. Treatise on the use of electrical ironing machine with special features of the Ironrite. Ironrite Ironer Co.

 Simplified Refrigeration

An illustrated folder describing the performance features of Hermetic electric refrigerators and how they may be used to increase refrigerator sales. Serval Sales, Inc.

Tear out page and mail to
RADIO SALES AND SERVICE
 549 W. Washington St., Chicago, Ill.

Name

Firm

Address

Association News

R.W.A. and N.F.R.A. Convention at Indianapolis

The fifth annual convention of the National Federation of Radio Associations and the Radio Wholesalers' Association is being held at Indianapolis, Indiana, February 15 to 17, inclusive.

There are joint meetings of the two bodies and separate meetings in which problems confronting the individual organizations will be discussed. The leaders of all phases of the radio industry will be present. The meetings of the retailers will be addressed by prominent speakers on the subjects that are very important to everyone. The standard accounting system now used in the Chicago Metropolitan area will be explained by Mr. R. H. Lemley, who has placed this system into effect. The subject of Insurance will be discussed by Mr. Blewitt, manager of one of the most prominent insurance companies dealing in radio dealer insurance. There will be a speaker of national prominence present to go into the trade-in evil. A thorough discussion of this subject will be undertaken.

The Wholesalers' meetings will be characterized by round table discussions and there will be no speeches whatever. Committee reports on tubes, handling of sets,

traffic, etc., will be made. A definite attempt will be made to launch a constructive program to bring the radio industry back to prosperity.

The Radio Press Association will meet under the leadership of H. H. Cory, President, and W. J. McLaughlin, Secretary. A very interesting program is planned and matters that are of vital importance to the press will be brought up and discussed at that time.

Interference Film

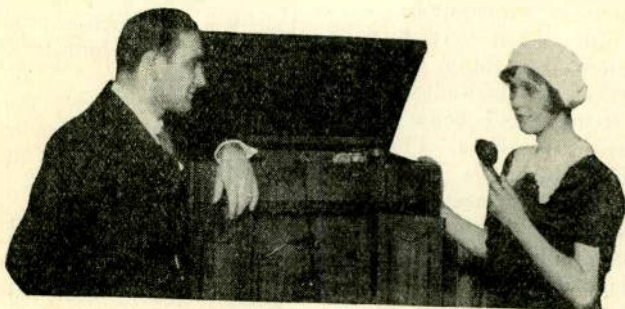
The Radio Interference Committee of California has made a one thousand foot moving picture, both silent and in sound. Radio clubs, service organizations, cities, and towns may obtain the use of this picture through the courtesy of the Tobe-Deutschmann Corp. Write to *Radio Sales and Service*, or direct to the Tobe-Deutschmann Corp., Canton, Mass.

New York and Philadelphia Service Associations Unite

The Radio Service Managers Association of New York and the Philadelphia Radio Service Managers Association have formed a joint working agreement. The same set of service questions, methods of grading, and an interchange of certification cards have been agreed upon.

« Join Your Local Trade Association »

Cash-In On "Home



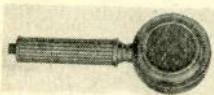
Use it to draw prospects—Sell complete recording units.

THE most interesting innovation in radio this season is the home-recording feature found in some of the higher priced radio-phonograph combinations.

These models quickly proved to have strong sales appeal. Oftentimes prospects enticed to stores by the home-recording feature became purchasers of some of the moderately priced models.

Simple to Build

Why not build a home-recording unit that may be demonstrated



Recording Microphone

on any receiver? It is not a difficult job and the advertising you can get from it will easily pay its cost.

Home recording is not a new idea. Years ago, in the hey-day of

the mechanical phonograph, there were placed on the market kits consisting of a cardboard megaphone and a pre-grooved aluminum record. You shouted into the phonograph horn at the top of your voice. When the record was replayed, a faint voice was heard that either did or did not sound like your own, depending upon your imagination.

Good Quality Recording Possible

With the equipment available today it is possible to make much better home-recordings. While the recordings do not equal those made in commercial studios, very pleasing reproduction of voice and music may be secured.

Equipment Necessary

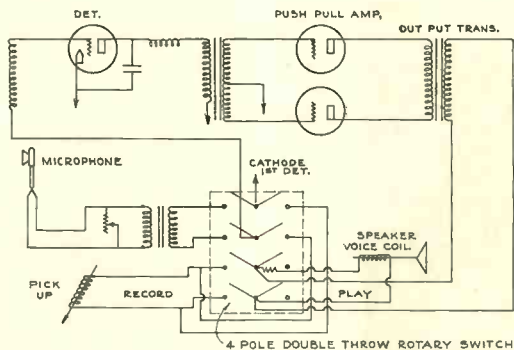
The system used is readily adopted to most sets. A microphone, usually of the single button type, is coupled through a mi-

Recording"! >>

crophone transformer to the receiver at the same point as a phonograph pick-up is connected for playing records. A two-button microphone gives better results, but costs more. The recorder or cutting unit is connected to the output of the amplifier in place of the speaker voice coil. Either a special recorder unit or a good quality magnetic pickup may be used to cut the blank record. The special recorder unit is connected directly in place of the voice coil, while a standard high resistance pickup will need to be

The needle pressure on a reproducing pickup is not sufficient for the best cutting. This may be corrected by placing a weight of a few ounces on the head.

A switch may be used to facilitate changing from reproducing to recording. A four-pole double-throw rotary switch, connected as shown in the diagram, will permit the change to be made in a single operation. The diagram shows the speaker voice coil is not entirely disconnected when the recorder is being used. A 250-ohm resistor is placed in series with it, reducing



A single switch will change from recording to playing.

coupled to the output by a transformer. One such as is used to adapt magnetic speakers to sets intended for dynamic speaker output is suitable.

A special cutting needle should be used in the pickup or recorder.

the volume but allowing the speaker to be heard well enough for monitoring or checking the recording.

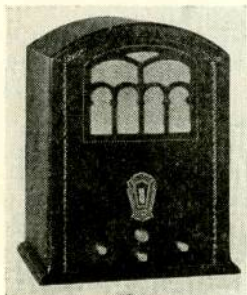
A little practice will be necessary to learn the best technique

(Continued on Page 61)

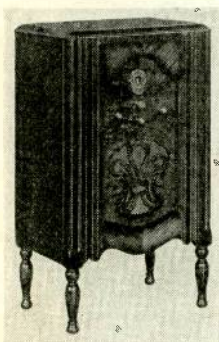
New Products Section

Midget Super-Hets

Two small size midget receivers have been announced by Silver-Marshall, Inc., Chicago, Illinois. The Cadet is a small size console and lists



at \$89.90. with tubes. The Compact is a mantel set listing at \$79.90, with tubes. The same chassis is used in both sets. It has eight tubes, gives excellent tone, has variable tone control and a local distance switch. A push-pull 245 stage feeds the dynamic speaker. An unusual feature of these receivers is a pair of extension speaker



jacks provided for the set owner who wants to put an extra speaker or two in distant rooms. This makes the possibility for extra profit sales for dealers. Installation is very simple, only being necessary to plug in speaker. —February Radio Sales and Service.

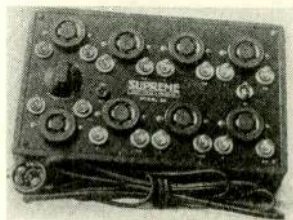
Interference Eliminator for Dial Telephones

The Tobe-Deutschmann Corporation of Canton, Massachusetts, have de-

veloped a filterette to prevent radio interference from dial telephones. This is simply installed by removing screws from the base of the telephone stand and making three connections to the proper screw terminals. A booklet is supplied by the makers of this unit which indicates the method of application. —February Radio Sales and Service.

