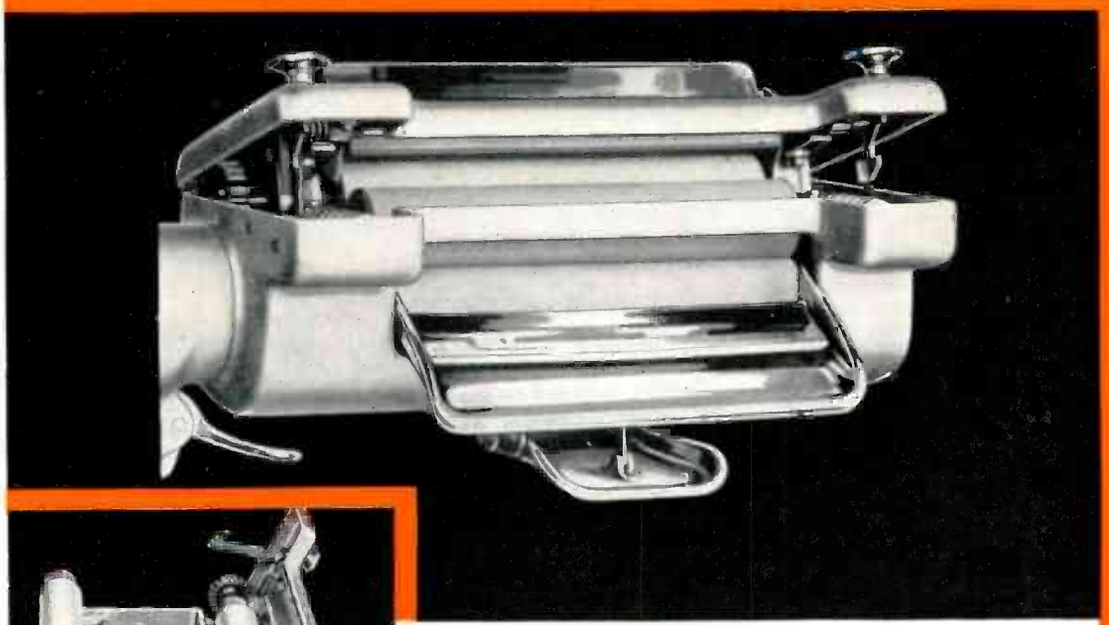
STATISTICAL AND MARKETING NUMBER—MARCH, 1934

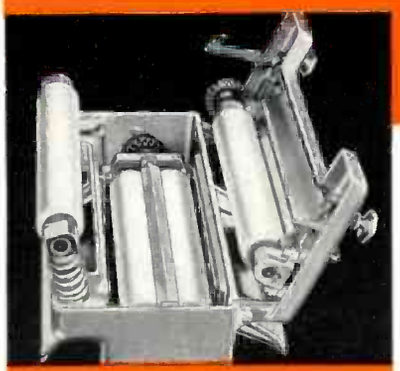
RADIO RETAILING

INCLUDING SERVICE AND INSTALLATION SECTION

25 Cents per Copy McGraw-Hill Publishing Company, Inc.

Horton Adds *Profitable* Volume to Your Sales





10 *Exclusive Features*

1. *Perfect Safety.*
2. *Automatic Overload Release.*
3. *Double Wring, Removes More Soap.*
4. *No Reverse Lever.*
5. *Water Always Drains Correctly.*
6. *Double Life to Rolls.*
7. *No Wrap Around Nuisance.*
8. *Complete Visibility.*
9. *Can Be Operated Blindfolded.*
10. *No Need to Worry or Exercise Extra Care.*

NRA

CONSIDER *profit* possibilities first when you add a washer line to radio, and refrigeration. Horton, builder of America's first washer, a pioneer in every important development in the industry, offers you

Exclusive sales features, among which is the sensational new 4-roll Auto-Safe Wringer, illustrated above.

Quality construction and proven dependability which eliminates the "grief" and expense of "service."

A complete line in a price range to meet every sales opportunity in the market.

Horton washers will add *profitable* volume to your sales. Write now for complete information—without obligation, of course.

HORTON MANUFACTURING COMPANY
304 FRY STREET · FORT WAYNE, INDIANA

HORTON
FOUR ROLL
Auto-Safe Wringer

Horton DeLuxe Model No. 1

America's finest washer by the builder of America's first washer, featuring the Horton Auto-Safe Wringer.

Horton Custom Model No. 2

Extra-size porcelain tub, clamped in rubber, floating power motor, special agitator, sealed mechanism, balloon-roll wringer.

Horton Standard Model No. 3

Built to the HORTON Standard of quality, and embodying many extra-value features.

Horton Gasoline Model No. 4

Identical with Standard No. 3, except powered with latest type 4-cycle gasoline engine.

A GOOD NAME FOR 63 YEARS

RADIO RETAILING. March, 1934, Vol. 19, No. 3. Published monthly, price 25c. a copy. Subscription rates—United States and Central and South American countries, $2.00 a year. Canada, including duty, $2.50 a year. All other countries, $3.00 a year or 12 shillings. Entered as second-class matter April 10, 1925, at Post Office at New York, N. Y., under the Act of March 3rd, 1879. Printed in U. S. A. Cable address "McGrawhill, New York." Member of A.B.P. Member of A.B.C.

Printed by The Schweinler Press, N. Y.

From the North Pole to Tasmania

ZENITH

has pioneered short-wave radio!

YOU can bet on Zenith short-wave performance, because there's 12 years of DX pioneering back of this line—and no one else in the industry can match that experience, or what it means to you.

Remember, short wave radio that doesn't deliver is a bad sale. Disappointed customers are a long-time liability.

Beginning in 1924 when Commander MacMillan took Zenith short-wave equipment to the North Pole, and in 1926 when the U. S. Navy took it to Tasmania, Zenith has gathered a wealth of knowledge through long years of actual trial under fire that is a definite asset to every dealer. Here's short wave radio you can count on to perform.

Get in touch with your Zenith distributor today. Or write us for his name.

Model 293 (*left*)—Standard and Short Wave. Many women prefer a console model, and this handsome cabinet should intrigue any woman. Same chassis as model 288. $84.95.

Also **Model 725** (*not shown*)—A beautiful modern console. Standard and Short Wave. Same chassis as 288. $99.95.

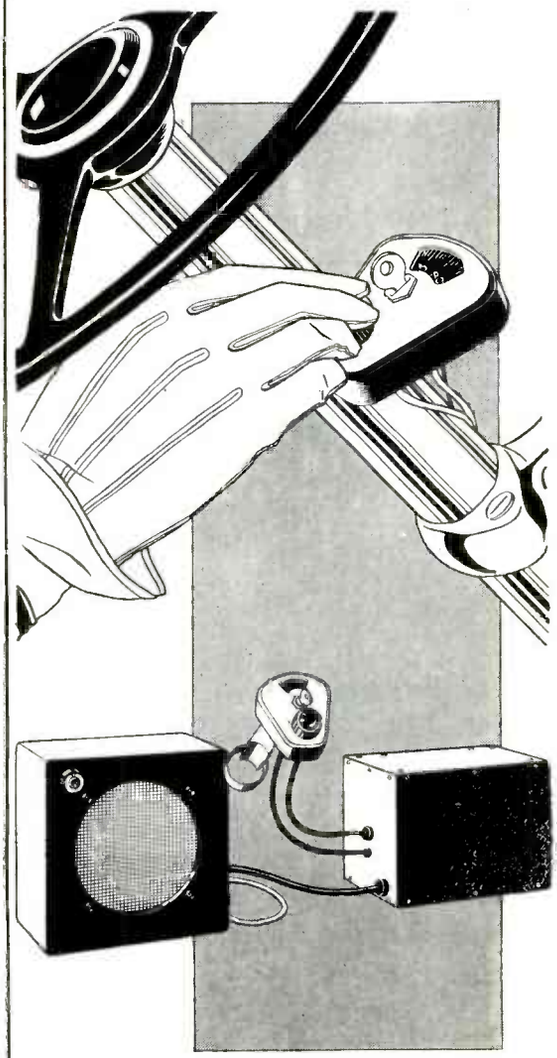
Model 288 (*right*)—A standard and short wave radio for the air waves of the world. 8-tube superheterodyne—full size dynamic speaker—automatic volume control—wave band selector—530 to 25,000 kilocycles (565 to 12 meters). $69.95.

ZENITH

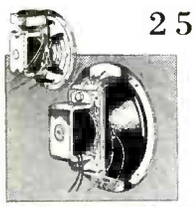
THE MONEY FRANCHISE

ZENITH RADIO CORPORATION, 3620 IRON ST., CHICAGO, ILL.—EXPORT DIVISION—CABLE ADDRESS: ZENITHRAD—ALL CODES

You will SELL this Automobile Radio-*because:*



No. 33 Stromberg-Carlson Automobile Radio, price, $79.50 (East of Rockies).



250% GREATER
ACTIVE SPEAKER AREA

The electro-dynamic speaker used in the Stromberg-Carlson Auto Radio is much larger than those used in most auto radios.

1. It has a *name* people want:

The name, "Stromberg-Carlson," on an automobile radio is a magnet —to the great group of people who know that it means the finest in radio reception.

2. It has *tone* quality:

Just as tone always has been the quality for which Stromberg-Carlson home radios have been celebrated, so the quality of its tone distinguishes the new Stromberg-Carlson automobile radio.

3. It gets a *host* of stations:

In a far northern Canadian camp a Stromberg-Carlson Auto Radio competing with two other makes brought in 26 stations in one evening. The best that either of the other two could do was 8 stations. Another owner reports that he tuned-in 56 stations while driving from Ithaca, N. Y. to Rochester, N. Y. This is the kind of performance that makes repeat sales for you.

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

"There is nothing finer than a Stromberg-Carlson"

1894 **Stromberg-Carlson** 1934

MAKERS OF VOICE TRANSMISSION AND VOICE RECEPTION APPARATUS FOR MORE THAN FORTY YEARS

BRUNSWICK Artists *Are The Most Popular*

BRUNSWICK Records *Are The Most Profitable*

NEW YORK WORLD-TELEGRAM, SATURDAY, FEBRUARY 10, 1934.

Nation's Radio Favorites of Year Acclaimed in World-Telegram Poll

Many Artists Retain Hold on Popularity

By ALTON COOK,
World-Telegram Radio Editor.

RADIO editors of the United States and Canada announce their favorites today in the third annual World-Telegram radio poll.

Winners in 1934 World-Telegram Radio Poll.

Comedian	Jack Benny.
Dance orchestra	Guy Lombardo.
Popular female singer	Ruth Etting.
Popular male singer	Bing Crosby.
Harmony team	Boswell Sisters.
Dramatic program	Ma... of Time.
Children's program	S... Lady.
Household assistance	...ey Allen.
Symphonic conductor	...ski.
Classical singer	...ding.
Instrumental soloist	
Sports announcer	
Studio announcer	
Commentator	
Most popular type of	
Most in need	
Outstanding	
New star	
Favorite prog.	

When the ... winning radio ar... cast as a salute to th... egram and to the radio ... voted in the poll. Th... presented on a speci... "Meet the Artist" progra... tonight over WABC and ... associated stations. Inclu... Guy Lombardo's orche... Crosby, Leopold Stoko... Waring's Glee Club, Albe... David Ross, Ruth Etting... Time, Edwin C. Hill and ... Allen.

...features, ...von third ...rchestras. ...om guest ...sts were ...programs. ...Waring's ...mpetition ...classical ...e musical ...variety

...ween ... groups was sp... ...ney | division. Rudy V...

BRUNSWICK RECORD STARS WIN 4 FIRST PLACES

Write for complete list of profit-making Brunswick headline artists and their latest releases

BRUNSWICK RECORD CORPORATION 1776 Broadway New York City

BRANCHES:—NEW YORK . CHICAGO . SAN FRANCISCO . NEW ORLEANS . DALLAS . LOS ANGELES

Enthusiastic Owners

CHECK
and compare facts like these:

The Westinghouse unit requires no oiling or attention.

•

By actual test, the Westinghouse uses less current than one ordinary lamp bulb.

•

Westinghouse refrigerators are sold all over the world, in more than 40 countries.

Westinghouse Refrigerators

SELL THIS REFRIGERATOR FOR YOU!

6% to 40% greater owner LOYALTY! 8% to 20% greater owner SATISFACTION! That's the lead enjoyed by the Westinghouse Refrigerator over all others, according to a nation-wide survey recently conducted. Just imagine what this can mean to YOU as a retailer! Investigate at once.

Get the Facts . . . Send for the FRANCHISE COMPARISON CHART!

● Satisfied customers mean satisfied dealers . . . more sales, more profit, less service expense. Now, through findings published after independent investigation, the Houser Associates of New York report Westinghouse owners the best-satisfied and most loyal group of refrigerator owners in the world! No wonder we say to refrigerator prospects — "You'll be happier with a Westinghouse." No wonder we say to dealers — "The Westinghouse Franchise is the most valuable in the industry."

Why not get the answers to every question in your mind about your 1934 refrigeration selling plans? The Franchise Comparison Chart gives complete details — enables you to compare the *facts* in the privacy of your own office . . . free from "selling pressure." A copy will be sent you without cost or obligation. Simply drop us a line or mail the coupon below. Take this action now!

EVERY HOUSE NEEDS WESTINGHOUSE

MAIL COUPON for your free copy

Westinghouse Electric & Mfg. Co.,
Refrigeration Div. (R-3), Mansfield, O.

Please send us a copy of the Franchise Comparison Chart, free of cost or obligation on our part.

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

MAGAZINE ADVERTISING

NEWSPAPER ADVERTISING

BILLBOARD ADVERTISING

WINDOW, COUNTER AND WALL DISPLAYS

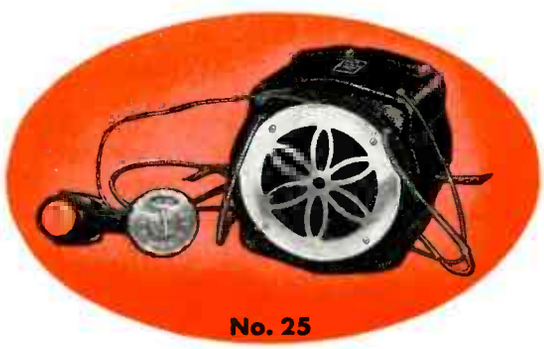
AND MANY OTHER SALES HELPS

ARVIN

THE FAST SELLING CAR RADIO LINE

Backed by Big Sales-Building Program

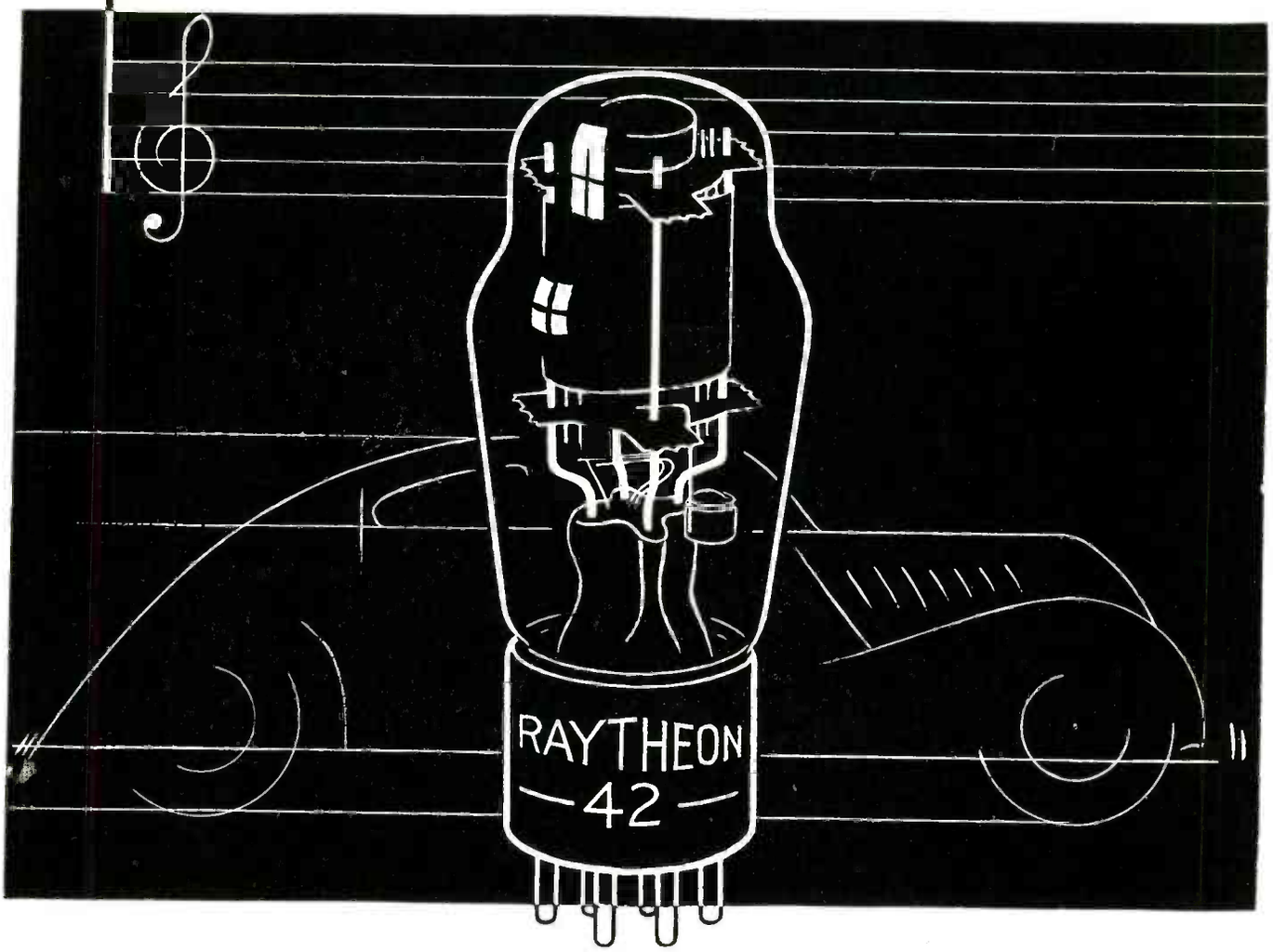
To make money selling car radio this year, you want the big Arvin sales building program working with you . . . First of all, this program includes a complete new line of super-powered car radio sets. Not just one, but four models—with performance and price for every prospect. Marvelous tone, easier installations—and many distinctive new features that win consumer preference and help you make more sales . . . In addition to the sales advantages built into Arvin Car Radios this year, the Arvin advertising and merchandising campaign will turn more sales to Arvin dealers . . . Get the details of the big Arvin program from your jobber now, or write us . . . NOBLITT-SPARKS INDUSTRIES, Inc., Columbus, Indiana . . . Also Makers of Arvin Hot Water Car Heaters.



No. 25

No. 15	Single Unit with Direct Control .... 5 Tubes .... 6-Inch Speaker List	**$44.50**
No. 25	Single Unit with Remote Control .... 6 Tubes .... 6-Inch Speaker List	**$54.50**
No. 35	Double Unit with Remote Control .... 8 Tubes .... 8-Inch Speaker List	**$69.50**
No. 45	Double Unit with Remote Control .... 9 Tubes .... 10-Inch Speaker List	**$110.00**

ITS USE REFLECTS ITS CHARACTER



LIKE a human being, the character of a radio tube can be told by the company it keeps. If there is an integrity of purpose behind it, a superb skill in its manufacture, these will be reflected in its use in places where only the finest of precision instruments can be used.

Huge planes of the great continental transport companies, alert police cars on watch throughout the country, expeditions probing the farthest reaches of the earth, buy and use Raytheon 4-pillar Tubes because of their precision-construction, and because of the 4-pillar support-principle which guards this precision.

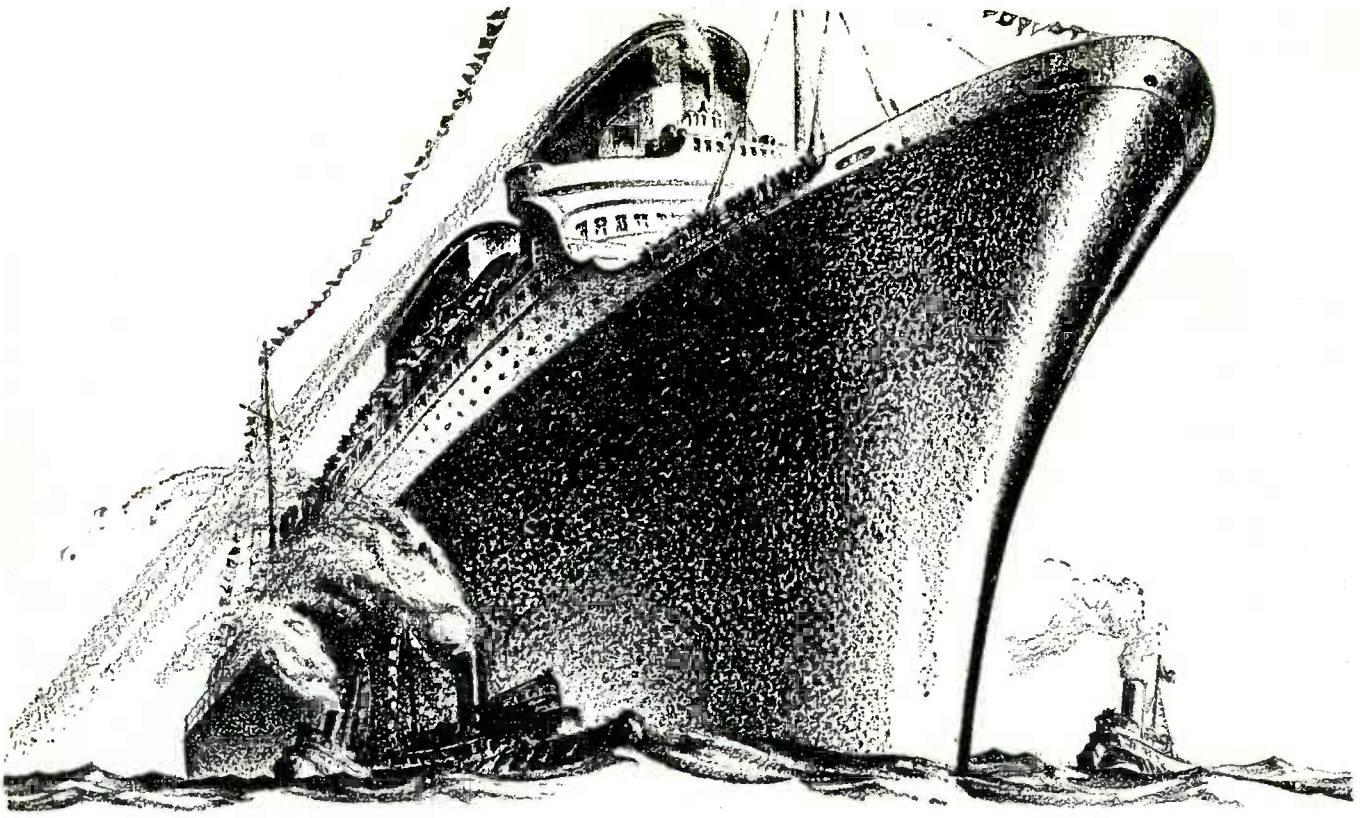
The automobile radio, now vastly increasing in use, demands a radio tube that can withstand the cruelest treatment. And it is not to be wondered at if automobile manufacturers, installing these radios as standard equipment in their cars, specify Raytheon 4-pillar Tubes.

When a set owner comes to you for new tubes, you can recommend with confidence Raytheon 4-pillar Tubes — making not only a satisfied customer, but a sound profit for yourself. For naturally, a tube of such excellence as the Raytheon 4-pillar Tube, is merchandised only on the soundest principles of profit.

RAYTHEON 4-PILLAR RADIO TUBES

RAYTHEON PRODUCTION CORPORATION

30 East 42nd St. *New York City*
55 Chapel St. *Newton, Mass.*
445 Lake Shore Drive *Chicago*
555 Howard St. *San Francisco*



MAIDEN VOYAGE

● A new ship's reputation for comfort . . speed . . *performance* . . is either made or broken on her trial run. It is then that the public's favor must be won!

Radio sets face a similar critical trial whenever they are demonstrated. Naturally, no effort can be spared to design or select every feature of the set for finest results.

That is why leading set manufacturers come to Sylvania for tubes to be used in original equipment. They know their sets will perform best with tubes that have been tested and proved for their own circuits!

Sylvania Tubes are built by one of the world's largest companies specializing in electric vacuum tubes. Hygrade Sylvania pioneered in the development of the efficient 6.3 volt tubes that made automobile radios practical. Later, Sylvania engineers were instrumental in perfecting the complete 6.3 volt group for general use. And in the sciences of radio transmission and electronics, also, Sylvania has made outstanding contributions.

Set manufacturers are invited to consult Sylvania engineers and avail themselves of Sylvania's complete Circuit Laboratory in solving their circuit and design problems. No obligation incurred.

Dealers and jobbers handling Sylvania tubes benefit from the support of the financial, engineering and sales departments of a company whose financial rating has always been AaA1.

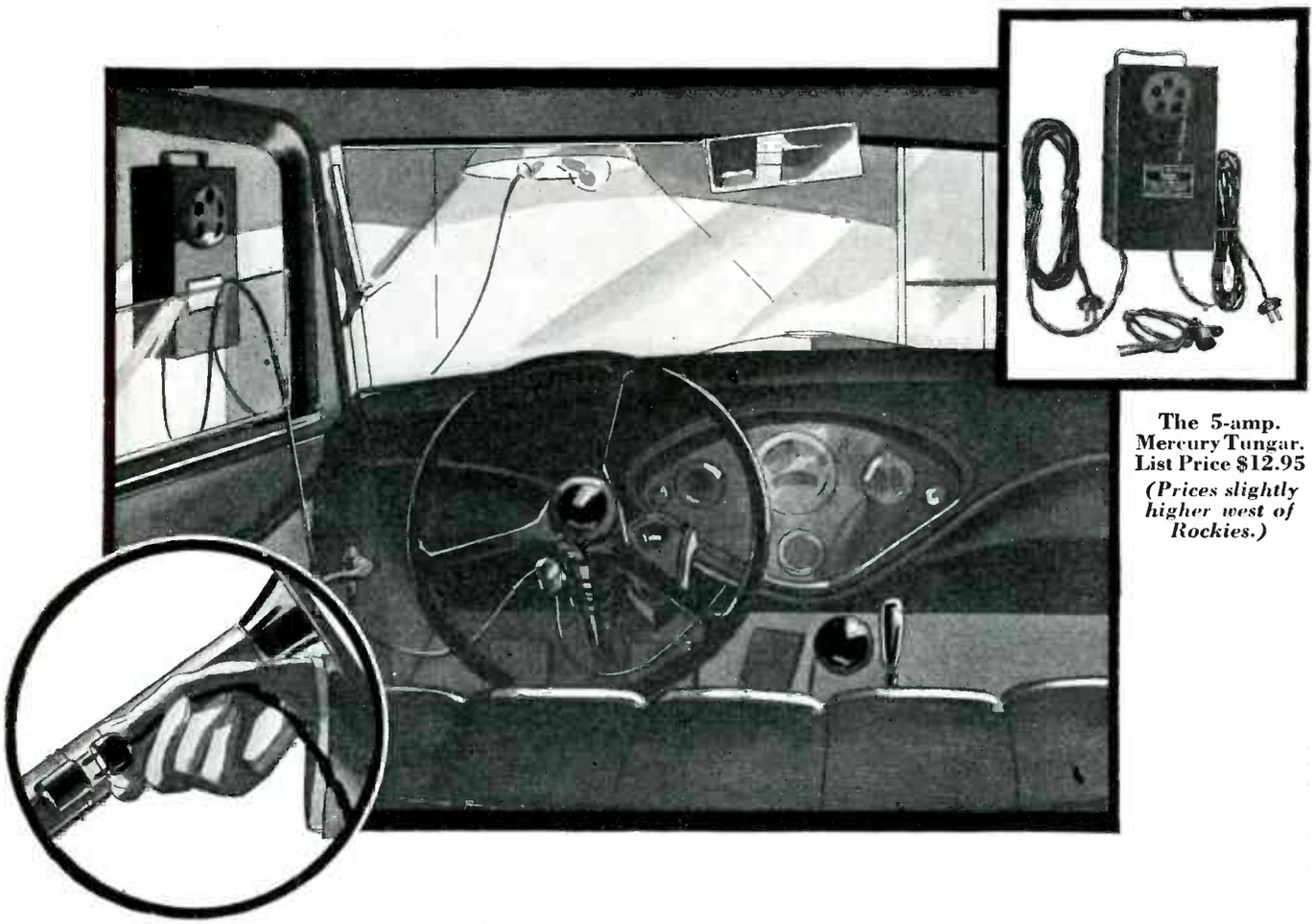
Write for full details. Hygrade Sylvania Corporation, Emporium, Penna.

Sylvania

(Reg. U. S. Pat. Off.)

THE SET-TESTED RADIO TUBE

G-E TUNGAR *ELIMINATES*
AUTO RADIO BATTERY TROUBLES



The 5-amp. Mercury Tungar. List Price $12.95
(Prices slightly higher west of Rockies.)

Tungar is not a new name to the Radio Trade. It played a large part in the storage-battery days of Radio. Now Tungar introduces the 5-amp. Home Battery Charger. Use this new Tungar to assure protection of fully charged batteries on all Auto Radio installations.

You know that Auto Radios alone won't run-down car-batteries . . . but that it's the total of all the present-day accessories. Your customers don't realize that. The last thing they bought was an Auto Radio . . . now the battery is dead. Complaints pour in . . . the Auto Radio is blamed. But — if you eliminate the Customer's rundown battery, you eliminate this trouble. You can guarantee fully-charged car-batteries and better Auto Radio performance to every owner or prospective owner of an Auto Radio.

The 5-amp. Mercury Tungar operates in the home garage . . . plugs into any A-c. outlet. Wiring accessories furnished permit easy connection of Charger to battery through a special outlet . . . no messy floor-boards to handle. For just a few cents, the Tungar operates safely all night. Batteries are given a noticeable boost. They are protected from power failure. Sell this Tungar to eliminate run-down batteries and to maintain the good performance of your Auto Radios. It is easy to install. The price is low. The 5-amp. Mercury Tungar, complete with wiring accessories, lists for $12.95. (Prices slightly higher west of Rockies) For complete information, see your nearest G-E Merchandise Distributor, or mail the coupon below.

Section A-363, Merchandise Department,
General Electric Co., Bridgeport, Conn.
Please send me complete information on the new 5-amp. Mercury Tungar.
Name.....
Address.....
City.....

GENERAL ELECTRIC

AUTOMOTIVE PRODUCTS

MERCHANDISE DEPARTMENT, GENERAL ELECTRIC COMPANY, BRIDGEPORT, CONNECTICUT

They Came . . . They Saw!
THEY BOUGHT!

STEWART-WARNER

Refrigeration Line Meets Instant, Enthusiastic Reception of New Distributing Organization!

Dealers, Also, Who Have Seen the Line Give Tremendous Ovation to the Host of New-Type Features. "They Will Literally 'Demonstrate' Themselves Into Sales."

DURING the past 8 weeks, distributors by the score have come to the great Stewart-Warner plant to see a sensational new Refrigeration Line. They came! They saw! They bought!

