

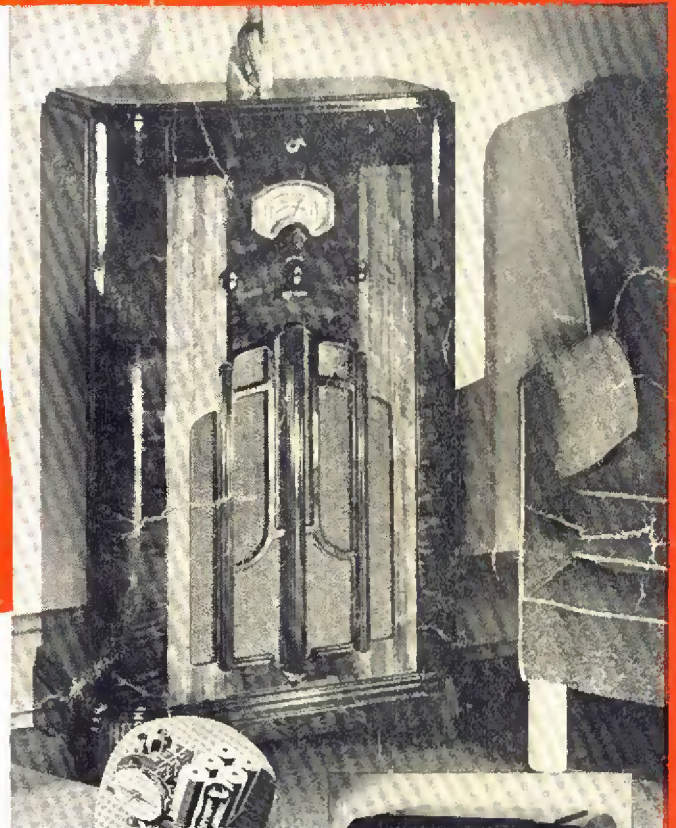
RADIO RETAILING

INCLUDING
SERVICE
AND
INSTALLATION
SECTION

THE BUSINESS MAGAZINE OF THE RADIO INDUSTRY

**ALL THREE
UNDER \$100!**
"Magic Brain"
"Magic Eye"
Metal Tubes

For the first time in radio history, RCA Victor now makes it possible for you to offer the Big Three RCA Victor features in both console and table models under \$100! These new models definitely place RCA Victor dealers in the forefront on BOTH sides of the great \$100 dividing line. During the past season, RCA Victor sold more higher-priced sets than any other single manufacturer. People demand the "Magic Brain," the "Magic Eye" and RCA Metal Tubes. Now for those customers who could not pay \$118.50 and up we offer the same sales-compelling features at \$89.95, \$79.95 and \$69.95! This cracks wide open the biggest volume market in the radio business, and is additional evidence that RCA Victor knows what the trade and public want. There's much more money to be made with RCA Victor.



RCA VICTOR'S MOST REMARKABLE VALUE

... Model C8-19 has the "Magic Brain," the "Magic Eye" and RCA Metal Tubes. Tunes 540 to 18,000 kilocycles. Many other fine features. Also available in another cabinet as Model C8-20 at same price, \$89.95.

Table Model T8-18 also has the Big Three of RCA Victor, and is priced at \$69.95. All prices f.o.b. Camden, subject to change without notice.

For profit-making ideas, attend RCA Service Meeting. Ask your distributor for dates.



RCA VICTOR

RCA MANUFACTURING CO., INC.
Camden, N. J., an RCA subsidiary

NEWS FLASH!

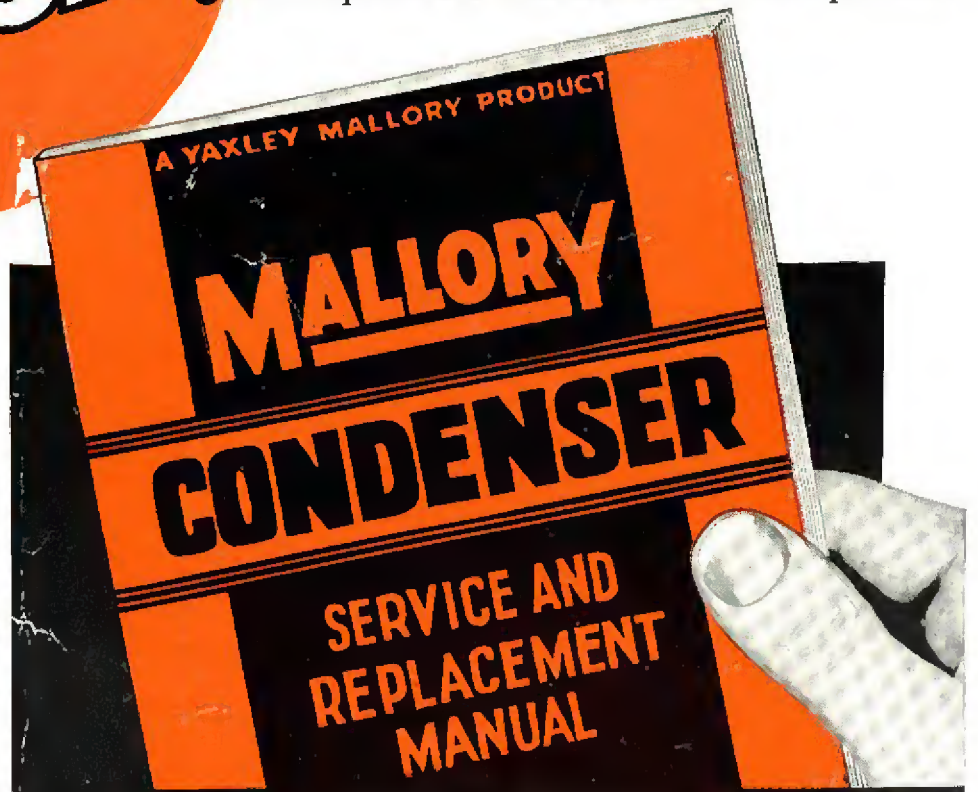
MALLORY

scoops the industry again!

The book you've hoped for is here! Through the cooperation of service men the country over Mallory presents the first thoroughly comprehensive service and replacement condenser manual ever published.

Complete!
Authentic!
Authoritative!

Solves problems
presented by the
questionnaires
of 29,789 service
men.



Have you received your copy?

You know the Mallory Vibrator Manual! You know the Yaxley Volume Control Manual! You know what to expect in this great volume—just off the press—and you won't be disappointed. Two years' careful study of questionnaires in which 29,789 service men presented their condenser problems! Two years of painstaking research, compilation, testing and proving! Two years of hard work to make *your* work easier, more accurate—more profitable. Every page proves this new Mallory Manual as valuable—as indispensable—as the

other remarkable handbooks that preceded it. The Mallory Condenser Service and Replacement Manual lists thousands of sets and shows you how to service them with a mere handful of replacement units. It answers all your questions. It solves all problems. Page by page . . . it will save you hour after hour! You won't want to be without this book a minute longer than it takes us to slip your copy in the mail. And you can't afford to miss the information it contains about the new *universal* Mallory Replacement Condenser Line.

*Have you received your copy? If not,
let us know—on your letter head.*

P. R. MALLORY & CO., Inc.
INDIANAPOLIS, INDIANA

CABLE ADDRESS—PELMALLO

CELLOPHANE SEPARATORS * ETCHED ANODES
STITCHED ANODE LEADS—

*—of course,—all important improvements
pioneered or developed by Mallory are incorporated
in Mallory Condensers wherever they add to quality.*

RADIO RETAILING

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January, 1936

Vol. 21

No. 1

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ELECTED CHAIRMAN

AT a meeting of the Board of Directors of the McGraw-Hill Publishing Company, Inc., held on December 27, 1935, James H. McGraw, the Founder of the Company and its head for more than fifty years, resigned as Chairman of the Board and was elected Honorary Chairman. He will remain as a member of the Board.

JAMES H. MCGRAW, JR., who has been connected with the Company for the past twenty years, was elected Chairman of the Board. He has served as Treasurer and was Executive Vice President and Vice Chairman of the Board at the time of his election.

MALCOLM MUIR, President of the Company since 1928, continues in that capacity.

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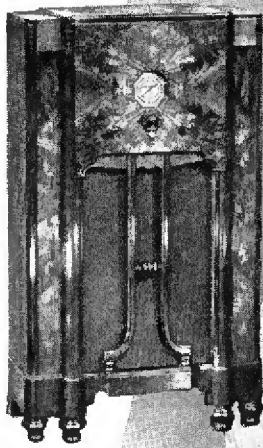
D. C. MCGRAW
Secretary

RADIO RETAILING January, 1936. Vol. 21, No. 1. Published monthly, price 25c. copy. Subscription rates—United States and Central and South American countries, \$2.00 a year. Canada, \$2.00 a year. All other countries, \$2.00 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 3, 1879. Printed in U. S. A. Cable address "McGrawhill, New York." Member of A.B.P. Member of A.B.C. Copyright 1936 by McGraw-Hill Publishing Co., Inc., 330 West 42d Street, New York, N. Y. Printed by The Schweifeler Press, N. Y.

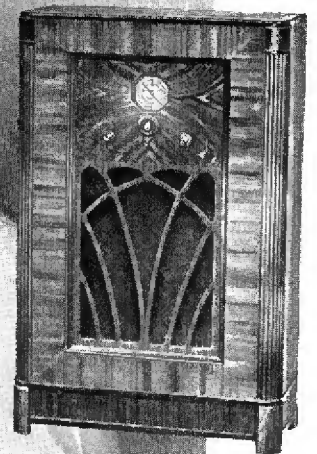
Radio Quintuplets of 1936

EVERY ONE IS
A PERFECT
BEAUTY

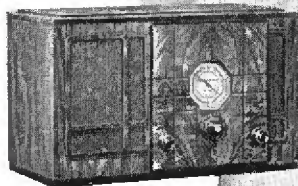
AND THEY ALL
HAVE NATURAL
TONE



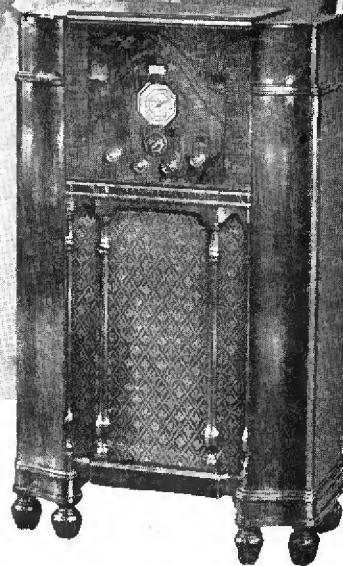
No. 61-N Triple Range Radio. Metal tubes. Height, 40 $\frac{3}{4}$ inches. Price, \$99.



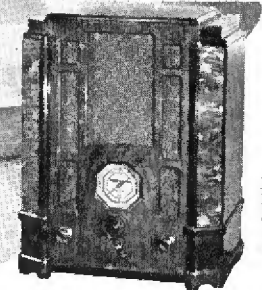
No. 61-Z AC-DC Triple Range Radio. Metal tubes. Height, 38 $\frac{1}{4}$ inches. Price, \$99.00.



No. 61-Y AC-DC Triple Range Radio. Metal tubes. Height, 11 inches. Price, \$73.50.



No. 80 Triple Range High Fidelity Radio. Metal tubes. Height, 41 $\frac{3}{4}$ inches. Price, \$165.00.



No. 61-U Triple Range Radio. Metal tubes. Height, 19 inches. Price, \$69.50.

FIVE new models to start the New Year—radios with the greatest measure of value that Stromberg-Carlson ever has offered—radios that will continue the fast-selling pace of 1935 well into the coming season.

No. 80—a large, high gloss, dark finish 9-tube High Fidelity Console with Carpinchoe speaker. The 63 type chassis with a separate oscillator tube.

No. 61-N—the famous 61 series chassis in a brilliant new console cabinet with quarter-matched

sunburst veneer panels and repeated horizontal veneers on pilasters.

No. 61-U—the 61 series chassis again in one of the most attractive upright table models that ever has been presented to the radio trade.

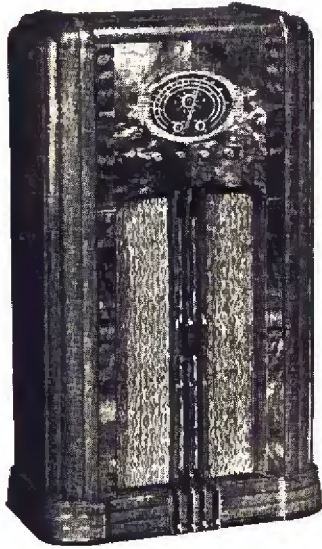
No. 61-Y—AC-DC Universal Current Table Model in the ever-popular horizontal design. 61 series performance.

No. 61-Z—AC-DC Universal Current Console—a quarter-striped walnut face with a top of sliced walnut makes this an unusually attractive model.

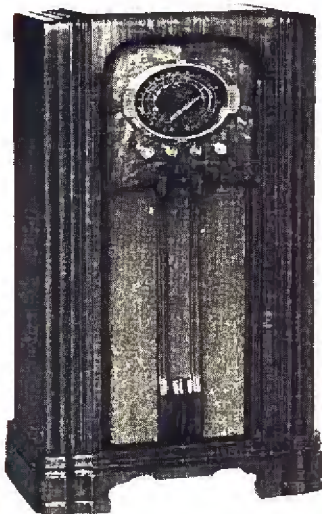
The longest price range in the industry, \$59.50 to \$985 (Texas, Rockies and West, slightly higher).
There is Nothing Finer Than a Stromberg-Carlson.

STROMBERG-CARLSON TELEPHONE MFG. CO., 100 CARLSON ROAD, ROCHESTER, N. Y.

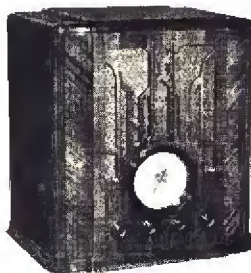
Stromberg-Carlson



Model 1070

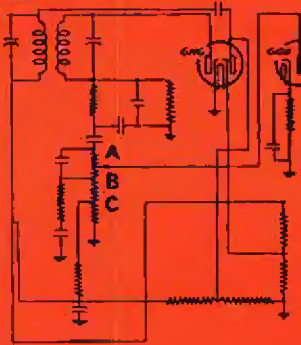


Model 770



Model 777

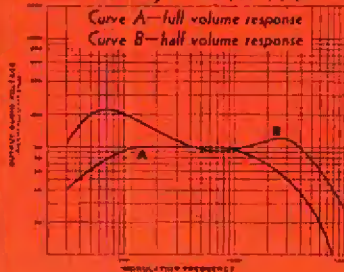
BELMONT RADIOS Stay Sold!



The automatic tone compensating volume control (ABC in above circuit) and the 12" full dynamic speaker partially account for the amazing brilliance and depth of tone in the 1070. Ten octal base tubes are used in an all-wave band-expansion circuit.

Fidelity - Model 770

Curve A - full volume response
Curve B - half volume response



The 770 is an all-wave band-expansion seven tube receiver with optional high-fidelity and automatic tone compensation. It uses a 10" full dynamic speaker.

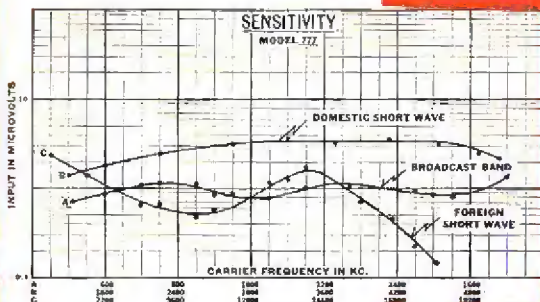
The seven tube 777 is an all-wave receiver of advanced design. The sensitivity curves below are characteristic of the 777 Belmont receiver.

The pleasure of distant reception, the beauty of cabinet work, the rich brilliance of Belmont tone; these are a few of the apparent features which create pride of ownership and permanently satisfied customers. The real reasons lie back of the attractive full vision Belmont dial where superlative engineering, fine quality parts, metal tubes, full dynamic speaker, and precision workmanship account for the acceptance of Belmont receivers, the dependable modern radio.

Belmont console receivers have every desirable feature offered in modern radio; metal tubes, band-expansion, high-fidelity, all-wave band-spread tuning, automatic tone compensation, manual tone control, full dynamic speaker, full vision dial indirectly illuminated, and beautiful cabinets.

BELMONT RADIO CORP.
1257 Fullerton Ave. - Chicago, Ill.
Cable Address: Belrad

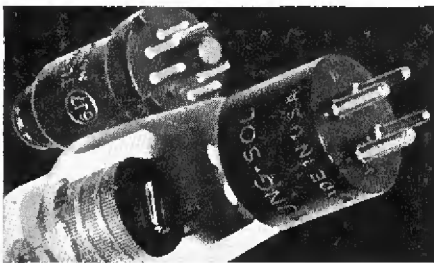
(Licensed under R. C. A. and Hazeltine Patents)



BELMONT
THE DEPENDABLE
RADIO



WHEN YOU SELL TUNG-SOL TUBES



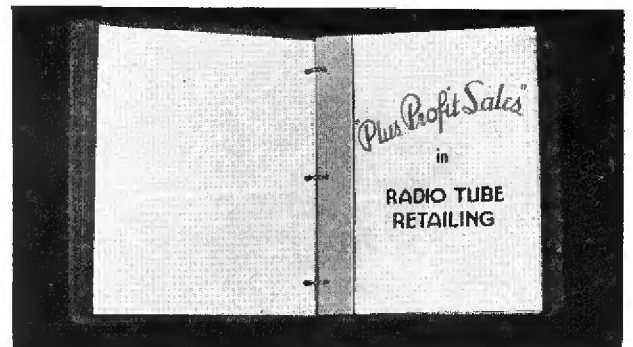
ASSURED, full profit on every transaction is one of nine basic qualifications found to be essential in a "plus profit" line of radio tubes.