Supreme Short Tester and Pre-Heater

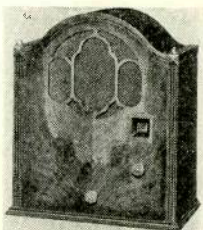
The Supreme Instruments Corporation of Greenwood, Mississippi, has developed a device that not only serves the purpose of pre-heating heater type tubes in advance of more thorough testing, but also detects open fila-



ments and shorts between the various elements of the tube. The indication of shorts is by means of the illumination of light bulbs which can be easily understood by the layman. —February Radio Sales and Service.

New Majestic Midget

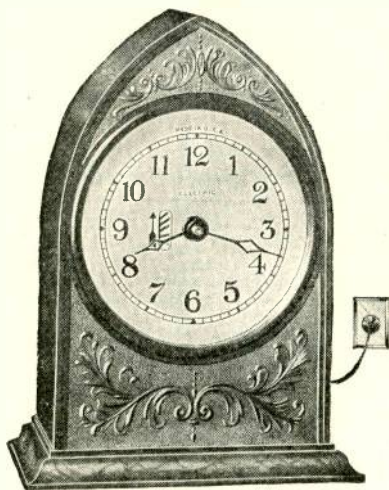
The Grigsby - Grunow Company, builders of Majestic Radio in Chicago, have announced a small mantel type



receiver. Three screen grid tubes are used and the speaker is fed from two type '45 amplifier tubes in "push-pull." One control is required for tuning. This new receiver measures 15 1/2 x 10 1/2 and stands 19 inches high. —February Radio Sales and Service.

High Grade Electric Clocks

Electric Clock Corp. of America, 500 S. Throop St., Chicago, announces a line of dependable synchronous motor clocks, designed to operate on 60 cycle, 105-120 volt A.C. current.



They are precision built and are designed to operate quietly and accurately. Among the features of the mechanism are: hardened bearings, felt oil retainers, polished and burnished drive shafts.—February Radio Sales and Service.

Portable Talkie Equipment

The Bell and Howell Company of Chicago, Illinois, have developed a portable projector using sixteen mm. amateur size film and synchronized disk recordings. The unit is equipped with a microphone and switch which permits the operator to cut in at any time and make verbal comments upon the picture being shown. Filmophone is carried in two cases, one of which contains turntable with flexible shaft, magnetic pickup, amplifier with power pack with pocket for three 16-inch records. The other houses the loud speaker, projector, and film containers.—February Radio Sales and Service.

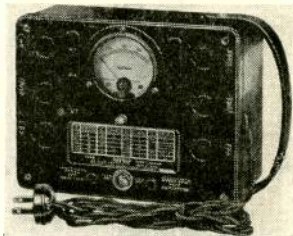
ICA Companion Receiver

The new two tube A.C. receiver built by the Insuline Corporation of America, New York, fills the need for a set that may be used by anybody without disturbing other occupants of the same room. It is a self-contained portable A.C. receiver for head-phone reception. Two '27 type tubes are employed, one as a detector and the other as a rectifier. Three binding posts are provided for "broad," "sharp," and "local" reception condi-

tions, using either an antenna or ground connection, only one being required. This receiver complete with tubes and head-phones is entirely self-contained in a miniature suitcase measuring only 13 x 14 x 7½ inches and weighing about 10 pounds.—February Radio Sales and Service.

Self Biasing Tube Checker

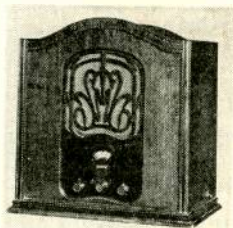
This new product of the Radio Products Company of Dayton, Ohio, indicates the "End of Life" of all types of amplifier tubes. Six sockets are provided so that tests can be



made at the rated filament voltage. Besides the "End of Life" tests, this tube checker will test separately both plates of '80 rectifier tubes. Another ingenious test is for noisy tubes. Operates directly from A. C. lines.—February Radio Sales and Service.

Remler Super-Heterodyne

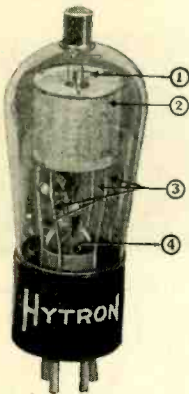
The Remler Company of San Francisco, California, has added a midget super-heterodyne receiver as a companion to the Remler Cameo Receiver



The audio systems of both receivers feature full tone control and dynamic speakers. The Remler Super-Heterodyne is the culmination of eight years actual experience in manufacturing super-heterodyne receivers. The Cameo, tuned radio frequency receiver lists at \$64.50 complete with C tubes. The Remler Super-Heterodyne Receiver lists at \$77.50 complete with eight tubes.—February Radio Sales and Service.

New "Element Lockt" 224 Tubes

The Hytron Corporation of Salem, Massachusetts, have developed a new construction for their Y224 type tubes which adds to the rigidity and makes the tube non-microphonic. This feature interlocks all elements, relieving strain of elements on the stem of the tube and prevents the elements from being jarred out of alignment in handling. Reference to the numbers indicated on the cut will explain the new features described as follows:



1. Mica bridge interlocking cathode, control grid, screen grid, spacing them in correct position, also supported by heavy nickel support wires.

2. Outer screen to which element lockt supports are welded, unit consists of screen grid, plate, control grid, and the new quick heating cathode with the low induction insulated heater.

3. Heavy nickel supports welded to screen locking elements into their proper alignment, completely shielding and eliminating microphonic tubes.

4. Nickel band around stem on which supports are welded acts as a foundation for the complete assembly. —February Radio Sales and Service.

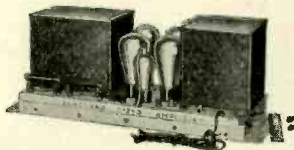
Phonomatic Record Changer

The White Research Laboratories, Inc., Philadelphia, Pennsylvania, have brought out an automatic record changer that has many new and unusual features. There is a Queen Anne Wall Table model for the jobbing trade that can be plugged into any regular radio receiver to give automatic record entertainment. On the Phonomatic the records are stacked in a pile on the turn-table. It holds up to twelve records of either the ten- or twelve-inch size. The tone arm rests on the top record and an-

other arm clamps the records, which prevents the top one from slipping when in operation. When the record has been played the turntable rises just enough to release the record, and the record slides gently out of the way into a compartment. The simplicity of the entire unit indicates that it will be able to stand abuse in practical operation. The absence of highly complicated apparatus also allows it to be built for a very reasonable price.—February Radio Sales and Service.

A Direct-Coupled Amplifier for High Power Output

Electrad, Inc., has added two power amplifiers utilizing the Loftin-White Direct-Coupled System to their line. Electrad C-250 Amplifier provides 10.35 watts of undistorted output with .3 volts and has a power consumption of 160 watts. It has tone control and



hum compensator. Completely assembled on metal sub-panel. Utilizes one 224, two 250 and two 281 tubes. The Electrad A-245 provides 1.6 watts output with .25 volts input. Power consumption is 40 watts. Requires one 224, one 245, and one 280. Prepared in kit form or completely assembled ready for operation.—February Radio Sales and Service.