That is the quickest way to tell the story. Such instant and enthusiastic reception of a line, by such a large group of experienced refrigeration distributors, has never been known before. Dealers who have seen the line to date confirm this enthusiasm also by their wonderful reception of the great selling features incorporated.

The amazing ovation given these new Stewart-Warner Refrigerators at the Distributor Conventions resulted in advance orders far exceeding expectations. There was a feeling of confidence that the Stewart-Warner Refrigeration Line for 1934 FORECASTS PROFITS FOR STEWART-WARNER DEALERS MORE GRATIFYING THAN DREAMED OF HERETOFORE!

There's no doubt about it! The Stewart-Warner refrigeration engineering staff HAS PRODUCED A TRIUMPHANT LINE OF FAST-SELLING, SOUNDLY ENGINEERED REFRIGERATORS.

New-Type Features Which Practically Do Your Selling for You!

FEATURES? Only 3 are illustrated here. There are a dozen others. Any one of them is appealing enough to found a whole sales campaign upon.

And tucked away where it cannot be demonstrated, except by years of economical service in the home, is an amazing new twin-cylinder, slow-cycle compressor. An entirely new mechanism—rugged—over-size—this feature means greater serviceability, longer life, less servicing, less current consumption.

Every feature of these new Stewart-Warner Refrigerators is advanced—new-type—ahead of its time!

Your sales talk moves swiftly from one surprising feature to another. Your prospects will find themselves agreeing with you quickly that here is a refrigerator that has EVERYTHING.

Here, then, is a highly competitive line. In Quality! In Price! In Finish! In Eye Appeal! In Performance! In Rugged Serviceability!

AND PERHAPS THE GREATEST FEATURE is that the whole sales set-up is built to help you, as a dealer, make gratifying profits. We can't make money unless you do. For this reason, therefore, *the franchise is written with you definitely in the picture as a partner in profits!*

So little of this profitable story can be told in this space that we suggest, for your own sake, that you hear it all. Write today! No obligation.

This finger points to the first part of your demonstration—the "Feather-Touch" Door Opener. The slightest pressure causes the door to swing wide open. Can be locked when children are about.

WRITE TODAY!

Hear a *New Story* of Refrigeration Profits!

This "Forget-Proof" Defroster and Fast-Freezer wins women's approval at once. A new-type automatic control which makes it impossible to forget to return refrigeration to normal cycle after either operation.

These easy-gliding, roller-bearing shelves, removable at a touch, may be taken out and used as trays.

Designed for all types of overseas conditions. Furnished in all frequencies and voltages. Applications for distributorships from responsible organizations in other countries invited. Cable Address—Speedmeter, Chicago, Ill., U. S. A.

Stewart-Warner Radios, Headed by Sensational "Magic Dial," Set New Pace for Sales and Profits!

Because Stewart-Warner Radios are the best engineered in the field, they have set the stiffest competitive pace in radio history during the past 8 months. Complete line in rich cabinets, from small "companion" sets to Double Superheterodynes with 12 tubes! Long and Short Wave Reception in all sets, headed by the REAL "ROUND-THE-WORLD" PERFORMER—The "Magic Dial"—pioneer in world-wide reception for the home. WRITE FOR ATTRACTIVE, SPECIAL "DEALER DEAL"! *Put new life in your radio business!*

STEWART-WARNER CORPORATION, 1853 Diversey Parkway, Chicago, Ill.

DeWALD

Creates

SHORT WAVE SENSATIONS

with styled Cabinets—for

Foreign Reception—Police Calls—Broadcast

Model 811 R—A.C. Superheterodyne receiver, 8 tubes, covering a range of 15 to 550 meters. Automatic volume control. Variable tone control. Syncrolite tuning. Unusual selectivity and sensitivity. Large sized, full range dynamic speaker. Will get European reception where others fail.

Modern! Dynamic! Different!

DeWald has always given you the leading money-makers for "local" listeners. Now, DeWald gives you a group whose beauty, prices and performance will bring the short wave fans flocking in. Each set encased in a gorgeous cabinet of specially selected woods. Hand-rubbed, piano finished, marquetry inlays—a year ahead of the times in modernity of design and appearance. An opportunity for wide-awake jobbers and dealers.

Model 570—A.C. Superheterodyne receiver, 5 tubes, for broadcast, police and foreign bands (15 to 40 and 170 to 550 meters). Ultra sensitive with large dynamic speaker producing exceptional tonal performance.

Model 580—Universal A.C.,—D.C. Superheterodyne receiver embracing broadcast, police, amateur and marine bands (60 to 550 meters). High sensitivity and selectivity for difficult locations. Unusual tonal qualities.

Model 440—Advanced design Universal A.C.,—D.C. 4 Tube receiver. Equipped with dynamic speaker and 43 output tube. Illuminated pilot. exceptional range and performance on broadcast and police bands (170-550 meters).

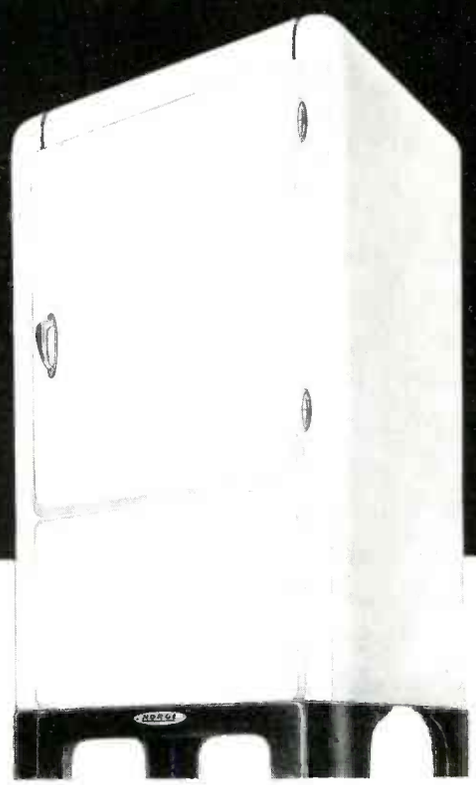
Products of

PIERCE-AIRO, Inc.

520 Sixth Avenue, New York City

PACEMAKERS IN RADIO SINCE 1921.

SEE THE NEW NORGE *before* YOU SIGN



You expect *great things* of Norge. Its success has been continuous and spectacular. Norge dealers have piled up new sales records and won steadily increasing profits, year after year and month after month; they would *never be satisfied* with half-way measures. • The new Norge will meet your fullest expectations. It offers many advantages that herald new and greater Norge triumphs, that promise *still greater* profits for Norge dealers. • New dependability and durability have been built into the new Norge. The Rollator, exclusive Norge cooling mechanism—the great outstanding advantage in refrigeration—has been refined, putting it still further in advance.

Long ago, Norge *set the pace* in refrigerator design, and the advanced, classic beauty of the Norge is *more* appealing than ever in the new models. To this beauty is added, in leading models, such conveniences as adjustable shelves, handy egg basket, butter and cheese rack, frozen-dessert tray, Hydrovoir for freshening fruit and vegetables, ice trays that always slide out easily, an interior automatically lighted as the door is opened, and an improved door latch that opens at a touch. • The practical, efficient type of cooperation given Norge dealers is evidenced in the Norge franchise—in Norge *dealer success.* • See the new Norge before you sign. Write, wire or phone:

NORGE CORPORATION; DIVISION OF BORG-WARNER CORPORATION, 606-670 EAST WOODBRIDGE STREET, DETROIT, MICHIGAN

Norge Rollator Refrigeration . Electric Washers . Broilator Stoves . Aerolator Air Conditioners

THE ROLLATOR • Smooth, easy-rolling power instead of the hurried back-and-forth action of the ordinary refrigerator mechanism. Results—more cooling power for the current used, and a mechanism that actually improves with use. Only Norge has the vital, exclusive advantage of the Rollator.

NORGE *Rollator Refrigeration*

RADIO RETAILING

HOME ENTERTAINMENT MERCHANDISING

VOL. 19 No. 3

MARCH, 1934

More Time on their hands.... More Money to spend . . . .

RADIO SALES are on the UP. The pages which follow confirm this statement and should inspire every man in the industry. The fact that we sold 3,806,000 sets in 1933 as against 2,620,000 in '32 or that total retail volume was $213,000,000 as against $196,190,000 is significant. But of greater import is the bright outlook.

Two constructive developments are at work—which soon will merge into one powerful force for greater *radio* business.

What are these two developments?

Closest to our hearts is the present inventive activity which is giving, and will continue to make feasible, new applications of radio to the home life of the nation. For example: all-wave, higher fidelity, super power signals, facsimile and other home devices using the electronic tube.

But the immediate factor is our improving economic conditions. Governmental expenditures for public works, relief loans to states and other projects will put $77 extra into the pockets of every man, woman and child in the United States during 1934; increasing incomes $385 per family (*Business Week*). Should private business keep pace, earnings will be further swelled. A basic objective of all labor codes so far accepted is the reduction of working hours, the average labor week now being 40 hours. Many citizens, then, will have more time on their hands and more money to spend.

When these things come about the first to profit will be the entertainment industries. And what low cost amusement and informative service can compete with radio? What an opportunity for radio men!

Conditions within our industry are far from ideal. They can and must be changed. For no group of men, even though they do their worst, can long jeopardize the future of a vital and necessary service which has achieved universal consumer acceptance.

But industry jitters can cause temporary havoc. So we must bury petty differences, sink selfish ambitions, in order that the radio industry be put in shape to compete with other businesses which have far less to offer.

From all parts of the country come reports of a demand for high-priced merchandise, with quality the prime consideration. This year, therefore, let's sell the idea that the very best in radio is the only kind worth having—that really good reception equipment is worth paying more money for. Let's get a larger share of this new buying power. Let's be aggressive this year—but let's make a profit as we fight for business.

SET *Sales* 3,806,000

Increase 45%—Retail Value, $130,900,000 —Outlook Even Better—Trade to Enforce Fair Practices—New Technical Developments

A NEW SPIRIT is infusing the radio industry—a renewal of the old fight and pep. This optimism comes not alone because sales, unit volume and dollar volume were better the second half of '33 than in a long time, nor because buying power has returned, nor because new products are in the offing—it springs also from the fact that sounder trade relationships are about to be established. If radio men won't the government will. In other words, many of those necessary policies that far-seeing manufacturers, jobbers and dealers have fought for these many years now appear to be on the verge of compulsory enforcement. A return to fair dealings and commonsense practices, to the protection of the smaller merchandisers and to one policy for all may, through the adoption of the revised Radio Wholesalers Code, become an actuality. This Code reaches up to the set makers and down to every type of dealer. It is now in its final stages of reconstruction and has an excellent chance, so the writer was directly informed by a high government official, of being approved by the President.

Sales Figures Show Come-Back

We dedicate this issue to the statistics of retail radio sales for two reasons: Because *Radio Retailing* is the one recognized and authoritative source of the industry's annual sales volume, and because a degree of guidance for future sales planning may be obtained from a perusal of past performances.

The accompanying tables are (numerically speaking) self-illuminating. We sold more receivers, more tubes, more accessories in '33 than in '32. The total increase ratio of these three major items, at retail values was 8.4 per cent.

Will this upward trend continue?

We think that it will. The reasons have been indicated in our opening editorial and in the forepart of this article. Improved sets will, of themselves, create business. New devices for new uses, in an art as full of potentialities as radio, are bound to come. Economic conditions are better. Lastly, we're settling down to a normal conduct of a substantial business which, General Johnson permitting, will be operated with benefit of legal control and administered by practical radio men.

Off to a slow start last fall, an overnight demand for sets caught the suppliers short. It is not likely that this siuation will be duplicated this year. The holding of a trade show in Chicago, concurrent with a consumer exposition, some time in late summer should stimulate the production of an adequate supply of new models to meet the early fall demand.

Note that the small or mantel model receivers have retained their popularity. This, in our opinion, has been due mainly to lean pocketbooks. With the return of the dollar to its rightful abode, with the growing interest in "all-wave," with the possible introduction, late in '34, of a "New Deal" high fidelity receiver and with radio publicity stressing more and more the advantages of size and quality, this last year ratio of 100 midgets to every 38 consoles may be reversed, and the value of the average transaction most assuredly will be much higher. It is of passing interest that, in Canada last year, they sold 100 consoles to every 67 midgets.

Interest in foreign and police call reception continues to grow. Like the days of '26, DX again has become a matter of Pullman smoker gossip. "I heard Rome last night, what did you get?" is bringing forth animated comment. In other words, the "thrill" appeal is with us again. When the New York *Sun* takes a full page to advertise, in the Chicago *Tribune,* the glamour of short wave it means something. The following full-page heads indicate what the *Sun* is doing to popularize this new radio: "Last Night I Listened to China" and "A New Era in Radio Has Arrived . . . the Era of Unlimited Reception."

Merchandising Trends

No drastic changes in the character of the retail and jobbing outlets for radio was evidenced during 1933. The lure of the mighty little midget to the drug and jewelry trades has abated. Specialty dealers continue to do the real merchandising job and, with the addition of electric refrigerators and other household appliances, are becoming even more of a factor. Overheads have been reduced. Real profits are just over the horizon. Many service organizations will start selling sets this year and some dealers will resume servicing. Not only did exclusive service concerns conduct a worthwhile business these past fifteen months, including the installation of automobile receivers, but dealers who once slighted this side of their activities decided to cultivate it.

Indicative of the market for de luxe sets has been the success achieved by a small manufacturer in the middle west who has specialized in the "tailored" production of a multi-tube receiver, and of another firm, in Fort Wayne, Indiana, whose lowest price model (combination radio-

●

Replacement and Second Set Market, 62 Per Cent

According to returns just received from 1,114 dealers in a joint survey conducted by *Radio Retailing* and Columbia Broadcasting Systems, 62 per cent of all 1933 receiver sales were to replace an older model or for use as an extra or second set. Auto radios were included in this investigation.

phonograph) was priced at $475.

Here is what Dun & Bradstreet, Inc., thinks of the outlook: "The radio industry is starting 1934 in the most favorable statistical position it has been able to achieve since 1930. It now is on a more stable basis than at any time in its history, and fully capable of keeping pace with any other industry in the recovery movement. Inventories have been reduced to nearly one-quarter the size of their unwieldy proportions at the beginning of 1933, there is almost no distress merchandise on the market and price-cutting is less in evidence. While the latter has limited the profits of some of the large operators, that have ample cash to purchase discontinued lines of merchandise offered in quantities, it makes conditions better for the average small dealer."

*Receiver Sales by Types**

Type	1930	1931	1932	1933
MIDGET OR TABLE	*1,130,400* $56,520,000	*1,800,000* $63,000,000	*1,900,000* $57,500,000	***2,226,000*** **$50,085,000**
CONSOLE	*2,663,400* $272,678,000	*1,512,000* $143,100,000	*577,000* $60,210,000	***856,000*** **$52,216,000**
AUTOMOBILE	*34,000* $3,000,000	*108,000* $5,940,000	*143,000* $7,150,000	***724,000*** **$28,598,000**
TOTAL	*3,827,800* $332,198,000	*3,420,000* $212,040,000	*2,620,000* $124,860,000	***3,806,000*** **$130,899,000**

** At retail prices. SETS ARE PRICED LESS TUBES. Because of the advisability of separately tabulating all tubes sales, note that these figures do NOT include the retail value of the tubes in these sets.*

Figures by types. 1930, 1931, 1932, represent careful estimates based on market surveys. Figures for 1933 are from questionnaire survey of all set manufacturers.

Permission to quote any of the statistics published in this issue is granted only if credit is given "Radio Retailing."

In this same report, Feb. 24, it is pointed out that there were but 109 jobber and dealer failures in the United States last year, as against 170 in 1932. Liabilities, too, were less—$1,814,000 for 1933 and $1,979,000 for the prior year.

The final statistics for '33 disclose many interesting facts. Last year the consumer bought a grand total of 3,806,000 radio receivers—sales exceeding those of '32 by the amazing figure of 45.3 per cent. This figure makes due allowance for an increase in stock inventories since January, 1933. It was obtained by *Radio Retailing* direct from the manufacturers and cross-checked with two other reliable authorities. An increase of 581,000 auto sets was a big factor in this showing.

Note the wholly satisfying number of motor car sets sold last year—724,000—and that sets for home use shipped abroad totaled 509,757. These two items alone gave the manufacturers a unit volume of 1,233,757 sets or an increase of 185 per cent in the total of auto sets, plus exports, for 1933 over 1932.

Midgets outsold consoles 2.6 to 1; not as high a ratio as many supposed. Average prices were down all along the line—so much so that total volume, at retail, was but $6,000,000 over that of 1932. In other words, the unit increase was entirely in auto and midget models, and both these items sold at prices markedly lower than in 1932. But the price trend is toward the higher brackets again.

Total number of sets manufactured, including 509,000 for export, was 4,315,000.

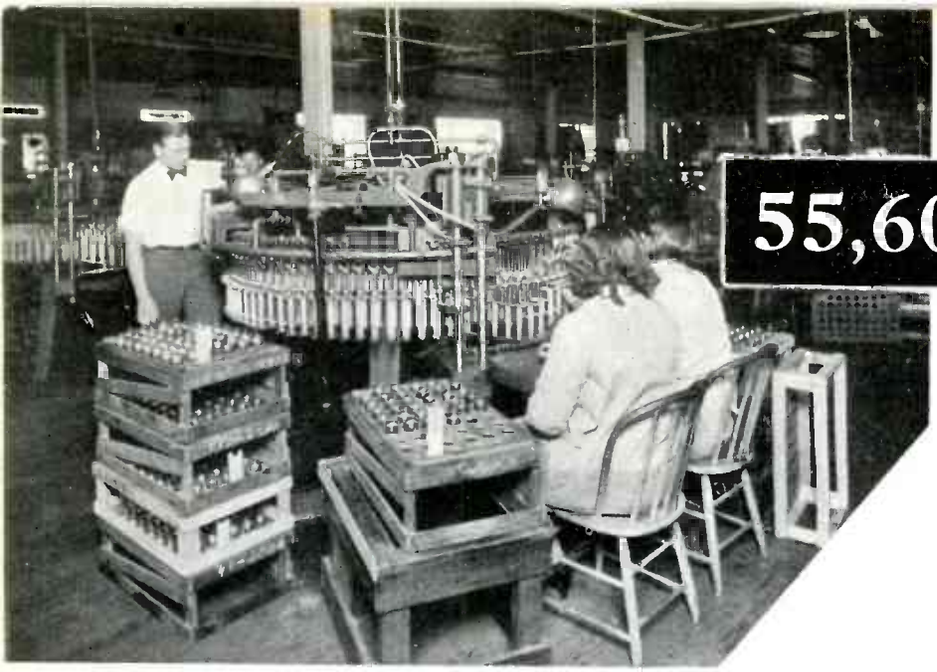
As of January 1, 1934, the total number of sets in use in American homes is placed at 18,000,000.

Total Sales of All Radio Products at Retail

Product	1930	1931	1932	1933
HOME RECEIVERS	*3,793,800* $329,198,000†	*3,312,000* $206,100,000†	*2,477,000* $117,710,000†	***3,082,000*** **$102,301,000†**
MOTOR CAR SETS	*34,000* $3,000,000†	*108,000* $5,940,000†	*143,000* $7,150,000†	***724,000*** **$28,598,000†**
TUBES	*52,000,000* $119,600,000	*53,500,000* $69,550,000	*44,300,000* $48,730,000	***55,605,000*** **$56,599,000**
A-B-C (DRY) BATTERIES	$21,514,000	$13,100,000	$9,500,000	**$8,600,000**
ACCESSORIES*	$17,120,000	$8,580,000	$6,200,000	**8,000,000**
PARTS SOLD TO CONSUMER	$6,000,000	$6,000,000	$6,900,000	**$8,500,000**
GRAND TOTALS	$496,432,000	$309,270,000	$196,190,000	**$212,598,000**

*† Does not include tubes. * Includes speakers, aerial equipment, meters, pick-ups, turntables, furniture, power units, storage batteries, chargers, etc.*

Total sets sold, including those exported, 4,315,000 . . . Total retail value, $140,224,000 . . . Total tubes sold, including exports, 63,300,000.



55,605,000 TUBES

Retail Value $56,599,000 Top Year Since 1929 — Why '34 Will be Even Better — Design Trends

RADIO dealers and service men are doing a better job selling new tubes to the owners of old sets. Last year topped all records since '29. We sold 32,769,000 tubes at retail, grossing $36,046,000, as against 29,500,000 tubes the year prior. Three conditions accounted for this encouraging record: more sets in use, more tubes approaching the end of their useful life, and prices within the reach of all.

But we should have made even a better showing—and would, no doubt, had the profit incentive been greater. Based on the following conservative estimate we missed our mark by 14,000,000 tubes:

3,000,000 sets needing one tube	3,0000,00
3,500,000 sets needing two tubes	7,000,000
4,500,000 sets needing three tubes	13,500,000
5,000,000 set requiring an average of 4.5 tubes	22,500,000
Total possible replacement sales	46,000,000

Based on the fact that there will be at least 19,000,000 sets in active use by September of this year, the trade could sell over 50,000,000 tubes in '34 if it would maintain these receivers in the pink of condition.

Total tube sales last year for domestic use, including those in new sets, were 55,605,000—estimated retail value, $56,600,000. Total number of tubes manufactured including those exported, was 63,295,000.

How Can We Get This Business

There is but one way *materially to increase* tube volume this year. Advertising alone will not turn the trick. Publicity *plus* living room salesmanship will! Like it or not, people never will keep their sets up to scratch unless dealers demonstrate the difference—right in the home.

This method shouldn't mean wasted time or costly and futile calls either. As has so many times been stated in these pages, by successful tube merchants, there isn't a better door-opener in the entire bag of tricks or in the entire category of products which must be promoted by direct selling, than the offer by a real radio technician to "test your tubes without charge and right in your own parlor." In other words, a sincere offer to demonstrate whether or not one's set is performing at its best.

And bear in mind that even an entirely new complement of tubes is, or should be, just the entering wedge to the establishing of a friendly and personal relationship that may lead to the sale of a new set or some other major piece of electrical apparatus for the home.

We cannot emphasize this thought too strongly: make more calls this year. And every time the front door is opened to you—Test Those Radio Tubes!

Regarding the policy of selling a complete kit of fresh tubes, the dealer must be his own judge as to when such a step should be recommended. If a majority need replacement then it would seem to be the right thing, from the customer's viewpoint as well as from the dealer's, to explain the advantages of purchasing an entirely new set of store tested and balanced tubes. At least the difference in performance from all angles should be demonstrated by inserting a new tube in every socket.

But First Put Our Own House in Order

The preceding has been written in the full knowledge that it is difficult to work up an enthusiasm for tubes when so many outlets are advertising them at heart-breaking prices. Nevertheless the quality article can be sold at respectable retail values.

Last month we editorialized on the tube situation—and cited also instances where five dealers sold plenty of tubes "At List." The editorial was directed primarily at the source of many of our present tube perplexities; frankly, at the tube makers. In this editorial *Radio*

Tube Sales

	1930	1931	1932	1933
NO. OF TUBES *(Inc. Those in New Sets)*	*52,000,000*	*53,500,000*	*44,300,000*	***55,605,000***
VOLUME *(Retail Prices)*	$119,600,000	$69,550,000	$48,730,000	**$56,599,000**

Of the 55,605,000 tubes for domestic use sold in 1933, it is established that 22,836,000 were purchased by the set makers and 32,769,000 were sold at retail for replacement and other purposes.

SOLD LAST YEAR

Retailing championed the cause of the small dealer. We mentioned certain evils which are besetting the tube industry and we suggested certain remedies. Writing from Brunswick, Maine, Arnold Hessel reflects the attitude of the trade when he comments on this editorial: "I have just read your article, 'This Intricate Mechanism for 39 Cents' and must say it took the words right out of my mouth. The present low list prices on tubes has little to do with increasing the quantity that we sell. The customer must buy renewals when his old tubes wear out. We sold tubes at $3 each just as readily as we now do at 75 cents. Price cutting must be stopped."

Design Trends in 1934

Nineteen thirty three was a year distinguished by the introduction of many new types of tubes. This necessitated split sales effort and large inventory investments. This trend, as it relates to unnecessary tubes, seems to have run its course. The production of many new tube types in 1933 was due as much to commercial maneuverings as to technical desirability.

We look for fewer new types in 1934 and these to fulfill a necessary purpose. Engineering opinion still differs as regards the practicability of some of these dual and triple purpose tubes.

A new group of tubes smaller in physical dimensions will make their appearance this year. These will be required by explorers in the regions of lower wave lengths.

The past year saw vast improvement in the operating characteristics of many tubes. Automobile requirements for a power output upwards of one watt calls for tubes of higher efficiency. We predict distinct advances in power output tubes and the greater adaptation of 6.3 volt tubes to a.c. sets.

We agree with a well known tube executive when he says: "This will be a year of outstanding radio refinement and intensive application rather than hectic developments and innovations. The radio industry now has an ample variety of tubes from which to choose. Therefore, it is in the more critical study and application of the many existing types, rather than in the introduction of a still greater variety, that immediate, practical and economical progress can be scored by set designers and manufacturers.

"The 75, 77, 78 and 43 types, together with multiple function tubes having 0.3 ampere heaters, will retain their present popularity in the compact sets.

"The trend in radio receiver design and production is certainly towards better quality and higher price levels. This means the use of more tubes for various functions, better components, and less strain on tubes and components, than has been the case during the 'depression era.' Engineers are emphatic in stating that far better results can be obtained by using individual tubes for individual functions. The demands made on tube manufacturers during the past two years have been abnormal; for the tubes, rather than the components, have had to shoulder the brunt of greatly abridged receivers built down to bargain prices.

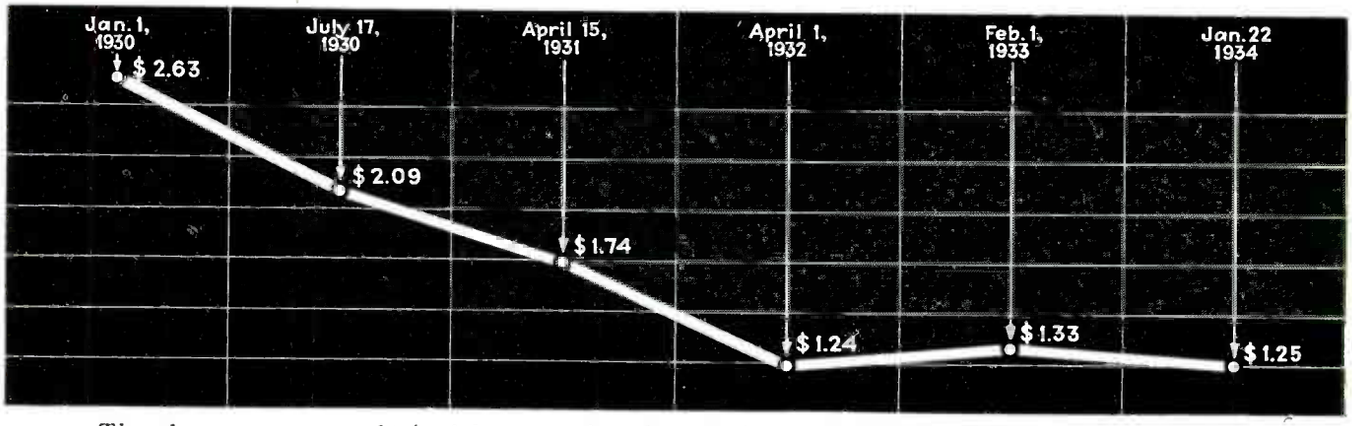
Influence of Short Wave on Tube Characteristics and New Types

"Short-wave reception is coming into the living room and into lay hands. The fool-proof all-wave radio set places additional qualifications on tubes, especially in the matter of accurate and maintained characteristics.

"Tubes will be expected to oscillate under a wide range of circuit conditions, which will necessitate the raising of the oscillator mutual while still retaining other characteristics. Much of the practical success of all-wave reception in the radio trade will depend on the use of circuits allowing for a reasonable range of tube characteristics, rather than on laboratory precision tubes.

"If, by any remote chance, circuit possibilities with present tube types become exhausted during 1934, new types will certainly be introduced. Tube engineers can keep up with any demands made by circuit designers. But it seems to me that tube engineers for the moment have provided ample variety."

What Has Happened to Tube Prices Since January, 1930



The above curve was obtained by averaging the current list prices of the tubes in active demand during each of the periods indicated. It includes such popular types as the 71, 01, 24, 27, 45, 47, 80.

724,000 AUTO

Radio Trade Does Bulk of Business—Mobile Sets Will Be Bright Spot for 1934—Service Organizations Should Contact Auto Dealers for Installation Contracts

AUTOMOBILE SETS showed the greatest increase of any major radio item for 1933. Sales were 724,000 units ($28,598,000) as compared with 143,000 units ($7,150,000) in 1932. Factory equipment of new cars with antennas, improvement in mechanical design, the development of more efficient circuits providing greater reception range and better tone, all contributed to this outstanding record. The widespread sale of small, relatively insensitive receivers by several concerns early in the season swelled this volume but at an unnecessary sacrifice of dollar value.

The bulk of last year's business was obtained by car radio specialistis—radio men—but even music stores and other radio outlets not maintaining service departments did a good business by farming out installations. Automotive supply houses achieved increased volume toward the close of the season. Automobile salesrooms sold an appreciable quantity of sets, generally letting the installation and service work to radio firms. In some instances they reported sad experiences with this accessory, due no doubt to inadequate knowledge of the product and an unwillingness to divert sales effort from cars. The factory-controlled chain installation and service station idea was developed during '33, being sponsored by several auto-radio manufacturers to promote sales through outlets having only merchandising facilities.

Probable A-R volume in 1934 is estimated at from 900,000 to 1,000,000 units. The cumulative effect of promotional effort, the sponsoring of car sets by most automobile makers and word-of-mouth advertising by over half a million users cannot fail to produce material gains. In addition, radio in 9,500 taxicabs will spread the idea rapidly.

Auto sets should carry a higher list. Manufacturers learned late last year that car receivers, unlike home sets, must be quite sensitive to satisfy even city buyers as their cars are frequently driven into areas remote from a good station. Many factories, therefore, are now making multi-tube models. These offer so much in the way of tone quality and reliability that selling up is certain to be less difficult.

Bright Merchandising Opportunities

Automobile dealers will secure more radio business during '34 from new car buyers but this volume should be but a drop in the potential-market bucket when it is considered that there are 20,500,000 motor cars in use and that less than two million passenger vehicles will be sold this year. Furthermore, many automobile showrooms will arrange to have some radio concern conduct their car radio selling, operating on a commission basis. Service organizations should contact *at once* all local automobile dealers and contract for this work.

The specialty man, it now appears, will continue to dominate the A-R field. But, as the chain installation and service shop idea gathers headway, it should be easier for selling organizations not maintaining a shop to get more car radio business.

The "car on the road" market has warmed up to radio —it is *ripe*—and the radio retailer is in logical line to get this business.

Live merchandisers will capture the taxicab business which, right now, is "hot." Note the popularity of "metered" radio in the key cities as shown in the accompanying box. Long haul bus lines also are worth in-

●

9,500 Radio Taxis

Another indication of the popularity of motor car sets is found in the following figures, showing the number of taxicabs now equipped to provide "music as we meter."