These basic essentials, developed from the experience of several thousand successful radio tube retailers, are fully covered in the portfolio shown at the right.

The portfolio also shows how the only tube line possessing all nine "plus profit" qualifications is helping Tung-Sol retail agents to make more money and to build

their businesses on a permanent basis.

Go through this portfolio with a Tung-Sol wholesaler and discuss with him the possibility of your appointment as a Tung-Sol agent. Or write to our nearest sales office for complete details.



TUNG-SOL

Flow radio Tubes

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

"Bullseye" 1936 Sales Now with these 3 "Hot Shots!"

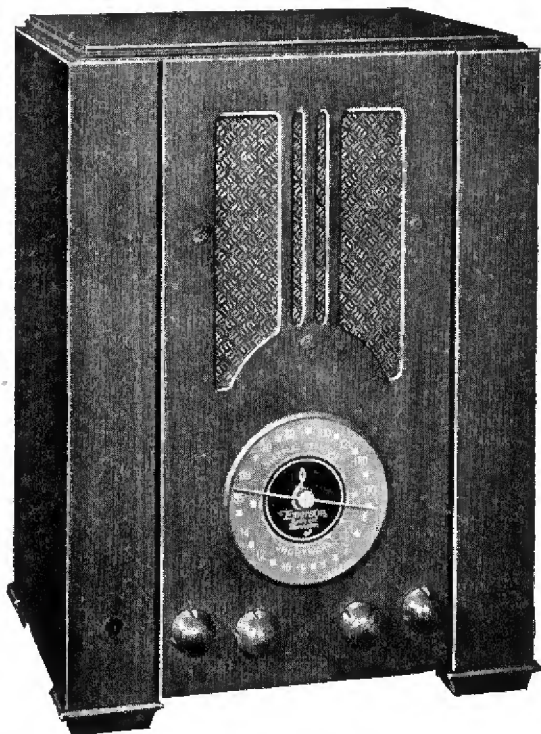
Emerson Radio

"RE-CREATES THE ARTIST

IN YOUR HOME"

Freshen up your stock — lead off with these winners — three of the liveliest, easiest-to-merchandise sets on the market — priced to sell in all territories — with appearance and performance which make them in all ways sensational.

All other Emerson models — up to \$129.95 — are scheduled for the biggest records in history during 1936!



EMERSON • Model 116

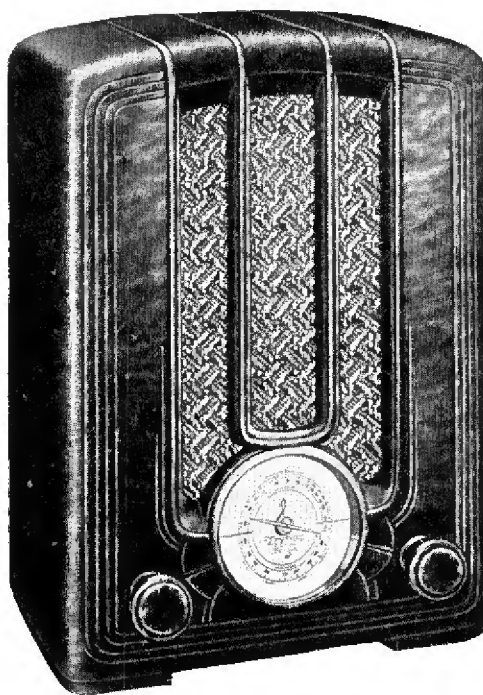
With Tone Control and Aeroplane Dial

NEW — 5-tube AC Superheterodyne with Tone Control — Aeroplane Dial — Two Bands: 95 to 200 Meters and 196 to 555 Meters: Standard American Broadcast and American Shortwave, including both Police Bands, Amateur and Aircraft Stations — 3 Watts Output — Emerson "Micro-Selector" and other features — in a handsome Walnut Cabinet, 14¼ in. high — with RCA tubes. List Price,

\$24.95

Get Emerson's 1936 Proposition NOW

Write or wire your nearest Emerson distributor — or send direct for details of discounts, promotion, etc., during Emerson's biggest year ever!



EMERSON Model 108

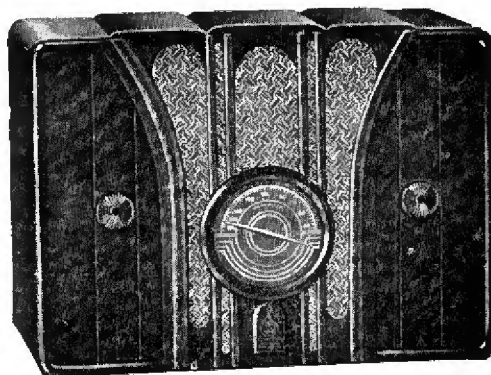
5-tube AC-DC Superheterodyne — Aeroplane Dial — Automatic Volume Control — Dustproof Dynamic Speaker — Two Bands: 75 to 200 Meters and 193 to 565 Meters: Standard American Broadcast and American Shortwave, including both Police Bands, Amateur and Aircraft Stations — Bakelite Cabinet, 11 in. high — RCA tubes. List price,

\$24.95

EMERSON Model 109

4-tube AC-DC Superheterodyne — Covering American Broadcasts, Police and Amateur Stations — Illuminated Aeroplane Dial — Dustproof Dynamic Speaker — Bakelite Cabinet — 9¼ in. wide — RCA tubes. List Price,

\$17.95



EMERSON RADIO & PHONOGRAPH CORPORATION, 111 Eighth Avenue, New York, N. Y.
The EMERSON Line Also Comprises Models for Every Foreign Market Cable Address: EMPHONOCO, N. Y.

TELL TIME TUNING

PROGRESS!

a feature
*Originated
 Developed
 AND
 Presented*
 by
CASE



The Newest Thing
 in *Radio*

Sensational

Gets any station on any wave as easily as setting a clock. The simplest, most easily read, most easily tuned all wave radio dial ever developed. No confusing cycles, kilocycles, megacycles to bring up in sales talks. An all wave dial so simple a child can set it to any station.

Sales Appeal

Simplicity and performance sell these new 1936 Case Models—Perfect Reception, Beautiful Cabinets, Handsome etched glass Giant Dials, and Full Vision **Tell Time Tuning**.

Every Model

Has the Giant **Tell Time Tuning** Dial and improved Super Heterodyne circuit. A complete range of styles and prices. Send for complete details, illustrated literature upon request showing all models.



TABLE MODEL 710
7-tube Super Heterodyne.



MODEL 1015
10-tube Super-Heterodyne. High Fidelity.

INTERESTING JOBBER AND DEALER PROPOSITIONS

Cable Address: Caselect, Chicago
 Export Sales Division:
 330 S. Wells St., Chicago, Ill., U.S.A.



CASE ELECTRIC CORP. MARION IND.
 DESIGNERS AND ORIGINATORS OF TELL TIME TUNING. FULL PATENTS PENDING

JANUARY
1936

STATISTICS and 1936

WE KNEW 1935 would hang up a record in unit sales but were not prepared for Radio's superlative showing as revealed by the following figures:

Total sets manufactured last year, 5,375,000. Retail value, \$254,500,000. Shipments were divided as follows: Exports, 625,000 (about the same in number and value as for 1934); motor car receivers, 1,100,000 (up 40% over '34); table models, 2,050,000, retail value \$74,825,000—and *consoles*, 1,600,000. The latter scored a remarkable gain. Unit increase over 1934 was 45%; retail billings, \$109,000,000 as compared to \$71,000,000.

Another record breaker—battery-operated receivers. This item hit 350,000. Good but still not up to market possibilities. A lot of this business went to "private" brand operators, who reach the farmer through the mails.

Tube sales likewise reached satisfactory proportions. Total manufactured, 75,000,000—an increase of 16% over the prior year. But dollar returns, due to new lows in list prices, were no greater for replacement sales than for '34.

The parts makers and set servicers also profited by public demand for the best it could afford in radio. The retail value of all parts and accessories for maintenance use was 32% ahead of the preceding year.

The call was for larger sets and quality performance. They're switching to better receivers . . . 73% of all console and table model transactions were with buyers already owning a radio. Most of these sales involved a trade-in. Obsolescence in radio sets has registered, has become our leading sales stimulant.

AND NOW IT'S ELECTION YEAR! Recall what it did to sales in 1928!

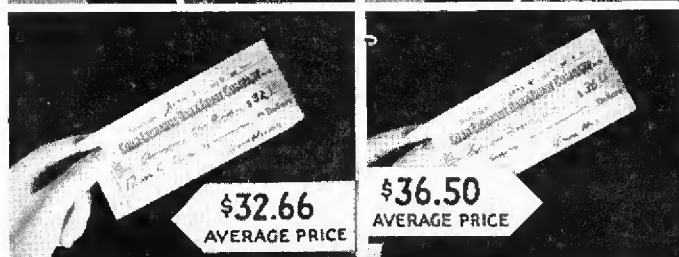
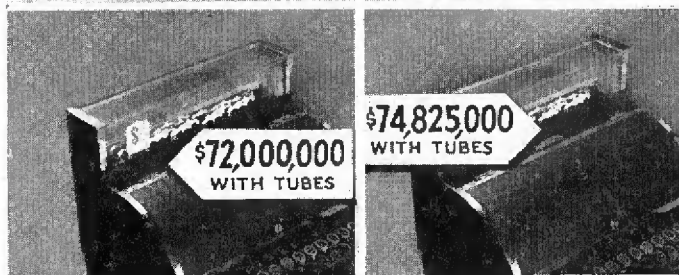
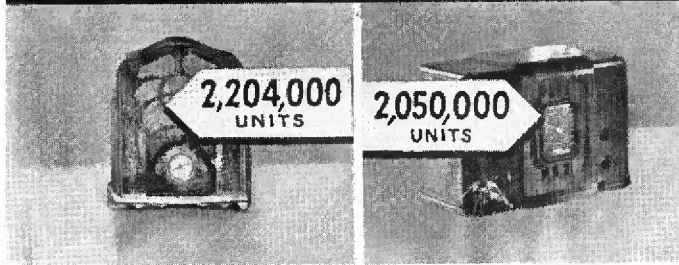
Today the same conditions apply . . . buying power, intense interest in the political issues—and new types of sets.

'35 would have been even better if metal tubes, cabinets and coils had been available to supply the early season demand. '36 should experience none of these hindrances.

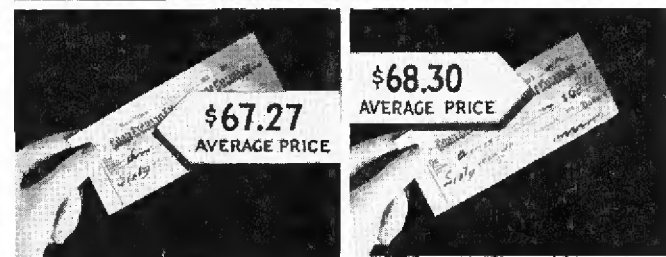
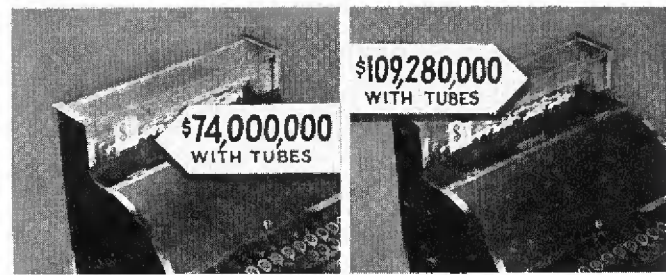
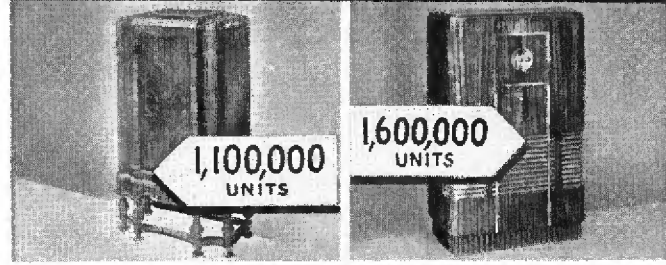
Ray V. Sutcliffe

EDITOR

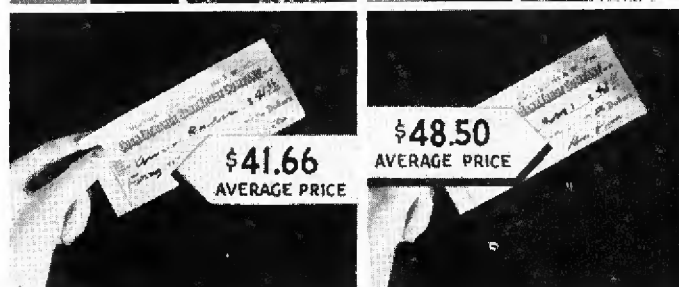
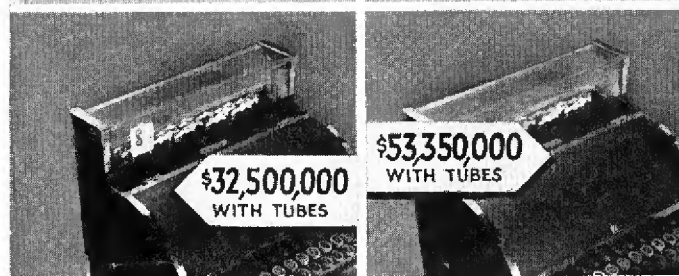
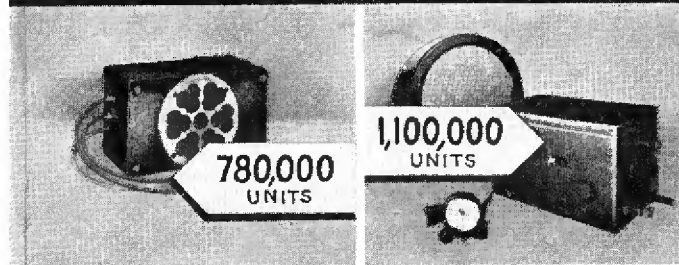
1934 TABLE MODELS 1935



1934 CONSOLES 1935



1934 AUTO RADIO 1935



1934 ALL TYPES 1935

CONSOLES			
Units	Dollars	Units	Dollars
1,100,000	\$74,000,000	1,600,000	\$109,280,000
TABLE			
Units	Dollars	Units	Dollars
2,204,000	\$72,000,000	2,050,000	\$74,825,000
AUTO			
Units	Dollars	Units	Dollars
780,000	\$32,500,000	1,100,000	\$53,350,000
TOTAL			
Units	Dollars	Units	Dollars
4,084,000	\$178,500,000	4,750,000	\$237,455,000

Battery Set Sales 1935 350,000 units valued \$19,250,000 list (less batteries), average price \$55.

SET SALES

News and Views

THE FIRST METAL TUBE to be designed specifically for auto-radio service is the new 6X5 (socket diagram in "Service Section"), similar in characteristics to the 84 rectifier. 1936-'37 car sets are now in the draughting-board stage and it appears certain that many will use this and other "iron bottles."

★ ★ ★

AS WE WRITE this item one of the largest metal tube factories re-opens after a week's shutdown. Reliable authority informs us that this period was utilized to alter and improve machinery in an effort to reduce production shrinkage. Concurrently, changes in assembly design of the tubes themselves were effected.

★ ★ ★

EFFECTIVE DEC. 24, the tube industries' night before Christmas gift to the set makers, the generally accepted net quotations on metal tubes were cut from 2% to 20%; the 6J7, for example, dropping from the more or less universal quotation of 61c. to 59c., the 6K7 from 61c. to 49c., the 6Z5 from 47c. to 44c. and the 6F6 from 60c. to 53c.

While the new prices are still away above those of comparable glass enveloped valves, the assumption is that manufacturing efficiencies are making themselves felt. There may be another reduction before the crocuses appear.

★ ★ ★

WITHDRAWAL of eleven music companies controlled by Warner Brothers from the American Society of Composers, Authors and Publishers has placed broadcasting stations in a temporary quandary as they await the next moves of Warner Bros. and ASCAP.

James Baldwin, managing director

of the National Association of Broadcasters, frankly admits that he doesn't know what the upshot of the resignations will be.

★ ★ ★

A NEW THEME and original drawings distinguish Philco's series of spot ads selling the public on the value of a "built-in aerial tuning system." Refreshing—and effective.

Philco is preparing nine more of the "Only Philco Has It" ads for use of distributors and dealers in extending the campaign throughout January.