Two-Button Microphone for Home Recording

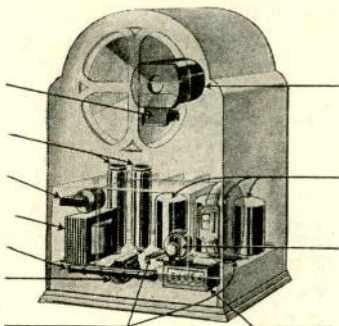
The Ellis Electrical Laboratory of Chicago, Illinois, has developed a special two button microphone for use with the popular home recording phonographs, industrial and home talking



picture machines, and portable public address outfits. This microphone is widely used to replace the single button microphone supplied with some home recording phonographs. —February Radio Sales and Service.

Midget Parts

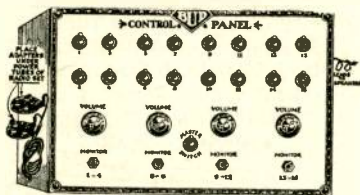
The Polymet Manufacturing Company, New York City, has announced a line covering almost every essential part for midget set manufacture. Special designs have been developed for



the speaker transformers, electrolytic condensers, volume controls, condenser blocks, voltage dividers, and chokes to be used in midget receivers.—*February Radio Sales and Service.*

Bud Control Panel

A control panel for adapting a standard radio set to multiple speaker operation is built by Bud Radio, Inc., of Cleveland, Ohio. With this unit from one to sixteen speakers may be



connected at will. There are separate switches on the panel for each speaker, and the volume may be controlled in groups of four speakers. Jacks are provided for monitor connections to each group of four speakers. The unit is readily installed by slipping adapters under the power tubes.—*February Radio Sales and Service.*

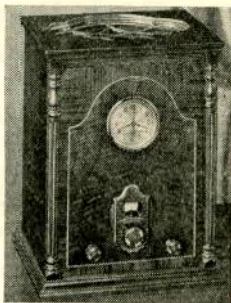
The Orola

Any radio receiver may be directly converted to a radio phonograph combination by simply attaching the Orola unit. This unit of artistic design, comprising an electric turntable and electric phonograph pickup, is placed on the top of the cabinet and a simple adapter plugs into the receiver. Once set up it need never be disconnected from the receiver—a switch changing from radio to phonograph operation. The A.C. motor that drives the turntable, and the

phonograph pick-up are of the highest quality, permitting excellent reproduction of all phonograph records. Manufactured by the Oro-Tone Co., 1010 George St., Chicago, Ill.—*February Radio Sales and Service.*

Coin Operated Mantle Type

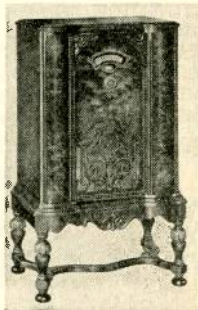
The Austin A. Howard Corporation announces that their seven-tube mantle type receiver is now available with



a built-in coin control attachment. The unit is easily installed and operates entirely automatically. Can be had with the model that includes a high grade electric clock or with a new model that omits clock.—*February Radio Sales and Service.*

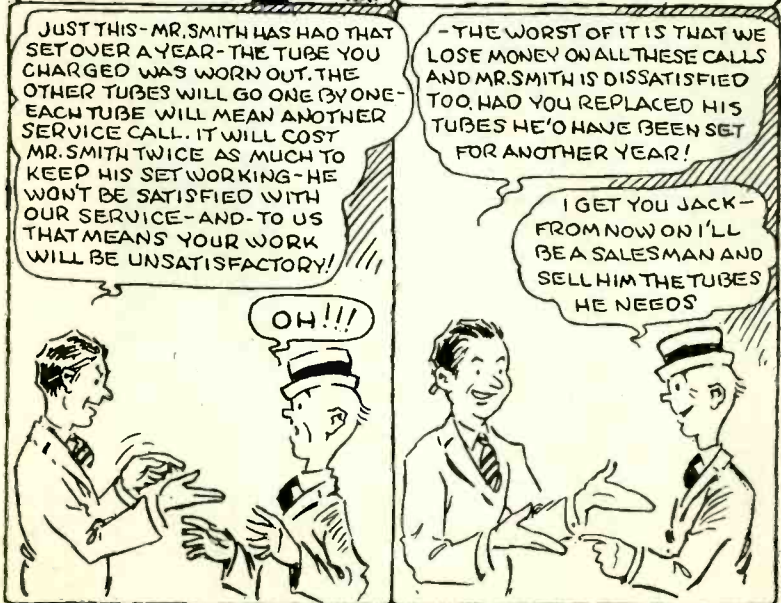
Majestics with Multi-Mu Tube

The Grigsby-Grunow Company of Chicago, Illinois, have announced a new line of Majestic Super-Heterodyne Receivers. They include such features as the "Multi-Mu" tube, automatic



volume control, and tuning meter. This new "Multi-Mu" tube automatically raises or lowers the amplification, resulting in an increase in selectivity and sensitivity, and the elimination of "cross-talk." There are six new models, ranging in price from \$69.50 to \$197.50 complete with tubes.—*February Radio Sales and Service.*

JACK AND LARRY



Literature You Need Service Equipment and Supplies

The literature listed below will be sent free (except when otherwise marked) to readers of RADIO SALES AND SERVICE. Check the items in which you are interested. Write your name, company, and address on the coupon provided on the next page. Tear out the page and mail to us.

Dynamic Speakers

A very interesting booklet describing the operation of dynamic speakers and suggestions for securing the best results in various kinds of installations. **Magnavox Company.**

Puncture Proof Condensers

The principles and construction of electrolytic condensers and their application to high voltage filter circuits. Contains many circuit diagrams showing use of electrolytic condenser units. **Amrad Corporation.**

Replacement Parts Catalogue

A catalogue of paper, electrolytic, and mica condensers, resistances, volume controls, transformers, and chokes. **Polyment Manufacturing Co.**

Home Recording Equipment

Description of a simple home recording system that may be applied to any good radio set; also a list of necessary equipment. **Pacent Electric Company.**

1931 Condenser and Resistor Manual

A very complete manual containing detailed specifications of condensers and resistors for radio servicemen. Has a section devoted to helpful data used in solving condenser and resistor problems. **Aerovox Wireless Corporation.**

Radio Accessories and Parts

A complete list of all radio parts and accessories available to the experimenter. The decrease in demand for such equipment often makes it very difficult to obtain some of the equipment listed here. **General Radio Company.**

Radio and Television Products

A catalog of radio and television products for the radio serviceman and experimenter. Line voltage controls, noise eliminators, tone controls, and radio convenience outlets are included. **Insuline Corporation of America.**

Leaflets on Replacement Volume Controls

A series of sheets describing standard volume controls that may be adapted to the majority of replacement volume control requirements. **Central Radio Laboratories.**

Uses of Shielded Wire

Interesting information about reduction of interference by the use of shielded wire for lead-in and ground connections. Many helpful hints for stubborn interference problems. **Belden Manufacturing Company.**

Time Payment Plan for Purchasing Radio Test Equipment

A plan whereby complete radio service equipment may be purchased with the extra earnings secured by their use. **Supreme Instruments Corporation.**

Radio Test Equipment

Four interesting leaflets describing test equipment for servicemen which greatly facilitates service work on any set. **Hickok Electrical Instrument Company.**

Volume Control Guide

(Price 25c)

A very complete booklet describing how to replace and how to use replacement units for various types of volume controls found in most popular sets. **Central Radio Laboratories.**

Power Amplifiers

A booklet describing a very complete line of power amplifiers and all accessories for a public address system installation. Rauland Corporation.

 D.C. to A.C. Conversion

How to convert D. C. power from 110 volt light lines or 32 volt farm systems to 110 volt A. C. for operation of radio receivers. Janette Co.