In 1932 there were less than 1,000 radio taxis in use throughout the country. Today radio is considered an essential part of the equipment of any modern taxi and these cabs are given preference by the discriminating.

New York	4,400	Philadelphia	200
Chicago	150	Washington	110
Pittsburgh	600	St. Louis	500
New Orleans	400	Detroit	200
San Francisco	300	Cleveland	150
Los Angeles	350	Florida	450
Cincinnati	400	Misc.	1,040
Boston	250	TOTAL	9,500

These figures were obtained by "Radio Retailing" and are here published for the first time.

RADIOS SOLD

Number and Value of Automobile Radio Sets Sold

	1930	1931	1932	1933	Total
NUMBER*	*34,000*	*108,000*	*143,000*	*724,000*	*1,009,000*
RETAIL VALUE†	$3,000,000	$5,940,000	$7,150,000	**$28,598,000**	$44,688,000

Note the amazing increase (406%) in the number of A-R sets sold last year. This trend is growing. Sales should top the one million mark for 1934.

**Sold to car owners or on contract between set and auto manufacturers.*

†Does not include accessories, tubes or installation charges.

vestigating. And don't forget the trucking companies. It has been demonstrated that the drivers of long haulage trucks work better and longer if they have a radio. Dealers located near water should take a whirl at the boat business, now that we have sets which operate entirely from regular ignition batteries—the power supply mechanism usually being sealed and impervious to water.

Maintenance of police radio equipment, particularly in cities which cannot afford a full time service expert, is a field wide open to the radio technician and affords a wonderful opportunity for publicity as well as for profit. There also is a growing market for ultra high-frequency transmitters and mobile receivers and some of this apparatus may well be placed by dealers having a working araringement with equipment makers, particularly when the dealer knows his local politics.

Promotional methods in '34 will follow those of last year—exposure of the merchandise. For example: parking demonstrators with the set in full operation; inducing customers to loan their car for demonstrating A-R to prospects and maintaining a good installation in the service car.

Design Trends

Limited range sets may disappear from the market; late 1933 models all revealed a decided trend toward higher sensitivity. Tone and power output will no doubt be improved. Two-unit types, using flexible control cables, are very popular. Single unit sets with built-in controls also will be much in evidence. It is likely that several designs will achieve sufficient flexibility to fit into many cars now on the road. They are particularly suited for those who cannot afford the more costly installations.

Shielding is now on the road to ultimate perfection and it is predicted that suppression, already greatly simplified, will become even less troublesome before the season is over. Battery drain, still higher than it should be, may be reduced during the year but it seems doubtful at this writing that engineers will succeed in cutting it materially within the next six months. Development of tube types which require less heater current and yet retain the necessary ruggedness is probably the eventual solution but if laboratories are working along these lines they have certainly kept it under their hats. Design of more efficient B-supply units is another possible angle of attack and here there are definite signs of improvement.

Automobile manufacturers are playing with possible generator and ignition system improvements and it is likely that radio outlets will find their current drain and ignition noise suppression problems greatly simplified when the next automobile show is held. Several cars already use more rugged generators and have ignition systems designed with an eye toward suppression of radio noise.

●　●　●

Beginning in 1929 the automobile industry experienced, for the first time in its history, a decline in the number of passenger car registrations. This downward trend has come to a halt; all indications point to a sharp increase in the number of motor cars in use this year as against 1933. The net decrease, 1933 over 1932, was only 1.7 per cent, according to "Motor."

Not only, therefore, is the percentage of car owners who want radio equipment greater, but there will be more cars on the road this year. It is estimated that there will be not less than 21,500,000 pleasure automobiles in use by July at the present registration rate.

Passenger Car Registrations for 1933

Alabama	176,507	Maryland	287,666	Oregon	220,640
Arizona	75,000	Massachusetts	684,391	Pennsylvania	1,416,854
Arkansas	155,000	Michigan	951,130	Rhode Island	117,288
California	1,758,606	Minnesota	575,683	So. Carolina	145,568
Colorado	232,888	Mississippi	129,170	So. Dakota	145,515
Connecticut	283,150	Missouri	577,625	Tennessee	271,350
Delaware	42,320	Montana	86,900	Texas	1,001,876
Florida	226,250	Nebraska	316,483	Utah	85,000
Georgia	278,989	Nevada	22,257	Vermont	65,610
Idaho	78,290	N. Hampshire	88,000	Virginia	293,758
Illinois	1,271,733	New Jersey	717,000	Washington	361,945
Indiana	650,266	New Mexico	59,599	W. Virginia	195,000
Iowa	563,544	New York	1,890,730	Wisconsin	565,403
Kansas	442,346	No. Carolina	340,376	Wyoming	45,076
Kentucky	252,253	No. Dakota	133,638	Dist. of Col.	138,279
Louisiana	199,242	Ohio	1,396,906		
Maine	133,000	Oklahoma	384,000	**Total**	**20,526,100**

$25,000,000 IN

Number of Jobbers Increasing — Higher Prices Should Help Profits — Continuance of Present Tube Types and Development of Flexible Testing Equipment Will Remove Obsolescence Bugaboo, Swell Instrument Sales

STATISTICS appearing on these pages, obtained from manufacturers, indicate that $25,000,000 worth of radio parts were sold to the consumer in 1933. This represents a substantial increase over 1932. It is due primarily to two favorable factors. (a) Lack of consumer funds, which induced the public to have existing equipment repaired and improved rather than to buy new and (b) Increased sales pressure by retailers, many of whom devoted more effort to servicing, which returned a profit on labor, requiring less capital investment in merchandise.

Tube and set testing equipment sales totalled $650,000, representing a moderate gain over 1932. Rapid introduction of many new tube types early in the year was not an unmixed blessing, forcing many retailers to secure modern equipment, influencing others to delay purchase in anticipation of further socket development.

Next Year's Volume

The future appears bright, parts makers conservatively estimating 1934 replacement business at $10,000,000. More people will undoubtedly buy new sets but wage earner incomes are not expected to increase sufficiently in the first six months of the year to make repair and modernization generally less attractive. And the service fraternity, working as it does under relatively low overhead burden, its tremendous manpower contacting customers more assiduously perhaps than set-selling retailers, is expected to do an even better promotional job than last year. In addition, parts prices are rising rapidly—Largely as a result of NRA activity, which will return a better dollar volume as well as a better profit margin to manufacturers, jobbers and retailers.

Testing equipment, likewise, has an unprecedented opportunity to expand its market. Tube makers have at last agreed to introduce only such types as permit major set design improvements, the sincerity of this avowal being borne out by the marked lack of duplicating types released in the past four months. This shatters the obsolescence bugaboo. Many a serviceman's cupboard is bare of up-to-date, badly needed instruments and the greater financial stability of this group will unquestionably make itself felt in the test equipment market as confidence in the flexibility of new testers and their freedom from early obsolescence is restored.

1933 Distribution

Replacement parts merchandising and distribution practices in 1933 left much to be desired. Sectional jobbers, finally realizing the profit possibilities in this field, came into it in increased numbers, many retail outlets catering to independent servicemen securing wholesale agencies and so swelling the ranks of the parts distributors. At the close of the year, however, mail-order houses were still doing much of the business, due as much to their diversified stocks and service facilities as to attractive prices.

A number of manufacturers continued to sell direct, in most cases this activity being supplementary to jobbers' sales. A more important trend, perhaps, was the entry of several set makers into the parts business, these companies going after the replacement business on all makes and models rather than for just their own receivers. It is interesting to note, in this connection, that the prices posted by these companies in the early stages of the plan were markedly higher than for competitive, quality merchandise, this differential militating against initial gain. Prices were reduced later in the year, permitting successful competition, but at the present writing it is a curious fact that certain parts made for the set people are still priced higher than identical goods sold under the parts maker's own trademark. Clever, sustained sales promotion. in other words, enabled set makers to get more for parts on the open market than the original makers of these parts, with whom they compete.

In 1933, then, parts continued to trickle from maker to consumer through almost as many channels as one has fingers and toes. Volume was up but it was distributed among so many operators that no one group realized anything like the potential profit possibilities.

There was less competition from substandard, dumped merchandise. But this evil was by no means stamped out. Manufacturers catering to the replacement market did not, in our opinion, contribute much merchandise to the cut-price houses. Nor is it possible to believe that the vast quantity of below cost units available at the present time are quality items emanating from the stockrooms of temporarily distressed set manufacturers. Every set maker in the business would have to go broke at least once a year to keep stocks at the present level. The leak, then, must be attributed either to parts makers who are primarily interested in sales to set makers and do not hesitate to jeopardize the replacement market by dumping sub-standard or rejected units, or to set makers

PARTS AND ACCESSORIES

who find themselves stuck with parts which fail to stand up in their receivers.

A certain parts jobber, for example, purchased 25,000 resistors from a parts maker who contended that these were high-quality items made for a set maker who welched out of the contract. Check-up among set makers failed to divulge any possible application for these particular units in a commercial receiver. Obviously, they were the parts manufacturers' rejects, and were intended orginally not for a factory but for the replacement market. Another case: A factory ordered a large supply of wire-wound volume controls, specified that these should be wound on fibre strips in order to save money. Heat developed by the sets in which these were installed caused the fibre to shrink, loosening the wire and the controls became noisy in the field. Remaining stock, for which the set maker had contracted, was readily sold to a bankrupt stock buyer, placed on the market as exact replacements for this particular set. They were. But it is significant to note that the set maker included controls having bakelite strips in later serial numbers.

In the parts business, it seems, there is no such thing as a bargain and the sooner retailers burn their fingers and find this out the better. Most of them have already been at least scorched.

The mail-order houses instituted a laudable effort to prevent net price catalogs from falling into the hands of the ultimate consumer during 1933. Although the movement has not yet become universal most of the larger outlets now list parts at the full retail sales price, supplying legitimate dealers with suitable discount sheets. A determined effort is being made, furthermore, to confine catalog mailings to men who are actually engaged in the parts business. Some of the larger operators still broadcast catalogs indiscriminately to consumer and serviceman alike but it is significant to note that several have seen the handwriting on the wall and are making a strong bid for trade patronage by completely cutting out consumer distribution. Servicemen and service organizations are responding nicely to this preferential treatment and have even gone so far as to send petitions demanding similar action to non-conforming distributors.

The Trend for 1934

These are the important distribution and merchandising trends for 1934, as we see them:

(1) Expansion of the regional parts jobber distribution system. The increased potentialities of the service business make it more and more evident that such sectional businesses can be supported, if not as a major line, certainly as a profitable side-line activity. The very nature of the serviceman's business requires rapid delivery of replacement parts, obtainable only where local suppliers maintain diversified stocks.

(2) Continuance of the need for mail-order houses, at least until such time as adequate stocks are maintained throughout the country by individual jobbers. Retailers in remote localities will continue to patronize distant catalog houses if mail delivery time between these suppliers and local jobbers does not offer a substantial differential.

(3) Continuance of direct to dealer supplemental selling but at reduced volume and increased cost as regional parts jobbers get in their "licks."

(4) Less emphasis on replacement parts sales by set makers and certainly no more new entries into this field. It is felt that further stabilization among replacement parts makers, more uniform prices and better control of distribution will steal much of the set-maker's thunder.

(5) Increased prices. Manufacturers of parts will, for the most part, cooperate to eliminate profitless selling. This trend is already making itself felt in connection with electrolytic condensers.

(6) A lessening of competition from sub-standard units. Price should be less of a factor as consumer earnings increase. Set makers will of necessity budget their parts requirements more closely to demand, be more careful in the writing of their parts specifications, hence there should be less rejected stock on hand at the close of the season for possible dumping. Then servicemen are rapidly learning that it is costly to use cheap parts where work must be guaranteed, as repeat, free calls eat up the initial profit assumed on the low-grade replacement unit.

Mechanical Design

Replacement parts were, in general, made smaller, easier to mount and more flexible during 1933. This trend will continue. Further reduction in the number of individual items which the retailer must handle will be made both by careful study of the replacement requirements of sets achieving the bulk of the volume and by improvement in "universal" part design.

Fixed resistors with higher wattage ratings will be made, retaining such convenient small size as will enable these to be used for many different circuit applications. Variable resistors, already much more flexible than in earlier years, will be further standardized, set manufacturers leaning more and more toward stock types. Electrolytic condensers will be made in still smaller cases, perhaps with higher breakdown ratings and lower leakage currents. Paper condensers will at least retain their present small size, probably have even better high-voltage ratings, more accurately calibrated capacity markings.

Testing instrument makers, late in 1933, right-about-faced in analyzer design, set out to produce circuits which permitted the use of indicating meters more or less independently of associated tube sockets and in this manner relieving equipment very largely of the obsolescence factor. They achieved much and new testers embody some of the best features of earlier voltage, current and point-to-point resistance instruments reading from tube socket terminals plus the almost unlimited flexibility of switches or jacks which permit meters to be connected either externally or in the leads to the sockets incorporated in the tester itself. This design trend will undoubtedly be carried further in 1934.

In addition it seems highly probable that there will be many improvements in the design of test oscillators for use with the popular all-wave receivers. All-wave oscillators alone, in our estimation, represent a sizable potential market.

Parts and Accessory Sales—1933

Product	Retail Value
Dry Batteries	$8,600,000
Storage Batteries ..	1,500,000
Aerial Equipment..	450,000
Other Accessories ..	6,050,000
Parts—for repairs or to experimenters .	8,500,000
TOTAL	$25,100,000

Testing Equipment Sold to Dealers and Service Men

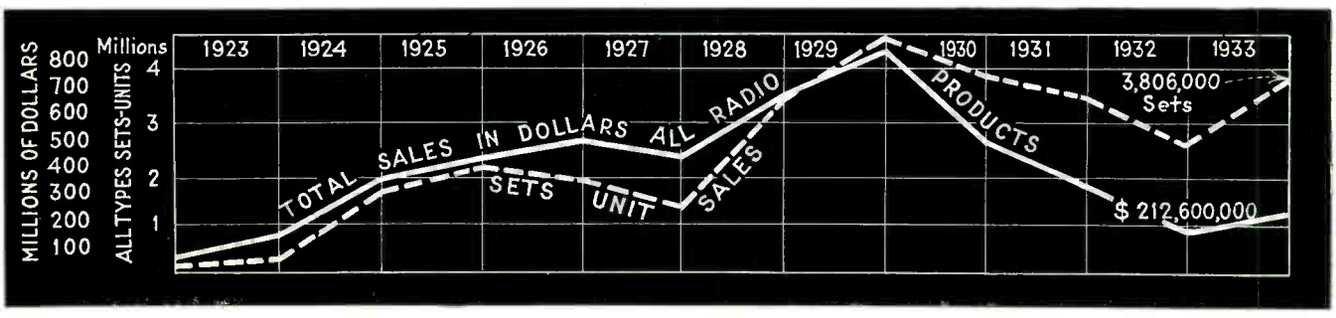
It is estimated that total billings to the trade, for 1933, of tube testers, analyzers and miscellaneous instruments was $650,000

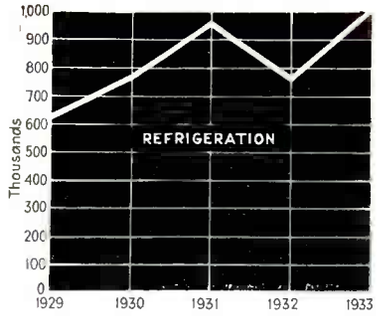
SALES BY STATES, 1933

State	%	Number	State	%	Number
ALABAMA	.62	23,700	NEBRASKA	.78	29,700
ARIZONA	.15	5,800	NEVADA	.10	3,800
ARKANSAS	.45	17,400	NEW HAMPSHIRE	.50	19,000
CALIFORNIA	5.58	212,800	NEW JERSEY	5.36	203,700
COLORADO	.82	30,400	NEW MEXICO	.12	4,600
CONNECTICUT	1.86	70,700	NEW YORK	16.97	647,000
DELAWARE	.36	13,700	NORTH CAROLINA	1.12	42,600
DIST. OF COL.	1.23	46,700	NORTH DAKOTA	.24	9,000
FLORIDA	1.13	42,900	OHIO	6.60	251,700
GEORGIA	1.16	44,000	OKLAHOMA	.92	35,000
IDAHO	.20	7,600	OREGON	.81	30,800
ILLINOIS	6.37	243,000	PENNSYLVANIA	10.14	386,000
INDIANA	2.28	86,600	RHODE ISLAND	.87	33,000
IOWA	1.33	50,500	SOUTH CAROLINA	.59	22,700
KANSAS	.66	25,000	SOUTH DAKOTA	.18	6,800
KENTUCKY	1.10	41,800	TENNESSEE	1.31	49,800
LOUISIANA	1.00	38,000	TEXAS	3.40	129,300
MAINE	.70	26,600	UTAH	.40	15,200
MARYLAND	1.92	73,400	VERMONT	.29	11,000
MASSACHUSETTS	5.46	207,500	VIRGINIA	1.26	47,900
MICHIGAN	3.01	114,400	WASHINGTON	1.20	45,600
MINNESOTA	1.78	67,700	WEST VIRGINIA	1.11	42,200
MISSISSIPPI	.27	10,300	WISCONSIN	2.18	82,900
MISSOURI	3.71	141,000	WYOMING	.12	4,600
MONTANA	.28	10,600	TOTAL U. S.	100	3,806,000

The above tabulation is based on the reports of eleven typical set manufacturers, weighted according to their relative sales volume. It includes the sale of 724,000 auto-radios as well as 3,082,000 sets for home use.

THE TREND IS UP





REFRIGERATOR SALES

Unit Sales, 1933 1,065,000

Retail Value $177,820,420

Present Saturation 24.6%

THE radio industry played a leading part in establishing the new high which was reached in the electric refrigeration business during 1933. Total unit sales were 1,065,000—38 per cent greater than in 1932. A majority of radio dealers, now in their second and third year of refrigeration as their chief auxiliary item, report individual increases far in excess of this national figure.

And the radio-refrigerator manufacturer also is taking the initiative. It is noteworthy that it is a set maker who has produced this season's most striking cabinet and shelf design and that another executive, with a radio background, has developed a refrigerant with entirely new characteristics.

The Electric Refrigeration Bureau estimates that 4,900,000 homes had electric refrigeration as of January 1, 1934. This represents such rapid progress during the past 10 years that we well may ask: "Can we expect another 1,000,000 unit year in '34?" The answer is an emphatic, "Yes!" The reply is positive not only because of returning spending power and because there are still millions of families with electric service and adequate incomes who have no electric refrigerator but also because of a growing *replacement market*. To date, this activity has been confined to apartment houses but this year it will embrace also individual homes now struggling with antiquated equipment or a 4.6 box.

Last year started off with refrigerator prices at all time lows—but by early fall, quotations had recovered a large part of their lost ground. The price trend now is decidedly upward—with every prospect that it will continue. Thirty-six per cent of total sales were for boxes of 4-5 cubic feet capacity. The next largest percentage, 27 per cent, was for boxes of from six to seven cubic feet.

Manufacturer to Jobber
By Months

January	19,755
February	36,394
March	59,494
April	129,917
May	214,770
June	215,420
July	129,317
August	96,413
September	71,189
October	50,576
November	20,026
December	21,729
	1,065,000

509,757 Sets Sold Abroad —an All Time High

Export shipments, sets and tubes, established an all-time high during 1933. Here's the story, from the records of the U. S. Department of Foreign Commerce:

Sets Exported	509,757
Declared Value	$9,324,571
Tubes Exported	5,398,982
Declared Value	$2,555,000

Only 289,926 receivers were shipped abroad in 1932. In 1931, formerly the peak year, 471,659 sets were exported —declared value, $14,357,029. Note the drastic drop in the dollars' value of sets, 1933 over 1931. In 1932 we exported 3,758,905 tubes, with a declared value of $2,012,656.

Canada Sold 130,493 Sets

According to *Radio Trade-Builder*, Toronto, the sale of receiving sets in Canada increased sharply in the final quarter of 1933. This splurge brought total sales for the year to a final figure of 130,493 units. Improved business conditions was given as the reason for the fact that well over half the total showing was made during October. November and December. A large degree of price stabilization and the absence of "dumping" also contributed to the fact that sales were but 3,000 less last year than for 1932. Here is the tabulation:

Consoles	60,836
Midgets	38,169
Combinations	1,015
All-wave	9,544
Automobile	9,245
Battery Sets	11,684
TOTAL	130,493

Based on Government license figures there are now 1,163,246 sets in active operation in the Canadian provinces. As there are 1,522,000 wired homes in Canada, saturation is 75 per cent. Repossessions dropped from the high level of 22 per cent in 1932 to 9 per cent in 1933.

There are 8,135,700 tubes in use in Canada or an average of 7 per set. Over 2,800,000 tubes were sold for replacement purposes last year.

Broadcasting Revenues Up

Gross "air time" sales of the National Broadcasting Company for January were $2,373,923—a plus of $504,000 over January, 1933 and $50,000 better than last December. Columbia Systems reports to *Radio Retailing* that its January bookings topped those of a year ago by 47 per cent and that its last quarter, 1933, was by far the biggest in its history.

Improvement Verified By 33% Increase in Radio Taxes

Improvement of the radio industry is strikingly indicated in the final, 1933, reports of Internal Revenue collections of the five per cent excise tax. For December radio tax collections were $570,629, an increase of 45 per cent over December, 1932. For the six months ending Dec. 31, 1933, the figure was $1,574,358, or an increase of 33 per cent over the similar six month's period of 1932. Here's the picture:

June-Dec. 1932	$1,184,510
Jan.June 1933	1,002,253
July-Dec. 1933	1,574,358

8,600 H.P. On the Air

A totaling of the transmitted energy of the 1,444 broadcasting plants in the world reveals that they expend approximately 6,424,000 watts or slightly more than 8,600 horse power. The average 500-watt station releases less energy into the ether than is needed to heat an electric iron.

***Number of Sets in Homes*—as of January 1, 1934—17,950,000. Based on joint survey and computations of Columbia Broadcasting Systems and *Radio Retailing*.**

How Good is

By W. W. MacDonald

THE Radio Industry is at present all hot and bothered about tone quality, with good reason. Improvement in the audio frequency response of receivers is, obviously, the next logical step in our effort to expand the replacement market, increase the dollar value of our average sale.

The question arises: "Just how good *is* good tone quality? Over what frequency range must the proposed super-quality receivers respond to provide a salable contrast when demonstrated in competition with existing types?"

What the Ear Can Hear

Several demonstrations of "new deal" reproducing equipment have been conducted in the last few months. The most recent, staged before the Institute of Radio Engineers by Dr. Harvey Fletcher of the Bell Telephone Laboratories and witnessed by "Radio Retailing's" editors, throws some light on the subject. Dr. Fletcher installed in the New York Engineering Societies Building an amplifier with flat audio response between 40 and 15,000 cycles, equipped this amplifier with filters which enabled the operator to cut off frequencies above 8,000, above 5,000, below 200 and below 100 cycles. Two floors away a 25 piece concert orchestra and a crew of "actors" furnished test music and sound effects.

One step in the demonstration involved the use of an audio oscillator (Simple tone-generator). It was varied slowly between 40 and 15,000 cycles while a pointer directly geared to its dial recorded the frequency. The shadow of the pointer, together with a calibrated scale, was projected upon a screen visible to the entire audience by means of a lantern slide machine. Upon completion of the test the audience was surveyed to determine how many had heard the very low and very high frequencies. Ninety per cent heard the oscillator all the way up to 15,000 cycles and down to 40 cycles but few were able to distinguish a tonal difference between 12,000 and 15,000 or between 60 and 40 cycles. The remaining 10 per cent lost the note anywhere from 5,000 to 8,000 cycles, indicating the inability of their ears to hear above these frequencies.

So much for what the ear can hear. Most ears hear from 40 to 15,000 cycles.

Highs and Lows Needed for Realism

The test was further continued to determine what noticeable difference occurred when high, or low frequencies were cut off at various points. A drum and fife played and the full range of the amplifier was used. Perfect recognition of the instruments resulted and so realistic did they sound that the audience found it hard to believe that they were not actually on the stage.

Filters were then applied to cut off response above 8,000 cycles. The instruments were still easily recognizable but the illusion of their actual presence on the stage was lost. The fife lost its shrillness, the kettle-drum became unnaturally deep. Then frequencies above 5,000 cycles (present limit of best broadcast receivers) were eliminated. The fife completely disappeared.

A tambourine was played, again using the full response characteristic of the amplifier, and was instantly recognized. The 8,000 cycle filter made recognition slightly more difficult and when frequencies above 5,000 were cut off the instrument was not recognizable. The same proved true of a musical triangle, a "tinkle-bell."

The experiment was repeated, using the full orchestra, and super-quality again made the audience feel that the musicians were behind the stage curtain. Frequencies above 8,000 cycles were filtered out. The audience noticed a difference but felt that reproduction was only slightly impaired. The 5,000 cycle cut off filter was installed. Marked decrease in quality and the complete disappearance of realism resulted.

Frequencies below 60 cycles were eliminated. No noticeable effect was reported by the audience. Tones below 100 cycles were cut off. The audience was distinctly conscious of a loss in bass response.

Again filtering was tried, this time on speech. High frequency response, it was found, could be limited to 3,500 cycles, low frequency response to 200 cycles without affecting intelligibility (Not much better than "telephone" quality). Realism, the ability to identify a voice, was, however, lost when frequencies above 5,000 were removed and a familiar voice sounded strange though perfectly identifiable, with less than 8,000 cycles at the high end.

Now, lets check up on the frequency response characteristics of broadcast stations and existing receivers. The better chain stations, such as WEAF, WJZ and WABC, use telephone transmission lines so compensated as to be practically flat between 60 and 7,000 cycles. These are "down" only 2 or 3 decimals at 8,000 and at 50 cycles (the ear rarely notices a change of less than 3 db.).

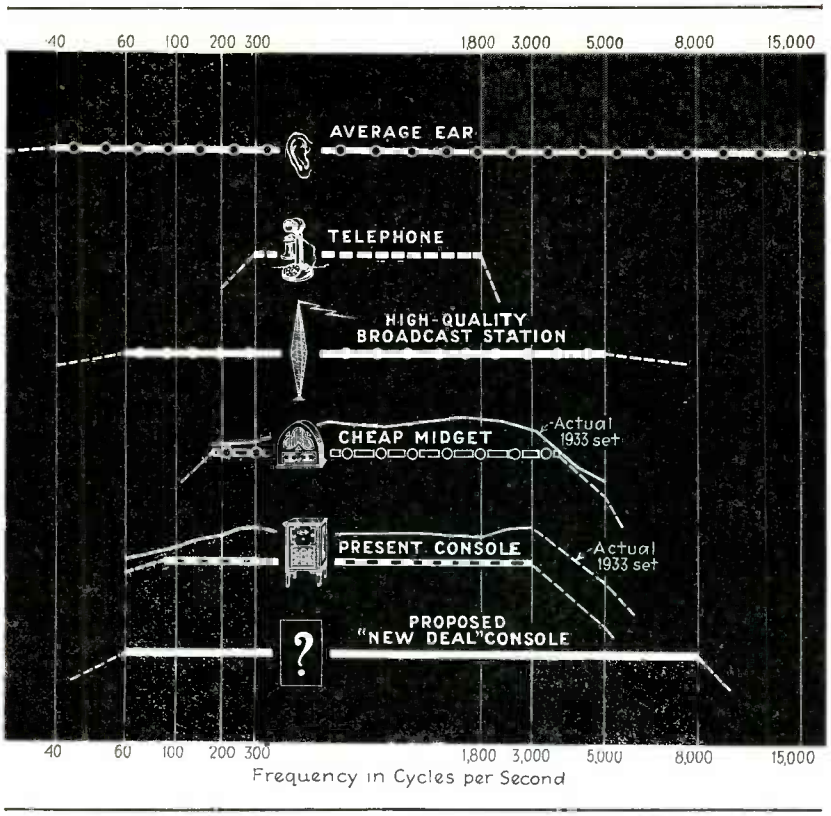
Theoretically, 10 kc. station separation permits modulation of the actual broadcast signal only up to 5,000 cycles but several of the best commercial stations already "stretch a point" and are nearly flat up to 7,000 or 8,000 cycles, despite the inter-station heterodyning sometimes so caused. The transmitters of the best stations could put out an even wider band with existing equipment if improvement in receivers justified this. Extension to 15,000 cycles would, however, involve a Federal rearrangement of the present separation system. Twenty kc. channels have already been assigned for broadcast work between the high frequency end (1500 kc.) of the present spectrum and the police channels. It is also possible that 20 kc. channels may eventually be provided for high power stations like WLW in the present spectrum by synchnonizing other transmitters on common frequencies, thus clearing additional channels for super-quality service and providing a wide enough "guard" band to prevent inter-station heterodyning.

In the meanwhile receiver design need not wait on transmission as existing stations are so much better than available receivers that there is ample room for improvement.

Transmitters Good, Receivers Bad

Our present receivers are remarkably deficient and, as Dr. Fletcher predicted in prefacing his demonstration, those engineers who heard what is probably the highest quality amplifier ever demonstrated in the United States have reason to feel somewhat ashamed of present commercial reproducing equipment, despite the fact that they have been generally "pressured" into producing inferior sets by sales departments which demand competitively priced merchandise regardless of its quality.

According to "Electronics," the average midget receiver now on the retail market is down 4 decibels at 5,000 cycles, down 5 decibels at 180 cycles and so badly attenuated above and below these frequencies that response might reasonably be considered negligible. The average console is fairly flat between 120 and 3,000 cycles but down 5 decibels at 4,000 and down 10 (a distinctly audible drop) at 5,000 and down 5 at 60 cycles. Consoles are much more efficient at low frequecies, where baffle area is important, but the miniature receivers produce, curiously, superior high fre-



"Good Tone"?

quency response due to their less selective circuits and relative freedom from serious sideband cutting.

All this does not mean that available commercial receivers do not reproduce at all above 5,000 cycles or below 100 but rather that volume drops off at the two extremes sufficiently to destroy realism. A 5 decibel change in volume at the high or low end of the audio scale is sufficient to be noticed by the average ear and a 10 decibel change is easily distinguishable even by a non-critical listener. So a receiver may attenuate above 5,000 cycles, for example, and yet still reproduce the sound of a fife, while Dr. Fletcher's filters, which completely "knocked down" response above this frequency, removed the fife entirely.

It is possible, furthermore, to put "synthetic" highs and lows into a receiver, jack up the volume artificially at both frequency extremes to a point where they seem to be covering a much wider band than is really present. It follows, however, that such distortion destroys realism.

Market Waiting for Super-Quality

All of which leads us to the conclusion that there is a definite need for higher quality receivers which will amplify faithfully from at least 60 to 8,000 cycles, that these could be sold by the trade in competition with less faithful equipment such as we now have, and sold at substantially higher lists. Response above and below these extreme frequencies, while necessary for absolutely perfect reproduction, does not appear to be immediately essential as the difference would be distinguishable only to the most critical ear . . . . more critical than our own, for example.

The difference between such a receiver and present equipment is the difference between realism which makes one forget that a program is being mechanically reproduced and the feeling that the music is "canned." We wish it was possible to demonstrate Dr. Fletcher's equipment to large consumer audiences throughout the length and breadth of the land. For no one who hears the marvelously realistic reproduction of which such a high quality system is capable will ever again be completely satisfied with an ordinary radio. Our own three year old console, which seemed well-nigh perfect just a few short weeks ago, now seems distinctly muffled.