★ ★ ★

HOLDING THAT newspapers of the Pacific Northwest are "unconscionably injured in performing a public function as well as in conducting a legitimate business" by the action of radio station KVO5 in "pirating" published news for use on sustaining programs, the Ninth Circuit Court of Appeals in San Francisco has reversed the lower court decision and set at rest fears of the whole publishing industry that its property rights might be legally invaded by the broadcasters.

★ ★ ★

ELSEWHERE in this issue is an article explaining the Fair Trade Acts now in effect in California. The trade praises this Act, reporting beneficial results from it. Apparently state control of merchandising practices can be made to work and is a constructive activity. Dealers and jobbers in other states should study this Act carefully. They might well promote a similar measure in their own bailiwicks.

★ ★ ★

THIS GUEST EDITORIAL is contributed by Martin A. Tarzian,

president of the Electrical Appliance Dealers Association, Brooklyn, N. Y.

"Who prevents us from modernizing our store for better business? Who stops us from going out into the field to sell more merchandise? Who restrains us from running sales and using sales promotion methods to increase store business? What prohibition is there against adding new lines and getting into a new market? When has someone ever told a merchant not to sell his wares, and who tells him not to train his store people to do a better job?"

"In the humble opinion of the writer it is the radio dealer himself who is his own greatest competitor."

★ ★ ★

CHECKUP among auto-radio service shops indicates that next to tube failure, vibrators are the chief source of trouble. Despite the fact that these units have been steadily improved and now represent near-perfection they take a terrific mechanical beating and, like any rapidly moving part, eventually wear out. A number of servicemen are advocating that vibrators be tested every six months, just like tubes. This seems to us an admirable idea and one that renders the user a genuine service by guarding against set failure or noise. Because vibrators plug in it should be obvious to the consumer that frequent inspection is intended. And a testing campaign could readily follow in the trail already blazed by tube, spark-plug and oil filter manufacturers. Substitution of a new unit, or visual test in an instrument designed for this purpose, is recommended.

★ ★ ★

AUTOMOBILE MANUFACTURERS' Association estimates 1935 output at 4,150,000 cars for entire industry, 45 per cent over 1934 and best since 1929.

★ ★ ★

NEWS ITEM—From the New York Sun, "A street salesman, arrested for peddling a radio attachment supposed to increase reception and eliminate static, was termed a 'cheap racketeer' and fined \$5 yesterday by Magistrate August Dryer in Yorkville court. The magistrate, in

News and Views

sentencing Jesse Burt, said: "This thing is a fake. It won't do any good. You men who are selling them are cheap racketeers. You should be driven from the street and the public protected against this fake."

♦ ♦ ♦

63 PER CENT of all tube shipments to set makers, since September, have been "metals." This statement, to RR from one of the very largest of tube suppliers, does not reflect accurately the national picture since at least two big radio receiver outfits, Philco and Zenith, do not buy from this source. But it's interesting.

♦ ♦ ♦

MAJOR ARMSTRONG, while demonstrating the operation of his new and extremely interesting system of frequency-modulated radio transmission (*Electronics*, November) before the Radio Club of America, remarked that the chief source of remaining noise encountered while experimenting on 7 meters was generated by automobile ignition. Car makers, he further informed the audience, contemplated the inclusion of factory built-in suppression within two years, a move considered desirable in view of the rapidly developing demand for auto-radio.

Should this prediction come true,



and it seems probable that it will, reception of regular shortwave programs, particularly in the vicinity of 20 meters, will simultaneously be immeasurably improved. But there still remain buses, trucks and commercial cars to be quieted. These are usually the most flagrant offenders and it should be possible to legislate them into silence in the public interest when and if the more numerous passenger cars lead the way.

THE FARMER takes a set—takes it to the barn with him so he can listen to his favorite program while he works. This is one of the many interesting disclosures of radio's big part in rural life, just published in booklet form by the Radio Institute of the Audible Arts.

In his choice of programs the farmer is no different than his city brother, prefers high class music to jazz—and plans his listening hours because he knows what he wants and where to get it. Also he's an ardent shortwave fan. In other words a first rate prospect for any radio dealer.

♦ ♦ ♦

LAST MONTH'S New York dailies carried display space featuring the "Package purchase" of a minor electrical appliance with a radio set—for about \$16 less than the total price of both.



"Another form of price cutting—dumping!" say those on the outside.

"Not at all! It was smart merchandising and went over big, with dealers making ample profit on both items," answer the proponents.

Pay your money and take your choice.

♦ ♦ ♦

COLLECTION of the last payment on many credit sales is notoriously tough. Customers are frequently hypercritical about the performance of their set at this stage of the game and delay payment in order to retain a hold on the dealer's service facilities. Certain New York stores are offering to cancel the final payment if the customer supplies the names of five friends who will consent to home demonstration of a new receiver.

Like most novel schemes designed to increase the retailer's traffic, this one could be a howling success or a dismal flop. All depends on whether

or not the salesman is good enough to convert leads so obtained into enough new business to cover the advertising cost. We wonder if this stunt has been pulled elsewhere and with what success?

♦ ♦ ♦

TUBE BATTLE RAGES!—We're thinking of running this as a standing head every issue. Last month's



barrage was laid down from Lancaster, Pa. Raub Supply Company fired a \$5,000 challenge at Philco, to be donated to the American Red Cross . . . "if Philco does not begin turning over production during 1936 to sets requiring metal tubes of the type developed and pioneered by the General Electric Company."

Raymond Rosen came through with a similar proposition—posting a \$1,000 donation to charity.

To date, no return cannonading has been heard from the banks of Schuylkill River.

♦ ♦ ♦

GENERAL BUSINESS conditions, usually recorded on *Radio Retailing's* first page, were crowded off this month by our own industry's sales figures. *Business Week*, McGraw-Hill's authoritative barometer, says of 1935:

"No year since 1928 has found business in a more cheerful mood. Many lines have established new production, sales and profit records that put even 1929 in the shade. Others have come close to that goal . . ."

The motor car industry assembled 4,200,000 cars, the best since 1929 and 45 per cent ahead of 1934. Residential construction came close to \$500,000,000, as contrasted with \$249,000,000 the year before. Furniture production is estimated as 50 per cent more than in 1934 and close to the \$320,000,000 of 1931. Gross farm income broke through the \$8,000,000 mark for the first time since 1930, when it stood at \$9,500,-

000. Power production crossed the previous high of 1929.

Industries topping all previous production highs were: *Radio*, Washer, Refrigerator, Incandescent Lamp, Electric Power, Nickel, Gasoline, Shoe, Aviation, Rayon, Plastic, Oil Burner.

♦ ♦ ♦

ALTHOUGH THE HIGH frequency end of the dial still is considered "down in the hash," strict regulations regarding frequency maintenance, mileage separation and modulation have done much to clear up the unsatisfactory situation which formerly existed. Superheterodyne receivers have solved the problem of selectivity. Now, in the areas covered by the few high fidelity stations operating between 1,500 and 1,600 kilocycles, this end of the dial has become the place to look for distinctly superior programs.

The dealer should become familiar with the stations in his locality on the higher frequencies or in this new band. He can then demonstrate to best advantage the present day receivers, contrasting them with the older sets which cannot tune that far or with t.r.f. sets which are poorly aligned or weak in selectivity at the high frequency end.

♦ ♦ ♦

"WHY," asks a San Francisco subscriber, "doesn't some bright manufacturer put out a simple receiver, just good enough to get four or five



locals with a maximum of tone quality and a minimum of tuning?"

Not a bad idea for big-city dwellers who don't care a whoop for dx. High-fidelity performance could be obtained at low cost by including just enough selectivity to avoid interference between the locals. Heterodyning from dx stations would automatically disappear if sensitivity

was knocked down, as would much noise. To do the thing up brown fixed-point or "switch" tuning might be used.

♦ ♦ ♦

ARCTURUS, one concern whose foresight in supplying a "G" type tube helped many set makers out of a nasty jam caused by slow production of metal tubes early in the season, now has a metal line of its own. Called "Coronet," to describe a new kind of seal said to reduce input and output capacities and permit more uniform spacing of elements, this new type is bombarded, we are told, in a manner different from that heretofore used in metal tube production with consequent reduction of residual gas possibilities. More dependable vacuum, lower operating temperatures and absence of metallic "sleigh-bells" is further claimed.

♦ ♦ ♦

THE PAST YEAR has seen a thorough engineering survey of the secondary coverage of 50,000 watt stations. These findings are now in the hands of the Federal Communications Commission, which is expected to announce extensive changes in the broadcast structure the fore part of this year, designed primarily to improve reception in rural areas and smaller cities.

♦ ♦ ♦

A WIRE FROM CHICAGO dated December 31 informs us that a Federal Court has appointed W. C. Grunow and C. A. Albers permanent trustees of General Household Utilities. Mr. Grunow advises that purchase of materials has been authorized for production of the new 1936 refrigerator line and that the reorganized concern will have samples in the hands of dealers before the end of the month, with volume shipments following shortly thereafter. Radios are coming off the lines at the rate of 1,000 per day. Grunow starts the new year with a clean slate.

1935 ALSO WITNESSED the erection of a large number of new local, 100-watt stations, mainly in cities of less than 80,000 population heretofore without a broadcasting



plant. Further licensing is expected to continue this year with a strong probability that many will be located on three new channels above 1,500 kilocycles.

♦ ♦ ♦

THE RADIO WORKERS and Allied Trades Union, closing its convention in Pittsburgh on December 30, obtained assurance from the A. F. of L. that the demand for an Industrial Union would be considered at the Federation's executive committee meeting in Miami next month. The A. F. of L. said neither "Yes" nor "No" so we'll have to wait 30 days or more for the answer.

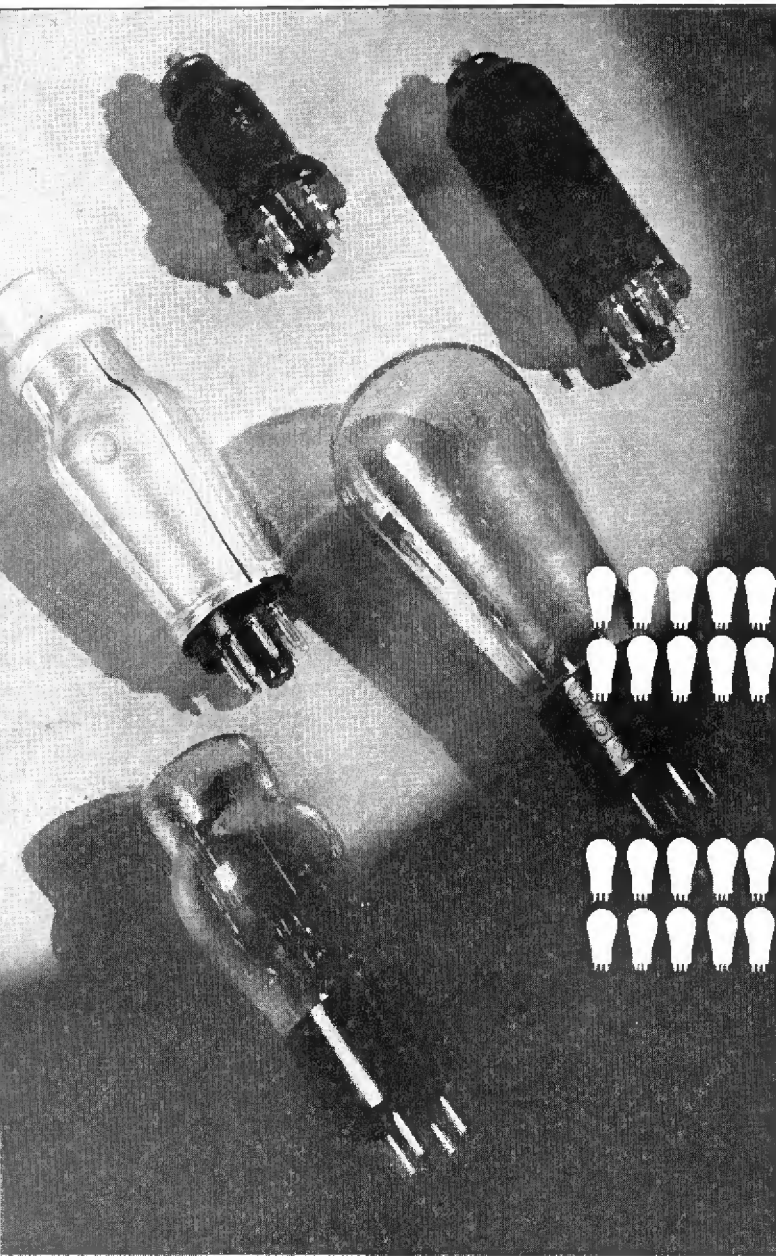
♦ ♦ ♦

SOURCES OF STATISTICS

ANNUALLY, since 1925, "Radio Retailing" has published the sales statistics of the radio industry. These presentations are accepted as official and are widely used. This year they appear in the January issue so that they may be of greater timely use.

THIS dating has necessitated estimating sales for December but this estimate, being based upon well ascertained trends, is of minor importance. Experience has shown that the factor of error introduced will not exceed 3% of the final totals.

SET, tube and parts manufacturers were interviewed. The actual sales figures obtained have been cross checked with the records of those manufacturers supplying component parts, with the RCA licensee return figures and with the government excise tax returns.



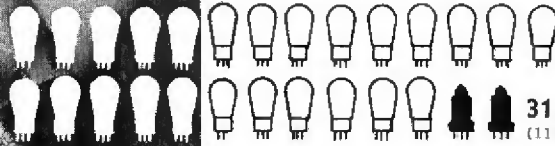
TUBE, PARTS

1935

65,500,000 TUBES

(Domestic Only)

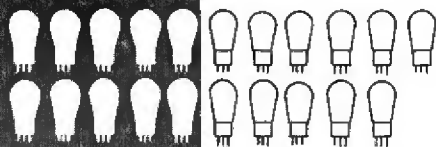
Value at retail list price \$67,900,000



34,500,000 (\$27,600,000) for Replacement



31,000,000 (\$40,300,000) to Set Makers
(11% metal)



28,642,000 (\$25,033,000) for Replacement



26,550,000 (\$34,515,000) to Set Makers

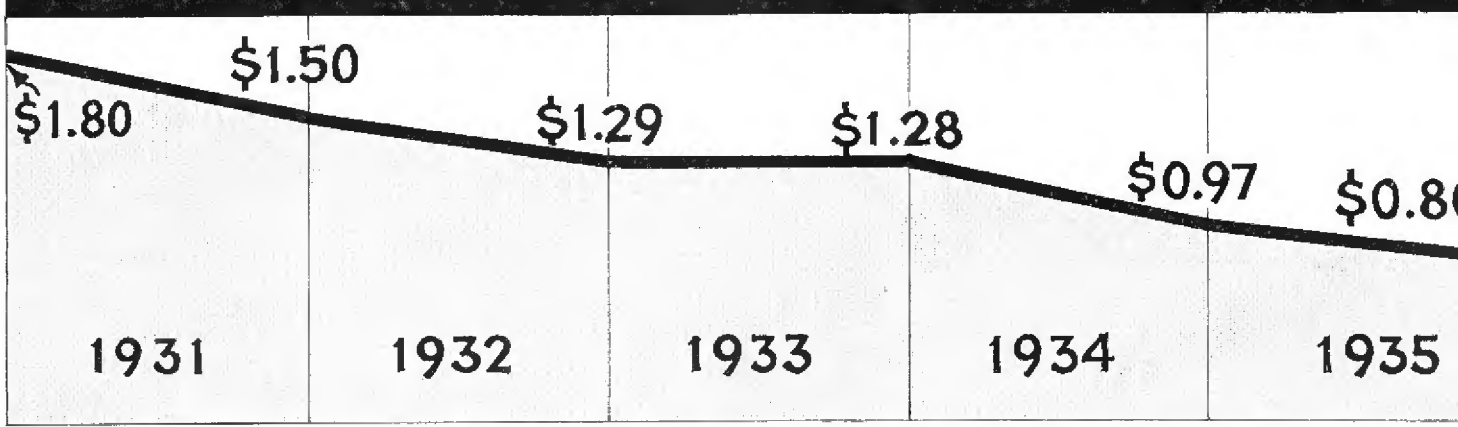
1934

55,192,000 TUBES

(Domestic Only)