 Price Sheet

New 1931 price sheet of a popular line including replacement volume controls, tone controls, automatic line voltage regulators, and other radio essentials. Clarostat Mfg. Co.

 Parts Catalog

New 1931 catalog of parts available for replacement in radio receiving sets, including complete lines of condensers, resistors, and transformers. Polymet Mfg. Co.

 Replacement Parts Price List

A list of repair parts for standard make receiving sets. Every part expressly designed for its individual application. Moe Mfg. Co.

 Test Oscillator Bulletin

An interesting bulletin telling "Why the Radio Serviceman needs a Test Oscillator." Jewell Electrical Instrument Co.

 Replacement Resistance Guide

(Price 50c)

A very complete booklet listing replacement resistances for all popular receivers. Simplifies ordering of replacement parts. International Resistance Co.

 Radio Instruments

The catalog of a popular priced line of radio instruments suitable for use by servicemen. Includes set analyzers, tube testers and portable meters. Readrite Meter Works.

 Volume Control Guide

(Price 25c)

A very complete booklet describing how to replace and how to use replacement units for various types of volume controls found in most popular sets. Central Radio Laboratories.

 R.M.A. Interference Manual

A manual describing the sources and methods of suppression of radio interference prepared by the Radio Manufacturers Association.

 Radio Noises and Their Cure

(Price 25c)

The "How and Why" of radio interference and exactly what equipment is needed to eliminate such interference. Methods for elimination at the source and how to prevent unwanted variations from entering radio receiver. Tobe Deutschmann Corporation.

 Tube Replacement Chart

A great deal of time is often saved if the serviceman can tell exactly what tubes he will need before making a service call. This may be determined from a handy tube replacement Chart. CeCo Manufacturing Company.

 Chart of Voltage Controls

A chart that specifies the size and type voltage control necessary for installation on any popular set. Various receivers draw different amounts of current. This necessitates a number of sizes of line ballasts to accommodate all receivers. Amperite Corporation.

 Radio Convenience Outlets

A catalog of the plug-in outlets that are available for wiring aerial leads, ground leads, battery leads, and speaker leads. Descriptions are given of wiring systems for group radio sets such as are used in hotels, apartments, and hospitals. Yaxley Manufacturing Company.

Tear out page and mail to
RADIO SALES AND SERVICE
549 W. Washington St., Chicago, Ill.

Name

Firm

Address

Getting Your Share of Tube Replacements

Tube replacement business is the repeat business of radio—business that comes in with a minimum of special effort—over the counter cash sales that mean profit!

Every radio set in your territory is building business for you by wearing out tubes—that is, these radio sets are building business for you *if* you get the tube replacement business that they are making.

There is a lot of potential tube business in practically every community that is not being harvested. This is because so many set

owners continue to use tubes long after their efficient use has passed and long after they should be discarded. They suffer because of poor reception, and you suffer from loss of sales.

Many dealers discount the possibility of profits from tube sales simply because the volume per sale is small. But it has been estimated that the tube business for 1931 should be more than half as much as the new set business. Think that over! If you are not getting half as much business from tubes as you are from sets, then you are not getting your share!

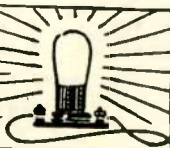
Tube Merchandising Letter Contest Extended to February 25th

The RADIO SALES AND SERVICE tube merchandising program announced in the December issue is to be carried over and the winner announced in the March issue.

You still have a chance to win this \$50.00 award. The dealer writing the best letter on radio tube merchandising gets the

\$50.00. The letter must be signed by a bona fide radio dealer and must be based on his actual tube merchandising experience. It must show the methods used and the results received. Contest closes February 25th. Mail your letter to RADIO SALES AND SERVICE, 549 West Washington Street, Chicago.

MY MOST UNUSUAL SERVICE PROBLEM



Poor Ground Connection

A stranger called me in to check his A. K. 55 and informed me that he had several service men check it up and in despair was about to trade it in. He was very irritable and soon had me on edge. I told him to leave me alone and that if I couldn't clear up the trouble there would be no charge. This remark subdued him and I turned on the receiver. What a racket? It spit and spluttered and faded. Tubes and voltages checked O.K., speaker O.K. Of a sudden everything cleared up. Mr. Owner informed that this ideal condition would not last. After waiting about five minutes it started again. I then removed the aerial and it lessened (apparently). Removed the ground and lost everything, including the signal. Mr. Owner was getting quite cynical and annoying and I was about to leave when I noticed a heavy truck pass outside and the noise increased. Renewing the attack I centered my attention on the ground circuit. At the set O.K., at the water pipe—ground clamps O. K., then down into the cellar. The pipe crossed the gas meter connection near the front of the house and any heavy weight on the street would cause it to vibrate slightly. I wrapped cloths around the pipe.

I received ten bucks and a corking booster, for this man was a business (local) man and talkative.

James A. Beggs
New York, N. Y.

Substituting '32 Type for '26 Type Tubes

I have found that sets using UX-226 tubes in the Radio Frequency Amplifiers can be improved, by replacing those tubes with the new RCA-232 tubes. No change in the wiring has to be made.

All of the 226 tubes can be replaced with this new tube, with very satisfactory results; this also reduces the load on the power transformer, which increases the efficiency of the set. This is a great value to lots of sets.

Stirman Rowland
Evansville, Ind.

Hum Eliminator

While listening to local stations a bad hum was heard which spoiled the program, however out of town stations came in clear with good volume and tone.

The tubes were tested and were found to be up to standard; a complete new set of tubes was tried and the results were not improved. Aerial and ground leads were then removed, thinking the set might have too much pickup, thereby causing a R.F. hum; the results were the same.

In this type of receiver a ballast tube is used in series with the primary of the power transformer. I then tried a 1/10 MFD bypass condenser from one terminal of the ballast tube to ground and the hum immediately disappeared.

Since then I have tried this on several sets and it has worked every time.

F. J. Rybak
Cleveland, Ohio

Thermostatic Voltage Divider

My most unusual service job was on an Amrad No. 71. The set, when first turned on, would hum naturally but no music would come from the speaker. The radio frequency stages, detector and first audio stage would show no plate or grid voltages. The filament voltages all tested O.K. When testing the 250 tube output stage, the music would snap in as soon as the tube was put in the analyzer and would then play perfectly all day.

After trying to get a reading of the 250 stage, I finally put the analyzer in this socket before I turned the set on. This stage then showed a very high plate and grid voltage. On pulling the tube out of the analyzer and putting it back in, the voltages became normal and the set played perfectly.

After testing the Mershon condensers and rewiring the complete power pack (the old wiring was in very bad condition), the set still acted the same. Finally, in desperation, I replaced the voltage divider, even though the old one tested O.K.; and the trouble disappeared.

Later I tested the old voltage di-

vider, and it seemed to act like a thermostat. Evidently it had a poor connection on one of its terminals.

Henry Sturtevant
Spokane, Wash.

By-Pass Condenser Causes Trouble

A Crosley put out for the low price market furnished this one: The set would play along nicely for a time, often an hour or two at a time, then suddenly fade down and retuning or adjustment of the volume control would not affect it. Voltages would not change enough for a meter to show it, tubes would stay lit and apparently no change in the operating conditions of the set would occur. Moving the antenna to the plate of the first tube, that is around the volume control which is across antenna and ground, would bring the volume back to normal or nearly so. This made it look as if the volume control were losing its value and grounding most of the signal, but a new volume control would not remedy the trouble.