Mass demonstration of super-quality receivers at radio shows, clubs and other social gatherings will be, perhaps the best method of creating a desire for the "new kind of radio." If comparative fidelity can be demonstrated using solo instruments, such as the fife and tambourine can be arranged, so much the better, for on these the result is downright startling. Dr. Fletcher reproduced the sound of a saw biting through wood, a pistol shot, and both were quickly recognized. Sets which attenuate above 4,000 and below 180 cycles would be completely inadequate on such sounds. Studios use "trick" gadgets, rather than the actual ones, to imitate because they know accurate reproduction is not at present possible.

"New Deal" Sets Are Coming

Super-quality reproduction is coming, this appears to be certain, and we may have it before the close of the year. Many laboratories are working on the problem, getting it ready for commercial application. Technical methods by which the improvement is to be accomplished is not our personal concern, although we wish to go on record as being fully appreciative of the design difficulties involved.

R.f. and i.f. tuning systems which will give satisfactory selectivity and yet do not cut into audio sidebands, for one thing, must be devised. Higher frequency response must be obtained without materially increasing the circuit noise. Super-power stations and a local-dx switch may solve this. Low frequency response, admittedly not at all bad in certain commercial consoles now available, must be improved without increasing hum level. And extension of the response curve must be accomplished without introducing "peaks and valleys," distortion which would nullify the effect of wider tonal response.

An Ideal "Sell-Up" Opportunity

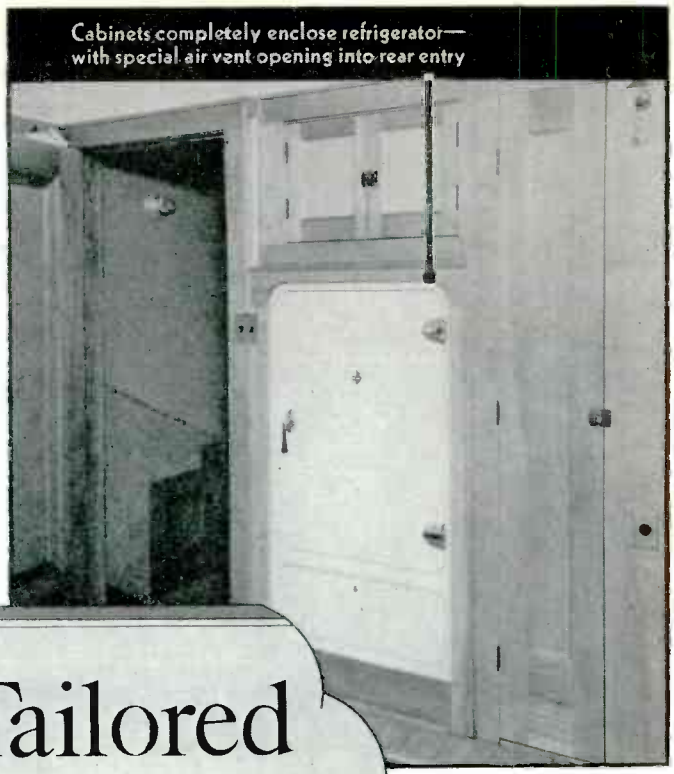
Then, automatic and manual volume controls which do not impair quality at certain critical settings must be engineered. Detectors which remain linear irrespective of signal input levels, perhaps detectors which eliminate or reduce sideband fading, must be developed. And super-quality models will need a reserve of audio power sufficient to meet peak demands without serious attenuation.

All these things, and many more, require careful consideration and superior engineering. Unquestionably they will materially increase the cost of equipment but in the light of replacement business and the increased prestige of the radio method of entertainment which we feel must certainly result all the labor, money and mental effort which must necessarily be expended by laboratory workers is very, very much worth while.

Here's to "Der Tag"!

Hand Tailored *Installations*

Furnishing a heat insulation board and moving the gas range closed this refrigeration sale



Cabinets completely enclose refrigerator—with special air vent opening into rear entry

Another contract where specially built cabinets were included

Kitchen wall has been recessed. Total cost, $43

Job included this "heat protecting" partition

Note how cabinets, built to fit, improve general appearance of kitchen

TWENTY-FIVE sales—plucked from the burning—because he specialized in difficult installations; in fitting the refrigerator *into* the kitchen. "It is surprising," says this Northwestern radio dealer, "how often there is no proper place where an electric just naturally fits in—either it is too near the stove or there is not enough space—how frequently you'll lose a sale simply due to this fact. And it is amazing how many times you can take this business away from competition if you're hooked up with the right kind of a carpenter."

The work referred to includes building recesses into walls, erecting special partitions or false walls, building kitchen cabinets around the refrigerator and heat-insulating the kitchen stove from the refrigerator when it is necessary or desirable to place these household necessities near each other.

The dealer in question charges for this work and makes an extra profit. Most of these jobs cost the customer from between $10 to $15 for the carpentry work. As will be noted, handy cabinets around the refrigerator are very popular, and this service frequently has meant the sale of a refrigerator.

NEWS OF THE MONTH

ULTIMATE APPROVAL OF RADIO JOBBERS CODE ASSURED

By Ray V. Sutliffe

Climaxing months of arduous effort on the part of Benjamin Gross and his committee charged with the thankless task of drafting a supplementary code for the radio wholesalers of America, final public hearing was held in Washington D. C., February 24. The session, in the Commerce Building, Administrator Alexander presiding, was attended by over 100 radio dealers and jobbers from many states east of the Rockies. Only four manufacturers, however, took the trouble to send representatives—despite the fact that there would appear to be no matter of more vital or intimate concern to the set makers these days than the formulation of a code for the correction of recognized abuses in the distribution and retailing of radio products or for the restoration of trade confidence and the interjection of fresh selling vigor.

After listening, down in Washington that memorable Saturday (from 10 a. m. until "far into the night") to ably presented, frank but kindly testimony for and against each and every clause and section of the proposed "Code of Fair Competition for the Radio Wholesaling Trade," this editor is of the opinion that a revised code will be approved; that this code will reconcile the compromise opinions and conflicting interests of all factions and that it will contribute materially to the return of prosperous and aggressive radio merchandising conditions.

It is worthy of note that the manufacturing concern reputed to be most successful in the industry was ably represented by the personal presence of its president and its sales manager. The former, while not in accord with a number of the tentative provisions of the code as printed for public consideration, heartily approved its basic principles and urged its adoption, with certain changes. These alterations pertained principally to the then restrictions on advertising and sales promotional allowances, the assumption of certain retailing expenses by the manufacturer, normally the obligation of the dealer, and certain aspects of the consigned goods clause. The forceful but eminently fair manner with which he presented his side of the case was a matter of comment. Regret was expressed that this rare opportunity for other manufacturing executives to contribute to the formal and informal discussions relating to enforceable merchandising policies under governmental authority, was not taken advantage of.

At the conclusion of the afternoon (and evening) session the code committee was requested to redraft the various disputed sections. This compromise code has been filed with Administrator Alexander. There are definite grounds for believing that, before the middle of April at the latest, the radio distributive industry will be operating under an approved code of its own making and territorially administered by *District Agencies* selected from its own ranks by its own Radio Divisional Code Authority. This latter body "shall consist of thirteen members of the trade; one to be the President of the RWA; one to be the Executive Vice President of the RWA; nine to be chosen by the board of directors of RWA to represent its members in various geographical sections of the country; and two members to be chosen from members of the trade who are not members of RWA, in a manner to be approved by the Administrator." Article III, Section 1.

Why Discount Schedules Withdrawn

As submitted on its printed form the proposed code contained, at the suggestion of the Administrator, a definite schedule table of discounts to dealers. These schedules created such a flood of unfavorable comment, however, that by unanimous consent, Articles (b) and (c), Section 2 of Article IV, were stricken out.

Explaining his request to have the proposed discount schedules withdrawn at this time, Mr. Gross stated that the original intent was to have District Agencies determine fair schedules for various trading areas, and that the specific discounts set forth in the code were merely "to test the proposed principle involved." However, he added, there had arisen "so much misunderstanding and misinterpretation of the constructive purposes underlying the plan" that the committee felt early approval of the code would be expedited only through eliminating this "major controversial issue."

Mr. Gross stated that his association of 294 firms represented 60% of membership in the trade and that these firms did 75% of the total annual volume of business.

H. G. Erstrom, executive vice-president of the association, pointed out that the Divisional Code Authority would have its individual members chosen from zones representing various sections of the country, and that it would appoint each District Agency in such manner as to provide for administering the provisions of the code "expeditiously, intelligently and economically."

Roscoe R. Howard, of the Zenith Radio Distributing Co., Chicago, spoke briefly in support of the proposed plan for protecting dealers; and David M. Trilling, of Philadelphia, defended at length the proposed fair trade practices. The witness declared that the mandatory filing of price schedules with District Agencies would eliminate the "chiseling" now prevalent in the trade, and that consignment sales had been limited because they had been found "rarely, if ever" effective as a means of actually

Among those present at the public hearing, Feb. 24, on the Radio Wholesalers Code

promoting trade. Mr. Trilling advocated the curtailment of "prize" campaigns because they represented an increased cost to the ultimate buyer.

A number of witnesses came forward to state that deletion of the discount schedules had made the code acceptable to their firms. Among these were: E. A. Wildermuth, a distributor of Atwater-Kent products in Greater New York; B. J. Oppenheim, B. & O. Radio, Inc., Newark, N. J.; Jack Mehling, National Retail Furniture Association, Baltimore, Md.; A. J. Buzzard, Spear & Co., Pittsburgh, Pa.; H. M. Epstine, May Stern Co., Pittsburgh, and Edwin C. Roworth, Stromberg-Carlson Mfg. Co., Rochester, N. Y.

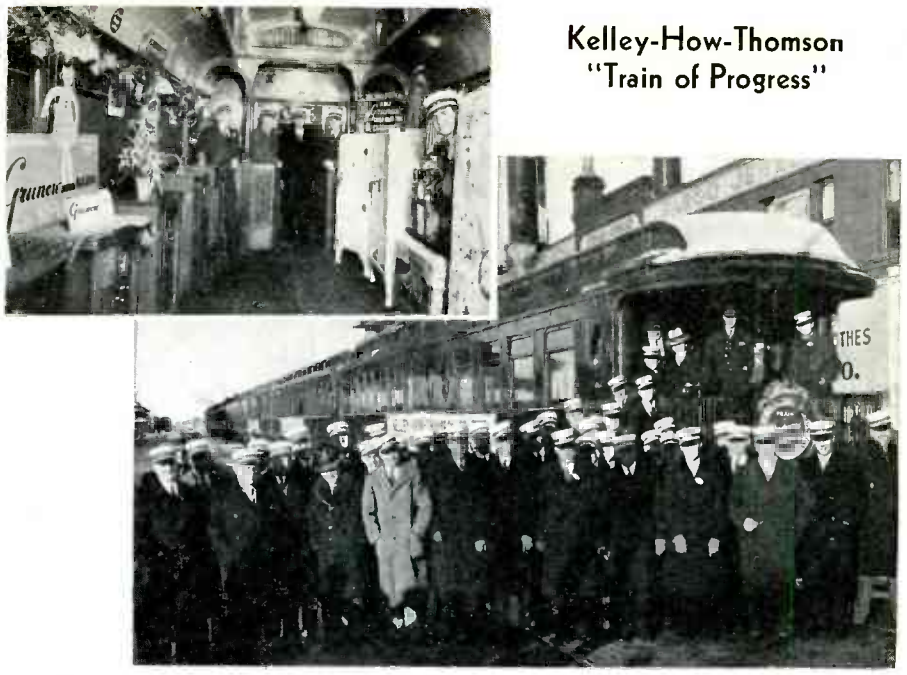
Ernest F. Henderson and H. C. Smith, representing the World Radio Corporation of Boston and Quincy, Mass., stated that curtailment of consignment sales would force out of business some 35 small dealers operating under a sales agency plan whereby their goods were consigned and their advertising paid for in consideration of their receiving a discount smaller than the customary dealer allowance. They asked that the code be amended to provide protection for dealers of this type; and their request was concurred in by Ralph E. Roe, president of the North Jersey Radio Dealers Council, Roselle Park, N. J.

Radio Retailing will print in full the pertinent articles of the final revision of the Radio Wholesalers Code in its next issue following acceptance by the code administrator.

AS WE GO TO PRESS—Ben Gross, just returned from Washington, states that he has received assurance from the Code Administrator that the radio wholesalers' code most certainly will be approved and undoubtedly before March 20. Further, he has been assured not only by the code authorities but by the representatives for the Consumers' League and of Labor that this is one of the most constructive and satisfactory merchandising codes yet submitted and that its provisions for local administration are exceptionally fine.

Mr. Gross states further that when this code is approved membership in the Radio Wholesalers Association will be practically mandatory. All wholesalers of radio, whether or not they specialize in radio, are urged to join the RWA at once—address, 185 N. Wabash Ave., Chicago, Ill.—and thus contribute their just share to the burden of instituting and carrying out the provisions of the code.

Kelley-How-Thomson "Train of Progress"



Trade promotion in a big way was demonstrated by the Kelly-How-Thomson Co., Duluth, Minn., when this live distributor of radio, electrical and hardware products, chartered a 9-car train and toured the great Northwest recently. Fitted four of these as exhibition cars. Made 29 stops and played host to 42,000 visitors. The travelling personnel numbered 42. They ate and slept (catch-as-catch-can) on the train. Lined up countless dealers and reported radio and refrigeration sales way in excess of expectations

IRSM CONVENTION HUGE SUCCESS

1200 Attend Chicago Show — Exhibitors Well Pleased

On Feb. 23, 24, and 25, the Institute of Radio Servicemen held its second annual convention and trade show at the Sherman Hotel, Chicago. Twelve hundred midwesterners interested in servicing attended and were well pleased. Attendance breakdown was as follows:

Distributors	42
Servicemen	627
Dealers	36
Mfrs. Rep.	56
Radio Engrs.	112
Service Mgrs.	5
Amateurs	68
Manufacturers	36
Attendants	163
Miscellaneous	72

Inclusion of a week end in the convention period enabled 22 members of the Indianapolis section to charter a bus and make the 280 mile trip. Members of the Lake County chapter chartered a South Shore car and attended "en masse" on Sunday.

Afternoon sessions were given over to factory service managers, who lectured on their own lines. Professor Paul G. Andres, of P. R. Mallory Company, lectured on "Tone Controls and Tone Compensation"; Haus W. Hjermstad, University of Wisconsin, discussed "Electron Coupled Oscillators" and A. G. Mohaupt spoke on "Diode Detection."

Business meetings were held by the Standardization Committee, in charge of W. Bennett; Factory Service Managers, Edward Hartley and the Association of Parts Distributors, President W. C. Braun presiding and leading the code discussion.

Indicative of the interest now being taken in the organized activities of radio servicemen, under the energetic direction of Kenneth Hathaway, executive secretary, is the fact that 36 manufacturers exhibited.

W. W. MacDonald, associate editor of "Radio Retailing," contacted leading parts manufacturers, wholesalers and servicemen from the McGraw-Hill booth.

250 Silver Dollars

The Burgess Battery Company announces a prize contest for the "forgotten men" in the electrical and radio trades. Two hundred and fifty silver cartwheels will be awarded to jobbers' salesmen who help Burgess select a name for its new, 400-hour, No. 1040 "A" battery. Said battery is designed for a 2-volt tube, is dry, weighs 15 pounds and comes in a mahogany finish. First prize, $100—in silver.

Tube Tester Available

National Union Radio Corporation offers, as an addition to the line of instruments which this company makes available to the radio trade, the new Model No. 85 tube tester, a product of Supreme Instruments Corporation.

"Sound Manual" by Jensen

Jensen Radio Mfg. Co. is out with a new book called "Modern Sound Manual." Contains much usable technical data and describes accessory equipment for use "after the amplifier." Available to the trade at a price of 25 cents.

New York Show

The second annual combined National Electrical and Radio Exposition will be held at Madison Square Garden in New York City starting Wednesday, Sept. 19 and continuing for eleven days.

As in 1933, when the new combined exposition was organized, the New York association will act as sponsor, while the Madison Square Garden Corporation will undertake the general management. Joseph Bernhart, who so successfully managed the first annual exposition last autumn, and has since been appointed to the position of booking and exposition manager at Madison Square Garden in New York City, is to again direct this national electrical, radio trade and public show.

AMONG THE BROADCASTERS

Congressman Annings Prall, New York City, has been appointed by President Roosevelt to serve on the Federal Radio Commission from the First Zone. He succeeds Commissioner W. D. L. Starbuck whose term expired Feb. 24. Mr. Prall is a Democrat, has three times served as president of the Board of Education, New York. He was first elected to the Sixty-eighth Congress in November, 1923. He is a personal friend of President Roosevelt; never has taken an active interest in radio legislation during his 12 years in Congress or in the technical aspects of broadcasting problems.

Broadcasting Survey Postponed

The survey of broadcasting, which was to have been made by a special committee to be appointed by Secretary of Commerce Roper, is indefinitely postponed. . The Secretary states that members of Congress interested in radio had communicated with him stating that in their opinion the proposed survey should be held up until after the passage of the Communications Commission bill.

Dill Criticizes Press Program

Senator C. C. Dill, February 19, criticized the recently concluded radio-press news agreement in a speech to the Senate. Dill said he had received many letters complaining bitterly about the restriction of radio news service which became effective March 1.

"I have no desire to criticize what the press associations or the broadcasting chains may decide to do about the news they collect," he said, "but I do have this to say about the public service to be rendered by the radio. There are literally millions of people in the country who depend upon the announcement of news over the radio to get the news events of the world. In many cases at this time of the year they know what is happening in the world days ahead of any time they could learn it through the newspapers."

Forming Radio News Organization

A group of important radio stations, spurred by the recent radio press program to limit the broadcast of news to two periods a day, are forming an independent radio news service which will be ready for operation on March 1, the effective date of the radio press program. This action has resulted from what these stations believe to be an arbitrary attitude of the press associations and newspapers with respect to the broadcast of news. The movements for an independent news organization has revolved around Station KFI, Los Angeles, Calif., which has protested vigorously against the program to restrict the broadcasting of news. Some twelve or more important stations have agreed to participate in the independent news arrangement. These stations are encouraged in their effort by Senator Dill's comment on the news program and intend to pool news collected by trained reporters on the staffs of each participating station, maintaining the service on a cooperative basis much after the manner of the press associations.

New Program Policies

NBC has announced new program policies with respect to the quantitiy and nature of *advertising talks* by sponsors of its paid-for broadcasts. The following indicate the scope of these regulations:

"Its (broadcast program) primary appeal should be to the listener's interest. Unpleasant or gruesome statements should be avoided as more likely to offend than to instruct or entertain.

"Tiresome repetition or too much detail should be avoided. For instance, the advertiser's street address and the like should not be reiterated to the point of annoyance.

"Statements of prices and values must be confined to specific facts. Misleading price claims or comparisons must not be used."

Moderne Window Settings for Moderne Sets

Here is a mighty attractive window done in the moderne manner. A trim by the Boston Store on the "world's busiest corner," State and Madison, Chicago. Much may be learned from a study of the technique involved

Light Weight for Country Sales

While lighter refrigerators may mean more cubic feet of space to city dwellers, in the country it means easier transportation over the roads, according to R. E. Sullivan, pioneer radio and electric dealer of Belvidere, Ill.

"Now that it is a two-man job, the refrigerator can be waltzed up back of a truck for carrying into the country. Formerly it was too much for the salesman and customer to manage the box. The same truck we use to demonstrate radios will now serve. I can lift one of the new models with one hand."

Goldman is Host

The North American Radio Corporation, Dave Goldman presiding, played host to 450 Grunow dealers at the Pennsylvania Hotel, New York, February 13. Following an excellent lunch in the Grand Ball Room, sales manager Bonfig, for General Household Utilities, presented the 1934 sales story for "Carrene" refrigerators.

Krich Displays 12 Lines

Krich Distributing Company, radio jobber in New Jersey and northern Pennsylvania, held a three day dealer conclave at the Douglas Hotel, Newark, March 12-14. Over 500 tradesmen viewed the latest in all types of electrical appliances as well as the '34 line up of radio receivers.

Radio Short Course

The annual Radio Short Course of the University Extension Division, 623 West State Street, Milwaukee, Wis., will be repeated this year on March 26, 27 and 28. There will be lecture sessions each morning, afternoon and evening for which a nominal registration fee of one dollar will be made.

LAST MINUTE NEWS FLASHES FROM EDITOR MACDONALD —IN THE FIELD

Detector's right-hand man, on the ground at Chicago, reports that makers of auto-sets will be batting on a mass production basis around March 15.

More money is reported in circulation among mid-western radio buyers. Lyon & Healy, "loop" music specialist, has felt a distinct jolt in quality equipment sales, knocking over more de luxe set sales than have come over the horizon in many moons. Radio buyer Ward says the average unit sale value has definitely started up. Other dealers in Illinois, Indiana and Wisconsin check.

Mort Frankel of Audiola says that Jack Potts of Auto Radio Sales, Cleveland, is doing an outstanding auto-radio job. Reports things somewhat slower in the Chicago area.

Allwave reception seems destined for big things this season. Even the recalcitrant manufacturers are coming into the fold, most of them with 6 and 7 tube sets with sufficient sensitivity to do a job. Several companies plan to bring out inexpensive table models tuning just in the shortwave bands, omitting the broadcast. They contend that there are many owners of relatively new consoles who will not scrap existing equipment to get foreign programs and yet are sufficiently interested to buy a separate set. $35 to $75 seems to be the contemplated price range. Parts manufacturers please copy.

Sales manager Freshman (brother of the Charles Freshman of early radio fame) of Belmont, Chicago, informs us that the very cheap stuff has had its day. Sid says that even the smallest dealers are beginning to realize that they must sell up and that manufacturers are going to give them merchandise which will make it easier to compete with rock-bottom goods.

Stop us if you've heard this one: Set manufacturers are beginning to feel the pinch of higher parts prices. Watch for list price increases of at least 5 per cent when the season opens.

Ken Hathaway's IRSM convention opened a lot of eyes. Checked up on his exhibitors and found most of them extremely pleased about the quality of the attendance.

Looks like testing instruments are going to be one of the first items in the servicing business to feel the uptake. Dealer contacts indicate that the boys who "make 'em work" have been starving themselves on equipment in fear of circuit and tube changes. Some of this fear has been stamped out in the past few months and the "big, bad wolf" of the depression has not hit this group quite as hard as it has the set sellers. Wenger of Triplett reports that the usual December sales slump failed to materialize this year, sales kept climbing up and are still headed for altitude. Predictions are rash in this business, but it looks like a particularly good test oscillator year. Watch for instruments with fundamental shortwave frequencies in the near future. Several laboratories have them up the sleeve.

Crosley's WLW, with stepped up power, doesn't seem to block existing a.v.c. systems in the west . . . improves the action of the average automatic sensitivity control, in fact. Most systems don't begin to click until the field strength gets up pretty high, anyway, and about all the extra sock has done is make a.v.c. in sets around Cincinnati take hold better, improving performance. Engineer Chambers gave midwest IRE members the complete story of the transmitting equipment at a well-attended meeting in Chicago, Monday, February 26.

Watch for big news on quality speakers. The big guns of the business promise something big within the next couple of months.

Ernie Alschuler of Sentinel is cashing in on two of the season's hot items, allwave receivers and auto-radio.

RADIO RETAILING's exhibit at the IRSM show attracted plenty of attention (excuse the bragging). An electrostatic relay, loaned by Lumenite, snapped a floodlight and chime on and off whenever serviceman or dealer appeared on the scene. A liberal application of arnica to the pedal extremities was necessary following three days of upstanding work.

Many parts manufacturers who never before have taken the replacement market seriously are beginning to take notice. For example: American Phenolic, Lenz Electric, Pioneer.

Dave Bright of Pioneer says he has just pushed over some nice business with his new "Genemotor" (watch for it in a couple of the leading 1934 auto-radios) and is doing a job with a new, small size replacement item.

McMurdo Silver (himself) recently married, stopped at the RR booth to brag about the new "frau." Mac is beginning to attract some attention with his super-deluxe, deluxe allwave receiver. (No boxcar figures, though!)

Al Hoover, Lyon & Healy's demon service manager, is running service ads in the Chicago paper, knocking over quite a lot of repair business. Also reports quite a business among funeral parlors on his public address line.

Royal A. Stemm, one of Chicago's pioneer manufacturers representatives, gave us a high-pressure sales story on the following lines: Continental Electric, Electro-Voice, Fowler, Kenyon, Radio Products. We're convinced!

Harry Alter Supply, Chicago, now has Audiola's "no suppressor" auto-radio.

Business never was better, states B. H. Price, sales manager De-Jur Amsco, New York. This concern has just doubled its plant space. Present acreage, 44,000 square feet.

Howard F. Smith, with offices at 142 Liberty St., New York City, has been appointed metropolitan representative for the Kato Engineering Co., Mankato, Minnesota. Mr. Smith has on demonstration a small 300 watt 110 volt AC power plant in his offices for New York out of town customers to inspect.

Cornell-Dubilier Condenser Corporation announce the appointment of Leon L. Adelman as sales manager of its Jobbers' Division. Mr. Adelman comes to the Cornell-Dubilier organization after many years of experience among the radio jobbers and in the mail order trade throughout the country.

The D. W. May Corporation, Wurlitzer distributor for the New York area, announces the appointment of Nate Hast as vice president in charge of sales. This move means the reunion of two well known eastern radio personalities, Mr. Hast having served as sales manager for this same concern for four years prior to 1932.

Will Service Police Cars

Elsewhere in this issue it is stated that there is a real opportunity for radio dealers to service the radio equipment of their local police department. Here's proof: Barton Auto Radio Company, Pittsburgh, Pa., representatives for Audiola, have just landed a contract to maintain the radio receivers in all Pittsburgh police cars. This is the third successive year that this firm has landed this business. In Barton's new location at 4612 Center Avenue there are facilities for handling installations or service on 25 motor cars.

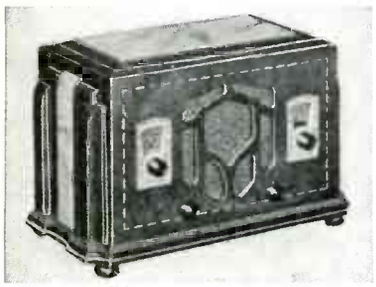
Resident Engineer

The appointment of Charles E. Marshall as resident engineer in Chicago, assigned to the contacting of local set manufacturers and coordinating their circuits and problems with Sylvania radio tubes, is announced by Hygrade Sylvania. Marshall is working with Fred Strayer, Sylvania's sales representative.

Belmont Leases 5 Story Plant

The Belmont Radio Corporation, Chicago, has leased the entire five-story concrete building at Fullerton Ave. and Herndon Street for a five year period. Contains 36,000 square feet of floor space.

NEW MERCHANDISE



Tiffany Tone Model 156A

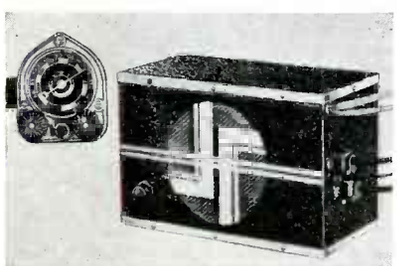
Horn "Tiffany-Tone" Radios

The new line of the Herbert H. Horn Radio Mfg. Co., 1629 S. Hill St., Los Angeles, Calif., includes:

Models 156, 156-A and 156-C with 5-tube superheterodyne all-wave chassis. These sets tune from 12 to 550 meters by use of five wave bands. Model 156-A is $54.50 and has illuminated onyx inlaid top and ends. Model 156 is an all-walnut cabinet at $49.50. Model 156-C is the console priced at $69.50.

Model 158 is a 7-tube all-wave superheterodyne with all the features of the previous models. The cabinet is of the upright table type. $59.50.

This company also makes a condenser microphone using two 37 tubes.—*Radio Retailing,* March, 1934.



Wurlitzer-Lyric Auto-Radio

Similar in appearance to a modernistic table set because of its grille design, the new Wurlitzer-Lyric auto radio of the Rudolph Wurlitzer Mfg. Co., N. Tonawanda, N. Y., is a compact model, measuring 11 in. wide by 7 in. high by 5½ in. deep. The case is finished in black crackle with silver trim.

It is a 6-tuber with a 6-in. speaker, three gang condenser and self-contained power unit. Delayed a.v.c. is incorporated and the dial is the popular airplane type.

This set can be quickly installed by means of a special patented mounting bracket. Only two electrical connections are reported necessary to install the set in the car.—*Radio Retailing,* March, 1934.

Kingston Receivers

A line of three models for 1934 is being marketed by the Kingston Radio Co. Inc., Kokomo, Ind.

Model 600B is a modernistic lowboy with 6 tube chassis (2-78, 6A7, 42, 75, 80). $62.50.

Model 600A is the upright table set of this model, $39.95.

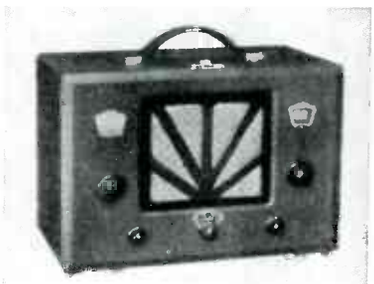
Model 55 is a 5 tube ac-dc set taking 2-78, 77, 38, 12Z3. The compact table cabinet measures 8x11⅞x5¼ in. $29.95.—*Radio Retailing,* March, 1934.

Freed-Eisemann All-Wave Sets

A compact, portable all-wave receiving set has been placed on the market by the Freed Television and Radio Corp., Long Island City, N. Y. It may be had in two types of cabinets, one is portable covered in fabrikoid with carrying handle and the other is walnut for home use. The former is $52.50 and the latter $54.50.

This set takes six tubes, namely, 6D6, 2-78, 77, 42, 80 and has 5-in. full floating electrodynamic speaker. The tuning range covers from 15 to 560 meters (20,000 to 540 kc.) which includes European and South American broadcasting, aircraft, police calls, etc. The dimensions are 16x13x8¼.

Model 367X, with the same chassis, is an upright table model, modernistic in design. $64.50.—*Radio Retailing,* March, 1934.



Freed Eisemann Model 366SW

Halson All-Wave Models

The new spring line of the Halson Radio Mfg. Corp., 45 Lispenard St., New York City, carries both a.c. and a.c.-d.c. all-wave models.

Model 66AW is of the a.c.-d.c. type covering, the release states, ultra short for European and American short wave programs, regular broadcast band, and extra long European band from 1,000 to 2,000 meters. It is a 6 tube superheterodyne with preselection, r.f. overloading control, phono jack provision, and large dynamic speaker. —*Radio Retailing,* March, 1934.

Condenser Corp. "Gadget"

A novel idea in condensers expressly designed for service and replacement use has been developed by the Condenser Corp. of America, 257 Cornelison Ave., Jersey City, N. J. They are called "gadgets" because they may be used in so wide a variety of applications.

Tubular and metal cased bypass units of the paper type and carton type dry electrolytic units covering all necessary capacities needed for service work are included in this new Acracon Green Line. Dry electrolytic units are supplied with convenient mounting flanges.

The Green Line contains in all only 29 units, covering singly or in combination practically every requirement.—*Radio Retailing,* March, 1934.