Value at retail list price \$59,548,000

AVERAGE RETAIL TUBE PRICES

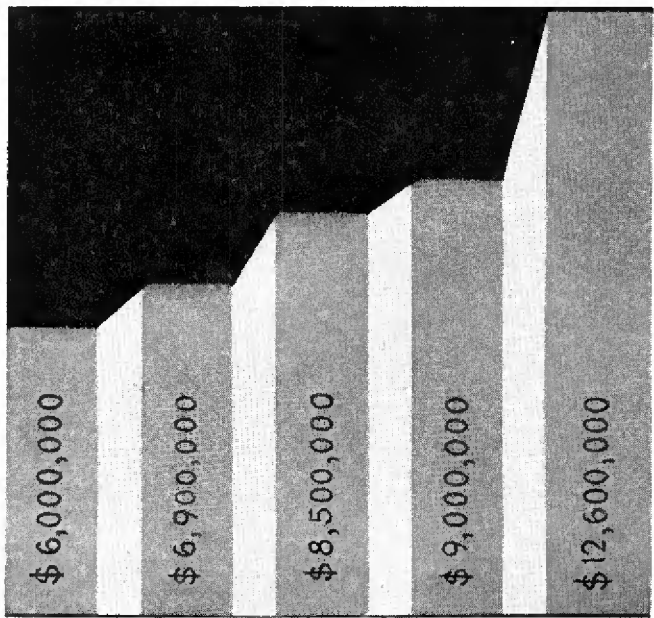


TOTAL SALES .. A

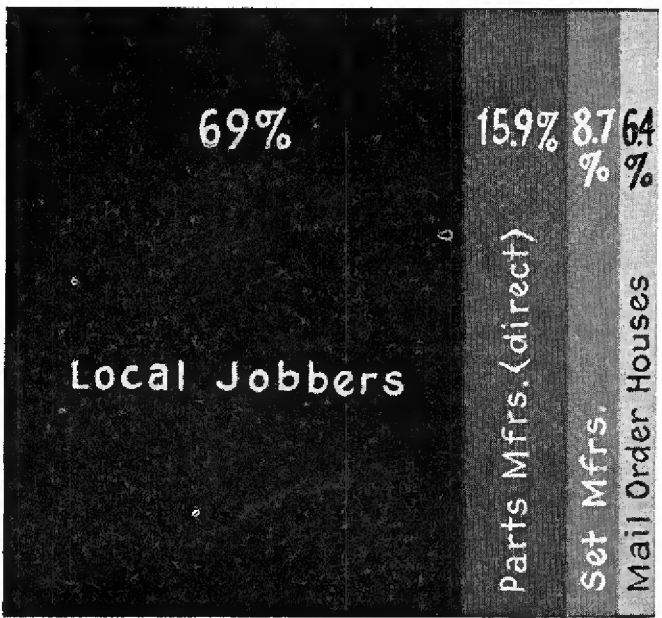
Year	Total Sales
1926	\$506,000,000
1927	\$425,600,000
1928	\$690,550,000
1929	\$842,548,000
1930	\$496,432,000

and ACCESSORY SALES

PARTS SOLD TO CONSUMER
(for replacement and set-building)



REPLACEMENT PARTS DISTRIBUTION . . . 1935



1931 1932 1933 1934 1935 ←-----100%-----→

ACCESSORY SALES

1931	1932	1933	1934	1935
\$21,680,000	ALL ACCESSORIES TOGETHER			\$21,000,000
\$14,100,000	\$15,700,000	\$11,000,000	\$16,200,000	\$11,000,000
BATTERIES (Storage, Dry and Air Cell)		\$10,400,000	\$9,200,000	\$1,075,000
			WIND-POWERED CHARGERS	65,000

RADIO PRODUCTS AT RETAIL

1931	1932	1933	1934	1935
\$9,270,000	\$196,190,000	\$212,598,000	\$235,628,000	\$298,600,000

SATURATION



NEW RADIO USERS
27%

73% OF ALL DOMESTIC SALES IN 1935
were to homes already equipped with radio

This figure obtained from an extensive survey conducted by RR covering every state in the Union. 1,600 replies analyzed.

Radio Ownership by Size of Community



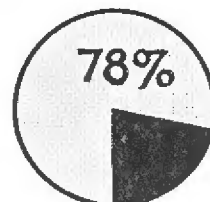
CITIES OVER
250,000



CITIES
25,000 to 250,000



CITIES
1,000 to 25,000



TOWNS UNDER
1,000



RURAL
FARMS

Motor Car Receivers

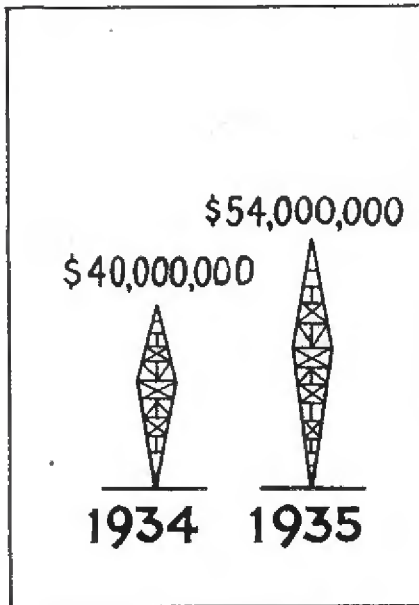
Total Passenger Car Registrations 22,460,000

2,300,000 with SETS 

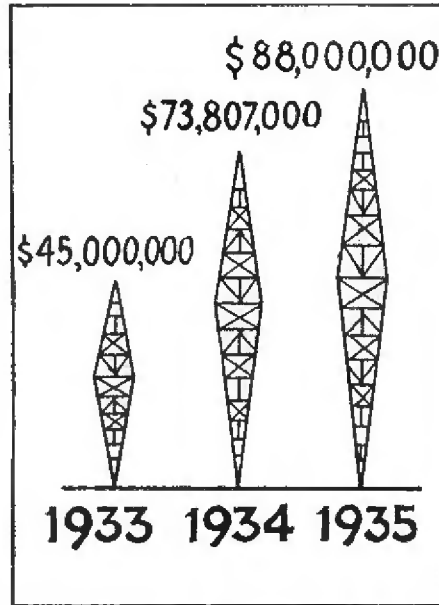
20,160,000
without RADIO 

BROADCASTING

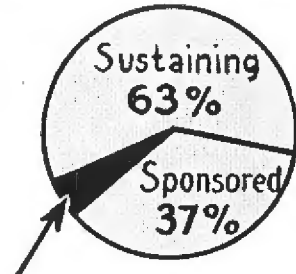
CHAIN INCOME Columbia, NBC, Mutual



TOTAL INCOME All Stations



CHAIN PROGRAMS Ave. 16 Hours a Day



Less than 4% of all program time is taken up by advertising announcements

**Sponsors Spent
\$120,000,000**

to Entertain Your Customers Last Year



Newspaper Influence



are controlled by the press

Division of Bought Time



CHAIN PROGRAMS BY TYPES

Popular Music	47.5%
Still "tops" in time allowance	
Classical Music	16.5%
Operas, symphonic, religious	
Dramatic Presentations	13.0%
Plays, readings, poetry	
Educational	7.1%
Lectures, political addresses, religion	
Sporting Events	1.9%
News	2.1%
Commentators, "spot," reviews, foreign	
Women's Programs	2.2%
Beauty talks, cooking, housekeeping	
Children's Hours	5.0%
Includes school programs	
Miscellaneous	4.7%
Novelties, calisthenics, special events	
	100.0%

Approximately one per cent of these programs originated in foreign countries and were rebroadcast.
Approximately one per cent of total network time is devoted to government officials.

WINDOW—Giant photos (on the wall) of horseless-carriages, highwheel bikes and steam trains from the gay nineties made people "age-conscious." The pictures were reproduced in tie-in newspaper ads



RELICS

Target of 4-Month Drive

Furniture store plugs shortwaves to "date" old radio receivers

LOS ANGELES—The Eastern, major home furnishing store, concluded with the Christmas holidays a four-months' radio sales campaign widely recognized as one of the most intelligently planned and perfectly executed drives put over on the West Coast by any retailer during the past year. Concentrating on the replacement market and "dating" antiques by plugging shortwave reception, considered the most tangible difference between old sets and new, this outlet succeeded in materially boosting volume without resorting to destructive price cuts.

James P. Scyster, advertising manager, reasoned that the city's high percentage of receiver saturation made users the primary market. He further decided that the best way to make local Californians radio "relic" conscious was through subtle ridicule of old mechanical contrivances commonly laughed at by today's public. If properly led, Scyster felt certain, people would automatically grasp the radio parallel.

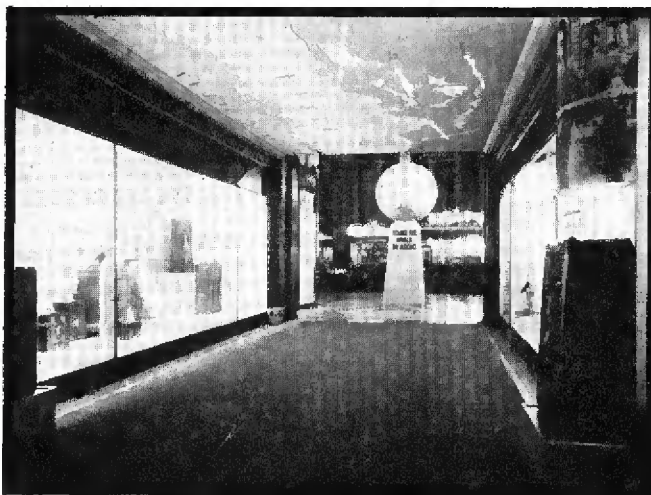
Sideburn Era Photos

Photographs of horseless-carriages, highwheel bikes and amusing steam-trains used in the gay nineties were obtained, enlarged to giant size and placed in the display windows. (See illustration). The window theme was supplemented by a concurrent newspaper drive

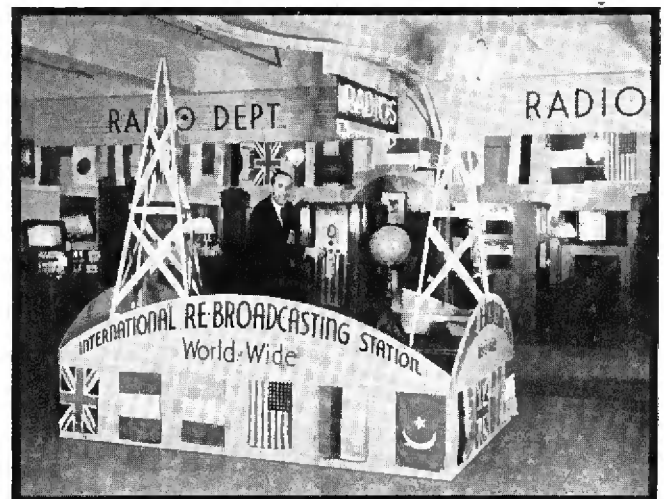
reproducing these same pictures. As many as three broadsides per week consisting of 5-column, 18-inch setups were run at the early peak of the campaign and during the closing days. Advertising was tapered off to two broadsides per week in the mid-campaign period. The relic theme was used for major copy appeal at first, until the store felt certain that most prospects were sufficiently saturated with it. The advantages of shortwave reception were just tagged in. This procedure was reversed later, shortwave reception becoming the major theme and the relic idea the tag.

The Big Globe

To convert the psychological advantage created by the relic windows and newspaper advertising into store traffic



ENTRANCE—A 6-foot globe surmounted by a miniature broadcast tower (you can just see the base of the tower out there off the sidewalk) intrigued street traffic. A canvas-painted map of the world suspended from the arcade ceiling "funnelled" people in



FLOOR—In the radio department, playbacks of shortwave program recordings made the night before convinced listeners who had never tuned in on Australia or Japan that they were missing something, gave salesmen the opportunity of demonstrating other modern set features

it was deemed necessary to intrigue prospects in shortwave listening right at the main entrance. An 8-foot tower was built of paper mache in the center of the entrance just off the sidewalk. Atop this tower, made of the same material, was placed a 6-foot globe of the world, the continents outlined in relief. The display was made still more imposing by mounting a light wood miniature of a broadcast tower on top of the globe. Visible for blocks, this monument attracted much attention.

Map in Ceiling

Shoppers brought to the entrance by the novel appearance of the globe were enticed into the long entrance arcade by a mammoth canvas map of the world suspended from the ceiling. Painted in brilliant colors, this map was pierced by lightning-shaped breaks behind which winking lights were installed to give the exhibit motion. Sample radios were placed in the open arcade beneath this ceiling decoration. (Sets and ceiling can be seen in another of the accompanying photographs).

Relic windows and advertising, plus sidewalk tower, plus arcade ceiling map convinced pedestrians that something unusual was going on inside the store and, true to expectations, brought thousands inside. Once inside, it was necessary that the interest of these people be held. Decoration of the entire store with flags of all nations helped, signs steering prospects through the maze of furnishings to the radio department.

Re-Broadcasting Station

In the radio department itself a continuous demonstration sufficiently interesting to hold the attention of most people was staged. A raised booth equipped with dummy antenna towers and a sign: "International Re-Broadcasting Station" was provided with a phonograph combination. On this combination an attendant played electrical recordings of programs received from foreign radio stations the night before at the home of a store official. Use of recordings proved that shortwave reception was quite possible with the sets on display without forcing the store to attempt such reception at unfavorable times in a noisy downtown area.

Short Waves Are "Bait"

Salesmen circulated among the listeners, explained shortwave reception and then interested prospects in other features of modern radio, frequently dropping the shortwave feature used as an initial attention-getter in favor of improved cabinet appearance, simpler tuning and more realistic tone.

"The entire campaign, while of course aiming at immediate sales," says Scyster, "also had the broad objective of aiding replacement sales over a long period. We are satisfied with the results."

Far West Sets Promotion Pace

PORTLAND—Major Bowes' western troupe, engaged by many Coast department stores in the past two months, appeared for a widely advertised performance at the Gevurtz Furniture Company late in December. Attendance was high, many people coming to the store to hear these amateurs again after paying good money to see them at the Mayfair Theatre, where they were billed during the week. The time selected, between 2:30 and 3 p.m. of a weekday afternoon, seemed satisfactory.

SEATTLE—Frederick & Nelson's department store obtained the services of a galaxy of radio stars heard over Station KOMO to put on a show at 2 p.m. each day in its auditorium, greatly swelled store traffic to the benefit of all departments. Three makes of radios were briefly demonstrated during the hour programs. A children's matinee performance was broadcast on the con-

cluding Saturday of the week over KJR.

FRESNO—In late November this city staged a Cooking Bee Exposition and Appliance Show at the Civic Auditorium. Features included a fashion show, cooking school and amateur radio show provided by Gottschalk's, a leading department store.

SACRAMENTO—Breuner's, department store, conducted its own private gas and electric appliance show just before the close of the year. Special drawing card designed to swell attendance and stimulate interest in shortwave radio was the outlet's offer to broadcast messages free of charge to any part of the world for visitors who filled out message blanks on the floor. Local amateurs handled the traffic without charge. Also featured was the offer of free copies of the "Western World Wave Guide," an allwave logbook.

Utah Sage Pushes Trades on Paydays

Moves used sets to industrial workers when they have money

SALT LAKE CITY—Robert Nevins, manager of the Paris Company's radio department and well known locally as the man charged with cooperative promotion for the region, contends that most radio sales necessitate a trade-in, labels disposal of these used sets without loss a major retail radio problem.

Paris Company salesmen assume that prospects have a receiver from the very beginning, save selling time and get a line on probable price and style preference by asking immediately: "What kind of a radio do you now own?" Sets taken in must be in operating condition, or repairable without great cost. They are hooked up ready for demonstration, just as are new receivers and advertised in display space newspaper columns coincident with the area's regular industrial paydays. Most used sets are sold to industrial workers in the lower income brackets, according to Nevins, and this can best be done just after payrolls are met.

Used sets, incidentally, are now being purchased from new merchandise buyers at 60 per cent of 1934 levels.



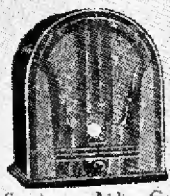
Merchandiser Robert Nevins of the Paris Company. He directs Salt Lake's cooperative radio efforts

Card Highlights Week's Programs

Mail circular is different

MAHANAY CITY, PA.—Gruber, selling radios in the heart of the coal mining district, uses a unique program reminder card to drum up interest in important broadcasts, secure new set business through this interest.

The illustrated card tells the story, is considered much better than the usual stereotyped sales circular as it gives the prospect something . . . information about broadcasts, and then subtly gets in its sales story. Cheap and effective, it is changed each week, has been pulling inquiries for several months.



**This Week's
Reasons For
Owning A
Philco**

Sunday — Aids. Cantor, Richard Crooks.
Monday — Gilbert & Sullivan opera.
Wednesday — talk from Addis Ababa, and Secretary Kellogg.
Friday — Kay Francis, Dick Powell.
Saturday — Football, Herbert Hoover, and Will Rogers memorial service.

We select at random a few of this week's radio features; there are hundreds of others.

The question is, are you in a position to enjoy these treats with a modern Philco Radio? If not, drop around some evening and see the new models.

GRUBER

132 East Centre Street, Mahanoy City, Pa.

Loans Set to Service Customers

Clientele appreciates "tide-over" midgets

SAN DIEGO, CALIF.—The offer of a midget loan, free, while service work is in progress is bringing extra repair volume to the C. D. Wiggins Radio Shop. When the serviceman goes out on a call he always takes along a small trade-in of some kind. Sometimes people can't be home to receive their own repair promptly, or want a program the same evening their receiver is removed and this offer is creating a lot of local goodwill. People all over the city

are talking about the accommodation. "Whether they accept the offer or not our customers seem to appreciate it," says F. M. Short, service manager. "No investment is involved so there is no particular cost to us. While it is hard to trace business directly to this policy we do know that new customers occasionally mention that a friend told them we loaned sets while doing repair work and that they came to us because they didn't want to be without a set."

Geography Sells Allwave Sets

Oram-Barnes approach moves 75 new consoles

TUXEDO PARK, N. Y.—Geography has helped Oram and Barnes, local radio dealer, to move 75 allwave sets to parents who might otherwise have been lost as purchasers. The first step in every sales approach, according to J. Oram, is to ascertain whether or not the prospect has children of lower-grade school age. If so, the aid of shortwave listening to sugar-coat the pill of geography is pointed out, proves most effective as a sales producer.