Finally we tested the by-pass condensers in the set with 450 volts and each showed a small leakage, and one would intermittently show a partial breakdown if the test leads were held on the terminals. This one and two others in the set were replaced and the fading was gone.

An R.C.A. 66 superheterodyne only a month old would fade out and at times go completely dead for as long as an hour at a time. In fact when we went to the house it was dead. B. and C. voltages were normal but on all but one tube filament voltages were down to about one volt, where they should have been about two and one-fourth. Apparently this set had left the factory with this trouble.

G. W. Rapson Radio Dept.
The Sporting Goods Store
New Castle, Pa.

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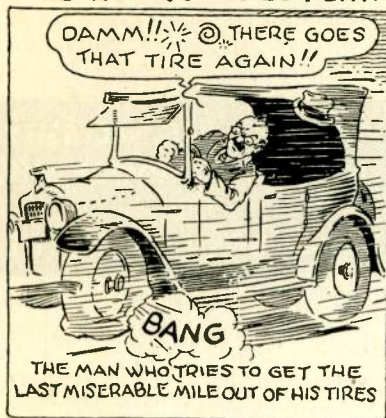
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Interpreting Set Analyzer Readings—*Part 4

By A. E. HOOVER

THE tests for grid and plate voltages as applied to radio and audio frequency stages are the same as those used for the detector stage. For both purposes the amplifier characteristics of the tubes are used and all voltages must be watched for variation from those specified by the manufacturer. Failure of any of the voltages in any radio or audio frequency stage will be found to be caused by the same conditions as outlined for the plate type of detector. In those circuits using four prong tubes the plate return is connected to the center of the filament instead of the cathode, as in the case of five prong tubes, so in case of plate or grid voltage failure, check for connection from

the center tap of the filament winding of the power transformer or center tapped resistor to B—. A continuity test between these points should show the presence of resistance, this resistance being the value of the grid bias resistor.

Grid bias is obtained by placing a resistance in the plate return of each tube or group of tubes, so that the voltage drop across it is equal to the desired grid bias.

In Figure 9 we have illustrated the location of this resistor in a circuit using 227 or 224 type tubes, and in Figure 10 we point out its position when using four prong tubes. In the case of a group of tubes all obtaining their grid bias from the drop through a single resistor, their cathodes or

*Previous installments may be had by mailing 20 cents in stamps for each back issue of RADIO SALES AND SERVICE.

filaments are all connected together.

In each case the plate current used by the tube or tubes starts on its path of flow from B— connection of the voltage divider (Electronic Theory) and flows through the resistor R to the cathode and from the cathode to the plate; then through the plate coupling coil or resistor to the B+ connection of the voltage divider and then back to its starting point at B—. The path of flow is pointed out by the arrows in Figures 9 and 10. Since the voltage applied to the grid is considered in its relation to the filament or cathode, an analysis will show that with relation to B— the filament or cathode is positive, and since the grid is connected to B—, the grid will be at a negative

potential with respect to the filament or cathode. The amount of negative charge will of course depend upon the conditions imposed by the circuit.

the various bypass condensers are not shown in these diagrams. A condenser is used to bypass the grid resistor R, and if it were shorted the analyzer reading would indicate no grid bias and a high plate current due to this lack of bias. A condenser shorted across the section of voltage divider would result in no plate voltage.

If a condition of too high grid bias is noted, it is due to a change in characteristic of the grid bias resistor R. The correct resistance of this part can be determined quickly by using Ohm's Law,

$$R = \frac{E}{I}$$

R being the unknown resistance value, E being the required grid voltage, and I being

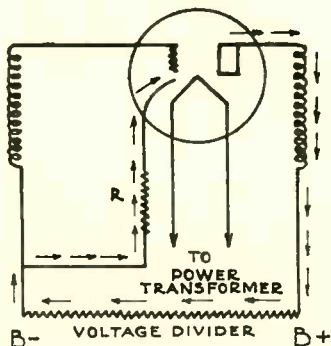


Figure 9.

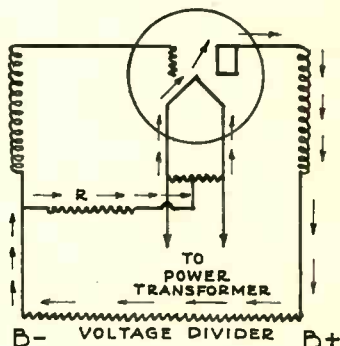


Figure 10.

potential with respect to the filament or cathode. The amount of negative charge will of course depend upon the conditions imposed by the circuit.

A study of these diagrams makes it apparent that an open at any point of this plate current path would result in a plate voltage failure. For the sake of simplicity

the plate current of the tube in amperes. In the case of a UX-245, for instance, we require a plate voltage of 250, a grid bias of 51.5, and the tube draws about 32 milliamperes. Our formula would then tell us that

$$R = \frac{51.5 \text{ grid voltage}}{.032 \text{ amperes plate current}} = 1609 \text{ ohms}$$

In some radio frequency circuits the volume is controlled by changing the grid voltage of the radio frequency tubes. Maximum volume is obtained when the bias is normal, and it decreases as the bias voltage is increased. This method is used only with 227 or 224 tubes, and grid voltage tests with the analyzer will readily detect this type of circuit. A peculiar trouble is sometimes encountered with this circuit in the form of distortion when the set is operated at very low volume. Tone quality will be found to be good at greater volume and tests will fail to disclose any defect. The cause of the trouble will be found to be due to the use of too long an antenna for the following reason. As the grid bias of any tube is increased it approaches the lower bend of its plate current characteristic curve with the result that it begins to act as a detector. If the antenna is too long, the signal input will be great enough to make it necessary to increase the bias by means of the volume control to the point where the radio frequency tubes detect and distortion begins as a consequence. Try all sets of this type at very low volume, and if necessary reduce the size of the antenna.

Besides its normal use in testing the circuits of radio sets the analyzer has many other uses, a few of which we will outline.

The unknown polarity of a voltage supply can be determined by using test leads and the direct current voltmeter. When the indicating needle moves in the correct direction the polarity will be as indicated on the meter binding

posts.

The total plate current drain of a receiver can be determined by connecting the milliammeter in series with the B— lead from the power pack to the set.

The direct current voltmeter can be used as a resistance meter by connecting it with a battery as for continuity tests and calibrating its scale by applying its leads to various resistors of known value.

The milliammeter can be used as an output meter by using it in conjunction with a dry disc full-wave rectifier, or by inserting it in series with the plate of the detector tube. A very useful piece of apparatus in this connection is a 227 tube with its plate lead opened in the base and test leads brought out. To accomplish this, cut a hole in the bakelite base opposite the plate prong of the tube and expose the wire running up through the glass to the plate and down to the tip of the prong. To open this lead and solder a lead to each end is a simple matter. These two leads, when connected to the milliammeter and with the tube in a socket of the receiver, make it possible to read the plate current of the tube. When placed in the detector socket it serves as an indicator of signal strength for as the signal strength increases so does the plate current of the detector tube. It is a simple matter to align condenser gang or intermediate transformer trimmers when this equipment is used in conjunction with an oscillator. Merely adjust the trimmers to the highest meter reading.