Insuline "Pied-Piper" Crystal Set

The new crystal set of the Insuline Corp. of America, 23 Park Place, New York City, looks just like a regular midget set and comes in an attractive black bakelite case, 6¾ in. high x 4⅜ in. wide. The adjustable crystal control is operated from the front panel and the dial is automatically illuminated by a pilot light when tuning takes place.

Aside from a regular item for sale, crystal sets are fine for store promotions, premiums, etc.

The list price is $4.50 less earphones, which list at $1.25—*Radio Retailing,* March, 1934.

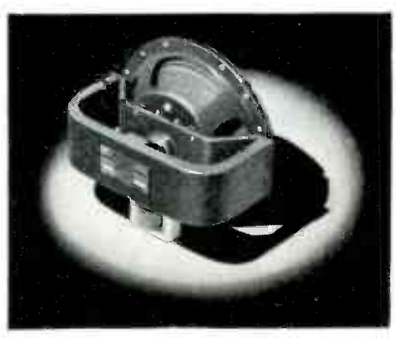
Hickok Testers

The Diamond Point Jr. portable tube tester (mutual conductance) of the Hickok Electrical Instrument Co., 10514 Dupont Ave., Cleveland, Ohio, measures 15x12½x6½ in. A different grid swing is provided for every tube and this grid swing matches the tube. The list price is $77.50. A display model is $75.

Hickok also offers a portable precision laboratory, the "Port-A-Lab" measuring 12x7x3¼ in. Twenty different ranges are provided on two extra large meters. The list price is $125; carrying case, $10.—*Radio Retailing,* March, 1934.

Rola Speaker

The new Rola PM8 dynamic speaker of the Rola Co., 2530 Superior Ave., Cleveland, Ohio, has a dome center cap that completely seals the air gap and voice coil and a radically new centering member and acoustic filter assembly. Metallic particles and dust are completely excluded from entering the magnetic air gap, the vital part of the speaker.—*Radio Retailing,* March, 1934.



RCA Victor Model Duo 301

RCA Victor Models 380, 102, 301, 124

Two combination radio phonographs are announced by the RCA Victor Co., Inc., Camden, N. J.

Duo Model 301 is a table type combination, easily portable. It combines a 4-tube superheterodyne receiver with a phonograph utilizing an ingenious synchronous electric motor wherein the only moving part is the turntable itself. The radio tunes from 540 to 3,500 kc. Tubes used are 6F7, 6A7, 41 and 1B. Dimensions 14⅝x11⅝x9. $54.50.

Duo Model 380 is a console combination with automatic record changer. The 12-tube set incorporates class B audio circuit. It has extended tuning range to 2800 kc. Plays either eight 10-in. or seven 12-in. records, standard or long playing. Tube equipment consists of 4-58, 4-56, 55, 2-59, 5Z3. $365.

Model 102 a.c.-d.c. set is a 4-tube job with t.r.f. circuit. The case is metal with top and sides of blue-black finish and the panel is dull silver. Uses 37, 38, 77 and 78. $18.75.

Model 124 is a 6-tube table model of Neo-American design. Police call reception. This set takes 2-58, 80, 2-A7, 2-B7, 2-A5. $46.50.—*Radio Retailing*. March, 1934.

RCA Victor Model 124

All Purpose Replacement Socket

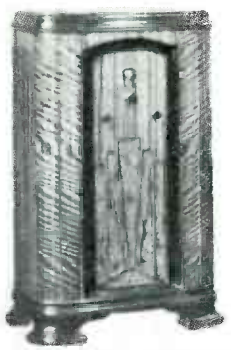
The Amphenol moulded bakelite "clip-tite" socket with universal adapter plate can be used to replace any wafer socket without drilling new holes in the chassis. It can also be mounted in any position and allows shield to be added to any tube without riveting or drilling the chassis base. Made by the American Phenolic Corp., 549 W. Randolph St., Chicago, Ill.—*Radio Retailing*, March, 1934.

Emerson Model 416, 26, 77

Illustrated Model 77 of the Emerson Radio & Phonograph Corp., 111 Eighth Ave., New York City, is a 7-tube superheterodyne with 12-in. dynamic speaker. The tube line-up consists of 55, 56, 3-58, 57 and 80. The cabinet is of modern design, standing 39 in. high. $69.50.

Model 416 is a compact, a.c.-d.c. set, taking 77, 78, 38 and 1V. The Georgian type cabinet has special appeal because of its simple lines. Size 10x7¼x4½-in. $19.95.

Model 26 is a 5-tube receiver covering from 75 to 550 meters. The two wave bands are divided as follows: regular broadcast, 200 to 550 meters, and short-wave 75 to 200 meters. This is an upright table model using the following tubes: 2-58, 57, 47 and 80. $26.95.—*Radio Retailing*. March, 1934.



Emerson Model 77

Variable Voltage Adjuster

Regulation and adjustment of the primary line voltage from either below or above normal may be obtained with the new variable voltage adjuster designed by the Acme Elec. & Mfg. Co., Cleveland, Ohio.

Built similar in construction and appearance to an ordinary step-down transformer, a series of taps has been created within the case. A manually operated dial provides the necessary regulating medium for control. A sensitive and accurate instrument indicates the secondary voltage in connection with the regulation from the operating dial. This adjuster is ideally suited for service shop use as it is light, handy and efficient.—*Radio Retailing*, March, 1934.

Onan Generating Plants

Five sizes of its oil driven generating plant are being manufactured by D. W. Onan & Sons, Minneapolis, Minn. The plants are ready to run when received by the purchaser and do not require a heavy, deep-dug concrete base but may be set on any solid floor. The sizes available are: 10,000, 15,000, 25,000, 35,000 and 50,000 watts.

These generating plants are built to furnish 110 to 220 volts, single or three phase, a.c. or d.c. They employ the well-known Hesselman cycle oil engine.—*Radio Retailing*, March, 1934.

Kato 32-Volt "Konverter"

A new vibrator type 32-volt "Konverter" has just been placed on the market by the Kato Engineering Co., Mankato, Minn. This Konverter draws about 2½ amp. from a 32-volt lighting plant when operating a radio set with rated consumption of 70 watts. It comes complete with attachment cord and radio receptacle. The vibrator assembly is made so that it may be easily removed for servicing.

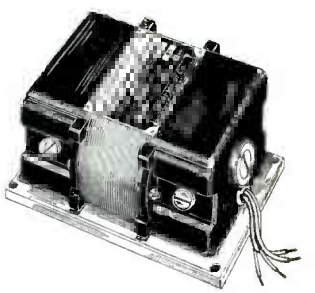
Model 9 is small enough to be installed inside the radio cabinet or placed on the table beside it. It is only necessary to plug into the socket to operate a standard a.c. set. The list price is $29.

Kato also makes several other types of Konverters for converting 110 volts d.c. as well as 32-volt d.c. to 110-volt a.c. Prices range from $29 to $60 and they come in both the vibrator and rotary types.—*Radio Retailing*. March, 1934.

Faratron "Invisible Control" Relay

Many uses can be found for the "Invisible Control" relay of the Lumenite Electric Co., Old Colony Bldg., Chicago, Ill. With this device drinking fountains operate by approach, doors open before being reached, alarm sounds without knowledge of the intruder, etc. The Faratron does not employ a light beam.

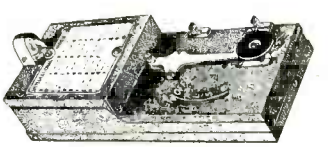
The heart of this unit is an amplifier tube and only one adjustment is necessary for proper operation. Three general methods of control are available. First, operation by approach whereby the unit responds to the approach of a body from a distance. Second, operation by touch or contact where the body increases the antenna length for the resulting action. Third, the grounding of the antenna in connection with some mechanical control.—*Radio Retailing*. March, 1934.



Carter Small B-Eliminator

An extremely small rotary type B eliminator with full power output has been placed on the market by the Carter Motor Co., 361 W. Superior St., Chicago. It is only 2⅞ in. wide x 4 in. high x 5 in. long and weighs 6½ lb. Being so compact and light it can be easily placed in either the radio set or speaker case. Completely enclosed and shielded and requires no adjustments. $16.50.

The unit consists of a newly designed motor generator with a reflex filter circuit and operates from a 6-volt storage battery delivering up to 350 volts. It can be supplied for both a.c. and d.c. output up to 500 volts and also is made to operate from 32-volt farm lighting plants.—*Radio Retailing* March, 1934.



Fleron Radio Code Practise Set

For boys interested in amateur radio and anxious to learn the code, the code practice set of M. M. Fleron & Son, Inc., Trenton, N. J., starts them off with a real instrument. It consists of the flasher, sounder and high pitch buzzer. Each can be used separately. It is a sturdy pocket size set with key in correct practice position, equipped with clips for connection to second set. The price is $1.30 less the tube flashlight cells necessary.—*Radio Retailing*, March, 1934.

Horton Washers

A complete line of washers and ironers at a price range designed to meet every need can be obtained from the Horton Mfg. Co., Fort Wayne, Ind.

Model No. 1, DeLuxe, illustrated, is the top model in the line and features the latest Horton development, the new four-roll auto-safe wringer. The construction of this wringer makes its safety feature absolutely automatic. This washer also has an over-size tub of porcelain inside and out and a specially designed agitator. It is driven by a full quarter horsepower floating power motor.

The complete line includes three additional electric models and one powered with a gasoline engine for use where electricity is not available.—*Radio Retailing,* March 1934.

Franklin Navigator Console

A 9-tube, 14-550 meter superheterodyne in a moderne console is being released by the Franklin Radio Corp., Dayton, Ohio. This set has 10-in. dynamic speaker, Class A push pull audio amplifier, a.v.c., phonograph pickup connection and uses 2-57, 2-58, 2B7, 56, 2-59 and 5Z3. This set may be also obtained in chassis form 15x10x8 in. —*Radio Retailing,* March, 1934.

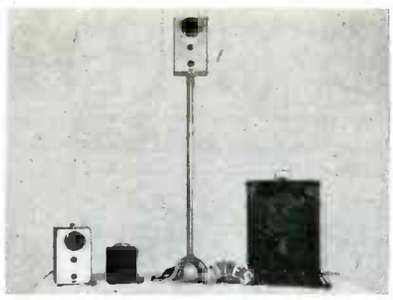
Amplex Capacity Indicator

A new instrument for servicemen, amateurs and laboratories, the "capacity indicator," can be obtained from Amplex Instrument Laboratories, Inc., 240 West 23rd St., New York City.

It is the first and only instrument of its kind that indicates immediately (by substitution) the value in any circuit of any condenser that may have become defective, the release states. Also indicates open and leaky condensers and exact required capacity for best results: eliminates need for referring to circuit diagrams and covers both ranges—by pass, .0001 to 1. mfd. and filter, 2 mfd. to 12 mfd. Direct reading and comes in a bakelite case small enough to slip into pocket or service kit. Price, net to dealers and servicemen, $7.50. List, $12.50.—*Radio Retailing,* March, 1934.

Kester Aluminum Solder

An aluminum solder of special alloy, with an efficient flux sealed within the core or center opening of the solder, has been developed by the Kester Solder Co., 4201 Wrightwood Ave., Chicago, Ill. It is sold in handy small tins for household or small repair work and in 1-lb. spools for commercial and industrial use. This new solder successfully meets the requirements of proper aluminum soldering.—*Radio Retailing,* March, 1934.



Miles Socket Operated Sound System

By simply plugging the Miles socket mike into the light socket every light socket in an apartment, office or building becomes a point of reception for the Miles socket operated amplifier or your own radio. This eliminates wiring and greatly simplifies the installation.

The Miles "socket mike," made by the Miles Socket Mike Co., 244 W. 23rd St., New York City, is an audio frequency modulated r.f. amplifier used to transmit voice or music. With this mike any standard radio can be converted into a socket operated P.A. system without special wiring. In conjunction with a radio receiver or Miles amplifier-speaker combination it will convert an electrical phonograph pick-up to a socket-operated phonograph loud speaker system. No coupling or connections are necessary between the mike and the set no matter how far apart they are.

Type Z socket mike combination employs 3 tubes. It lists at $47.50, less tubes. Many other combinations are available at varying prices.—*Radio Retailing,* March, 1934.

Short Wave Sets and Kits

Wholesale Radio Service Co., 100 Sixth Ave., New York City, has recently placed on the market a new line of short-wave receivers and kits especially designed for novices. A uni-shielded two-tube job kit lists for $5.75 less coils and tubes. Complete with tubes and set of four coils, the price is $9.03. The three tube model lists at $7.45 less accessories and at $11.70 with accessories. Both models are battery-operated.—*Radio Retailing,* March, 1934.

Continental Carbon Products

Among the new products to be announced by the Continental Carbon, Inc., 13900 Lorain Ave., Cleveland, Ohio, are:

A complete range of paper filter sections to replace all electrolytic filter section failures. They are offered in cardboard and round metal containers in all standard single and multiple section capacities.

A new auto radio ignition suppressor suitable for spark-plug installation on any car. This S-18 suppressor is less than 2 in. in length and has a spark plug terminal of flexible spring brass that may be bent for straight or angle mounting.

Continental molded "Carborite" replacement resistors are now being manufactured with its new 1000-volt insulation.—*Radio Retailing,* March, 1934.

Potter Condensers

Condensers to meet every requirement for radio and industrial application can be obtained from the Potter Co., 1950 Sheridan Rd., North Chicago, Ill.

Potter also makes the "Select-A-Tone" which offers a wide range of tone selections and reduces static interference, $2.50, and an interference eliminator.—*Radio Retailing,* March, 1934.

Service Cement, Shims, Insulating Cloth

A fast drying, vibration proof, flexible and waterproof cement that is especially prepared for radio and speaker repairs can be obtained from the General Cement Mfg. Co., Rockford, Ill. 50c.

The Eveready service solvent can be used to loosen and remove old cement from speaker cones and spiders and to clean wire wound volume controls, dirty condenser contacts, etc. 15c.

This company makes speaker shims to aid in the proper alignment of dynamic speaker cones, and for magnetic speakers. They come in a handy leather case (16 to a case), color coded and four sizes are furnished. 65c.

Insulating cloth can also be obtained for insulating and preventing grounds and shorts on field coils, transformers, resistors, condensers, etc. It will stand up to 5000 volts safely. A roll of over 200 sq.in. lists at 50c.—Radio Retailing, March, 1934.

Bond Improved Dry Cells

An improvement in No. 6 dry battery cells, developed by the Bond Electric Corp., Jersey City, N. J., is an all-zinc, soldered shell top, as well as bottom and sides. The top thus becomes active material. Among the advantages are greater ampere-hour capacity. With the space-saving zinc top, it is possible to pack in more of the energy-producing chemicals. The new construction also armors the battery, enabling it to stand up under rough handling.—*Radio Retailing,* March, 1934.

Aerial Spring Adjuster

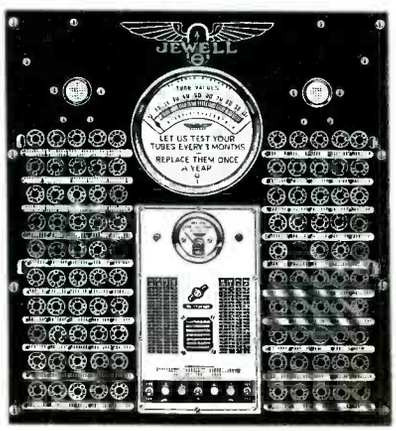
To prevent antennas from swaying with the wind and to keep them from coming in contact with high voltage lines, Birnbach Radio Co. Inc., 145 Hudson St., New York, announces its 765 spring aerial adjuster.

With the coming of the doublet short-wave antenna system it compensates the additional weight and strain placed on the antenna proper, keeping it straight and clear from surrounding objects. 50c.—*Radio Retailing,* March, 1934.

Modernized Jewel 535

The dealer who wishes to modernize his Jewell 535 may send it to the Precision Apparatus Corp., 821 E. New York Ave., Brooklyn, N. Y. A rebuilt checker is illustrated. It provides for testing practically all tubes. Other features include short test system, ten pre-heater sockets, double test on all dual purpose tubes and full wave rectifiers. Testing is accomplished in the same manner as before re-building.

Same service is available for Jewell 214 and 538 and Dayrad 381.—*Radio Retailing,* March, 1934.



TUBE TIDINGS

March, 1934 E. T. Cunningham, Inc.-RCA Radiotron Co., Inc. Camden, N. J.

Mass Display Featuring Micro-Sensitive Radio Tubes Wins Commendations of Trade

Prospects Easy with Action Postcards

The idea behind Patented Action Postcards, the Cunningham-Radiotron triple-threat mailing piece that has won exceptional favor with dealers of all types, is a "super one," in the estimation of Roy Gray, 2502 West 69th Street, Chicago.

"I have never had so many easy prospects from any other way of advertising," relates Mr. Gray. "I do not mail these cards, but have them delivered from door to door. Out of the 50 cards delivered each day I get from five to ten responses, and in a large percentage of cases I am able to sell RCA Tubes and other merchandise."

Another dealer who believes Patented Action Postcards to be a real find is Bronx Radio and Television Co., Bronx, N. Y. Thomas A. Pilling, Manager, writes, "I have used approximately 600 Patented Action Cards and have obtained very good results from them. In fact, I now plan to buy 2,000 more in the near future, so well do I think of them."

That the experience of Mr. Gray and Mr. Pilling with Patented Action Cards is typical of dealers generally, is evident from the fact that the C-R warehouses have filled orders totalling over a million cards to date.

Dealers and distributors are calling the new Cunningham-Radiotron mass display "the best ever" reports Matty Matthews, C-R Western Division Sales Promotion Manager, and his words are re-echoed by company representatives across the continent.

Featuring Micro-Sensitive Radio Tubes, the basis of the Cunningham-Radiotron Spring sales drive, the new display is of the eminently successful "product" type. Furthermore, an ample supply of display cartons accompanies each display kit, enabling any dealer to install a mass-type display. The chain stores and 5-&-10's have found mass displays to be without an equal for sales-making power.

The new display provides a perfect dealer tie-in with the widespread Cunningham-Radiotron advertising on Micro-Sensitive Radio Tubes, according to C. R. King, General Sales Manager. This advertising is being carried in newspapers throughout the country and in magazines with a total circulation of 15,000,000.

The new display is handsomely lithographed in nine colors and is boldly designed to attract a maximum of attention. It will be mailed to any dealer free on request. Dealers desiring to benefit from the national advertising on Micro-Sensitive Radio Tubes should write for their display at once.

Display Draws Praise From Window Expert

High praise of the new Cunningham-Radiotron window display is forthcoming from Leslie H. Coloney, Sales Manager of Window Advertising, Inc., leading installation company with offices throughout the country. Says Mr. Coloney:

"It has long been acknowledged that the mass type of window display makes the most sales, draws the most customers into the store, for all products which are in continuous demand—such merchandise as cigarettes, candy, razor blades, tooth paste, radio tubes.

"The sales psychology of the mass display is very simple. Let a passer-by see a large quantity, or what appears to be a large quantity, of any merchandise of this type in your window, and his reaction is that this merchandise sells in large quantities—that you sell large quantities of it—and he is immediately reminded that he needs such merchandise.

"The tube display that you are being offered by RCA is one of the best of its kind that I have ever seen. There can be no doubt in the minds of all passing your store that this display is intended to remind them that they need new tubes, and that your store is the right place to buy them."

THE NEW CUNNINGHAM-RADIOTRON DISPLAY IS FREE ON REQUEST. WRITE FOR YOURS

New Aid Ties in Neatly with "Strip" Ads

Three styles of "Talkies" available—Rubinoff (No. 614), Stoopnagle and Budd (No. 615), Paul Whiteman (No. 616)

"Talkies" fold to 2½"x3" size.

"Talkies" is the very appropriate name of a novel sales aid which has just been announced by RCA-Cunningham and which should make a big hit with dealers and service organizations, reports F. B. Wanselow, C-R District Manager in Camden, N. J.

"Few sales aids have ever enabled a dealer to make his store an integral part of a great national advertising campaign the way 'Talkies' do," said Mr. Wanselow. "For 'Talkies' take the same pictures of famous radio performers that are being used so effectively in Cunningham-Radiotron's latest 'strip' style magazine ads and weave the dealer's advertisement right into the message put across by the artists. The dealer's imprint comes at the 'psychological moment' as Rubinoff, or Paul Whiteman, or Stoopnagle and Budd suggest to the radio listener that she should have her radio tubes tested.

People Read "Balloons"

"Borrowing the idea that has made the comic pages one of the most popular pages of the newspapers, advertisers have discovered that far more people will read their message when it is in a 'balloon' emanating from the mouth of a person pictured in the advertisement. When that person is a nationally known character, the peak of reader interest is attained. 'Talkies' capitalize on this principle."

Folded, the "Talkie" measures two and a half by three inches. The first page is devoted to a catchy title: "Rubinoff Gives a Tip," "Sound Advice from Stoopnagle and Budd," or "Paul Whiteman Solves a Mystery." Unfolded, the "Talkie" becomes a strip of six pictures seventeen inches long.

Have Double Merit

On their own merit, "Talkies" should be real business-producers. Their close tie-in with national advertising campaign makes them even more powerful.

"Talkies" can play an important part in any dealer's advertising schedule. The Rubinoff strip, in which the popular orchestra leader solves a radio listener's problem when he smilingly advises her to "call a service man," will appeal particularly to those dealers who specialize in service. The Paul Whiteman and the Stoopnagle and Budd strip suggests that the radio fan should have her tubes tested, thus making them adaptable to either over-the-counter or in-the-home merchandising.

Low in Price

The low price of "Talkies" makes them suitable for use as envelope stuffers, or for counter distribution. By distributing them from house to house, a dealer could cover his entire trading area with a very effective selling message at nominal cost.

One dollar buys 500 "Talkies," imprinted and folded. Additional quantities of 500 may be had for 50c, making the price for 1000 strips only $1.50. Orders should be placed on the nearest RCA Cunningham-Radiotron warehouse, specifying the strip desired by number as follows:

No. 614—Rubinoff Talkie
No. 615—Stoopnagle and Budd Talkie
No. 616—Paul Whiteman Talkie

Each number must be ordered in quantities of 500 or even multiples of 500.

Micro-Sensitive RCA Radio Tubes Incorporate Five Improvements

There are at least five easily recognizable manifestations of the superiority of Micro-Sensitive RCA Radiotrons and Cunningham Radio Tubes, in the estimation of J. C. Warner, Vice President and General Manager.

These improvements are: quieter operation, uniform performance, uniform volume, quicker start, every tube matched.

"The meaning of these new features in terms of performance," Mr. Warner said, "is as follows:

1 *"Precision Construction.* This is made possible by 60 percent closer mechanical tolerance in sizes of elements; straight line arrangement of grid side rods and plates as well as improved methods of spacing and supporting elements. Our construction standards are extremely high. That is why we often say that our tubes are made with watchmakers' accuracy.

"The improvements just mentioned result in more uniform characteristics. This eliminates the necessity of customer 'matching' and special selection. As a matter of fact, the characteristics of our tubes are so uniform that we have authorized our Advertising Department to refer to them as 'Matched Tubes.'

2 *"More Efficient Cathodes.* Improved chemicals and better manufacturing processes are responsible for more efficient cathodes. More consistent life performance has been brought about by this improvement. RCA Micro-Sensitive Radio Tubes not only improve radio set performance during the first hundred hours of use, but result in continued improvement throughout their life period.

3 *"Improved Heater Design.* Taking the form of a double helix, the new heater is wound on precision equipment which insures accurate spacing of the turns. It is then coated with refined insulating material and processed with a high temperature heat treatment. The result is a well insulated heater element which combines the features of long life and rapid heating.

"The form of winding of the double-helix heater results in a marked reduction of hum output as compared with earlier designs of tubes for A-C service. In addition, the insulating process minimizes the possibility of raspng noises which appear in the output of the receiver when inferior insulation is used.

4 *"Higher Vacuum.* The improved chemicals and chemical processes as well as high efficiency vacuum pumps enable us to get extremely high vacuums. It may seem hard to believe, yet we reject tubes which show an internal pressure of more than one forthy-millionth of the outside air pressure. This high vacuum results in quieter operation.

5 *"Cooler Grids.* The use of copper side rods for conducting heat away and radiating collars have been incorporated in the construction of a number of types. This has brought about freedom from fluctuations in volume due to erratic tube performance. It also results in more uniform performance throughout life."

Letterheads "Just what the Doctor Ordered"

Arbutus Radio Company, Baltimore, is one of hundreds of firms which have ordered and are exceptionally well pleased with Cunningham-Radiotron Service Letterheads, reports W. L. Rothenberger, C-R sales representative.

The Arbutus store has ordered a large supply of letterheads and has found them to be a real aid in creating customer confidence and building tube sales. With characteristic brevity, they sum up their opinion of the letterheads as follows: "Very attractive — reasonably priced — just what the doctor ordered. We like them very much!"

Merchandising RECORDED MUSIC

A GLANCE at current record lists reveals an extraordinary number of classical releases. The quantity of albums this month approaches that of a few years back. The disc salesman should study these broadsides carefully and make the most of their immediate potentialities. Here is information to assist in merchandising March records:

Victor's Red Seal offerings total 36 discs—31 of the $2 variety and five in the $1.50 class, an inventory of $69.50 at list prices. Add to this Columbia's March publications, 12 records in the Celebrity and Masterworks series and inventory is further augmented. Hence push these records for immediate turnover. Every item is unusually well chosen and is necessary to a complete stock of representative current offerings.

The feature of the month is Victor's thirteen-disc-set of the opera *Der Rosenkavalier* (The Rose-Bearer) by Richard Strauss, eminent contemporary composer of Germany. This scintillating, melodious comedy to music, built around libidinous adventures in Eighteenth Century Vienna, is beloved by thousands of music lovers everywhere. It is inconceivable that there are not at least a half-dozen radio listeners and opera fans in any sizable community who would be overjoyed at an opportunity to have this splendid recording featuring the rich voices of Lotte Lehman and Maria Olczweska, permanent fixtures at our own Metropolitan; Elisabeth Schumann and Richard Mayr; and last but not least, the ravishing tone of the Vienna Philharmonic Orchestra, conducted by Robert Heger.

Masterpiece set No. M-196 is a lavish presentation of representative passages of a masterpiece of infinite charm. Become familiar with the story of the opera and play the records yourself.

The Victor "Record-of-the-Month" choice is Yehudi Menuhin's playing of one of the loveliest compositions in the entire field of violin literature: Chausson's *Poème*, for violin and orchestra. The accompaniment of the Symphony Orchestra of Paris is conducted by Georges Enesco, a teacher of this young virtuoso. Discs No. 7913 and 7914.

Lovers of violin music will not want to miss Joseph Szigeti's playing of the famous Mendelssohn concerto (Columbia Masterworks set No. 190). Szigeti is one of the greatest violinists of our time and his other Columbia records, especially those of the Bach sonatas for unaccompanied violin, are tremendously popular. The reproduction here is exceptionally vivid and the orchestra accompaniment, directed by Sir Thomas Beecham, is robust and precise.

Records of classical music which will sell themselves are those of Bach's *Brandenburg Concerto No. 4* (Victor Nos. 7915 and 7916) and Mozart's oboe *Quartet in F Major* (Columbia Nos. 68157 and 68158). Horowitz, who needs no introduction, demonstrates his wonderful pianism in Schumann's *Presto—Passionato* (Victor No. 1638).

It's unfortunate that we haven't the space to comment upon each of the March popular records separately. We have listened to them all and list, in the box above, the one's most likely to succeed. The studios have consistently improved the quality of recording. Recently both Brunswick and Columbia installed new wide-range equipment; the Victor laboratories, of course, are experimenting perpetually. An idea as to the sort of recording evolved in Europe may be obtained from the records by Ray Noble and his orchestra—*Love Locked Out* and *There's Something About a Soldier* (Nos. 24485 and 24513)—on the current Victor list.

Feature also: *Let's Fall in Love* and *Love Is Love Anywhere* (from the picture "Let's Fall in Love") played in Eddy Duchin's suave manner (Victor No. 24510); Benny Goodman's clarinet in *Ol' Pappy* and *Junk Man* (Columbia No. 2892D); *Lullaby in Blue* by Madriguera (Columbia No. 2890D); the hot riffs in Benny Carter's *Devil's Holiday* (Columbia No. 2898D); and the effulgent orchestration of Wayne King waltzing the *Song of Surrender* (from the picture "Moulin Rouge") (Brunswick No. 6735). From the last mentioned film comes two hits, *Coffee in the Morning* and *Boulevard of Broken Dreams*; the first sumptuously played by Gus Arnheim, the latter by the illustrious Hal Kemp (Brunswick No. 6734).

Boswell Sisters Win Honors

The recent WORLD-TELEGRAM, *New York, radio popularity poll has stimulated interest in six Brunswick recording stars, who won first honors, in their respective groups, in this contest. These were Guy Lombardo, Ruth Etting, Bing Crosby and the Three Boswell Sisters. The Boswell Sisters' latest issue is Brunswick Record on which they offer "Coffee in the Morning and Kisses in the Night" and "Song of Surrender." Both numbers from Moulin Rouge*

Radio Retailing Selects

THE HITS FOR MARCH

BRUNSWICK

I Just Couldn't Take It, Baby—Your Mother's Son-in-Law—(both from "Blackbirds of 1934")
Played by Leo Reisman and his Orchestra (No. 6742).

This Little Piggie Went to Market—A Day Without You—(both from the Paramount picture, "Eight Girls in a Boat")
Played by Victor Young and his Orchestra (No. 6747).

In Other Words—We're Through—Vocal
I Had to Change the Words—Vocal
Sung by Connie Boswell (No. 6754).

VICTOR

If I Love Again—(from "Hold Your Horses")
Wagon Wheels—(from "Ziegfeld Follies")
Played by Paul Whiteman and his Orchestra (No. 24505).

Sittin' on a Log—Got the Jitters—
Played by Isham Jones and his Orchestra (No. 24496).

That's Love—Vocal—(from United Artists' picture "Nana")
Why Not?—Vocal—
Sung by Ramona (and her Grand Piano) (No. 24520).

COLUMBIA

Carioca — Rhumba — (from RKO picture "Flying Down to Rio")
Orchids in the Moonlight—Tango—(from same film)
Played by Enrique Madriguera and his Orchestra (No. 2885).

Wonder Bar—(from Warner Bros. picture, "Wonder Bar")
I Love Gardenias—(from Palais Royal "Revue")
Played by Emil Coleman and his Orchestra (No. 2894D).

You Ought to Be in Pictures—(from Columbia picture, "New York Town")
Nothing But the Best—
Played by Little Jack Little and his Orchestra (No. 2895D).

Business Follies of 1934

FOLLY NO. 2

"LISTEN—*Radio has it over records like a tent!*". . .

Guess he hasn't heard the new Victor records, with tone clarity never before achieved... and if *you* haven't, man—

"You ain't heard nothin' yet!"

IT'S leaked out already—the amazing advances in clear, crisp recording that have been made in Victor records. Alert dealers have heard about it, are cashing in on it—we're here to give *every* dealer this message:

The new Victor records have a crispness and definition that will startle you. Through higher fidelity Victor has obtained a new sweetness and purity of tone never before achieved in *any* kind of reproduction. Listen to any one of the recent Victor recordings—you'll have an entirely different conception of phonograph records . . . you'll see why records have caught up with radio music; why more and more people are buying Victor records.