A talking sign, one employing a special recording, says:

"Once reading and writing and 'rithmetic, Were taught to the tune of a hickory stick. Now geography lessons no longer fret, When taught to the tune of an allwave set."

The theme is hammered over and over, in the window displays and personal contact with prospects.

"Shortwave listening is still the biggest single radio sales factor," says Oram.

Tube Souvenirs

*"Dummies" attract
1,000 new set prospects*

SAN FRANCISCO—Dummy metal tubes, mounted on heavy bases, obtained at low cost from a manufacturer, were used during a special sale week with excellent results by the Emporium, this city, attracting more than 1,000 people who had heard about the new iron bottles but had not seen them.

Five thousand were obtained and to each tube was affixed a small gummed label reading: "This is a replica of the first all-metal radio tube developed by General Electric, employed in new, 1936 radios sold by the Emporium." They were publicized through newspaper advertising and by window signs inviting the public to come in and get one as a souvenir paper-weight during the sale. One window was given over entirely to a metal tube display.

"It is obvious," states Edgar J. Jensen, radio department buyer, "that most people sufficiently interested to come in for a tube, knowing full well that we were using them as a means of broaching the subject of a new radio purchase, would be set prospects. Interest in tubes of any kind denotes interest of some kind in radio.

"While there is no way of telling just how many sales were directly traceable to the stunt we do know that our store traffic increased considerably. We paid 15 cents apiece for the dummy tubes and feel that the expense was well justified."

Note Builds Service

ALAMEDA—Howard's, radio and appliance specialty outlet, follows up all service calls with this letter, designed to induce customers to supply names of prospects:

"Thank you very much for calling on me to service your radio.

"My shop is completely equipped with the latest scientific precision instruments necessary to meet the ever changing requirements caused by the advance in radio design. My skilled technicians are able to do a much better and more thorough job, for this reason, than the average under-equipped shop.

"Should your radio fail to show a marked improvement in performance, or should it not be entirely satisfactory, telephone immediately and you will find me eager and prompt to render complete satisfaction.

"Please recommend my 'Quick as a Wink' service to your many friends and neighbors."



CONSOLE LISTS AT
\$39.95
 \$42.90 IN FLORIDA
 AND WEST COAST

TABLE MODEL LISTS AT
\$25.95
 \$28.50 IN FLORIDA
 AND WEST COAST

NEW!

**TWO METAL-TUBE FERRODYNES THAT ARE
 PRICED TOO LOW!**

Latest Stewart-Warner creations offer beauty and performance far beyond their cost. Read the opportunity they offer you

EVERY tradition of radio value in the lower price bracket is swept aside by this announcement!

Just think of a real, full-size *Craft-Built* console, beautifully and strongly built in overlaid curly maple, pencil-striped walnut and matched stump walnut, and hand-rubbed to a fine satin finish—a genuine *Ferrodyne* chassis with *seven tuned circuits* engi-

neered throughout especially for the **NEW METAL TUBES**—a full 8-inch speaker of the most improved design—all drawing buyers into *your* store with this amazing price!

And a twin in table size, equally well housed, identical in performance and just as surprisingly priced!

Here's just the tonic radio sales need for the late winter season when *value*

is the key to profit. Both have 5 *metal tubes*. Both have illuminated dial, tone control, built-in line filter and other quality features, and cover both police bands. Both offer you—and your prospects—more than radio has ever offered before. If your distributor hasn't contacted you, phone or wire him now. **STEWART-WARNER CORPORATION**, Chicago, Illinois.

STEWART-WARNER
Ferrodyne **RADIO**

EXPORT MARKET

1935 Sales by Months (Including U. S. Possessions)

RECEIVERS

RECEIVING TUBES

PARTS

	Number	*Mfrs. Valuation	†Number	†Mfrs. Valuation	Mfrs. Valuation
JANUARY	44,914	\$1,213,459	486,924	\$222,401	\$365,947
FEBRUARY	47,159	1,291,245	408,886	188,187	327,591
MARCH	49,149	1,310,014	462,880	214,478	512,364
APRIL	49,136	1,299,025	556,276	238,773	421,399
MAY	42,993	1,137,608	677,144	283,367	472,737
JUNE	36,825	935,232	583,522	239,109	505,064
JULY	39,113	998,210	446,820	187,241	471,161
AUGUST	46,200	1,223,230	520,676	225,840	536,892
SEPTEMBER	51,667	1,306,926	682,848	287,881	551,288
OCTOBER	64,979	1,719,064	670,979	309,760	627,189
NOVEMBER	84,865	2,525,987	610,045	254,968	488,368
DECEMBER	68,000	2,040,000	593,000	242,000	300,000
TOTALS 1935	625,000	\$17,000,000	6,700,000	\$2,894,000	\$5,580,000
FOREIGN 1935.	606,500	\$16,200,000	6,635,000	\$2,866,000	\$5,500,000
U. S. POSSESSIONS 1935.	18,500	800,000	65,000	28,000	80,000
TOTALS 1934	629,166	\$16,017,500	6,750,000	\$3,253,500	\$5,289,000

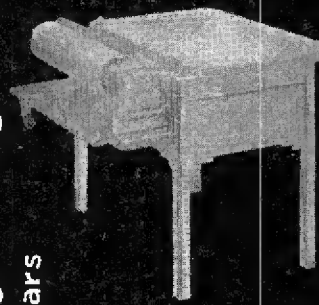
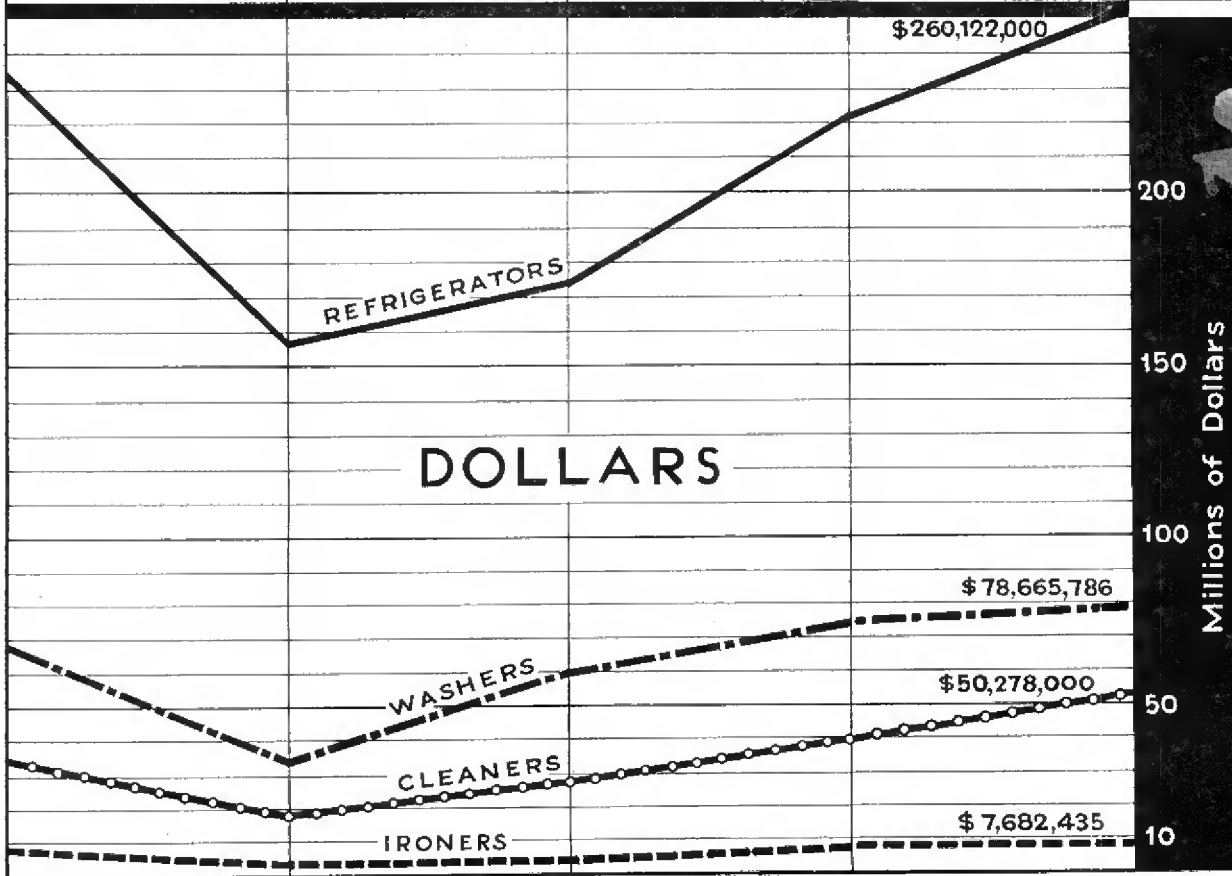
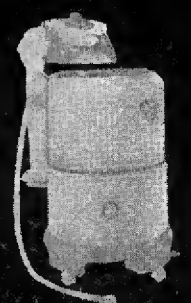
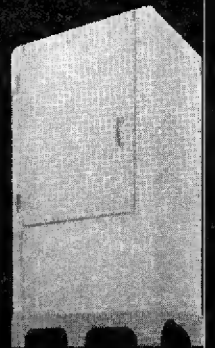
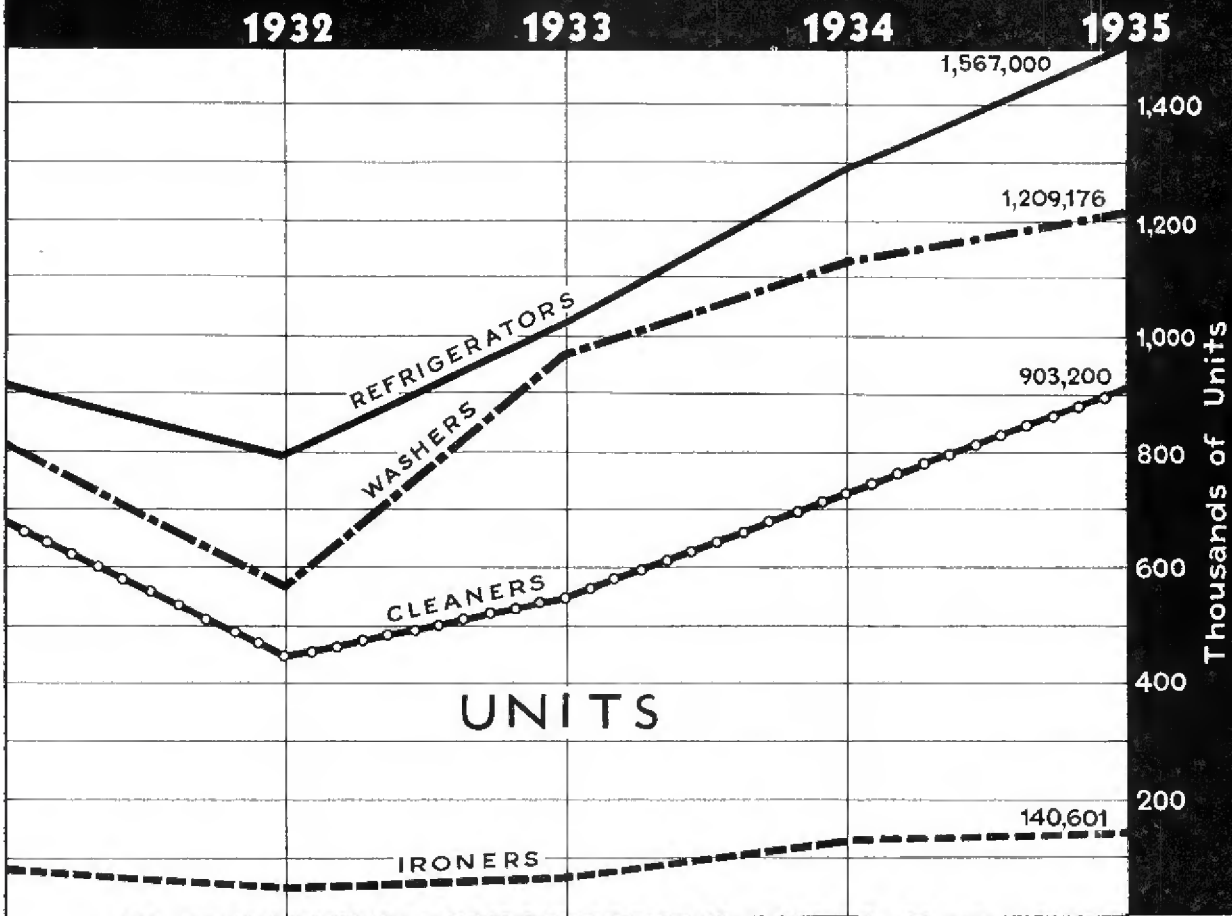
AVERAGE DECLARED VALUE, per set. . . . \$27.20 as against \$25.46 in 1934

AVERAGE DECLARED VALUE, per tube. . . . 43¢ as against 48¢ in 1934

*Includes 5 tubes per chassis. †Does not include tubes shipped in sets.

Total number tubes exported, initial equipment and replacement 9,900,000

ELECTRICAL APPLIANCES



CALIFORNIA

Fair Trade Act WORKS

By W. A. CYR

SAN FRANCISCO—California retail merchants have been attempting to remedy the evils of "chiseling." Under the consistent pressure of trade associations laws were passed in the California legislature which took the first step in that direction. Then last year, July 1, 1935, to be exact, the holes in the former legislation of June 10, 1931, were effectively plugged up, and today that state has one of the tightest fair trade laws in these United States.

While no radio sales cases have been brought into court under the act, drug and cosmetics manufacturers have tested the constitutionality of the act and found it to hold. Those manufacturers of radio receivers who have incorporated as a clause in their franchises to dealers and distributors the provision that their products are to be sold at definite contract prices in conformity with the California Fair Trade Practice Act have had reason to be glad. Their dealers have had price stabilization, and consequent fair profit margin.

For the provisions of the act are broad. A concise review of some of its salient features, pruned of many whereases and other legal repetitions, will illustrate why dealers in other states may find it to their advantage to send West for copies of the act and seek to have similar bills passed in their own states.

SIGNIFICANT is the last section of the act, which declares it to be an urgency measure necessary for the immediate preservation of the public peace, health and safety. This section then enunciates the principle upon which it is to be interpreted by the courts in the following words, taken verbatim from the act:

"The facts constituting the necessity are as follows: The sale at less than cost of goods obtained at forced, bankrupted, close out, or other sales outside of the ordinary channels of trade is destroying healthy competition and thereby forestalling recovery. If such practices are not immediately stopped many more businesses will be forced into bankruptcy, thus increasing the prevailing condition of depression. In order to prevent such occurrences it is necessary that this act go into effect immediately."

In the first section it is stated that it is unlawful for

any person or firm to discriminate between different locations in selling commodities by selling them at a lower rate in any section, after making allowances for differences in transportation. It does not prohibit meeting of competition, in good faith, but it does forbid special rebates or deals which violate the spirit of the act.

Next the act includes in responsibility any person who assists or aids in violation by his firm.

The crux of the act is in its third section, which declares it unlawful for any person or firm to sell, offer, or advertise a product at less than the cost to the vendor, or even to offer to give away an article for the purpose of injuring competitors or destroying competition. The term cost is then defined to apply to cost of raw materials and labor and all overhead expenses of the producer, and in the case of a distributor, of the invoice or replacement cost, plus the cost of doing business of that vendor. Not satisfied with this, it goes deeper to define the cost of doing business or overhead "as all costs of doing business incurred in the conduct of such business and must include without limitation the following items of expense: labor (including salaries of executives and officers), rent, interest on borrowed capital, depreciation, selling cost, maintenance of equipment, delivery costs, credit losses, all types of licenses, taxes, insurance and advertising."

Provisions are then made regulating the means whereby close outs, bankrupt stocks, and damaged goods may be disposed of without affecting the basic cost of a given product. Even concerns who renovate or alter merchandise, such as radio service shops are included within the meaning of "vendor."

In establishing "cost" the invoice of goods purchased at forced, bankrupt or close out sale may not be used as a basis for justifying a price lower than one based on replacement cost as of date of sale of such product replaced through the ordinary channels of trade. Exception is made in certain

cases where the article is frankly advertised and sold as merchandise purchased at forced or bankrupt sale. The act then goes on to say that it is only necessary to prove the "unlawful intent" in seeking an injunction. Trade associations are further strengthened by an added sentence: "Where a particular trade or industry . . . has an established cost survey for the industry for the locality," such a cost survey shall be deemed competent evidence to be used in proving costs.

Penalties under the act are far-reaching. A third violation brings the possibility of enjoining the offending

(Please turn to page 43)

Superior Court Tests Put "Teeth" In Model State Measure Designed To Protect Retailers Against Cut- Price Tactics, Special Deals and Rebates Which Disrupt Market



I am convinced...

...says A. Atwater Kent

YOU have helped to make 1935 a good Atwater Kent year. Your business and ours should and can be even better in 1936. My energies are directed toward achieving that end.

"I am working with our engineers to produce the most practical, salable sets that can be made.

"In 1936, we believe that our new dramatic advertising and merchandising will be more effective than ever before. Our advertising will look entirely different, fresh and exciting. It will work hard for you and will bring more people into your stores.