(Continued on Page 59)

Make An Ohmmeter Out of Your Milliammeter

By JESSE MARSTEN*

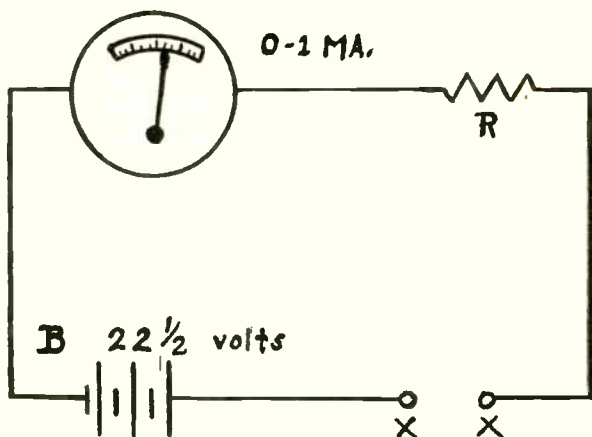
AN ohmmeter is a desirable instrument for radio service and general experimental work. And since most servicemen and experimenters already possess a 0-1 milliammeter, it becomes possible to improvise an accurate ohmmeter at a very slight additional investment. The principle involved is as follows:

A precision wire-wound resistor of definite value (for example 22,500 ohms) is connected in

with binding posts to take the unknown resistance. If the binding posts are short-circuited, the meter will read 1 milliampere according to Ohm's Law, viz:

$$\frac{E}{R} = \frac{22\frac{1}{2}}{22,500} = 1 \text{ m.a.}$$

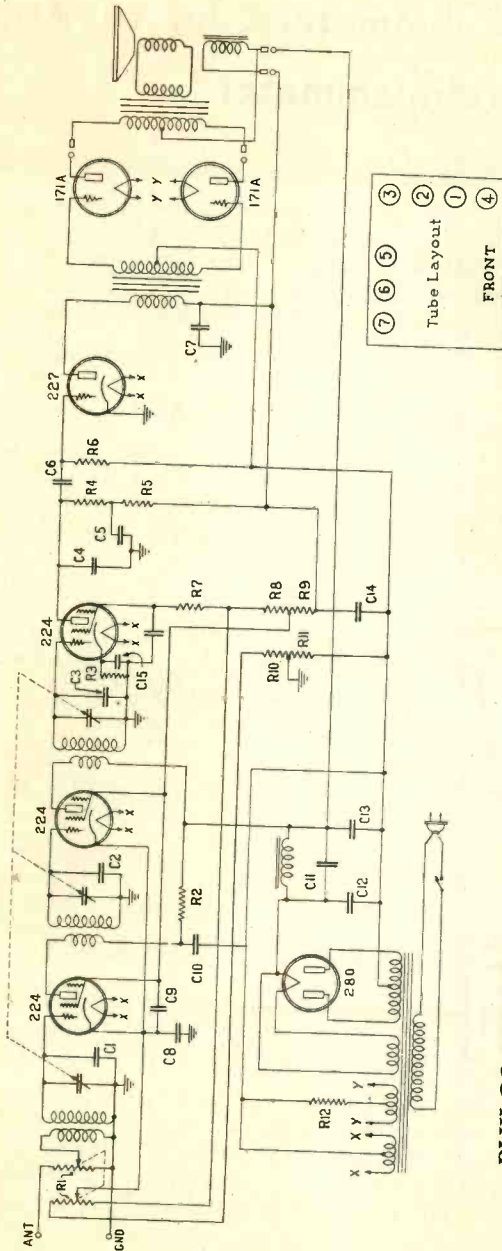
Consequently, whenever the milliammeter reads 1, the resistance measured has zero resistance. If a resistor of a value of 22,500



series with a 0-1 milliammeter and a battery of known voltage, for instance a 22½-volt B-battery. Part of the circuit is left open,

ohms is placed across the terminals marked X in the accompanying diagram, the milliammeter will read ½ milliampere, since

*Chief Engineer, International Resistance Co.



PHILCO MODELS 20—20-A

Analyzer readings taken with line voltage 115, volume control full-on. A tuned radio frequency receiver using shield-grid tubes in the radio frequency stages. Align gang condensers with small trimmers mounted on condenser housing. Set gang condenser at 1200 to 1400 K.C. corresponding to 120 to 140 on dial scale.

Tube		Plate Voltage	Grid Voltage	Screen Voltage	Cathode Voltage	Plate Milliamperes
1	24	23	3.0	90.0	12	4.5
2	24	23	3.0	90.0	11	4.5
3	24	23	3.0	2.0	8	...
4	27	23	1.0	.....	8	3.0
5	71-A	5.0	50.0	.....	.....	18.0
6	71-A	5.0	50.0	.....	.....	18.0
7	80	5.0	.....	.....	.....	36/Plate

Buy a SUPREME SET ANALYZER and SUPREME OSCILLATOR ^{MODEL 70} and SAVE output meter cost



SUPREME SET ANALYZER—Model 90
Dealers Net Price..... **\$78.50**

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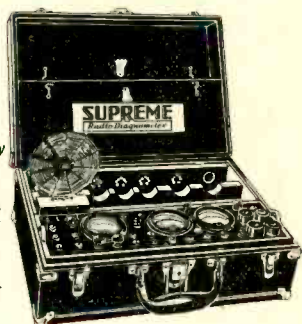
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Testing Instruments

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$$\frac{E}{R} = \frac{22\frac{1}{2}}{22,500 \text{ plus } 22,500} = \frac{1}{2}$$

In other words, every time the milliammeter reads $\frac{1}{2}$ milliamperes, the resistance across X will have a resistance of 22,500 ohms. In the same way every reading on the milliammeter corresponds to a definite value of resistance when connected across the terminals X. It is possible to make a calibration curve giving the values of resistance which correspond to each reading on the milliammeter, using the foregoing arrangement. If the values of resistance corresponding to each milliammeter reading are indicated on the milliammeter scale, we have a direct reading ohmmeter.

Natives Want to Know What Makes Water "Go to Sleep"

The mystery of how the white man makes water "go to sleep" is a most intriguing puzzle to the natives of British West Africa, according to a letter just received from Kate Driscoll, missionary, by Charles J. Hopkins, manager export department, the Crosley Radio Corporation.

The letter reads in part: "It gives me the greatest pleasure to report the safe arrival of my Crosley Icyball, and I find it does all you claimed for it. It seems most too good to be true—hard butter, cold water, ice cubes every day. I call it my 'praise box' because I feel like thanking God continually for such a luxury here in the jungles.

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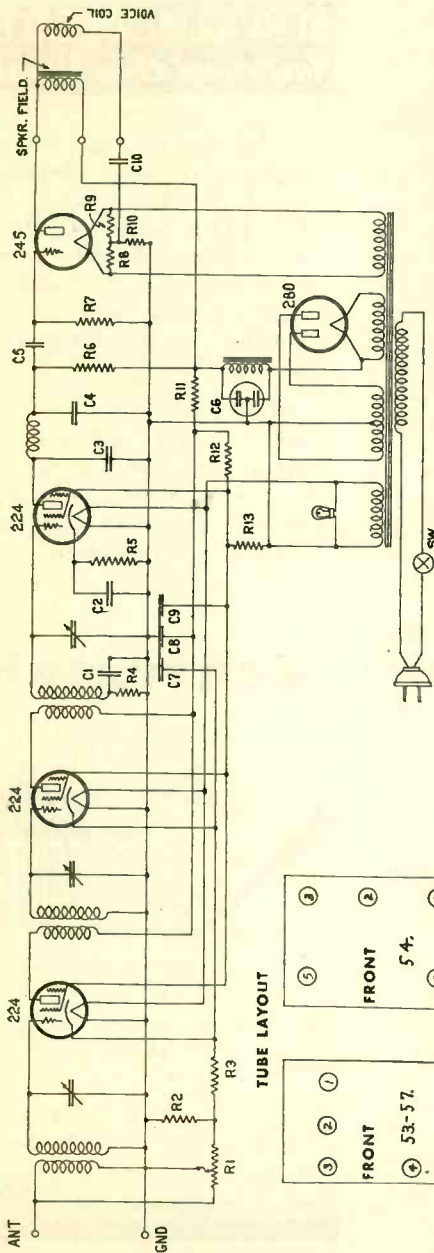
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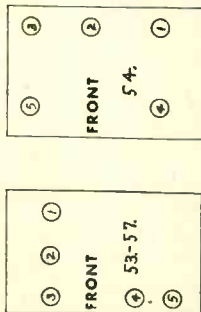
City..... State.....