Record sales shot up 100% last year. More turn-tables are being bought today than in the past few years. Live dealers are getting in on this new good thing, are finding out that there's no longer any question of "tying up your money" in records.

Write to us today for the new sales plans that will start Victor records moving for you . . . also how you can cash in on the new Blue Birds, fastest selling low-priced records.

RCA VICTOR CO., INC., *A Radio Corporation of America Subsidiary.*

Get these new Victor releases

24555
My Song Goes Round The World—Fox Trot
Song Without Words—Fox Trot
Ray Noble and his Orchestra

24558
Carolina — Fox Trot (from the film "Carolina)
Dancing in the Moonlight—Fox Trot
Rudy Vallee and his Connecticut Yankees

24563
Bolero
Variations on Who's Afraid of the Big Bad Wolf
Fray and Braggiotti

M-194
Concerto No. 3 in C Minor (Beethoven, Op. 37)
Artur Schnabel and the London Philharmonic Orchestra. The great Beethoven interpreter's latest magnificent performance.

The finest artists are on Victor Records

IT PAYS TO SELL

Victor Records

RCA VICTOR CO., Inc., Camden, N.J.
I want to get in on the new increase in sales of Victor records. Please send me complete details of your proposition.

*Name*_____

*Address*_____

RR

ENTERPRISING SERVICE MEN!

WILL FOLLOW THE GREEN LINE

ACRACON GREEN LINE

GADJET

TRADE MARK

THE ULTIMATE IN SERVICING

FOR

- LOW INVESTMENT
- INCREASED PROFIT
- SIMPLIFIED SERVICING
- GREATER OPPORTUNITY

KEEP PACE WITH THE TIMES

WHY!

The New Acracon Green Line Gadjet Condensers cover all servicing needs with surprisingly low investment. Due to their small size and ample voltage rating they will easily and quickly replace an old style condenser.

Available in a substantial and convenient metal cased kit, or separately, as desired.

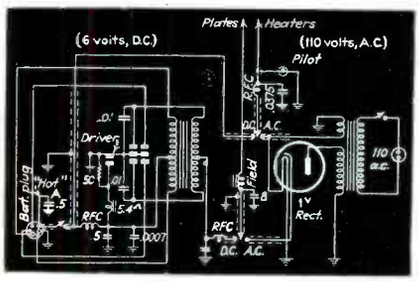
WRITE NOW FOR 16 PAGE CATALOG

CONDENSER CORPORATION OF AMERICA

259 Cornelison Ave., Jersey City, N. J., U. S. A.

SERVICE AND INSTALLATION SECTION

CIRCUITS of the MONTH



"Twin" Powerpack Works On 6 Volts D.C. or 110 A.C.

RCA's new M116 and GE's B52 auto-home models work either on 6 volts d.c. or 110 a.c. The powerpacks are "twin" units, including a vibrator interrupter and mechanical rectifier for storage battery operation and a half-wave tube type rectifier for line work. A d.p.d.t. switch accomplishes changeover of heater and plate supply, the tubes always being heated in parallel.

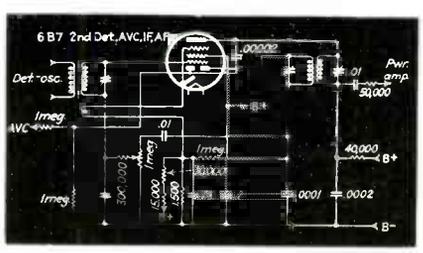
The vibrator portion of the assembly closely resembles the pack of the earlier M34 as to circuit design but uses an improved, hermetically sealed mechanical unit. The receiver circuit itself is, like the M34, a four-tube job with a reflexed 6B7 working as i.f. amplifier, 2nd detector and first a.f.

•

Reflexed 6B7 Works As Det., A.V.C., I.F. and A.F.

A 6B7 duo-diode pentode is used in Lyric's models C4 and M4 chassis as a second detector, a.v.c., i.f. and a.f. amplifier, one of the few recent examples of modern reflexing.

I.f. is fed by a 6A7 detector-oscillator to the pentode portion of the 6B7. Amplified



i.f. appearing in the pentode plate circuit, kept out of the power amplifier system by a 50,000 ohm filter resistor, is impressed through transformer action on one diode plate. The diode detects and a.f. is applied across a 1 megohm volume control through a .01 condenser. A.f. is passed from this control, through a 300,000 ohm filter which keeps i.f. out of the circuit, back to the control grid of the pentode portion of the 6B7. The pentode amplifies (reflexed to work at both i.f. and a.f.) and stepped-up a.f. is passed from its plate circuit to the final power amplifier through a .01 condenser.

The second diode plate of the tube receives amplified i.f. from the pentode plate through a .00002 condenser, which is so small that a.f. also in this plate circuit does not pass. I.f. signal currents are rectified between this diode plate and cathode, across a 1 megohm load resistor, and the d.c. so obtained applied to the grid of the 6A7, providing a.v.c.

•

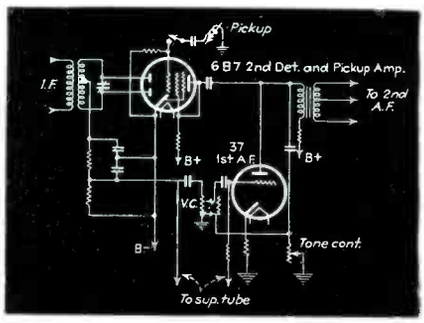
Separate Pickup Amplifier Tone-Compensated A.F.

Midwest's new 16-tuber uses a 37 first a.f. amplifier for radio, the pentode portion of a 6B7 as a separate pickup amplifier. As will be seen in the diagram the diode plates of the 6B7 constitute a second detector.

When the instrument is receiving radio signals a.f. voltage is developed across the load resistors connected between the diode coil center tap and the 6B7 cathode. It is picked off the junction between these two resistors and applied, through the volume control and blocking condensers, to the grid of the 37 a.f. tube, which in turn feeds the primary of an a.f. transformer. (The gain of the 37 is automatically controlled by a "Statomit" suppressor 37.) The control grid of the 6B7 receives no signal, hence the pentode is inoperative.

Now, when the pickup switch is closed, voltage generated by the record is applied to the input of the pentode portion of the 6B7, which feeds the audio transformer primary in place of the 37. Radio reception is muted by turning down the volume control.

The volume control itself is interesting as it is of the tone compensated variety. A tone control resistor, it will be noted, permits high-frequencies to be by-passed



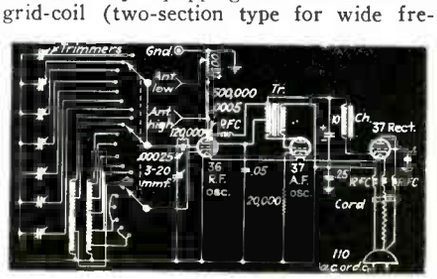
to ground from the first a.f. plate circuit. (This control works on the pickup amplifier as well.) In addition, a certain amount of high frequency by-passing occurs automatically, irrespective of tone control resistor setting, as the volume is turned down. A ganged double volume control unit makes this possible and it will be seen that as less and less audio is applied to the 37 grid the other arm permits the tone control condenser to by-pass more and more high-frequency to ground.

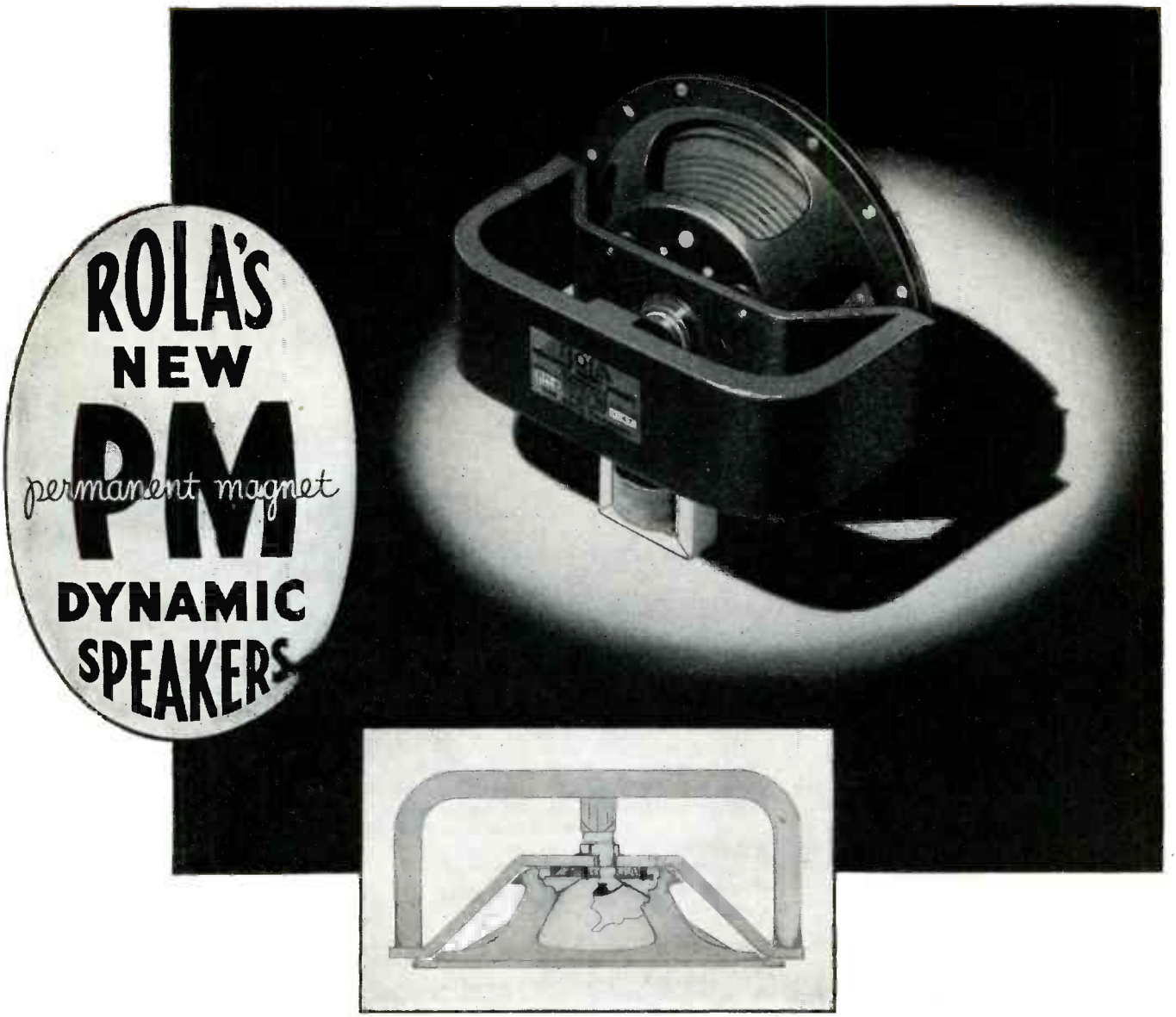
A.v.c. is used in the receiver (not diagrammed), the pentode portion of another 6B7 deriving signal voltage from the primary of the second i.f. transformer, passing the amplified i.f. for rectification to its own, full-wave diode rectifiers and thence to r.f. and i.f. control grids. The receiver, in addition to the audio tubes shown, has two 37's in push-pull, followed by four 45's in push-pull parallel.

•

Electron-Coupled Oscillator Has 7 Semi-Fixed Fundamental Frequencies

The circuit of Clough-Brengle's improved Model OA test oscillator is of technical interest. By equipping the r.f. oscillator grid-coil (two-section type for wide fre-





WITH a domed center cap that completely shields the air-gap and voice-coil, and a radically new corrugated diaphragm type centering member, and acoustic filter assembly, Rola's new PM DYNAMIC speakers attest the skill of Rola technicians in pioneering new fields of loudspeaker engineering.

For the first time metallic particles and dust are permanently excluded from entrance to the magnetic air-gap . . . the vital part of the loudspeaker. The voice-coil is fully protected. Its free movement is unrestricted. Greatly increased flux density is secured by a new and novel magnet-core construction, and new features of assembly. Service troubles are entirely eliminated. New high standards of efficiency are secured. New markets . . . new sales opportunities are made available to radio manufacturers.

Brilliant in performance, these new high efficiency PM dynamic speakers are adapted for use in hotels, schools, hospitals, theatres, restaurants and clubs. They bring previously unknown performance to battery-energized radio sets where it is impractical to apply energy for the field coil. Featuring new, exclusive vital parts, these Rola speakers are worthy of your closest consideration. Write today for a sample unit, sizes and dimensions. Full details on request.

THE ROLA COMPANY

2530 SUPERIOR AVENUE • CLEVELAND, OHIO, U. S. A.

Manufacturers of all types of speakers for automobile, portable and console Radio sets . . . and high power speakers for public address systems.

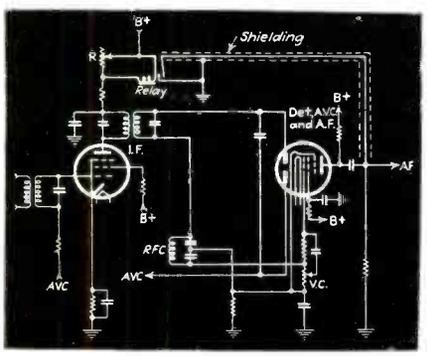
quency range) of this instrument with 7 individual trimmers and bringing out coil taps, rotation of a three-gang selector switch is made to provide factory-calibrated fundamental frequencies of 130, 175, 262, 456, 600, 1000 and 1400 kc. without the use of graphs. (Other points available in special jobs.) Frequencies 10 kc. above or below these fixed points are obtainable by rotating the calibrated dial of a 3-20 mmf. variable condenser which remains in shunt with the coils, irrespective of switch positions.

A 36 is used as r.f. oscillator, the screen serving as oscillatory anode, output being taken from the electron-coupled plate circuit, across a shielded, tapered attenuation resistor. Thus load variations have a minimum effect upon generated frequency. An r.f. choke confines output to the attenuator, prevents it from getting back into the power supply.

The r.f. oscillator is plate (Heising) modulated. A 37 generates a fixed 400 cycle audio tone, r.f. oscillator screen (oscillating plate) current flowing through part of the primary of the 37's iron-cored oscillation transformer.

The two oscillators, audio and radio, obtain plate, screen and heater voltage from a 110 a.c. or d.c. line through a 37 hooked up as a half-wave rectifier and a suitable filter. All heaters work in series with a 225 ohm line resistor in the supply cord, well-known "universal" receiver practice. R.f. chokes in all three supply leads keep stray r.f. currents out of the line.

•



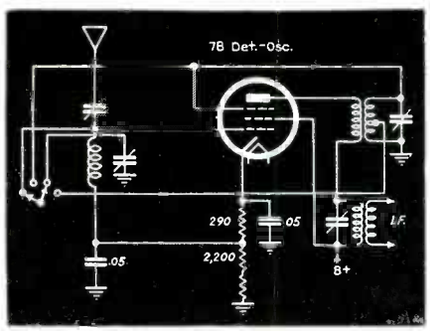
Magnetic Relay Used for Suppression

A magnetic relay, sufficiently sensitive to work on the normal plate current of an i.f. tube, may be used to achieve automatic suppression between stations if the receiver to which it is applied has a.v.c. The diagram shows such an installation in a popular British set (the idea has been used in one American model).

Plate current of the i.f. amplifier, flowing through a resistor high enough in value to prevent the passage of i.f. to the power-pack and relay control resistor "R," is low when a signal is being received due to the application of a.v.c. bias to the tube's grid. Hence the relay coil is not energized and its contacts remain open. When the set is tuned between stations, however, the a.v.c. circuit ceases to function, grid bias decreases and plate current increases. The relay closes and shorts the grid of the final power amplifier (not shown) to ground, effectively suppressing reception.

"R" should have approximately the same resistance as the relay coil. Variation of the control permits i.f. plate current to be divided between resistor and relay coil, the set thus cuts out at any desired sensitivity point. The contacts of the relay are in an a.f. circuit, do not have to carry heavy currents and consequently do not pit. Screening of the lead shown is necessary to avoid hum. If the relay can be operated by a severe mechanical shock or bump it will be necessary to mount it on sponge rubber.

•



Simple Detector-Oscillator Circuit Shortwave Switch

An interesting switching system which enables a 78 used as combined first detector-oscillator to operate efficiently on shortwaves is found in Sparton Models 61 and 62.

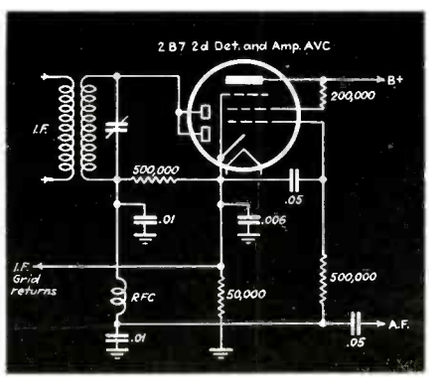
When the double-arm switch is in the position shown the input coil is shunted by a variable tuning condenser for operation in the broadcast band. When the switch is rotated to the other two contacts this condenser is removed, the coil alone resonating at a much higher frequency and working untuned. In addition, part of the oscillator coil is shorted out, to reduce the fundamental frequency generated so that it may beat with incoming shortwave signals.

•

Amplified A.V.C.

Here's another example of amplified a.v.c., in Franklin's Model 94 allwave job. A.f. and d.c. are developed in the half-wave diode rectifier circuit, across a 500,000 ohm load resistor between diode plates and cathode. An r.f. choke keeps r.f. in the diode circuit but permits a.f. to flow through a .05 condenser to the first a.f. amplifier.

Rectifier carrier current (d.c.) is carried to the control grid of the pentode portion of the tube through a 500,000 ohm filter resistor which keeps a.f. off this grid. The pentode, by virtue of a 50,000 ohm cathode bias resistor, is highly biased and works as a d.c. amplifier, amplifying a.v.c. voltages developed by the diodes, the amplified voltages appearing across the cathode resistor in accordance with plate current changes caused by the application of signal bias.



This same receiver uses four sets of coils and suitable switching arrangements which permit allwave operation. When coils 3 and 4 are used the oscillator fundamental frequency beats with the incoming signal to produce the proper i.f. When coils 1 and 2 are used (4,200 to 22,000 kc.) the second harmonic of the oscillator is used.

A 10,000 ohm variable control connected in series with a 10,000 ohm fixed resistor between B plus and ground, the variable arm being connected to i.f. cathodes, permits control of sensitivity by means of i.f. tube bias variation.

•

TRICKS of the TRADE

AIRLINE 40, 40A. Whistle near 800 kc. . . . Replace oscillator grid leak with 40,000 ohms. A lower resistance causes cutoff near 1,400 and a higher value is the cause of the original trouble at 800.

AK 55. Weak and distorted reception . . . Check two resistors across speaker field. Center tap between them goes to center tap of a.f. input transformer secondary. Value of resistors should be 9.500 ohms.

AK 61. Noisy after about 2,000 hours of use . . . Three filament resistors wound on iron strip commonly overheat, burning insulation and shorting to iron.

CROSLEY 148, 167, 169. No reception, voltages ok . . . Sometimes due to shorting of intermediate transformer tuning condenser suspended in square hole cut in chassis between 58's. Caused by puncture of mica spacer when screw is driven down too tight. Slip small piece of mica under hinge part of condenser plate and re-align. Also check for similar trouble in the other postage-stamp condenser located on top of the chassis. Oscillation . . . Try a .02, 600 volt condenser from ground to power transformer side of a.c. switch. Never use a 2.5 volt pilot in chassis having 42 tube as this causes fading; stick to 6.3 or 6.8 lamps.

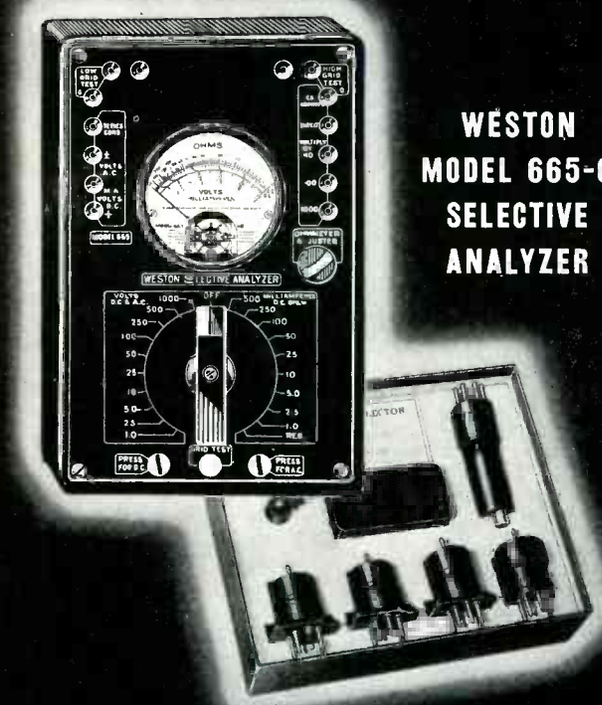
CROSLEY 168. Pronounced hiss in background, on all stations, even when correctly tuned . . . Try several new 2A6's, 56's and 2A5's. If this does not help put from 400,000 to 100,000 ohms across the primary of the first i.f. transformer, using the highest permissible value.

INTERNATIONAL JS. Intermittent reception . . . Often due to leaky by-pass condenser between plate of 47 and one terminal of tone control. Quick

(MORE "TRICKS" ON PAGE 47)

ANALYZER OPERATION *Simplified*

OBSOLESCENCE *Banished*



WESTON MODEL 665-6 SELECTIVE ANALYZER

Radio men everywhere are adopting the new Weston Method of Selective Analysis because it makes servicing easy and certain and banishes analyzer obsolescence. This improved method involves the Weston Model 665 Analyzer which has an exceptionally broad list of ranges and reads directly in fundamentals of volts, milliamperes and resistance; together with the simplified Model 666 Type 1A Socket Selector. This one Socket Selector cord and plug and its colored adapter combinations provide for all 4, 5, 6 and 7 prong tubes. Thus all necessary voltage, current and resistance readings, continuity and grid tests can be made in any kind of a radio receiver. And if new tubes with different bases are developed, it simply means purchasing an inexpensive socket adapter.

You will want complete data on Model 665-6 and other Weston instruments for radio servicing. The coupon will bring complete information . . . Weston Electrical Instrument Corporation, 581 Frelinghuysen Ave., Newark, N. J.

WESTON *Radio Instruments*

Weston Electrical Instrument Corporation
581 Frelinghuysen Ave., Newark, N. J.

Send Bulletin on Weston Radio Instruments.

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

"*the* LONG & SHORT *of it*"

Centralab RADIOHM

Resistor A used in the new Radiohm, has the same length path across its entire width, giving greater effective area for good volume control.

A longer resistance path means more gradual attenuation, i.e.: a more efficient volume control. The new CENTRALAB RADIOHM now available for all replacement jobs is easily twice as efficient as the old style volume control.

The next time you replace a volume control . . . use a CENTRALAB RADIOHM and begin to take inventory of the "satisfied customers" . . .

You'll find a new satisfaction in this better (yet smaller) RADIOHM now made in 1⅜ in. diameter size for the smallest chassis. Change today to RADIOHMS . . .

Your Jobber has the new 1934 VOLUME CONTROL GUIDE. Get it . . . It's Free.

Old Style

Resistor B of annular shape, has long been the standard type. Current concentrates around the INNER edge, i.e.: the shortest path.

Centralab RADIOHM

Central Radio Laboratories
Milwaukee, Wis.

Self-Biasing Resistor Values For Standard Tube Types

The tabulations and graphs on this and the succeeding page show actual sizes required at various plate voltages, also safe wattage ratings

By WALTER JONES

Hygrade-Sylvania Corporation

SO MANY new tubes have made their appearance during the past two seasons that it is only natural tube manufacturers are besieged with requests asking how these may be used in old receivers.

No thinking dealer or serviceman will advocate improving old receivers where new ones may be sold. But sometimes the financial condition of the customer makes the latter course necessary. If alterations are carried out properly, a firm hold can be obtained upon the consumer and he will invariably come back when in a position to replace obsolete equipment.

The data included in these pages has been prepared to assist in making alterations properly and should also prove useful in the course of regular service work. The greatest difficulty encountered is in calculating the size of resistors to be used for self-biasing new tubes and in determining the necessary power rating of such resistors. "Hygrade-Sylvania" is glad to be able to contribute for the benefit of servicemen, through the columns of *Radio Retailing's* "Service and Installation Section," the accompanying quick-reference data.

Tables 1 and 2, on this page, show at a glance proper bias resistor values for the types of tubes most commonly employed, giving the required values for different plate voltages. Curves A and B, on the succeeding page, permit rapid selection of resistors having the proper wattage rating where current and resistance are known. Curves C and D, also on the next page, permit quick determination of required resistor values where cathode (sum of all d.c. currents flowing through biasing resistor) current and desired grid bias voltage are known.

Curves A and C are intended for use in computing resistor values for tubes having low values of cathode current and are "paired" for convenient reference. Curves B and D are for higher drain power tubes and are similarly paired.

The information contained herein should permit proper operating conditions to be supplied to any tube, insofar as bias is concerned.

TABLE No. 1

Self-Biasing Tube Data

(2.5 Volt Types)

Type	Use	Fil. Amps	Plate Volts	Grid Volts	Screen Volts	Cathode Current Ma.	Bias Resistor Ohms
27	Amp.	1.75	90	6.0	...	2.7	2,200
			135	9.0	...	4.5	2,000
			180	13.5	...	5.0	2,700
			250	21.0	...	5.2	4,000
	Det.		250	30.0	...	0.2	150,000
56	Amp.	1.00	250	13.5	...	5.0	2,700
	Det.		250	20.0	...	0.2	100,000
45	Amp.	1.50	180	31.5	...	31.0	1,050
			250	50.0	...	34.0	1,450
			275	56.0	...	36.0	1,550
2A3	Amp. Push-Pull for Two Tubes	2.50	250	45.0	...	60.0	750
			300	62.0	...	80.0	750
24A	RF	1.75	180	3.0	90	5.7	525
			250	3.0	90	5.7	525
			250	5.0	20 to 45	0.1	50,000
57	RF	1.00	250	3.0	100	2.5	1,200
	Det.		250	4.0	100	0.1	60,000
35–51	RF	1.75	180	3.0	90	8.8	340
			250	3.0	90	8.0	375
58	RF	1.00	250	3.0	100	10.2	290
47	Pwr. Amp.	1.50	250	16.5	250	37.0	450
2A5	Pwr. Amp.	1.75	250	16.5	250	40.5	400
55	Triode Sect.	1.00	250	20.0	...	8.0	2,500
2A6	Triode Sect.	0.80	250 Thru 100,000 Ohms	1.3	...	0.26	5,000

TABLE No. 2

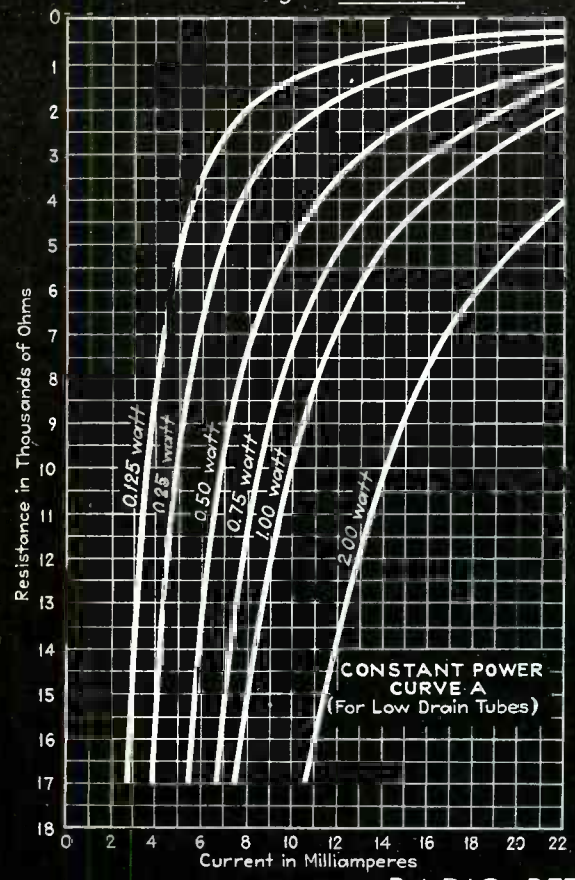
Self-Biasing Tube Data

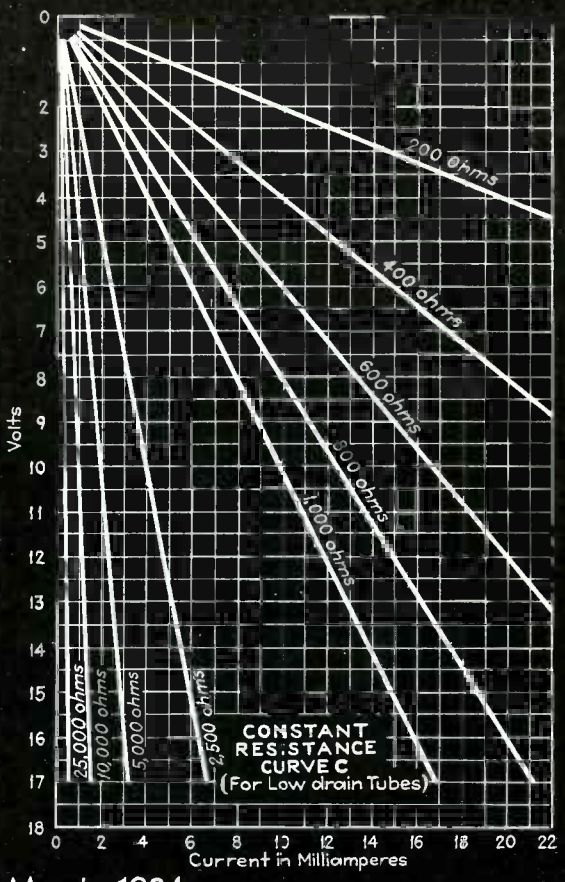
(6.3 Volt Types)

Type	Use	Fil. Amps.	Plate Volts	Grid Volts	Screen Volts	Cathode Current Ma.	Bias Resistor Ohms
37	Amp.	0.30	90	6.0	.....	2.5	2,400
			135	9.0	.....	4.1	2,200
			180	13.5	.....	4.3	3,100
			250	18.0	.....	7.5	2,400
	Det.		250	28.0	.....	0.2	140,000
76	Amp.	0.30	250	13.5	.....	4.2	3,200
	Det.		250	20.0	.....	0.2	100,000
36	RF	0.30	100	1.5	67.5	3.5	430
			135	1.5	67.5	4.5	330
			180	3.0	90.0	4.8	625
			250	3.0	90.0	4.9	615
77	RF	0.30	100	1.5	60.0	2.1	715
			250	3.0	100.0	3.0	1,000
	Det.		250	4.0	100.0	0.1	40,000
6c6	RF	0.30	250	3.0	100.0	2.5	1,200
	Det.		250	4.0	100.0	0.1	60,000
39–44	RF	0.30	90	3.0	90.0	7.2	415
			135	3.0	90.0	7.2	415
			180	3.0	90.0	7.2	415
			250	3.0	90.0	7.2	415
78	RF	0.30	90	3.0	90.0	6.9	435
			180	3.0	75.0	5.0	600
			250	3.0	100.0	9.0	335
			250	3.0	125.0	13.5	220
6d6	RF	0.30	250	3.0	100.0	10.2	290
38	Pwr. Amp.	0.30	100	9.0	100.0	8.9	1,000
			135	13.5	135.0	11.4	1,200
			180	18.0	180.0	16.4	1,100
			250	25.0	250.0	25.8	975
41	Pwr. Amp.	0.40	100	7.0	100.0	10.6	670
			135	10.0	135.0	14.7	680
			180	13.5	180.0	21.5	625
			250	18.0	250.0	37.5	480
85	Triode Sect.	0.30	135	10.5	.....	3.7	2,800
			180	13.5	.....	6.0	2,250
			250	20.0	.....	8.0	2,500
75	Triode Sect.	0.30	250 Thru 100,000 Ohms	1.3	.....	0.26	5,000

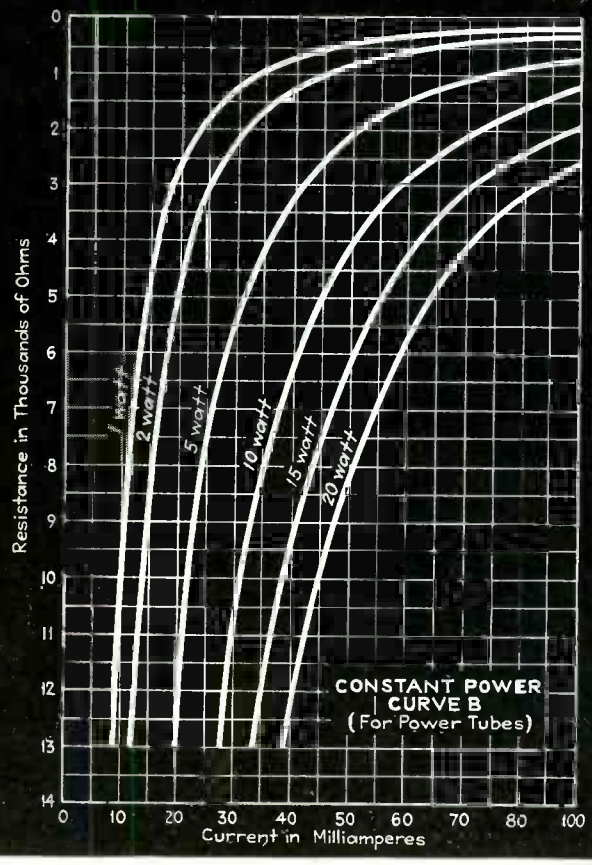
Resistor Calculation Graphs

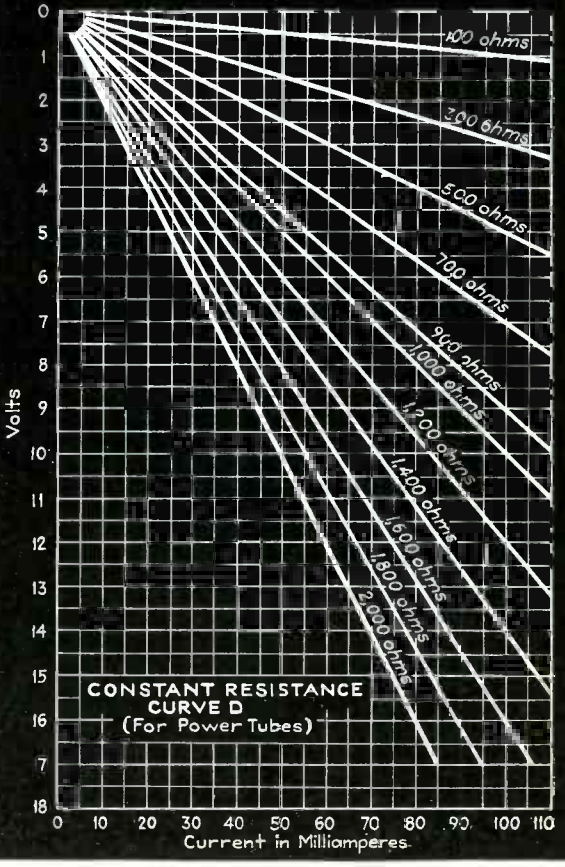
A and B give wattage rating where resistance and current are known
C and D give resistance where desired voltage drop and current are known





RADIO RETAILING March 1934





TIMKEN BENDIX DELCO-REMY

STANCOR

Timken . . . Bendix . . . Delco . . . Gemmer—these are great names in the automotive industry and to the car-owning American public. They have endured beyond the names of many of the makes of cars of which they were a part. But, more than that, they were the names of replacements exactly like the originals.