"I am convinced that 1936 will be a profitable radio year, especially for Atwater Kent dealers."

A. Atwater Kent

ATWATER KENT RADIO

with Control-Room Reception

West Coast

Four Hours Behind the East
in Time Months Ahead in
Merchandising Sagacity
Trade Beyond Rockies Reports
23% Stepup in Volume

SAN FRANCISCO—West of the Rockies radio business is 23 per cent better than a year ago. Most of the improvement is attributed to gains in rural and semi-rural regions where farm incomes have been high. Shortwave reception is the novelty that has sold sets this season.

The midget set industry is growing up, assuming respectability and stability. Price trends are upward, with the average \$15 to \$20 higher than 30 months ago. Auto-radio popularity is presenting new problems in distribution.

There is nothing new in the wind similar to the midget. Set saturation in the metropolitan areas presents a trade-in problem that worries some retailers; others seem to have solved it. As high as 70 per cent of all new set sales involve trades, but a new merchandising technique is being developed to meet this problem. Most dealers express hope for longer discounts to cover trades. Distributors say "No."

Definite proof has been established that there is no such thing as 100 per cent saturation. Many individual regions top this figure. Dealers simply sell second and even third sets, the many recreation rooms in the West aiding this program.

Cooperative Advertising

Foremost among significant merchandising trends is cooperative advertising—manufacturers, distributors, dealers, broadcasting stations and power companies banding together to promote public acceptance of radio. The need for a national all-industry program is recognized, but since nothing is done about it local operations are being devised as a substitute.

SAN DIEGO—Typical of such cooperative planning is the activity in this city, where a succession of campaigns, rather than just one at the peak season, have been staged under the wing of the Bureau of Radio and Electrical Appliances, guided by Secretary-Manager J. Clark Chamberlain and President H. E. Callaway.

Early in 1934 a "Theme Song" guessing contest was broadcast twice weekly for 15-minute periods over KGB. Listeners were offered photos of their favorite performers for guessing theme songs correctly. Over 8,000

EDITOR'S NOTE

Because midgets came out of the setting sun in 1929 and altered the entire complexion of the radio business, many now gaze antipathetically toward the Pacific for signs of some new and equally unexpected Frankenstein.

Mr. Tenney's news letter allays such fears.

It is made doubly valuable by the author's painstaking review of marketing trends, the most complete and authentic picture of activity in this important area yet published. For just as Southern California's salubrious climate grows oranges while Chicago and New York are still under ice and snow so its new-year selling schemes are apt to be well advanced long before the effete East rolls out of its blankets.

By George Tenney

Survey . . .

Discloses Highly Developed Cooperative Activity

individual score cards required for entry were picked up at local radio stores, mailed to the station through these dealers.

Later in the same year a "Public Enemy" campaign against bacteria was promoted in behalf of refrigeration, this, too, pulling people to stores and exposing them to radios.

In September, San Diego staged its second annual electrical exposition, featuring a shortwave transmitter set up by local amateurs and used to relay free messages throughout the world. This focussed attention on shortwave sets displayed.

Football season brought another campaign, tickets being offered for outstanding games to listeners participating in a "Gridiron Guesses" contest, broadcast by Gary Breckner, local sports authority.

The California Pacific International Exposition constituted another excuse early in 1935 to set up an amateur radio station exhibit. Special radio message blanks inviting friends to attend were available only at electrical and radio stores. Before the exposition closed, in April, 10,000 blanks were picked up, 4,000 messages sent.

In June another joint promotion in behalf of refrigeration and radio revolved around a broadcast game called "Magic Words." The stunt was to see how many words could be spelled from the letters in trade-names of the 14 manufacturers cooperating. 1,162 entries were filed at stores.

A series of Sunday night broadcast programs in behalf of Bureau members was continued all fall and winter. And to cap the climax the Third Annual Electrical Exposition came in December. 80,000 people attended.

Results? In 1934 over 10,000 new sets were sold. In 1935 this mark was passed in October. The trade has learned to cooperate and now readily combats problems such as price-cutting and adverse ordinances.

DENVER—New, 1936 models were introduced by 66 dealers, 13 distributors located in this city, Arvada, Aurora, Englewood, Littleton and Golden, working through the Electrical League of Colorado, and breaking all existing records for volume.

A radio week was sponsored by the League, built around the slogan: "Reach for the Joy of Living With Radio," repeated in four-color display billboards, newspaper advertising and broadcasts. Three 3-column-by-9-inch ads were run in each of the two Denver papers and all three local stations carried 15-minute programs plus frequent spot announcements.

Costs were as follows, the bill being footed by distributors and the League:

Cooperative newspaper ads	\$395
Paid radio advertising	74
Posters	105
Mailing and miscellaneous	12
Total	\$586

The drive was sufficiently profitable to bring forth the announcement that it will be repeated on an enlarged basis during the present year.

SALT LAKE CITY—Another typical cooperative advertising campaign was sponsored by the Electrical League of Utah, twelve dealers placing full-page advertisements on 1936 models in three Salt Lake papers once a week for four weeks. Distributors, dealers and the local power company contributed \$4,000 to the required fund. Two local stations contributed time and part of this money.

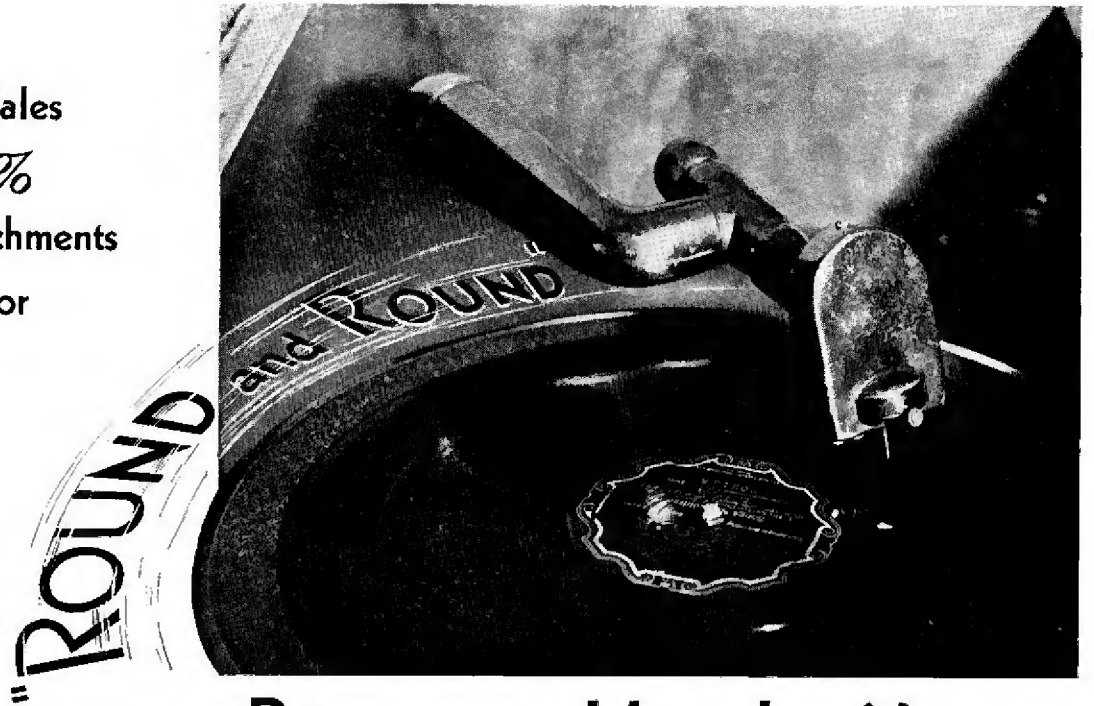
Twelve radios were awarded as prizes in a contest requiring entrants to guess the names of radio stars pictured in newspaper cartoons, entering their guesses on blanks obtained at stores, stating the program on which these stars appeared and appending a ten-word statement telling why these stars were favorites. 1,500 entries were received by the Ad-Craftsmen, advertising agency for the League.

Shortwaves

Upward of 60 per cent of all 1935 sales were of combined broadcast and shortwave receivers, according to distributors. Discounting relatively poor shortwave reception, especially from Europe, dealers frankly admit

(Please turn to page 43)

Record Sales
UP 40%
Player Attachments
A Factor



Biggest Hit In Years

By Richard Gilbert

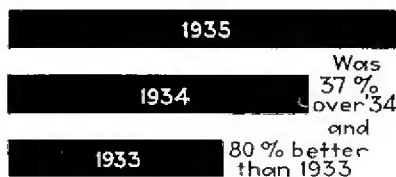
THIRTY THOUSAND record players, of the motor and pick-up type, were attached to radios during the past 12 months. Assuming that the average number of records bought by those who began to use these turntables during '35 was ten—and you have a sale of 300,000 records from this one factor. An accumulative total of a million records have been sold because, for \$16.50, a person can convert a radio receiver into an acceptable phonograph.

The combination radio-phonograph business hit a new Holiday high last month. Makers of this rarity, in console design, were hard put to fill re-orders just before Christmas.

In addition, 20,000 electric portables were exchanged for coin of the realm during 1935.

Feature Record Players

A record player attachment can be sold to most purchasers of a set designed for its connection. Demonstrate



Each Year Better

—according to the leading manufacturer of phonograph records. The sale of "classics" bettered this total showing by another 50 per cent.

this plus value device with the set you're selling; just after the main deal is closed. "But I'll never have much use for it," may assert a timid customer. The salesman should reply, "If you have one party of a dozen people and use this attachment for playing dance records, it will have paid for itself." Aggressive salesmanship should add this \$16.50 "bonus" to many transactions.

Discs Up 40 Per Cent

The country's disc business for '35 looks like a 40 per cent increase over '34. Bruno-New York, Inc., in a special position to know, reports sales best since 1928.

In New York City alone, during December, 1,500 album sets of *Porgy and Bess*, music by Gershwin, passed across record counters. An item listing at \$6.50 or a total of \$9,750 retail for one set of four records featuring such singers as Lawrence Tibbett and Helen Jepson.

Eye and Ear History

For those who can't afford the Victor "Library of Recorded Music," we suggest the *Columbia History of Music by Eye and Ear*. In four volumes of eight records providing an anthology of the musical arts from the 12th to the 20th century. A hit in England for four years.

It's Another Natural

The Music Goes Round and Round is not only the biggest popular hit of the month but is on its way to be the most called for record in years. The demand is terrific. Get behind it with the following discs: Tommy Dorsey and His Clam-Bake Seven (Victor 25201); Winge Minnone (Vocalian 3134); Frank Froeba and His Swing Band (Columbia 3110D); Hal Kemp (Brunswick 7587) and Eddy Reilly and the Onyx Club Boys (Decca 578).

"*The Music Goes Round and Round*"—a good slogan for record dealers for 1936. Show your customers how entertaining the twirling disc on the turntable can be.

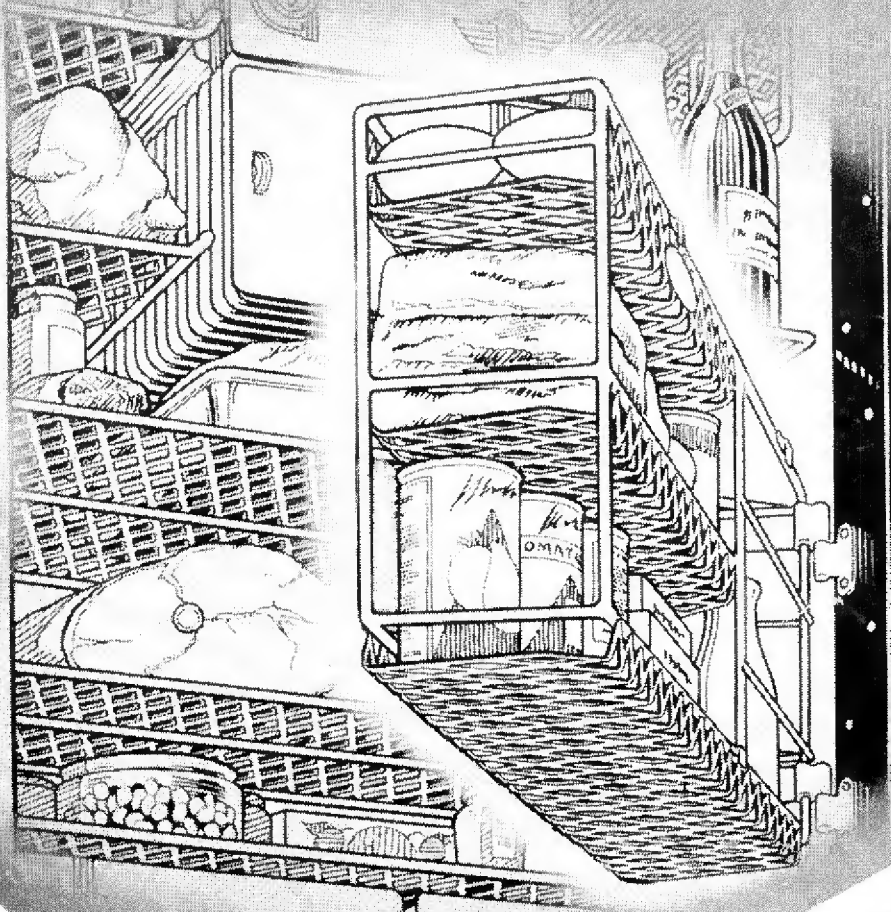
To Demonstrate the D-22

The new Dynamic-Expander incorporated in Victor's 22-tube combination is an interesting feature not to be found elsewhere. One of the best discs for demonstrating this effect is Victor record No. 24499, *Lady of Spain*. For a startling demonstration begin this record at less than medium volume, turn the Expander on full—and watch the results.

Guy Lombardo and his band have signed with Victor. Good news for "His Master's Voice" dealers.

Here It Is!

STEWART-WARNER



SAVA-A-STEP

*The Biggest Sales Feature
in Refrigeration for 1936!*

How SAV-A-STEP and Increase "Get-At-Able" Space 30%

SAV-A-STEP is hinged—swings easily to turn back shelf space into front space



Snaps into hangers on door if users prefer—with no insulation sacrificed!



New!

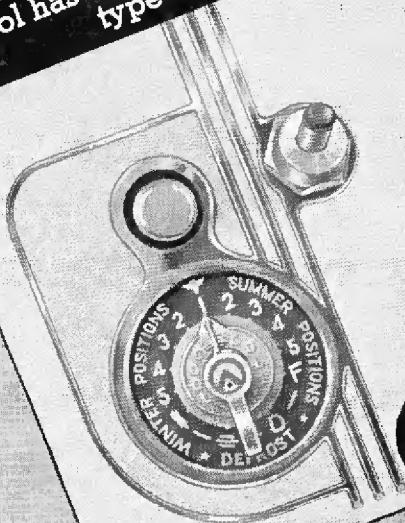
Lifts to table with everything for a meal! One trip! One opening of door!



New!

New!

Summer-Winter range freezing control has first lighted airplane-type dial



New!

Jumbo vegetable crisper and fruit basket slide smoothly on steel guides



Improved!

No Salesman EVER Had So

Her New HIT FEATURES

Cut Current Costs... Save Work!

Famous SLO-CYCLE
twin-cylinder unit... amaz-
ingly economical and service-free

Exclusive!

SLID-A-TRAY... concealed in unit
compartment... rolls in and out
at a touch

New!

Smooth, seamless vaulted
construction gives new
strength, sanitation, beauty

New!

SLID-A-TRAY holds half a dozen
dishes at once... frees hands
for rearranging

New!

Porcelain Freezer with reversible door
makes abundant ice or desserts fast!

Improved!

UCH To Demonstrate Before!



Before You Sign for '36 Learn All About
STEWART WARNER

● Here's a refrigerator with more to offer you for 1936 than any other refrigerator we know about! *More eye-appeal* to bring 'em in. *More real, practical features* that women can see and handle and appreciate. And *more profit you can keep* at the season's end, because of Stewart-Warner's really amazing freedom from service losses.

From top to bottom, it's the handiest refrigerator ever offered to housewives. It has over 30% more

get-at-able *front shelf* space than other refrigerators of the same cubic capacity — more flexibility to let women arrange foods as they please — more improvements to save steps and hours and dollars.

Everything you need for your most successful season is wrapped up in this one package! A refrigerator that's really news—because it's really new in every detail except the time-tried twin-cylinder Slo-Cycle unit, with its record economy and

service freedom. A name known to 30 million satisfied customers. And a merchandising plan that's *right* from price structure to advertising cooperation.

Your Stewart-Warner distributor has the new Stewart-Warners now —with all details on discounts, selling aids, and other essential facts. There's good news in every line of the story. So get the details now—without obligation—and go places this year with Stewart-Warner.

A COMPLETE LINE-10 Beautiful Models

Broadcasts Attain New Heights

Review of 1935 Achievements and This Year's Objectives Assures Retention of Radio's Place in Public Favor During 1936

PUBLIC INTEREST in broadcasting was held to a high pitch last year by the introduction of many new programs and "stunt" presentations, also because of a number of definite technical improvements in the art.