R.S.S.

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TUBE LAYOUT



CROSLY MODELS 53, 54, 57

Analyzer readings taken with 117½ volts line and fuse in "High" position, or 107½ volts line and fuse in "Low" position. There are two terminals marked "PH" for phonograph pick-up devices. These are joined by a wire that must be cut if a phonograph pick-up is connected.

Tube Type	Position in Set	A Volts	B Volts	C Cathode Volts	Screen Volts	Plate M. A.	Grid M. A.	Test Change
224	1 R.F.	2.1	160	3.1	85	3.	.....	.....
224	2 R.F.	2.1	160	3.1	85	3.	.....	.....
224	Det.	2.1	215	9.0	85	3.	.....	.....
245	Fwr.	2.2	230	45.0	.....	.....	.....	.....
280	Rect.	4.1	340	.....	.....	.....	.....	.....

Line voltage 110. Volume control minimum.

(Continued from Page 52)

Many other uses of the analyzer meters will suggest themselves as we become more familiar with their use, and a little experiment with this device will prove most interesting. The writer has used analyzers of all makes since their first appearance and has found them indispensable to the giving of satisfactory radio service. A great many cases are encountered where the analyzer may not be necessary in locating the trouble, but even in these cases it should be used if for no other purpose than for the good impression it has upon the customer.

Sound Profits

(Continued from Page 31)

over to the manufacturer from whom he planned to buy the equipment. He recommended that a three-stage amplifier, with 250 tubes in push-pull for the last stage, be used. The speaker the manufacturer specified was a special auditorium type capable of handling the maximum output from the amplifier.

Installation of this equipment was influenced by several unusual problems. The unit must be proof against meddling, and absolutely fool-proof in operation. A solution was reached by mounting the amplifier unit in the base that supported the speaker baffle. A central control panel was arranged to simplify the selection for radio, phonograph, and microphone operation.

Profit from Extra Equipment

When the installation was working properly additional equipment was purchased, including a micro-

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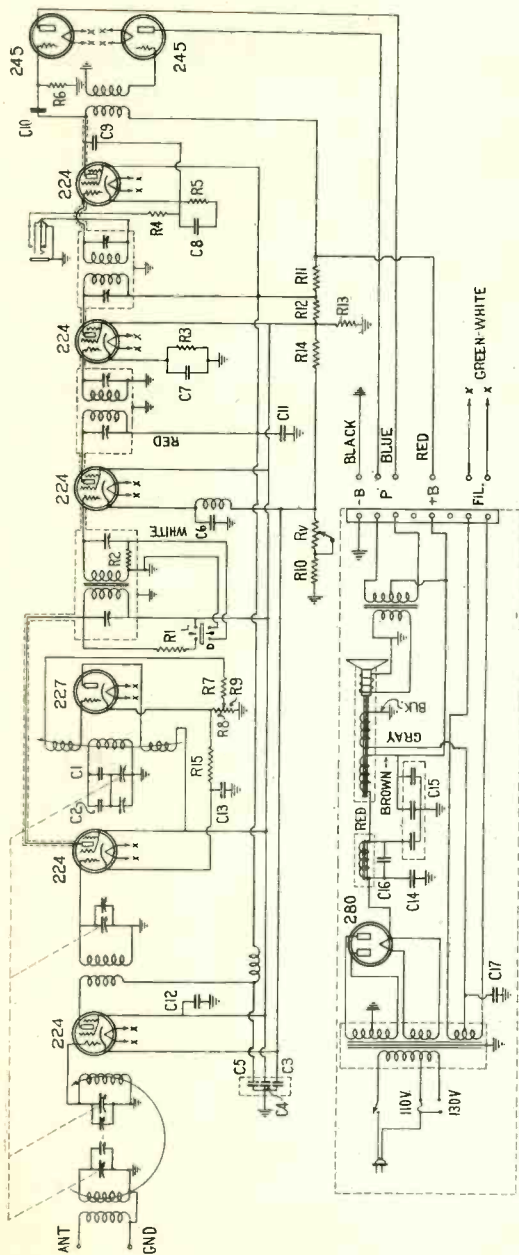
The procedure this dealer followed may be considered typical of procedure many hundreds of dealers follow when they get a prospect for sound equipment. They merely find out what conditions are present, and the size of the room or rooms to be equipped. This information is sent to their manufacturer, who in turn advises them what equipment is necessary, or if the conditions are unusual sends a factory engineer to cooperate with the dealer.

January Window Display

(Continued from Page 15)

gives to this window a temporary background.

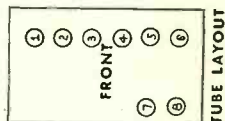
Your window may not be just the same proportion or shape as our illustration. In this event all you need do is change the proportions of the panels and the sizes of the large shamrock to fit in your particular window.



SILVER-MARSHALL MODEL 36-A

Analyzer readings taken at 115 volts line potential. Volume control full-on. A 9-tube super-heterodyne receiver, with band-pass pre-selector and tuned radio frequency stages. Intermediate frequency of 175 K.C. Intermediate frequency transformers peaked by condensers adjustable by screws through the top of the intermediate frequency transformer housings.

TUBE NO. IN ORDER TESTED	TYPE OF TUBE	POSITION	METER READINGS WITH JEWELL TEST PLUG IN SOCKET OF SET					WILLIAMPERES		
			FILAMENT OR HEATER (1.00 A.)	PLATE OR CONTROL GRID (1.00 V.)	NORMAL GRID (1.00 V.)	GRID-TO-PLATE (1.00 V.)	GRID-TO-PLATE (1.00 V.)	INCREASES IN I. N. M. TO 1.00 V. PLATE	PLATE R. N. M. TO 1.00 V. PLATE	PLATE CURRENT TEST (1.00 V. PLATE)
1	224	1 R. F.	2.15	176	0	74	66	-	3.7	
2	224	2 R. F.	2.15	176	0	73	66	-	3.5	
3	224	3 R. F.	2.17	168	3	73	60	-	2.0	
4	224	Det.	2.19	118	11	40	11	-	.2	
5	227	1 A. F.	2.20	176	3	14	-	-	2.0	
6	245	2 A. F.	2.30	216	-	40	-	-	20	
7	245	V. Com.	2.30	216	-	40	-	-	20	
8	227	Rect.	2.15	15	8	38	-	-	-	
9	280	-	5.0	-	-	-	-	-	26	26



TUBE LAYOUT

Home Recording

(Continued from Page 39)

for the operation of the home-recorder. Experiment must be made to determine just how loud to sing into the microphone, or



Home Recording Outfit
(Courtesy Pacent Electric Co.)

what the proper weight is for the reproducer head when cutting a disk.

The cost of record blanks is not large and there are many clever methods of utilizing the equipment. Why not mail a spoken message to a prospect? If he does not have a good radio-phonograph tell him to come to the store and you will play it for him.