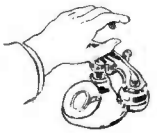
STANCOR is to radio servicing what any one of these names is to automobile servicing. When the radio manufacturer failed to provide the means for transformer renewals for his product, STANCOR did. And, STANCOR having made many of the original transformers for many of the different makes and models of radio was in an unusual position to do this job in a really thorough way.

Your customers were made "parts-conscious" by the automotive industry. They were taught that no car was an "orphan" so long as it incorporated certain standard parts that could be easily replaced . . . parts that it would not be necessary to get from distant factories.

And so it is with STANCOR EXACT-DUPLICATE Replacement Transformers. When you tell your customer "I can put a new transformer in this set that is an EXACT-DUPLICATE Replacement Transformer, exactly like the one that was in there originally," he knows what you're talking about. There's no doubt in his mind about what is going to happen—you can assure him of complete renewal of the original performance of the set, and he'll know why.

STANCOR EXACT-DUPLICATE Replacement Transformers, Universal Replacement Transformers, including power, audio and chokes and a new group for Amateur Broadcasting and Sound Amplification are distributed by authorized STANCOR distributors all over this country, Canada and our Island possessions.

Write or wire this office to have your name registered for the limited edition of the 1934 catalog of STANCOR transformers. At the same time mention the name of your distributor.

AS CLOSE TO YOU  AS YOUR TELEPHONE

REPLACEMENT EXACT DUPLICATE TRANSFORMERS

Membership in this organization is recommended by STANCOR.

Every Radio Service Man should be a member of the Institute of Radio Service Men

STANDARD TRANSFORMER CORPORATION . . . 852 Blackhawk Street, Chicago

(Continued from page 41)

test is to remove ground wire. If volume increases replace by-pass with .06 mfds.

KOLSTER-COLUMBIA C2, C4. Intermittent frying accompanied by decrease in volume . . . May be due to r.f. coil trouble. Insulation between primary and secondary sometimes breaks down causing plate potential to leak into grid circuit. Check all coils.

LYRIC S6. Hum, after 24 detector heats, not traceable to condenser or resistor faults . . . Replace .3 megohm resistor forming part of 24 plate circuit network (shunted to ground by .25 mfd. condenser) and install a 5 megohm replacement. Change 47 tone control condenser from .01 to .03 to restore original deep tone. If sensitivity suffers, re-align i.f. at 175 kc., r.f. at 1,500 and 600.

LYRIC. Types having metal sheet tacked to bottom of cabinet to serve as shield often get into trouble when parts or wiring sags and shorts. Trouble disappears when chassis is removed from cabinet.

MAJESTIC 90. Excessive voltage, burned out by-pass condensers . . . Volume compensator on end of tuning condenser shaft sometimes works loose and remains in high-resistance position. Turn dial to 0 and tighten setscrew. Mysterious cutting out with voltages ok. . . . Check voice coil for intermittent open under binding tape.

MAJESTIC 25. Hum not traceable to filter . . . See if pilot soldering lugs are grounding on bracket. This removes 47 bias.

PHILCO. Loosening of auto-radio control head strap on steering column . . . Place stationary nut on strap directly against column, instead of away from the post. This makes the strap "bulge" but is correct and will prevent the nut from being torn loose.

PHILCO 111, 111A. No signal in sets bearing low serial numbers . . . Heat sometimes expands oscillator coil form and breaks wire. Higher serial numbers use honeycomb-wound type and are not subject to this grief.

PHILCO. Intermittent reception, fading, pilot light burns with reduced brilliancy . . . Look for filament to cathode short in 44 or 36.

PHILCO 70. Worn front variable condenser bearing, permitting station recorder to drop and making friction drive inoperative . . . Take out rotor assembly and tin well with solder. Then run "babbitt" bearing metal out of an old auto bearing around shaft and let cool. Cut down to proper size with rat-tail file and re-assemble.

RCA R34, R35, RE57. Loud roar, disappearing on powerful signal . . . Check for open condenser or rosin joint in detector circuit. Low volume . . . Check for open voltage divider. Rushing noise similar to but louder than broadcast carrier . . . Traceable to defective 24 in one of the r.f. stages.

RCA 78. Excessive hum and noise at low volume levels . . . Often caused by poor ground connection or none at all to yellow lead. Also check 56 tubes.

RCA 65. Mushy and distorted reception . . . Check for grease in volume control, placed there at factory and sometimes working into and under movable contact plate.

SPARTON 210. Operates when cold but oscillates when warm . . . Place .1 mfd. condenser in position to by-pass cathode bias resistor, across small unit already in this circuit.

STEWART-WARNER 116. Reducing hum in early production 116A chassis . . . Reverse the two speaker field coil leads underneath the chassis where these connect to the two electrolytic condensers. The green lead should go to the front condenser and the white to the rear. Late production models already have this wiring.

STROMBERG-CARLSON 22. No reception . . . When voltage is low and r.f. by-pass condensers check ok, look for shorted .0001 mfd. mica condenser coupling plate of second i.f. transformer to secondary of last i.f. transformer. This is located at base of transformer, within the shield, just above the phone jack.

MEETINGS SCHEDULED

New York and Brooklyn Sections, Institute of Radio Engineers

Following are the meetings, subjects and speakers scheduled for the New York and Brooklyn branches of the Institute of Radio Servicemen:

March 26, Hotel Pennsylvania—Franklin King, formerly service manager for E. B. Latham, will talk on "Advantageous Use of the Oscillator at the Service Bench.

April 9, Hotel Pennsylvania—S. S. ("Wireless") Egert, of the Egert Engineering Company, will discuss "Tests for Measuring the Frequency Distortion and Over-All Gain of Audio Amplifiers."

April 23, Hotel Pennsylvania—Arthur E. Rhine, Rhine-McGee Associates, subject: "How We Service Radios." Paul McGee, his partner, will assist Mr. Rhine in depicting actual selling scenes. All meetings begin at eight p.m.

The March 12th meeting was addressed by Ray V. Sutliffe and W. W. MacDonald, editors of *Radio Retailing.*

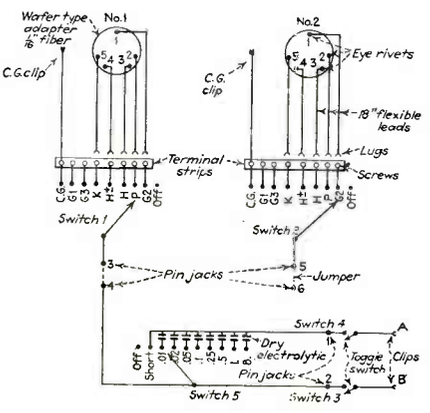
The recently formed Brooklyn chapter of the IRSM will meet, April 20, in the Brooklyn Edison Building, to hear E. F. Reihman, field contact engineer for RCA-Victor explain the solution of problems arising from the phenomena peculiar to short waves. His subject will be, "Servicing and Aligning the All-Wave Receiver."

SHOP SHORTCUTS

Part Substitution Accessory

By Al Beers

The sketched accessory is very handy in locating troubles which occur intermittently and cannot ordinarily be found any other way than by part substitution with the receiver actually in operation. With it condensers, resistors and chokes can be quickly substituted for original equipment without touching the chassis, permitting rapid comparison. A voltmeter can be connected in any suspected part of the receiver so that when the set "acts up" it is not necessary to pull out tubes, insert plugs, which frequently jars the chassis back to operation. An ohmmeter can be, likewise, connected in any part of the circuit for point to point tests the instant the set is turned off.



The adapters used are wafer types such as are used on external tone controls, made of ⅛ in. fibre with eye rivets to fit the tube prongs. They have 18 in. flexible leads with lugs on ends, which connect under screws of the terminal strips salvaged from old powerpacks. The socket connections are then contacted through Sw.1 and Sw.2 to meter at pin-jack No. 1 and No. 2. Clips A and B connect to the chassis at all times. Suppose a coupling condenser between 1st a.f. and 2nd a.f. is suspected. Slip No. 1 adapter over the first a.f. tube prongs, No. 2 adapter over the 2nd a.f. tube prongs. Insert tubes in sockets. Set Sw. 1 on P, Sw. 5 on .01. Leave Sw. 2, Sw. 3 and 4 in the off position. Turn the receiver on and when reception cuts out rotate Sw. 2 to the G2 position. This cuts in a good condenser and if the original unit is open reception will be resumed.

If a blocking resistor is located between the coupling condenser and G2 of 2nd a.f. insert a like value between pin-jacks 5 and 6. If an r.f. choke should be between P and the coupling condenser insert one between pin-jacks 3 and 4.

Bypass condensers located between any element and chassis may also be substituted. Say a .5 unit between K and chassis of 1st a.f. is suspected of being open. Put Sw.1

The Fit Still Survive

Did you ever compare the classified section of the 'phone book with the directory of the year before? It's an interesting if somewhat disheartening pastime. You find every year that some merchants have fallen by the wayside. The causes are usually bad management and poor merchandise.

Fortunately each trade has antidotes for business disaster and failure. Not the least of these antidotes are the business magazines of each trade. The editorial pages tell a merchant how to manage his business profitably—the advertising pages help a man buy good merchandise.

Try *Radio Retailing* as a prescription. Use its pages as a cure for failure, as a stimulant to business survival.

Radio Retailing

on K, Sw.5 on .5 mfd., close Sw.4 and open Sw.2 and 3. Rotate Sw.5 to the desired value. To cut in a bias resistor connect it to pin-jacks 4 and 6.

Six tests, 3 potential and 3 resistance, can be made from the above positions. Number 1 adapter is under 1st a.f., number 2 is under the 2nd a.f. tube. A potential or resistance test from 1st a.f. to chassis is made through Sw.1, through meter, through Sw.4 to chassis, Sw.2, 3 and 5 being in the off position. The same tests, 2nd a.f. to chassis is made through Sw.2, through meter, through Sw.3 to chassis, Sw.1, 4 and 5 being in the off position. Any point to point test between 1st and 2nd a.f. is made through Sw.1, through meter, to Sw.2. The meter is connected to the pin-jacks 1 and 2 on the above tests.

Thus one can work from two sockets at a time, instead of the usual one. No current readings can be made. The unit is especially useful when working directly from a schematic circuit diagram. Switches 1, 2 and 5 are 10 contact, non-shorting switches of the single gang variety.

•

Cheap Output Meter Transformer

By Herbert J. Mayer

Most servicemen have some of the old-style 1,000-2,000 ohm secondary magnetic speaker output transformers or can pick one up for a song. These make excellent output meter transformers for coupling to a 500 ohm line, high impedance magnetic speaker circuit in sound systems or across the primary of output transformers in radio sets. If the primary is center-tapped so much the better as this gives you two impedance ranges.

Connect the secondary in series with a carborundum or similar rectifier and to a 1,000 ohm per volt d.c. meter, or to a high resistance a.c. voltmeter having ranges of 1, 2.5 and 5 volts. The damping with such a combination is much better than when the voltmeter is used directly across the voice coil circuit, having characteristics similar to the standard level indicators used in broadcast stations.

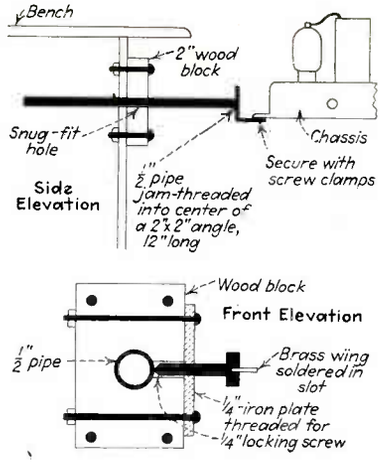
•

Chassis Holder Permits Set to be Rotated

By W. J. Sosnoski

It is extremely helpful in turning out work rapidly to have a chassis holder which completely exposes all parts and permits the set to be easily and quickly rotated. In the diagram I show a means of constructing such a holder, to be attached between two workbenches, suspending the chassis as on a "spit."

Its essential parts are two 20 in. lengths of half-inch gas pipe, each screwed into the center of a 2 in. by 2 in. angle iron, 12 in. long. The pipes should be jam-threaded into the angles as tightly as possible and their ends sawed off flush and peened to prevent loosening. This work was done for us by a local shop for $1.



The pipes (only half the assembly, on one bench, is shown in the illustrations) are floated in wooden journals between two benches. The journals should be about 30 in. apart and at least 24 in. above the floor. The opposing angles may be set at any desired separation in order to accommodate any length chassis. The chassis under repair is set between the two angles and secured in place by means of small thumb screws.

In order to hold the chassis at any desired angle one of the journals is fitted with a ¼ in. iron plate, tapped for a small pointed bolt which may be screwed against the pipe, locking it fast. A small, brass wing is fitted and soldered into the bolt slot to provide a "key" for easy adjustment. The plate into which the bolt is threaded should be secured to the journal block with bolts, not woodscrews, as these eventually split the assembly. We learned this from experience.

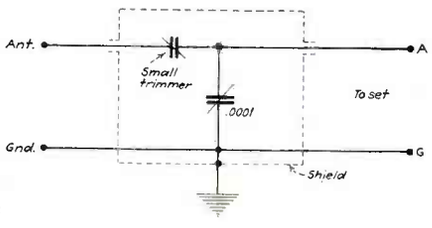
•

Dummy Antenna for Auto-Radio Servicing

By Howard Parry

Anyone who has tried to adjust the trimmer condensers of an auto radio on the shop bench, using a regular antenna, knows that the results when installed in a car are far from satisfactory. The average antenna has inductance and capacity values far different than the mesh used in the top of a sedan. This throws antenna tuning off and in addition, it is hard to judge sensitivity.

Make an antenna compensator such as is shown in the accompanying diagram. Connect the coupler to the shop antenna and ground, then connect an auto radio known to be aligned ok and operating correctly to the output terminals of the compensator. Tune in a station at about 1,000 kc. and adjust the .0001 for maximum signal. Increase the capacity of the trimmer until volume is about what it would be when the set is installed in a car. The .0001 may now need slight re-adjustment.



Once set in this manner the compensator need not be touched when testing other auto-radios.

•

Filtering Interference From 12 Amp. Half-Wave Tungar Charger

By Louis F. Wilken

Radio interference generated by tungar chargers using a half-wave bulb, and rated at about 12 amperes may be removed with two properly designed chokes, a 2 and a .5 mfd. paper condenser rated at 2000 volts peak.

Secure a 15 in. length of broomstick and wind two 6 in. long coils on this form, one right alongside the other, of seven-strand, enameled number 22 antenna wire. Connect the two coils in parallel, to carry the heavy current, and shunt the finished inductance with the .5 mfd. condenser. Connect this tuned filter in series with the plate, or top, lead of the tungar bulb. Connect the 2 mike condenser from the top contact of the bulb to ground, using heavy wire and the shortest possible lead.

•

2.5 Volt Pilot As Fuse and Filament Resistor

By Alex McKechnie

When using a single cell of a 6 volt storage battery to operate a set using the 2 volt tube series connect a 2.5 volt pilot light in series with one of the leads. In this position it acts as a filament resistor, dropping the voltage to the correct value for proper tube operation and also serves as a fuse to protect the tubes against accidental connection across the entire 6 volt series.

•

Removing Spring-Type Knobs

By Arthur C. Donovan, Jr.

Spring-type knobs such as are used on certain Philco models are difficult to remove without marring the panel. Open a handkerchief out flat and slip one edge of it between knob and panel. Bring the handkerchief around in "U" fashion so that the edge pulls tightly to the shaft, twist the handkerchief up tight by turning it several times in a clockwise direction and pull.

•

Emergency Input Transformer

By Morris Chernow

An emergency input transformer for a push-pull stage may be made by connecting two 50,000-ohm resistors in series across the secondary of a straight audio transformer and using the mid-point as the grid return. Inasmuch as no current flows in the grid circuit of such a stage there is no voltage drop through the resistors and the tubes receive normal bias.

Leonard's 1934 Selling Plan will bring them to your store . . .

EVERY refrigerator salesman likes his "floor days." Why? Simply because his customers come to *him;* he does not have to hunt them out. Because he has prospect and product *together,* and one helps sell the other.

Leonard, for 1934, offers a program that "short-cuts" the selling process — by bringing interested prospects, in large numbers, into the stores of dealers. A simple, practical, tested plan. One that sets the stage for easier, more profitable selling.

In every part of the country, this great program is already at work — backed by the biggest advertising drive and the finest line of refrigerators in Leonard's 53-year history.

Have you seen these beautiful new Leonards, and analyzed their sales appeal? Here is the *complete* refrigerator, combining beauty and quality with a list of convenience features that can't be matched at or near the Leonard price level. Eleven new models (5 all-porcelain), plug-in merchandise, covering 98½% of the household refrigerator market.

Aren't you interested in such a profit opportunity? Then write or wire for information. LEONARD REFRIGERATOR COMPANY, *14259 Plymouth Road, Detroit, Michigan, and London, Ontario, Canada.*

(638)

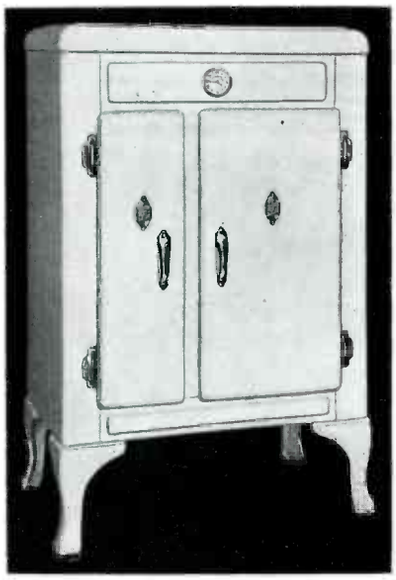
SPARTON

The 12 months profit line

13 Tube Sparton Triolian Model 76

Broadcast band and multi-wave short-wave band
530 to 1500 kilocycles—1.5 to 24 megacycle
(530 to 200 meters—200 to 12.5 meters)

Sparton engineers again have scored a brilliant triumph. The Sparton Triolian with its history making three dimension tone is sensationally new both to the science of radio and the science of tone. Its beautiful Chippendale cabinet contains three speakers with 135 square inches of sound recording speaker surface. Hear this outstanding Sparton instrument which represents the greatest advance yet made in radio reception.



Sparton Electric Refrigerator Model 884

Sparton refrigerators for 1934 introduce a revolutionary sales feature—the Sparton Antifrost clock. While the family sleeps this watchdog of electric bills does its defrosting job and in the morning Sparton is ready for the day's work. No trouble, no thought, no worry. This important feature eliminates frosty coils, gives greater efficiency and cuts operating costs. A gleaming, white, high lustre finish makes Sparton more beautiful than ever. Sell a known product, a product backed by a sound merchandising plan, backed by a reliable manufacturer. Write for details.

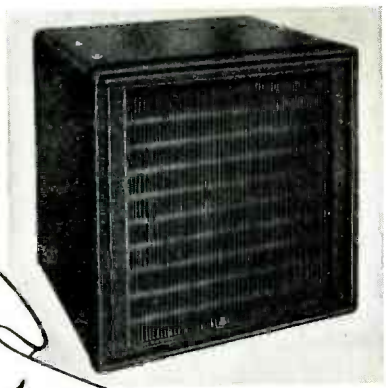
$55.00
F.O.B Jackson, Mich.
Tax paid

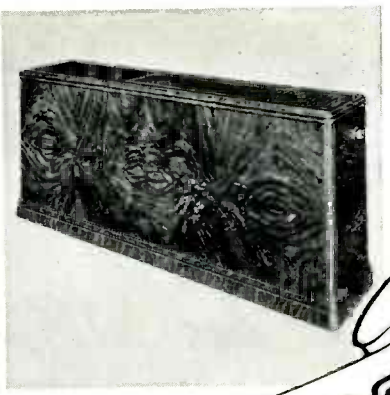
Sparton Auto Radio Model 33-A and B

Six tubes — minimum battery drain — six-inch full dynamic speaker—easily removable for picnics and outings with extension cord—chassis may be mounted in front or back of bulkhead—specially designed remote tuning unit that mounts on steering column or dash—Highly sensitive and selective and covers the full tonal range with "Radio's Richest Voice."

THE SPARKS-WITHINGTON COMPANY
JACKSON, MICHIGAN, U. S. A.

Suspended-Type Cooling Unit—for Summer use. Compact, efficient, powerful. To be suspended from the ceiling or connected to wall ducts.





Self-Contained Cooling Unit—for Summer use. This "package job" can be installed anywhere with ease, and removed during Winter.

Headed for AIR CONDITIONING Leadership

Supended-Type Comfort Unit—for all-season, heavy-duty Air Conditioning. To be suspended from the ceiling or connected to wall ducts.

SWIFTLY, surely — Servel is taking the lead in Air Conditioning.

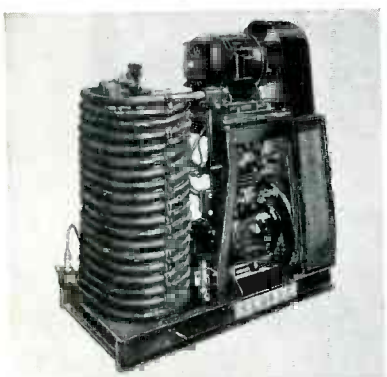
Why? Because Servel has actually matched the potentialities of this fastest-growing new giant industry with *advanced equipment for every need.* Because Servel's *aggressive sales program* assures volume and profits for those men who get into Air Conditioning now.

Look at the line! Floor and ceiling comfort units for year-round use! Self-contained room coolers! Massive new 7-ton and 10-ton compressor units!

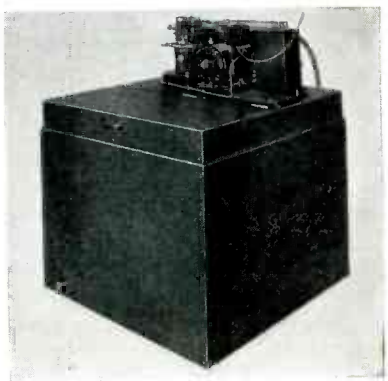
Plus — the world's foremost Commercial Refrigeration equipment, with a market *already established in your local territory.* Refrigerating machines for every capacity! Humidraft chilling units for triple-controlled refrigeration! Self-contained milk coolers! Water coolers! Beer bars!

Here's the line that's destined to make Air Conditioning history. Distributor and dealer franchises are still available in some cities. Wire or write today for details. Servel Sales, Inc., Evansville, Ind.

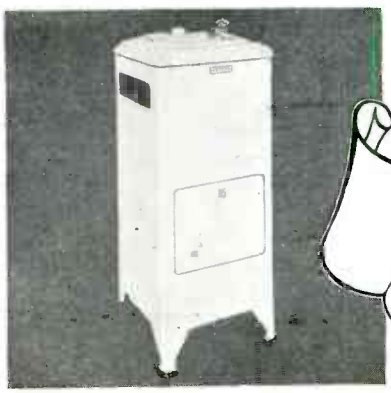
Floor-Type Comfort Unit—for the year-round control of the temperature, humidity, cleanliness, volume and distribution of air.



Refrigerating Machine Unit—one of the big multiple-ton models developed for Air Conditioning. Other units for every fractional-ton need.



Self-Contained Milk Cooler—complete with refrigerating machine unit and cabinet. A low-priced feature for dairy territories.



Water Cooler—one of the efficient, self-contained models. Available in a wide variety of finishes, capacities and outlet fixtures.

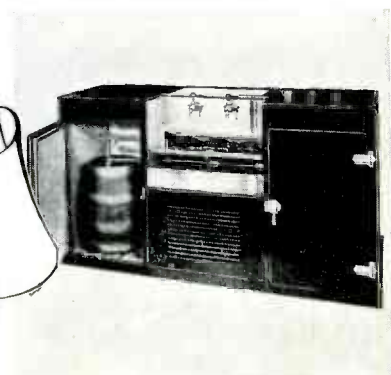
* True Air Conditioning does many things . . . cools and dehumidifies in Summer . . . heats and humidifies in Winter . . . circulates, filters, ventilates the year 'round. *Servel Air Conditioning is true, complete Air Conditioning.*

NRA WE DO OUR PART

SERVEL

Air Conditioning

AND COMMERCIAL REFRIGERATION



Self-Contained Draft Beer Bar—complete with refrigerating machine unit. Also compact bar inserts for modernizing old fixtures.

NO SUPPRESSORS

- Audiola has created a sensation with its powerful exclusive engineering feat—no spark plug suppressors.

  Suppressors cripple motor performance, waste gasoline, cause loss of power, reduce speed, and cause motor grief. Audiola's master engineering success has made spark plug suppressors obsolete.

- Distributors are clearing the decks for the biggest year in auto radio sales. Since January first, a large number of the industry's leading distributors have taken on Audiola No Suppressor Auto Radio. Audiola's clean record of more than 12 continuous years of radio set manufacturing and merchandising is your guarantee for ***satisfactory sales volume with profit.***

- DISTRIBUTORS — there are some good territories still available. If you are open for the distribution of a hot Auto Radio line, that means ***sales volume with profit,*** wire for exclusive distributor franchise and complete details.

Dealers and auto radio specialists: Write us for the name of your nearest jobber and our new Auto Radio literature.