Outstanding among the special features were the following thrillers: Marconi anniversary, with salute from ships at sea, from Admiral Byrd at South Pole and from the Graf Zepelin over the Atlantic; pickup from maiden voyage of S.S. Normandie; broadcast from crater of Mount Vesuvius; talk by Emperor Haile Selassie from Addis Ababa, and the stratosphere flight with three-way hookup of balloon, "China Clipper," over Pacific, and editor's desk in London, England.

1935 Favorites

The ten most popular programs of last year, rated in a survey of 40 representative cities last month, were headed by Major Bowes and his amateurs. Next, in the order named, are: Jack Benny, Rudy Vallee, Showboat, Fred Allen, Whiteman-Crosby, Burns and Allen (tied with Bob Ripley for seventh place), Hollywood Hotel, Wallace Beery and One Man's Family.

Invisible Control

A recent technical development is the substitution of a mechanical "hand" on gain control to function in the absence of a human operator. First used in the stratosphere ship "Explorer." Special progress also can be reported in the following fields: directional broadcasting, improved ultra-short wave field equipment, new studio installations, reference recordings, studio lighting and experimental television.

New NBC Pacific Chain

On New Year's Day, the National Broadcasting Company inaugurated its new western "Blue" network with a feature broadcast of the Rose Bowl football classic. This is the second step taken by NBC to better serve the Pacific states—as well as the entire country. It followed, by less than a month, the opening of the magnificent Hollywood studio. From this strategic point will be brought to the nation the talent of famous motion picture personalities not heretofore available.



Greatest Showman

Voted Radio's first attraction, Major Edward Bowes has entrusted NBC Artists Service with the booking of his Amateur hour vaudeville units on tour throughout the theatres of the country

And in the East and Central West year-old Mutual (basic stations WOR, WLW, WGN and CKLW), free to experiment to a large degree, will put on the air new types of programs not elsewhere hearable.

CBS \$2,000,000 Kitty

What appears to be the largest amount of money ever allotted to the development of sustaining programs in radio history has been budgeted by the Columbia Broadcasting System for 1936. It is rumored that this sum will be used not only to produce its own brand of innovational offerings, but will be devoted, in part, to the building up of one or more distinctive radio personalities.

Shortwave Institute

WASHINGTON—To stimulate the development of short-wave radio by fostering the public interest in international broadcasting, radio telephony, radio telegraphy and television, the Shortwave Institute of America was organized in Washington, December 16, with offices in the National Press Building. The president of the Institute is Oswald F. Schuette, well known to the radio industry.

Two New British Short Wave Stations Promised

DAVENTRY — Improved reception of English programs in America, already among the best, is promised by the British Broadcasting Corporation for the new year. Contracts have been signed for two new short-wave transmitters of the high power type to be erected at Daventry.

Lenox Lohr Heads NBC

NEW YORK—The directors of the National Broadcasting Company, on Dec. 27, accepted with regret the resignation of Merlin H. Aylesworth as president. He asked to be relieved from this post because of his increased duties as chairman of the board of the Radio-Keith-Orpheum Corp.

To fill this vacancy, Lenox R. Lohr was elected president at the same meeting. Mr. Lohr has had a successful career as engineer, soldier, instructor, author and editor. His unusual qualities as an executive were demonstrated by his strikingly successful management of the Century of Progress Exposition in Chicago.

STATION SHORTS

France starts its long awaited television transmissions, from the Eifel Tower, this month.

The Don Lee Network will continue to be the CBS Pacific Coast outlet for at least another year. It has been revealed that an extension of the present contract was recently signed, to run until January 31, 1937.

Station KROW, San Francisco and Oakland—has only about two hours a day—out of a 20-hour per day schedule—that can be cleared for sponsors. This speaks well for the business-getting abilities of the commercial staff, and the improved conditions in the advertising field.

The Metropolitan Opera, which through radio has evolved into a national institution, this season will become an international source of delight to opera lovers by means of shortwaves. The operas will be picked up and rebroadcast by Stations W2XAF and W2XAD, of Schenectady, every Saturday afternoon at 1:45.

Father Time Allen Swings a Mean Gat



"It's up to the minute," says Old Father Time Allen—"Town Hall Tonight." One thing worried Fred. His hour glass was filled with sand from the Pacific Coast—and ran three hours later than EST. But he showed up on time for his Jan. 1 broadcast and turned in one of the funniest skits of his career.

Greatest tube merchandising idea in years!

RCA Check-up continued in 1936

Who wouldn't pay 1/2 cent to hear PAUL WHITEMAN perfectly?

RADIO week...naisy? CALL IN THE RADIO "DOCTOR"

Get this check-up or your friends envy you!

RCA RADIO TUBE

Second Radio Service Week!

Complete RADIO CHECK-UP

Special radio service offer... Good for one week only!

COMPLETE CHECK-UP YOUR RADIO

Only \$1.50

Does the heart of your set beat in tune with the Heart Throb in Rudy Vallee's Voice?

FINAL PRE-HOLIDAY OFFER 10 RADIO CHECK-UPS

- 1 Inspect and clean chassis.
- 2 Check speaker and earphone connections.
- 3 Check all power connections.
- 4 Test and adjust all tubes.
- 5 Clean interior of cabinet.
- 6 Check aerial installation.
- 7 Inspect aerial and ground connections.
- 8 Inspect lightning rod.
- 9 Clean radio set.
- 10 Free estimate of necessary parts.

Less than 3c per day per year for radio's wonderful programs

RCA RADIO TUBES

AS A RESULT of its amazing success, the RCA Radio Tube Check-Up Promotion is being continued on an even larger scale in 1936. This great plan, tried and proven in 1935, has brought undreamed-of results in the form of new business to dealers in every part of the country. It has sold not only tubes, but repair jobs, new receivers, and other appliances.

The secret of its success is that it helps everybody. We sell tubes; you sell tubes and more; the customer gets new enjoyment out of radio.

In 1936 the Check-Up campaign to improve radio reception (statistics show there are 5,850,000 sets in need of repair) will be waged in all direc-

tions: (1) Weekly in over 100 newspapers; (2) Three to six spot announcements a week on a nation-wide network of more than 30 broadcast stations; (3) National advertising in the Saturday Evening Post, Collier's and other leading periodicals; (4) Special new and result-producing direct mail pieces. Consult your jobber as to how you can tie in with the 1936 Check-Up for greater profits. Then, what dealers say about the Check-Up will be only what you know from your own experience.

FOR PROFIT-MAKING IDEAS, ATTEND RCA SERVICE MEETINGS

RCA RADIO TUBES

MANUFACTURERS JOIN "RADIO RETAILING" IN CAMPAIGN AGAINST LIQUIDATIONS

Veteran Executives Foresee Futility and Harmful Effects of "Camouflaged Price Cutting"

LAST MONTH'S feature editorial and leading news item in this paper, warning the industry against the perils of present and pending price wars, has produced a flood of endorsements. Perhaps the most interesting aspect of this situation is the fact that the seasoned warriors among the set makers were the first to respond—and support *Radio Retailing's* contentions.

Charles A. Verschoor, interviewed by your editor in his suite aboard the S. S. *Manhattan*, on the eve of his departure with Mrs. Verschoor for a well earned rest in Bermuda, said: "While International's business for '35 has exceeded all expectations, I view with apprehension these entirely uncalled for offerings of gratuities, which originate, not from the dealer but from a few nationally known set concerns who should know better."

Because Ben Abrams statement sums up this situation so admirably we print it as received. Charging that liquidations at drastically cut prices have always demoralized the radio business and served only destructive ends, Emerson's president added that there will be *even less point to the practice in 1936.*

Check the Facts

"Let us face the facts," urged Mr. Abrams, "before we resort to the hypodermic that is supposed to stimulate sales or reduce inventories during the so-called slack seasons. If manufacturers today will first check up on their own actual stock-on-hand; if they will then survey the inventories of their distributors and dealers—and then relate those inventories to the trends of 1935 and the greatly increasing buying capacity of the public—it is my firm opinion that there will be little inclination to sacrifice merchandise during the coming year.

"In the first place, I believe that leading manufacturers of today are financially able to carry their own inventories and, in turn, protect the investments of their distributors and dealers. Granting that occasional 'leaders' or special 'deals' often have their place in radio merchandising—and can usually be promoted in accordance with distributors' and dealers' best interests—this does not mean that they should be drastically reduced and exploited in a way which, in the public mind, reduces the value of all other models in a line. In the second place, let us also face the fact that, with few basic

changes or improvements, the circuits, the operation and performance of 1937 radio receivers will in all probability be very much the same as 1936 models.

"This, in simple terms, means that if a dealer sacrifices his profit on a 1936 model now, he is merely robbing himself of the legitimate profit he would make on the sale of a similar set to that customer later on. There may be individual objections to this statement, but considered in terms of all dealers, it holds up and illustrates how foolish it is for the trade to 'liquidate at any price.'

Must Protect Capital

"Present inventories of all well known makes should and must be regarded by the trade as capital—good invested money—and sold at prices which yield a profit, if the distributor and dealer are to use black ink in the summing up of their affairs at the end of 1936. There is every reason why this should be the practice from now on and every reason why manufacturers should encourage it. Radio broadcasting is improving all the time—radio today is one of the musts in homes, offices and institutions—more sets were sold this year than ever before—business conditions are improving—the public is better able to pay a legitimate price—



First Down Payment—One Steer

McCalla Bros. take a steer for a farm set. What they'll do with the critter and how much he rated toward the total payment, deponent sayeth not

time payments are on the increase. And this latter fact is one of the chief reasons for maintaining list prices—it protects the dealer's instalment accounts, makes them easier to collect and retains the good will which is so vital to his successful operations."

New Atwater Kent Jobber In Philadelphia

PHILADELPHIA — Effective Jan. 2, the Rumsey Electric Co. became the new distributor for AK radios in the Philadelphia area. For a great number of years this line has been distributed by the Louis Buehn Co., who announced their retirement from business at the close of 1935.

As distributors of electric supplies, appliances and radio, Rumsey's reputation dates back almost half a century. New display rooms for the Atwater Kent sets have been completed at 1007 Arch Street. The department will be under the direct supervision of S. K. Eaton.

Oxford and Tartak Merge

CHICAGO—The formation of the Oxford-Tartak Radio Corporation at 350 West Huron Street, Chicago, merges the business, equipment and assets of the Oxford Radio Corporation and the Tartak Manufacturing Company.

Increased space is being taken at the above address to take care of the growing demand for the new Oxford Hi-Fidelity line of speakers and to give better service to customers.

Shure Enlarges Plant

CHICAGO—Continued increase in the demand for Shure microphones has necessitated a considerable enlargement of both factory and laboratory facilities of Shure Brothers Company, 215 W. Huron Street, Chicago.

225% Increase Monthly

SIoux CITY, IA. — Win-charger Corp., this city, reports the remarkable growth of its business since it started production in February, 1935, of 225 per cent each month over the previous month.

Forty-five thousand wind driven battery chargers have been made through this concern's special plan in the past 5 months. Production is now well over 400 units per day.

Lloyd March becomes regional manager in charge of the Oregon, Montana, Idaho and Washington territory for National Union Radio Corp.

Radio in Fortunate Position Says President of the RMA

CHICAGO—In a New Year's greeting to members of the Radio Manufacturers Association and the retail trade, president Leslie F. Muter says:

"The radio industry faces the new year in a most fortunate position. Public interest has been greatly increased by the new all-wave sets and the excellent broadcasting which have resulted in the largest year in our history, with an increase far greater than that of general business.

"Presidential years have always been very beneficial in the past and with political interest more extensive than ever before, 1936 will undoubtedly assist us to greater heights of progress and service."

RCA Dealers Celebrate At Atlantic City Party

Nine New Models Announced

ATLANTIC CITY—More than 500 radio merchants attended a three-day jamboree in Atlantic City, January 3-5 as guests of the RCA Victor Wholesale Distributors of New York, Philadelphia, Boston, Albany, Providence, Hartford and Newark.

This elaborate entertainment bonus was given as reward for doing an outstanding selling job with the "Magic" line of radio sets.

Special trains took the guests to the Ritz Carlton Hotel. Everything in the entertainment line that Atlantic City has to offer was made available to these fortunate individuals.

Although nine new models were announced at the Friday morning session and extensive promotional plans for the coming year outlined, the one and only business session lasted less than two hours. The new models were developed to strengthen RCA-Victor in the low and medium class field. This concern now has a table model at \$19.95. Considered an outstanding value and rated as a "leader" by the hundreds of enthusiastic dealers present was a new eight tube console of attractive and unique design.

New Field Setup Unifies All RCA Sales Efforts

CAMDEN, N. J.—Reorganization of the RCA Manufacturing Co.'s field forces, to unify the selling activities of its varied products, was announced Jan. 7 by vice-president E. K. Throckmorton.

The country has been divided into two major selling units, within which a number of offices, strategically located, will administer the merchandising policies of RCA's diversified products.

M. F. Burns, formerly merchandise manager, will head this activity at the home office. John W. Griffin, veteran merchandiser, will conduct the affairs of the Eastern Division and Henry C. Bonfig, formerly sales manager for General Household, will manage the Western Division, with headquarters in Chicago.

Under this new arrangement seven separate field forces, which have been selling as many different types of RCA products (most of which overlap), will be concentrated under the direction of these two district managers.

The commercial manager of each product, at Camden, will continue to formulate plans to be carried out by the field managers.



Another "First"

This original, hand made Echophone served as the inspiration for all the millions of midgets which have been built throughout the world, 'tis claimed. Joseph Webber, chief engineer, Echophone Radio Corporation, considers its possession his "lucky star." The model is affectionately known about the factory as "Adam and Eve."

Howard Shartle SM for General Household

CHICAGO—William C. Grunow announces the appointment of Howard J. Shartle as general sales manager and Otto H. Bowman as assistant sales manager for the General Household Utilities Company.

Mr. Shartle, long known for his successes in the electrical appliance field began his career with the Victor Talking Machine Co., leaving that organization to become president of the Cleveland Talking Machine Co. Mr. Shartle's last position was that of business counsellor in Cleveland.

Mr. Bowman has been associated with Mr. Grunow since 1919 and formerly headed the Janney-Bowman Co., Detroit. He established the Grunow organization's first 23 distributorships.

Announcement will be made during the next fortnight of the Grunow organization's new executive department heads and divisional sales manager.

MILWAUKEE — *Centralab, makers of volume controls and fixed resistors, has purchased the Perflex Controls Co., this city, line of wave change switches and other radio products. Many of the members of the sales and engineering staffs of Perflex will be retained by Centralab.*

Raytheon's "Eighth Edition" technical data chart on tube specifications is ready. It's most complete and informative. Write Raytheon Production Corp., 30 East 42nd St., New York City.

WEST COAST BRIEFS

Harry A. Lasure Company, manufacturers' representative, has moved to larger quarters at 2216 W. 11th St., Los Angeles.

Dramatizing the theme, "Eliminates Noise," a convenient display stand for the Miller line filter is offered to dealers by the J. W. Miller Company, Los Angeles.

Girard-Hopkins, Oakland, manufacturer of condensers and resistors, announce that its line is now represented in the southern California territory by A. W. Nicholay, 4913 S. Western Avenue.

Improvements and enlargement of the Inglewood, Calif., factory of the Universal Microphone Co., has created additional facilities for the manufacture of its line of Silveroid recording discs for instantaneous recording on its new professional recording machine.

Forty-nine new distributors and trebled sales have necessitated radical expansion of the manufacturing facilities of Radiobar Company, Los Angeles, Calif. Sales Manager Tucker predicts that sales for 1935 will be four times those of the preceding year according to present outlook.

A personal touch in its advertising has brought new sales of short wave receivers to the

Titmarsh Electric Company, Tucson, Arizona. This outfit lists the name of a recent purchaser and the foreign stations he or she heard the night before on the new Titmarsh set. Featuring prominent people maintains interest in these ads.

Featuring the shortwave idea, the Eastern Outfitting Co., Sacramento, held a special shortwave demonstration to prove the receptivity of its Philco radios. Advertisements definitely promised programs from Japan, Java, London, Paris, etc. A booth with radio towers and decorated with flags of all nations was labeled International Re-Broadcasting Station Worldwide.

Meier & Frank, Portland, Ore., department store, believes in having anything in stock that the customer may desire. Accordingly in a recent advertisement it announced that it carried 186 different models in radios. "But don't get the idea that we are radio collectors. Each of these is carried because a Meier & Frank customer asks for it—sometimes we wonder where it's all going to end."

Manages PRI



The Pacific Radio Institute, San Francisco, has taken the place of the former Pacific Radio Trade Association in its recent reorganization of purpose, states its newly appointed managing director, Arthur E. Rowe. PRI is specializing in noise elimination

1935 WITNESSED

- Wind chargers
- Television field tests
- Centralized tuning units
- Introduction of metal tube
- Cathode-ray tuning indicators
- Frequency-modulated transmission
- 32-volt d.c. B-batteryless receivers
- Ultra high frequency transmission cables
- Higher quality, higher priced merchandise
- Ultra high frequency reception on standard sets
- The purchase of new sets to replace old ones in greater volume than ever before
- Popularity of radio bars, leather covered portables and glass cased table sets.
- Introduction of combination radio-record players—some with automatic feeds, some portable— at less than \$100.

Less Than 3,000 Amateur Transmitters in Europe

Statistics recently published in Vienna indicate that there are only 30 amateur transmitters in Austria, 300 in Germany, 1,000 in England and 1,500 in France. Figures ridiculously small compared to the 45,000 amateur senders in the United States.