Discovered

(Continued from Page 34)

Today the condition has changed. Now a number of manufacturers are in a position to supply rotary converters, economical in cost and that deliver an A. C. current supply that is highly satisfactory for radio operation. The appearance of the rotary converter resembles a small motor. In fact, its function combines that of a motor and a generator all in a single frame. These converters are equipped with filtering devices which filter out "man-made" interference, or the radio interfer-

ence which is generated by the converter itself.

Not only does this new type of equipment create new markets for all-electric alternating current radio sets, but in addition the converters themselves present a very profitable source of revenue for radio dealers.

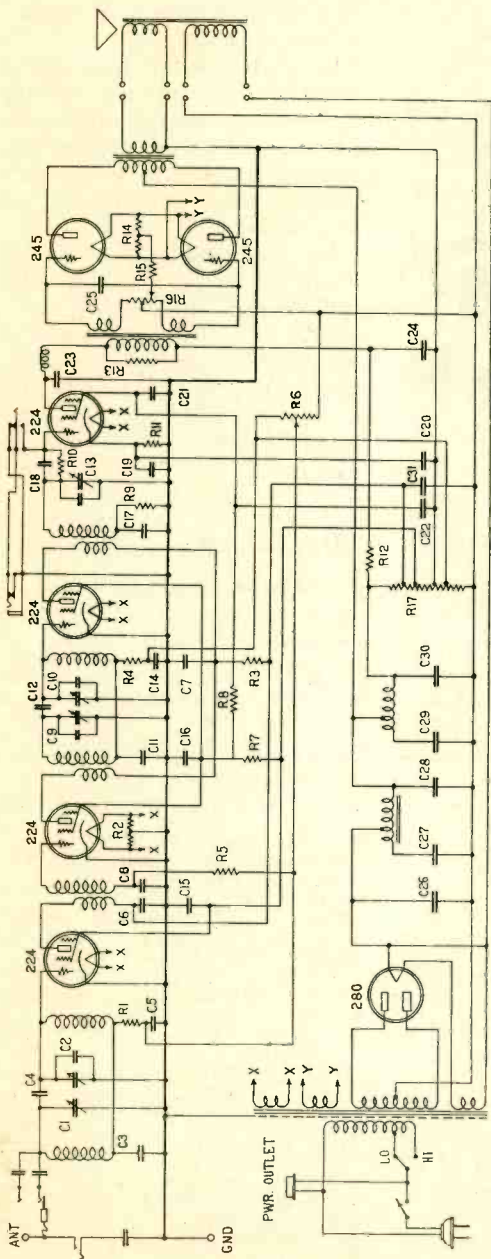
The installation of the converter is very simple. The attached diagram explains the method thoroughly. It is only necessary to plug the converter into the direct current household outlet, and plug the all-electric receiver in a receptacle provided at the base of the converter.

"Stop—Look—and Listen" Winning Cover Title

V. K. Wyndearo of the Gray Harbor Radio Corp., Aberdeen, Washington, has won the \$25.00 prize offered by Radio Sales and Service in the October Cover Contest. The winning title was "Stop—Look and Listen."

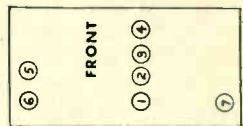
Additional prizes of \$1.00 each were awarded to the following contestants:

- "A Stirring Announcement"
C. Haines, 707 W. Market St., York, Pa.
- "Dialing Dinner"
F. Fischer, 808 N. Market St., Milwaukee, Wis.
- "Ether Biscuits"
Hugo W. Dahlstrom, 2434 Valence St., New Orleans, La.
- "Station TURK, Ole Gobbler Announcing"
R. Culver, 9 Haynes St., Hartford, Conn.
- "Straining the Ear to Please the Appetite."
W. F. Ohnesorge, Corder, Mo.
- "Modern Cookbook"
Harold Madsen McDonald, Kansas.
- "Cooking by Ear"
A. F. Sonnenberg, 35 W. Duval St., Jacksonville, Fla.
- "A Dressing Rehearsal"
707 Adams St., Toledo, Ohio.
- "A Complete Set"
A. Heumann, Red Bud, Ill.
- "Radio Kitchen Police"
Palestine, Ill.



TUBE ORDER	TUBE TYPE	POSITION OF TUBE IN SET	METER READINGS WITH JEWELL TEST PLUG IN SOCKET OF SET												
			FILAMENT	PLATE	CONTROL	SCREEN	CATHODE	SCREEN	PLATE	SCREEN	PLATE	PLATE			
1	224	1 R.P.	2.4	135	2.5	80									
2	224	2 R.P.	2.4	135	2.5	80									
3	224	3 R.P.	2.4	135	2.5	80									
4	224	Det.	2.4	200	-	75									
5	245	PP-AF	2.4	235	-	45									
6	245	PP-AF	2.4	235	-	45									
7	280	Rect.	4.6	-	-	-									

TUBE LAYOUT



STROMBERG-CARLSON NOS. 10 AND 11

Analyzer readings taken with line voltage 120, voltage tap "High." A seven-tube, screen-grid, receiver with band pass tuning. The five rotors on the gang condenser shaft are aligned by means of trimmers mounted on the gang condenser frame.

\$50,000 Volume

(Continued from Page 22)

extra-good salesman is earning and we urge him to go and do likewise. The service and selling men mingle. They understand each other's problems and respect each other's abilities. The serviceman sees how the salesman has to work and maneuver to get business; the salesman admires the skill of the serviceman and realizes what it means as a reinforcement of his own endeavors. Both talk and sell tubes at every opportunity. Four salesmen work out of our Loop store; six out of the branch up north.

"Most dealers seem to be so busy selling sets that they don't bother about the tubes. That is a mistake we try to avoid. There is a big tube volume available, naturally, providing the radio merchant gives it special attention. In New York exclusive tube stores are springing up—little holes in the wall that sell nothing but tubes. Testing apparatus and a relatively small stock constitute most of their equipment. They advertise. I saw one of their ads. It showed a radio set on crutches with the obvious suggestion that all it needed to be whole and strong again was a new installment of tubes. Apparently their methods are successful. They prove, at least, that the tube business is big enough to go after and that the radio dealer who does not try to develop it is short-sighted.

Maintain List Price for Tubes

"The silliest thing in the whole radio industry is the too-general practice of selling tubes at ridiculously low margins. That's the way the average dealer sells them, or

so it seems to me. Tube prices should be maintained. As time goes on more and more of the dealer's bread-and-butter is going to come from his tube sales. He cannot afford to get careless about them.

Reno Canvass

(Continued from Page 17)

was made that information was secured from the canvass.

Cards are kept up to date by listing thereon sales if the company makes them. If a radio is sold by another firm, salesmen notify the office, which notes the information on the proper card.

News of the Month

(Continued from Page 29)

test and oppose, however, replacement claims on tubes that have had normal use, or that have depreciated or become obsolete on the dormant dealer's shelves, through no fault of theirs.

It is their purpose to issue from time to time to distributors special replacement data in convenient form which the distributor can keep intact and in position for convenient reference. This will consist of confidential information with respect to code markings which have been placed on all DeForest tubes manufactured during the past few years. Each marking identifies the tube with the month of manufacture, and they authorize the distributor in certain instances to make spot replacements to dealers, they in turn making prompt replacements to the distributor, providing he adheres strictly to instructions which will be based upon the code information.

Are You Fighting Radio Interference?

Win the Battle » » »



On 250-ft. spools
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with Belden Shielded
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Thousands of servicemen are solving their interference problems with Belden Shielded Wire.

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