AUDIOLA RADIO COMPANY

430 South Green Street
Chicago, Illinois, U. S. A.

Cable Address: Audiorad Chicago

Telephones: Monroe 1535-1536

MODEL 346

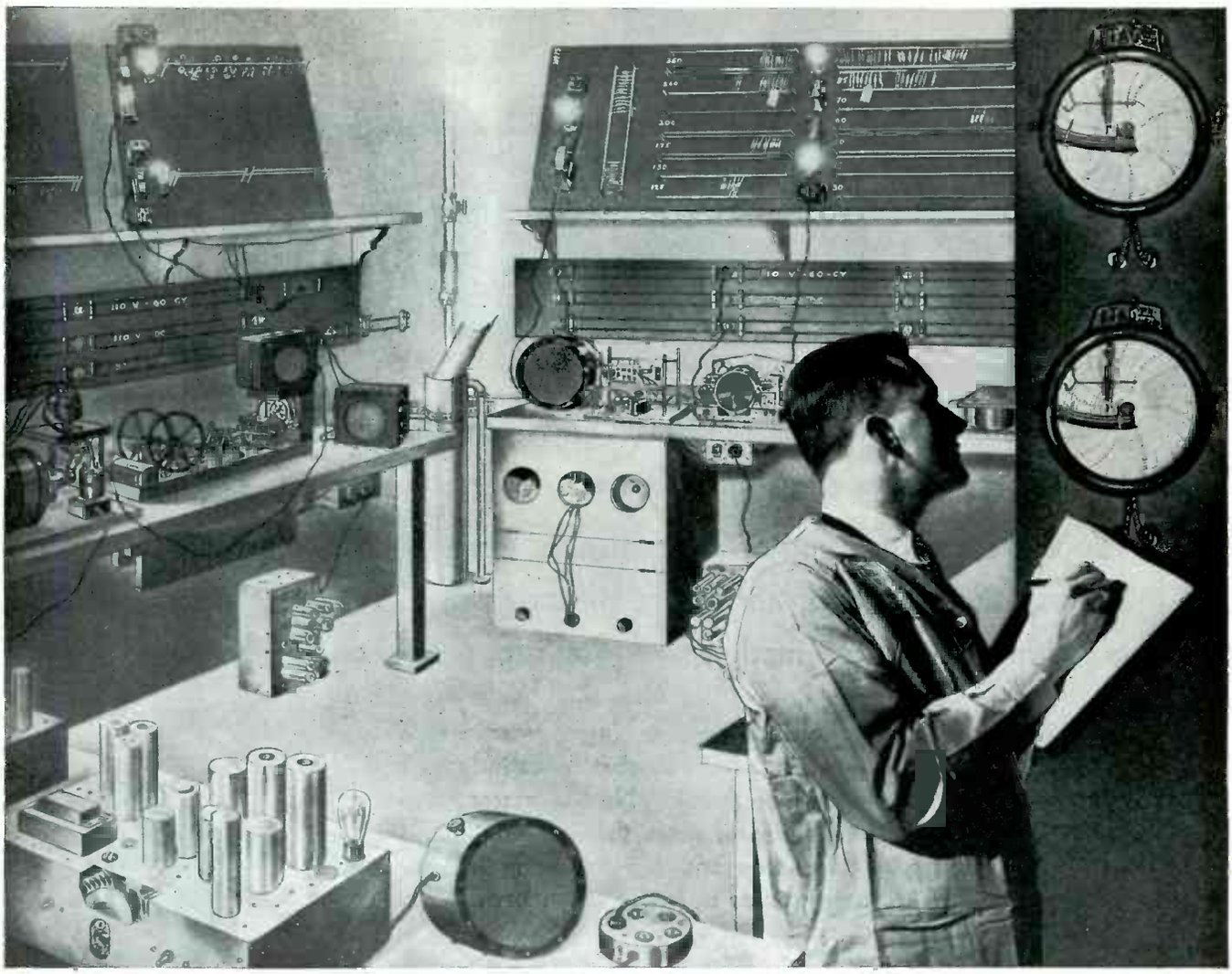
Audiola's new 1934 models list at:

$39.95 * $54.95 * $69.95

The no spark plug suppressor feature in no way reduces the sensitivity of these outstandingly powerful Audiola Auto Radios. Magnificent tone. Only the finest and most expensive parts are used in every Audiola Radio. It is a quality product beautifully engineered. Illustration shows model 346—6 tubes — 6"speaker—Complete with tubes. List $54.95.

Colonial *presents* "TRI-CONDITIONED"

★ IMPERVIOUS TO HEAT, COLD AND HUMIDITY



COLONIAL'S "ALL-WEATHER" ROOM

★*"Tri-Conditioned!"* Now—automobile radio which defies the forces of heat, cold and humidity—every part of which has been PROVED in Colonial's scientifically designed "All-Weather" room. No melting wax, no alignment fluctuations, no variations due to changing temperature, no differences in performance under any condition. All of this has been brilliantly achieved by Colonial engineers. It settles once and for all the problems of dependable performance and endurance which have heretofore handicapped radio dealers and service men. It is an EXCLUSIVE development of the Colonial Radio Corporation.

With the sale of more than 1,200,000 automobile sets predicted in 1934—an approximate retail volume of $60,000,000.00—this outstanding Colonial feature has taken on dramatic dealer promotion possibilities.

Colonial Automobile Radio is easier to install and service. It has greater sensitivity and selectivity. It has richer TONE. It is the most solidly constructed radio on the market.

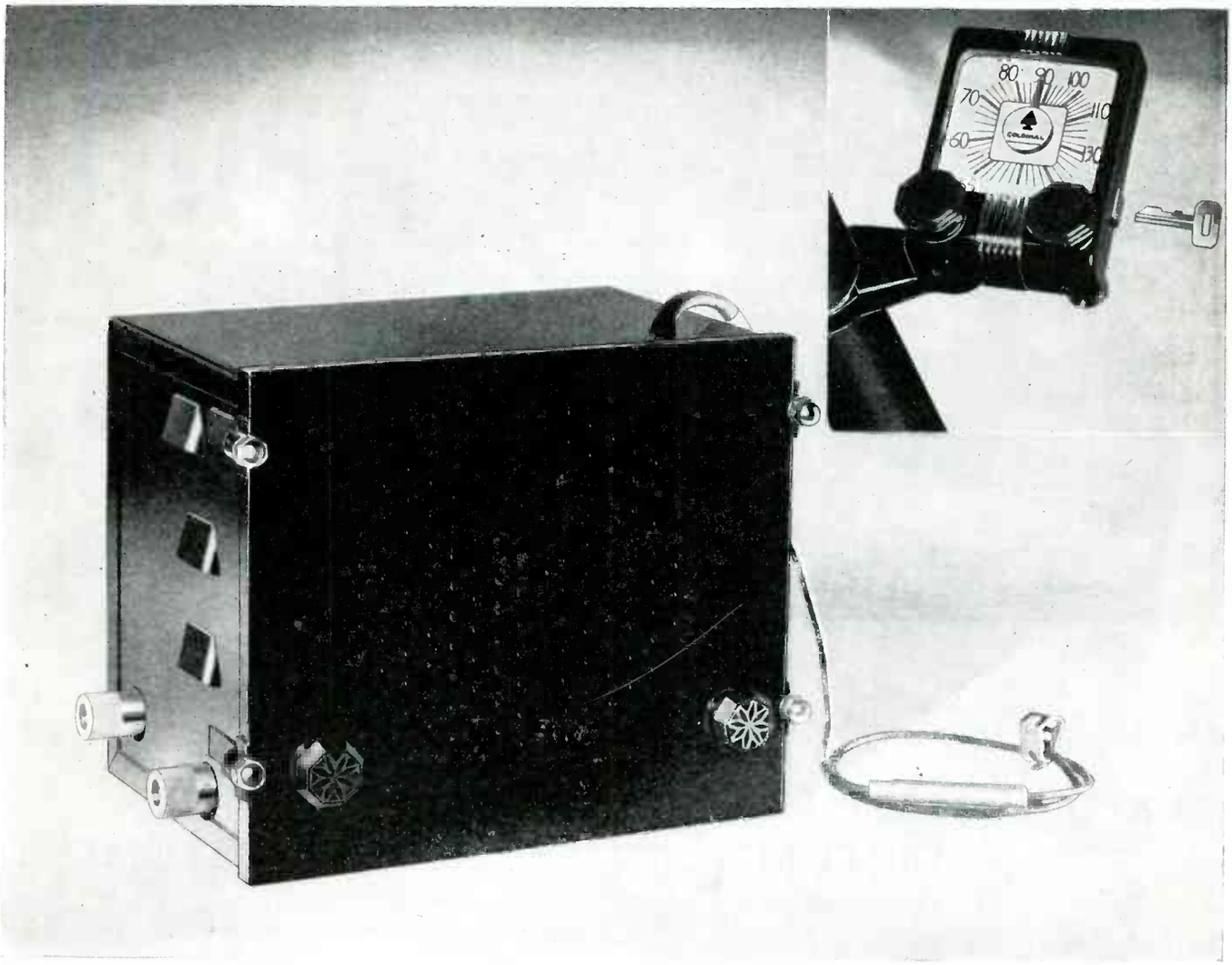
COLONIAL

The complete story of Colonial "Tri-Conditioning" will be sent on request. Address Advertising Department, Graybar Electric Co., Inc., 420 Lexington Ave., New York, N. Y.

COLONIAL RADIO CORPORATION, BUFFALO, N. Y.

Auto Radio in a $60,000,000.00 Market

THREE FINE MODELS—$39.95—$54.95—$69.50 ★



COLONIAL MODEL 164—$54.95 COMPLETE

★*Three Leaders for 1934!* Colonial model 164, illustrated above, is a six-tube superheterodyne set (including rectifier) the equivalent of 8 mono-purpose tubes. Single unit design with remote control. 3-watt output. Airplane type full vision illuminated dial. Efficient vibrating reed type of power supply.

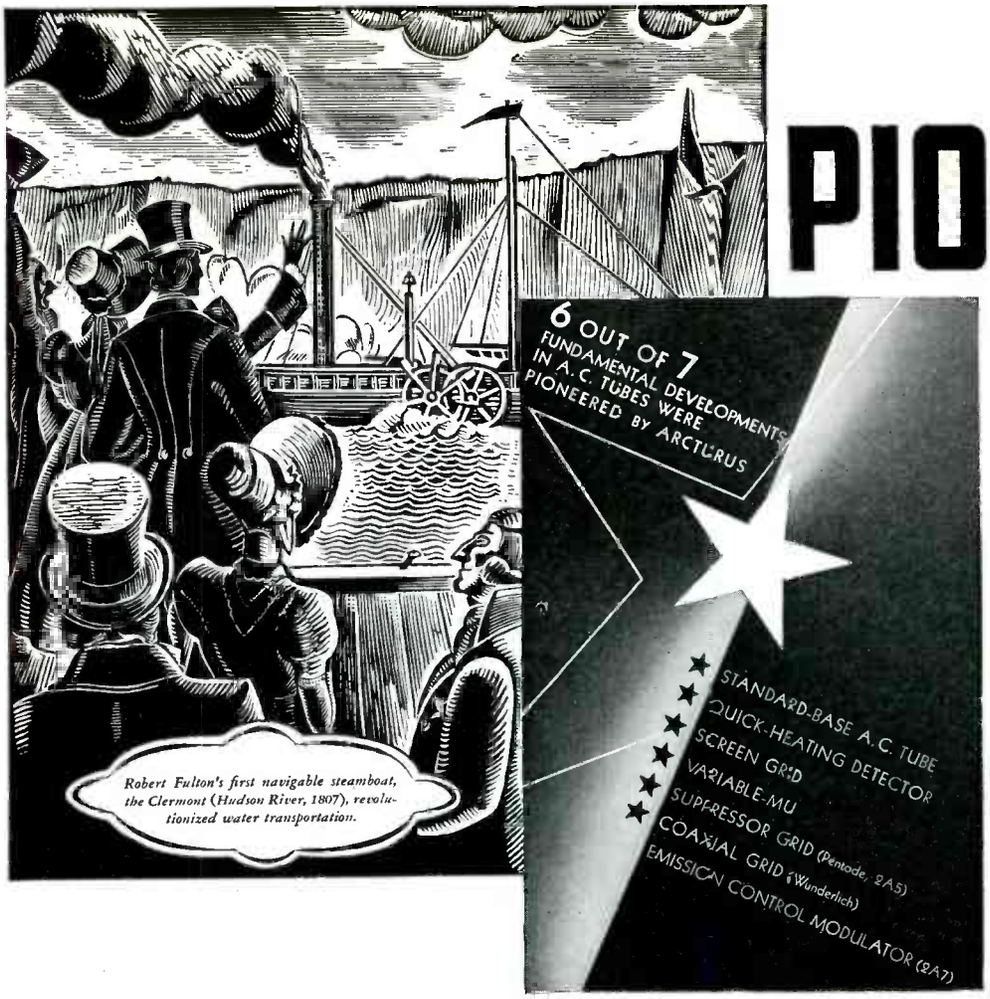
Excellent sensitivity and selectivity throughout tuning range. Continuously variable tone control. Automatic volume control. Hi-lo sensitivity switch. Heavy steel chassis. Metal parts in chassis nickeled or cadmium plated. Variable condenser floated on cushion rubber. Super efficient 6-inch dynamic speaker, resulting in large sound volume with high reproduction fidelity. Model 184 is a six-tube set with genemotor and separate speaker at $69.50. Model 150 is the smallest auto radio made, list price, $39.95.

All Colonial Radio is distributed exclusively by the 73 Branch Houses of Graybar Electric Company, Inc. All models are now in stock. (Prices slightly higher on West Coast.)

Distributed by GraybaR ELECTRIC COMPANY OFFICES IN ALL PRINCIPAL CITIES

Write, wire or telephone now for discounts, terms and details of Colonial-Graybar advertising and sales promotion. Send direct to headquarters. (See address below.)

GRAYBAR ELECTRIC CO., INC., 420 Lexington Ave., New York, N. Y.



PIONEERS BOTH!

FULTON'S FIRST STEAMBOAT... *and* ARCTURUS' SIX A. C. TUBE DEVELOPMENTS

The recognized quality of Arcturus Tubes, backed by Arcturus' leadership in fundamental developments, insures stable and profitable business to you.

It means that when you sell an Arcturus Tube you are giving the best and creating in your customer a booster for you and Arcturus.

Put the tube end of your business on a stable and profitable basis. It's easier to push the leader—sell and display Arcturus Tubes. See your distributor for interesting details.

ARCTURUS RADIO TUBE COMPANY, NEWARK, N. J.

ARCTURUS

Radio's trail blazer

MAKE US PROVE

that . .

1 Wurlitzer-Lyric Auto Radio can be installed and serviced quicker and with less expense than any auto set made.

2 Wurlitzer-Lyric Auto Radio occupies a minimum space, yet has more performance per cubic inch than any other 6 tube auto set.

3 Wurlitzer-Lyric Auto Radio will bring in more stations in the so-called dead radio spots in America than any other 6 tube auto set built.

4 Wurlitzer-Lyric Auto set will bring in a station under normal conditions, at every point on the dial.

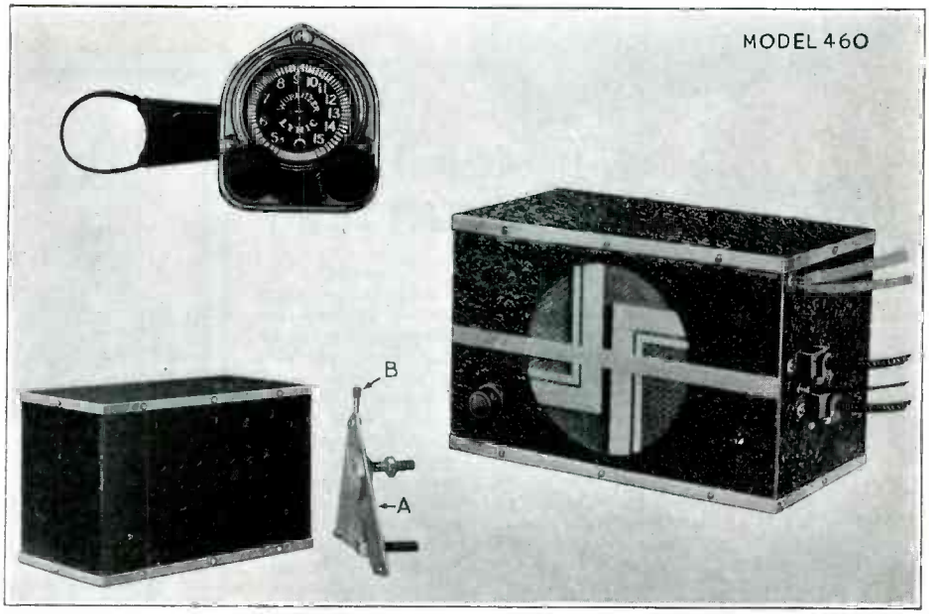
5 Wurlitzer-Lyric Auto Radio tone has no equal among 6 tube auto sets.

6 Wurlitzer-Lyric Auto Radio is built and backed by one of the largest and soundest radio manufacturing organizations in the country.

7 These are the things every responsible and reliable dealer wants and needs in order to make a profit on auto radios.

SPECIAL PATENTED MOUNTING BRACKET

Set can be installed by one man by drilling two holes in auto bulk-head then bolting on bracket (A). Set is hooked on to bracket and locked into place by single thumbscrew (B). Loosening thumbscrew permits instant removal of set. Only two electrical connections, one to antenna and one to ammeter.



Wire or write your nearest distributor or the factory for prices, terms and details

THE RUDOLPH WURLITZER MANUFACTURING COMPANY
North Tonawanda, New York

WURLITZER LYRIC AUTOMOBILE RADIO

THE RUDOLPH WURLITZER MANUFACTURING CO.,
NORTH TONAWANDA, N. Y.

Please send at once, complete information on Wurlitzer-Lyric Auto Radio Proposition.

Name .....

Address .....

City ..... State RR-3

BURGESS
. . . first choice of Great Explorers and Good Dealers

ELLSWORTH uses BURGESS

The Ellsworth Trans Antarctic Flight Expedition relies on BURGESS Batteries for the portable power that dares not fail!

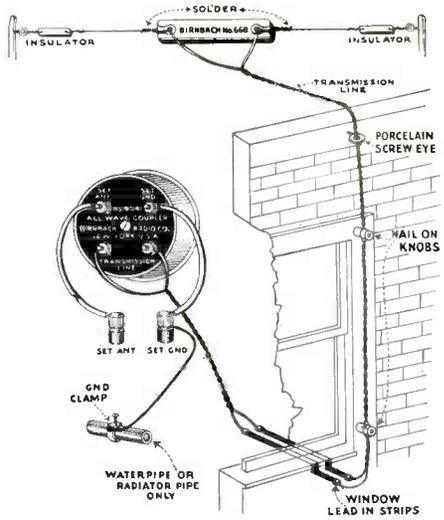
NEW 400 HOUR DRY "A" BATTERY

Retails at only $3.20—provides "A" battery power at less than 1¢ an hour! Over 2,000,000 owners of battery operated sets are your prospects. Speed up your turnover—increase your profit—with this fast selling BURGESS "A" battery. ● Developed in the BURGESS Laboratories for use with 2-volt tubes, the new BURGESS "A" Battery is 100% *DRY!* Moreover, it is hermetically sealed. Requires no servicing with water or chemicals. No injurious acids to fear. Operates in any weather, even at low temperatures. Easy to handle. Weighs only 15 pounds. Can be used in any position. Cover in attractive mahogany color. ● PROFIT with BURGESS in 1934. Sell this quality line of Radio, Flashlight, Lantern and Ignition Batteries . . . the first choice of great explorers like Ellsworth—always the first choice of good dealers.

PROFIT with BURGESS in 1934

BURGESS BATTERY COMPANY
FREEPORT, ILLINOIS

BIRNBACH
All-Wave ANTENNA
Means Customer Satisfaction and Profit to Dealers



INCREASES signal strength and clarity—reduces noise. Kit includes doublet antenna with transmission line to an all-wave coupler. Ideal for reception of both broadcast and short waves. Easily erected. List price $3.75, complete with all parts and instructions. *Write Dept. RR-3 for complete data on Birnbach Products.*

BIRNBACH RADIO CO., INC., 145 Hudson St., N. Y. C.

Advantages
to Ken-Rad Dealers

SHARING a highly respected name . . . quick turnover . . . satisfied customers, are some of the definite advantages to be gained from handling Ken-Rad Radio Tubes.

The manufacturing standards of Ken-Rad are extremely high and the engineering facilities are modern and up-to-date. Every tube is guaranteed.

You'll be pleased with the Ken-Rad line. Write for details.

Ken-Rad
Radio Tubes
DEPENDABLE LONG LIFE

THE KEN-RAD CORPORATION, Inc., Owensboro, Ky.
Division of The Ken-Rad Tube and Lamp Corporation
Also Mfrs. of Ken-Rad Incandescent Electric Lamps

HOW *to sell* Motor Car RADIO

MONEY is going to be made on car radios in '34. It's going to be made by dealers who push sets that give real PERFORMANCE.

Compare this $49.90 Atwater Kent motor car radio with ANY other. It has POWER and TONE comparable to that of a home set. It has the Atwater Kent NOISE FILTER. It is RUBBER-MOUNTED against vibration. It has four position tone control . . . automatic volume control . . . full-size dynamic speaker . . . local distance range switch. It is easily installed and easily serviced. It has value plus . . . and a low price tag!

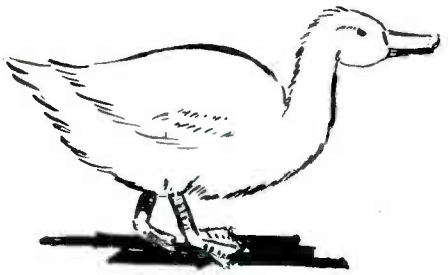
The other three Atwater Kent Radios for automobile installation are JUST as BIG in value and JUST as FAR AHEAD of the field in each of their price classes. Tie up with Atwater Kent and get in the money that's going to be made from motor car radio sales starting from *right now.*

Atwater Kent Motor Car radio priced from $49.90 to $68.50 (f.o.b. Philadelphia). Prices subject to change without notice.

ATWATER KENT MANUFACTURING COMPANY *A. Atwater Kent, Pres.* 4700 Wissahickon Avenue, Philadelphia, Pa.

WHY A

A QUESTION



TWAS in a crazy show called, "The Cocoanuts," that one of the four mad Marx Brothers first raised the question, "Why a duck?" We think it was Chico Marx, but that doesn't matter. Also Chico Marx asked his question when his brother was talking about a *viaduct,* but that doesn't matter either.

We're not suggesting that *Radio Retailing* and a duck are similar. What we do suggest is that frequently the publisher of a magazine, its readers and its advertisers may well ask the question, "Why this magazine—why *Radio Retailing?"*

And since we've raised the question, we'll answer it right now, particularly in terms of our next issue—the April number.

First, the answer for readers: In April, as in all other issues of this magazine, our editors will bring you up-to-date on the big developments of the industry. This includes not only news but trends and tendencies that are going to affect your business as a dealer, distributor or service man. You'll be told about the sales methods being worked out in the industry to sell sets, tubes, parts and allied lines. In other words our editors are going to give you in April more *ideas.* And the service men are going to get their usual quota of technical information about new circuits and tubes. They're going to be told the new tricks of the trade that make service and installation work more easy and more profitable.

But in addition, the April issue of *Radio Retailing* is going to carry a great deal of information on AUTO RADIO. That's logical when you consider that in 1933, more than 700,000 auto radio sets were sold and that this year's auto radio selling season starts as soon as the blustery winds of March are over. Dope on selling, installing and servicing auto radio will feature the April issue.

AND for advertisers and prospective advertisers there is an answer to the question, "Why *Radio Retailing?"*—"Why should we spend our good money in advertising in *Radio Retailing,* particularly in April?" Both are fair questions and here's the answer: Radio and allied manufacturers

RADIO RETAILING

DUCK?

by CHICO MARX

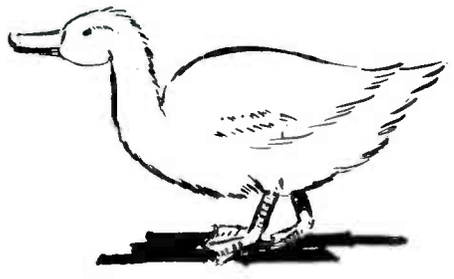
face the best year they've had in many a moon. The government is doling out billions of dollars to swell the public's buying power. Business generally is better. This means that now the radio industry can persuade a public that's been somewhat reluctant in the past to buy new radio equipment. In 1934 there's a chance to replace old and midget sets with brand new all-wave consoles. There's a chance to sell new families on radio. There's a chance to sell secondary sets to the American people. There's a chance to modernize ailing receivers with new tubes, new parts, new accessories. And, as the warm weather approaches, there's a chance to sell AUTO RADIO.

But all selling of radio and allied lines in 1934 comes back to the men who get and read *Radio Retailing*—the jobbers, dealers and service specialists.

Unless you manufacturers have distribution—dealers and jobbers—you can't make decent sales this year. *Radio Retailing* will help you build up sales and distribution both. It will do more than that, too. But the big point to remember is that the manufacturer who has active wholesale and retail outlets will take advantage of that $387 extra in the average family's pocketbook this year.

AND why start advertising in April? Simply because a full quarter of the year is gone. Manufacturers have only 9 months left to make a showing in 1934. Makers of AUTO RADIO, of course, will want to advertise their wares in April *Radio Retailing,* because of the special editorial material. But makers of home sets, tubes, parts, accessories, refrigerators and other appliance and home entertainment lines will benefit, too, from advertising in the April number. Remember, *Radio Retailing* gives the advertiser, right now, at this important time, the largest interested audience of retailers and wholesalers in the industry.

So we say, "When 20,000 men in the radio trade get their April copies of *Radio Retailing,* when they read the magazine and when they pass the magazine on to their associates, we hope your advertisement is included."



a McGraw-Hill publication

Member ABC & ABP **330 West 42nd St., New York, N. Y.**

SEARCHLIGHT SECTION

EMPLOYMENT and BUSINESS OPPORTUNITIES—SURPLUS STOCKS—DISCONTINUED MODELS

UNDISPLAYED—RATE PER WORD:
Positions Wanted (full or part-time salaried employment only), 10 cents a word, minimum $2.00 an insertion, payable in advance.
(See ¶ on Box Numbers.)
Positions Vacant and all other classifications, 15 cents a word, minimum charge $3.00.
Proposals, 40 cents a line an insertion.

INFORMATION:
Box numbers in care of our New York, Chicago and San Francisco offices count 10 words additional in undisplayed ads. Replies forwarded without extra charge.
Discount of 10% if one payment is made in advance for four consecutive insertions of undisplayed ads (not including proposals).

DISPLAYED—RATE PER INCH:
1 inch $7.50
2 to 3 inches..... 7.25 an inch
4 to 7 inches..... 7.00 an inch
Rates for larger spaces, or yearly rates, on request.
An advertising inch is measured vertically on one column, 3 columns—30 inches—to a page. Radio Retailing

SPECIAL NOTICE

To the Radio Industry

Advertising in connection with legitimate offers of surplus stocks and discontinued models of radio merchandise is acceptable in this section of "Radio Retailing."

Extreme care will be exercised by the publishers to prevent the use of advertising in the Searchlight Section to encourage price cutting on current models of merchandise or equipment. Nor will advertising which invites violation of the dealer's contract with the manufacturer be acceptable.

All merchandise offered in the Searchlight Section must be accurately and fully described and must be available on order.

REPRESENTATIVE AVAILABLE

REPRESENTATIVE available, Eastern district parts. Salesman. Contacts all set. Manufacturing available. RA-188, Radio Retailing, 330 West 42d St., New York City.

REPRESENTATION WANTED

32 Volt Radios
L. Tatro 32 Volt All-Electric Radios. Jay Dreher Corporation, 111 8th Avenue, New York, N. Y.

WANTED

ANYTHING within reason that is wanted in the industry served by Radio Retailing can be quickly located through bringing it to the attention of thousands of men whose interest is assured because this is the business paper they read.

CONTENTS *for* MARCH, 1934

INDEX TO ADVERTISERS

This index is published as a convenience to the reader. Every care is taken to make it accurate, but *Radio Retailing* assumes no responsibility for errors or omissions.

McGRAW-HILL PUBLISHING COMPANY, INC., 330 West 42d Street, New York, N. Y. Branch offices: 520 North Michigan Ave., Chicago; 883 Mission St., San Francisco; Aldwych House, Aldwych, London, W. C. 2; Washington; Philadelphia; Cleveland; Detroit; St. Louis; Boston; Greenville, S. C. James H. McGraw, Chairman of the Board; Malcolm Muir, President; James H. McGraw, Jr., Vice-President and Treasurer; Mason Britton, Vice-President; H. C. Parmelee, Vice-President; Harold W. McGraw, Vice-President; B. R. Putnam, Secretary. Member A.B.P. Member A.B.C. Printed in U. S. A.
Printed by The Schweinler Press, N. Y.

BEAUTY with a SALES PUNCH

these ULTRA-MODERNE CROSLEY Radio Receivers

EYE-COMPELLING beauty . . . irresistible design . . . amazing values, these Crosley sets lend a sophisticated note that is showing itself in every contemporary walk of life . . . architecture, dress, art, for instance. These models have been designed with a beauty that meets this growing demand.

Now . . . every taste can be satisfied—the Crosley standard line for those who lean toward the conventional . . . the Crosley Ultra-Moderne for the more daring. All Crosley models are exceptional values and incorporate latest radio developments.

The Crosley Ultra-Moderne models have exceptional news value. They're new, different . . . they attract customers into your store . . . give you an unusual opportunity to sell Crosley Radio receivers. Your Crosley distributor will gladly give you details.

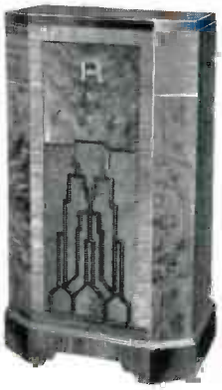
The Crosley TRAVO De Luxe

This 4-tube Superheterodyne operates on 110-volts D. C. or any cycle A. C. Has satinwood overlay front, with zebra wood overlays above and below the grille. The base is black and silver. Has pilot light, attached antenna, full floating moving coil electro-dynamic speaker. Requires no ground. The tubes are: one type 78, one type 6F7, one type 38, and one type 1223. Dimensions: 8" high, 10⅝" wide, 5" deep.

$19.95

COMPLETE WITH TUBES

The Crosley Dual Seventy Lowboy



A 7-tube Superheterodyne with dual range (police, amateur, aviation and standard broadcasts) and automatic volume control. Equipped with a tone control and full floating moving coil electro-dynamic speaker. Tubes: 3 type 58, 2 type 56, 1 type 2A5, 1 type 80. Dimensions: 38" high, 22½" wide, 11" deep. This chassis is also available in a table type cabinet for $45.00.

$59.50

Complete with Tubes

The Crosley Dual Twelve Moderne

A 12-tube Superheterodyne employing dual range, static control, automatic volume control, continuous (stepless) tone control, full floating moving coil electro-dynamic speaker. Tubes: 3 type 58, 1 type 2B7, 5 type 56, 2 type 2A5, 1 type 80. Dimensions: 38¼" high, 23" wide, 11¾" deep.

$85.00

Complete with Tubes

The Crosley Dual Fiver

The front of this cabinet is of V-matched Prima Vera, having decorative pilasters, zebra wood overlay above the grille and base of modernistic fluting. A 5-tube Superheterodyne with dual range—completely stabilized. Has illuminated dial and full floating moving coil electro-dynamic speaker. The tubes are: Two type 58, one type 57, one type 2A5, and one type 80. Dimensions: 13⅝" high, 11¼" wide, 7¾" deep. This chassis is also available in an attractive Lowboy console cabinet for $39.50.

$26.00

Complete with Tubes

Montana, Wyoming, Colorado, New Mexico and west, prices slightly higher.

THE CROSLEY RADIO CORPORATION

POWEL CROSLEY, Jr., *President*

CINCINNATI

Home of "*the Nation's Station*"—WLW

WHATEVER HAPPENS . . . YOU'RE *THERE* WITH A CROSLEY

CROSLEY RADIO

"These ads make me want a new G-E RADIO!"

General Electric now is sponsoring one of the most dynamic advertising campaigns in radio history. The G-E dealer who will profit most from this advertising program is the one who matches the customer's enthusiasm with his own. Now is the time to sell aggressively . . . to focus this great national campaign on your own store. Follow the G-E merchandising plan . . . use the dramatic G-E displays . . . feature G-E All-wave radio in your local newspaper advertising.

For full details, see your General Electric distributor, or write the General Electric Co., Section R-363, Merchandise Department, Bridgeport, Conn.

Model K-80—the new G-E All-wave table model. Retails at $92.50. Also available in a console retailing at $128.75.

"Now is the time to buy"

GENERAL ELECTRIC RADIO