Sell FARM POWER

to Farmers, Stores, Gas Stations, Road-side Stands!

SUPPLIES POWER for ELECTRIC LIGHTS • RADIO • WASHING MACHINES • AND OTHER FARM APPLIANCES

Revolutionary—Sensational—Ends forever the nuisance of battery charging and supplies current for lights as well! At a price any farmer can afford!

Get started immediately. "FarmPower" is new! Every farmer will have one eventually; get your share of this business! "FarmPower" gasoline engine driven Generator as illustrated.

\$49⁹⁵ LIST

"FarmPower" Generator, with connecting pulleys and bracket for use with gasoline engine driven washing machines or any other small gas engine.

\$17⁵⁰ LIST

"VERY SPECIAL PROPOSITION can be offered when these units are sold with the Sentinel Six-Volt Farm Radio"

WRITE TODAY FOR COMPLETE DETAILS!

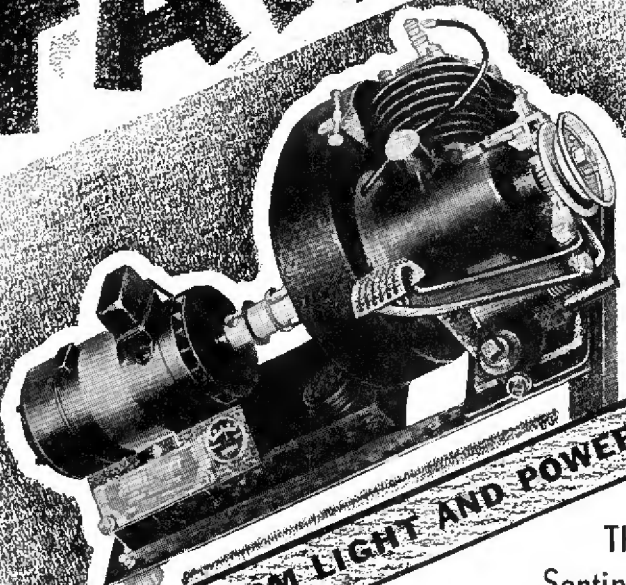
Now Being Advertised to 2,867,000 Farmers

MAIL THIS COUPON!

SENTINEL RADIO CORPORATION
2222 Diversey Parkway, Chicago, Ill.

Send me, at once, full details on "FARM POWER," your marvelous new power plant, and on the complete Sentinel Radio Line and the Gyromatic Wind-charger.

NAME
ADDRESS
CITY STATE.....



THE MODERN FARM LIGHT AND POWER PLANT

The Sentinel WIND-CHARGER

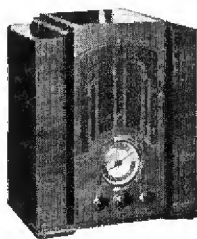
Battery Charging Without Cost! Operated by the Wind!

Sentinel GYROMATIC WIND-CHARGER

Sentinel offers, as second to "FarmPower" in breaking down sales resistance to Battery Radios—the marvelous Sentinel Wind-charger that keeps radio, auto, and tractor batteries charged at no cost! With "FarmPower" and the Wind-charger you can meet every farm power problem. Write today for complete details.



SENTINEL the most complete line of



FARM RADIO

Sentinel has the most complete line of modern farm radio, up to the minute, with every up-to-date feature of A. C. radios. Write for full details of this complete Sentinel Line.

Sentinel

2222 DIVERSEY PARKWAY - CHICAGO, U. S. A.

Export Dept. 330 W. 42nd St., New York, N. Y.

Cable Address: Sentinel N.Y.

ARCTURUS "CORONET"

**the Perfected
Metal Tube**

The advantages of the Arcturus "Coronet" are:

1. Superior in capacitances;
2. Dependable vacuum;
3. Free from gas troubles;
4. Eliminating possibility of shorts to ground;
5. Rugged structure;
6. Quiet operation; no metallic sleighbells;
7. Long life.



From everywhere, manufacturers, distributors, dealers, servicemen, engineers, have acclaimed the Arcturus "Coronet" as the *perfected* metal tube.

You, who use and sell tubes, cannot be satisfied with less than the best. Today — the Arcturus "Coronet" is the metal tube that assures you the kind of service you should expect.

Get the details of this remarkable new improvement today. • ARCTURUS RADIO TUBE COMPANY, NEWARK, NEW JERSEY



Data bulletin on ARCTURUS "CORONET" Tubes sent free upon request. Use coupon below.

ARCTURUS RADIO TUBE CO.
Newark, N. J.

Please send me your bulletin on Arcturus "Coronet" Tubes.

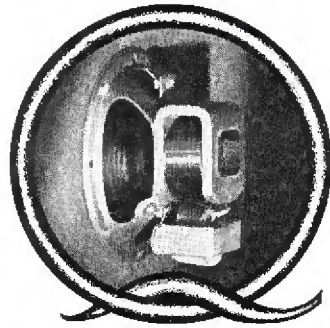
My Name

Address

City

My Jobber

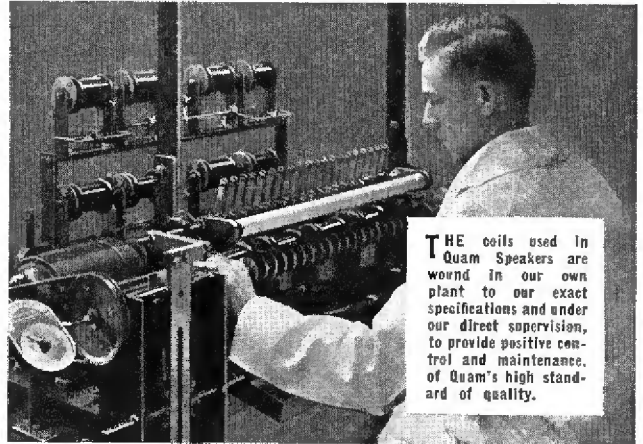
RR1



The Only Speaker
with Armored
Field Coils

"Licensed Under Quam Patents"

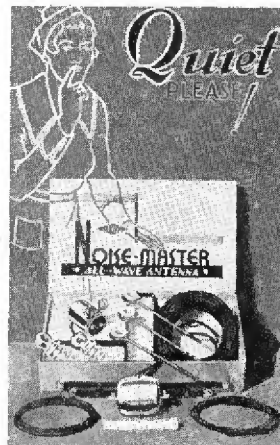
QUAM SPEAKERS



THE coils used in Quam Speakers are wound in our own plant to our exact specifications and under our direct supervision, to provide positive control and maintenance, of Quam's high standard of quality.

QUAM-NICHOLS CO.

1674 Broadway New York
1623 W. 74th Street, Chicago
30 9th Street SAN FRANCISCO
303 E. Pike Street Seattle
209 W. 17th Street Los Angeles
3037 Knox Avenue, S. Minneapolis
"AMERICA'S LARGEST SPEAKER MANUFACTURERS"

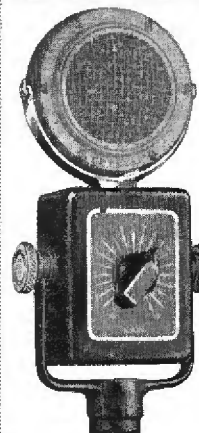


"Noise-Master" makes every receiving set a BETTER set. Electrically AUTOMATIC in operation. Eliminates "man-made" static on both broadcast and short-wave lengths.

List price . . . **\$6.75**

Also available with special transformers for European broadcast bands . . . list, \$7.00

CORNISH WIRE CO., Inc.
30 Church St., New York City



THE MICROVOX A COLOR-TONE PRODUCT

A Combination Volume and Tone Control Device for Use With Crystal Microphones.

Gives complete control of the sound reproduction directly from the microphone, instead of from the amplifier.

Provides the Only Efficient Means of Eliminating Feed-Back Interruption.

The MICROVOX may be purchased either with or without microphone.

Fully licensed for recording, broadcasting, and all public address operation.

Dealers and jobbers write for full information

COLOR-TONE, INC.
STURGIS, MICHIGAN

In the Appliance Field

Stewart Warner Shows New Models

CHICAGO — Stewart-Warner Corporation gave its distributors a peek at the 1936 line of electric refrigerators at the Drake Hotel, Chicago, December 13. One hundred and twenty-five distributors, representing 52 districts, attended. Sav-A-Step, Slid-A-Tray and reversible evaporator door will play important parts in this new line. Seven new deluxe models were unveiled and three in the master line.

Two new radios were trotted out, a console and a table model, each carrying five all-metal tubes, and listed in the low price brackets.

Among those on the program were: J. F. Ditzell, sales manager of radio and refrigeration; Frank Hiter, vice president and general sales manager; S. H. Rogovin, field representative; C. R. D'Olive, radio and refrigeration engineers, and Fred R. Cross, advertising manager.

Stewart - Warner announces the appointment of Hunt-Marquardt, Inc., Boston, as its exclusive refrigerator distributor.



The minute Charles R. D'Olive, Stewart-Warner refrigeration designer, finished shooting off the fireworks on the new line, Charles Rosch of Los Angeles congratulated him.

Southwest Coordinator

M. G. "Pete" Sues, Los Angeles manager for Leo J. Meyberg & Co., California distributor of RCA and Norge, has been elected chairman of the board of trustees of the newly created Electrical Development League of Southern California, created to coordinate the efforts of the entire Southwest for the disposal of power from Boulder Dam.



East meets West when Charles E. Moore of San Francisco talks to Sam and Marty Salzman of New York and Oliver Shaw of Charlotte, N. C.

Gibson Holds Preview

NEW YORK — Executives of the Gibson Electric Refrigerator Corp., who attended the preview meeting recently held at the Hotel Commodore, report this affair a great success. From the point of view of attendance and advance orders, I. E. Taufenbach, sales manager, says, "It is evident that distributors and dealers anticipate even greater success than last year. Their enthusiasm was unbounded."

R. H. Fey, of Fey and Krause, Los Angeles, travelled across the continent to see the new models.

The "Freez'r Shelf" continues to be the topic of much favorable discussion with Gibson distributors.

Frank D. Peltier has recently become associated with Fairbanks-Morse Home Appliances, Inc., Chicago, in the capacity of chief engineer of the Refrigeration Division.

International Brings Out Candid Camera

ANN ARBOR, MICH.—An innovational step in manufacturing, by a set maker, is revealed in the announcement, by the International Research Corp., this city, of its "Argus" candid camera. This concern is closely allied with the International Radio Corp., both being headed by C. A. Verschoor. It will be sold "at the phenomenal price of \$12.50." Full specifications of this excellent side line for radio dealers will appear in our February issue.

Roche, Williams & Cunningham, Inc., are the new advertising representatives for Grundow radios and refrigerators.

What Distributors say —

R. A. Gerlinger says:—"We will sell more Gibsons in 1936 than ever before the line is a winner!" Gerlinger Equipment Co., Gibson Distributor, Toledo, Ohio.

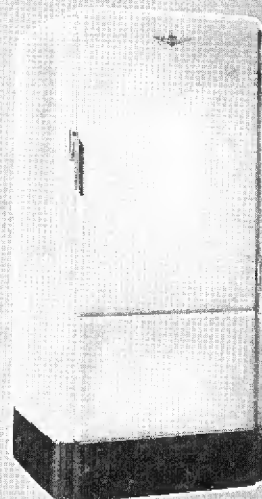
Ben Golden says:—"The FREEZ'R SHELF put us on top in 1935 . . . there will be no stopping us in '36." Eastern Electrical Supply Company, Gibson Distributors, Newark, New Jersey.

S. E. Schulman says: "1936 should be the refrigeration industry's biggest year — and Gibson's, too." Commonwealth Utilities, Gibson Distributor, Chicago, Illinois.

Walt Wissemann says: "A splendid line and an early start . . . that's what we need and we have it; so watch Remick's in 1936." Jas. S. Remick Company, Gibson Distributor, Sacramento, California.

Sales appeal in 1936

will it be **PRICE** or **FEATURES?**



GIBSON

has
Both
plus



and the **PROVEN** Freez'r Shelf

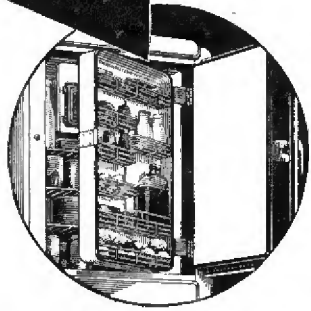


It will pay you
to investigate!

GIBSON

ELECTRIC REFRIGERATOR CORP.

Home Offices and Factories
GREENVILLE, MICHIGAN



No Other Refrigerator Has It!

A feature that is the first genuine improvement for many years.

No Other Refrigerator Has It!

A feature that actually cuts operation bills.

No Other Refrigerator Has It!

A feature that was awarded 1st Prize as the most useful household invention by National Inventors' Congress.

No Other Refrigerator Has It!

A feature with advantages so outstanding that every buyer can instantly see and understand them.

No Other Refrigerator Has It!

A feature that the entire refrigeration industry admitted to be a sensation.

No Other Refrigerator Has It!

A feature that will boost YOUR 1936 refrigerator profits.

No Other Refrigerator Has It!

A feature which is exclusive, yet combined with all other worthwhile refrigeration features in a cabinet of unexcelled beauty.

... Only the

FAIRBANKS-MORSE Refrigerator

has the **CONSERVADOR**



Investigate the Fairbanks-Morse Conservador Refrigerator before you sign up for conventional lines. Get details about this marvelous invention. Write for advance information to Fairbanks-Morse Home Appliances, Inc., 430 S. Green St., Chicago, Ill. Cable address—Fairmorse-Chicago.

\$44.50 De Luxe
WINCHARGER
COSTS YOU

ONLY \$15.00

IF YOU REPRESENT ONE OF THE FOLLOWING RADIO MANUFACTURERS—

Atwater Kent Manufacturing Co.
Crosley Radio Corp.
Emerson Radio and Phonograph Corp.
Fada Radio and Electric Co.
Fairbanks-Morse Home Appliances, Inc.
General Household Utilities Co.
Karadio Corp.
Noblist Sparks Industries
Philco Radio & Television Corp.
RCA Manufacturing Co.
J. Matheson Bell
Setchell-Carlson Radio Products
L'Atro Products Corp.
Westinghouse Electric Supply Co.
Zenith Radio Corp.

In case you are not already representing one of the above radio manufacturers, do not fail to get the details of the combination Wincharger-Radio sales plan at once.

WRITE TODAY

WINCHARGER CORPORATION

World's Largest Mfrs. of 6-Volt Wind Driven Battery Chargers
2700 HAWKEYE DRIVE SIOUX CITY, IOWA.

UNIVERSAL PROFESSIONAL RECORDING MACHINE

Designed and built to insure Highest Class Results. Solid, heavy, dependable — Precision machined throughout — 16 in. distortion-proof turntable disc — Constant speed rim drive without "waver" or "wow"—110 volt A.C. 100% synchronous, reversible motor—Solid steel bar slide—Special Universal power cutter with four adjustments for damping—Engineered by Universal to provide the best in instantaneous recording equipment.

Write for detailed description.

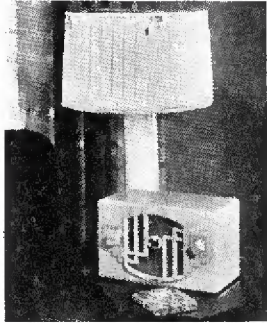
UNIVERSAL MICROPHONE CO., Ltd.
424 Warren Lane, Inglewood, Calif., U. S. A.

What's the latest news in broadcasting?

Helpful facts about good programs, star performers and other broadcasting news and developments, which will help dealers sell more sets, will stimulate reader interest in

MARCH *Radio Retailing*

(A good chance for manufacturers to tell their story in this same issue.)



Remler Scottie Model 40

Remler Sets

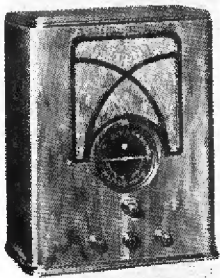
The "Scottie" set for 1936 comes in a variety of cabinets. Illustrated is the Bakelite model which comes in gay colors or all ivory. This same cabinet, in black or ivory, may be had with shortwave chassis using metal tubes. It also comes in a glass or "mirror" model in silver, green, blue or coral. The prices range from \$29.90 to \$37.90; the mirror model is \$20.

In addition to these sets there is the Skipper, a 4-tube table set in a modernistic walnut Bakelite cabinet, \$19.90; in de luxe marble-finished onyx or red, \$22.90.

The Grenadier is an American and foreign station set with 5 metal tubes in a graceful compact table cabinet, \$36.90. The Esquire, in a similar cabinet, has complete coverage of all wave bands down to 16 meters and uses seven metal tubes, \$49.90.

Model 88 is a 10-tube high fidelity upright table set with two especially designed speakers. This set gets both standard and foreign broadcasts and lists at \$79.90.—Remler Co. Ltd., 2101 Bryant St., San Francisco, Calif.—*Radio Retailing*, January, 1936.

American Bosch Radios



American Bosch Model 565W

Two new metal tube radio sets have been added to the 1936 line of the United American Bosch Corp., Springfield, Mass.

Model 565K is a 6-tube (9 tube performance) American, police and foreign broadcast console. Range 540-4200 and 5900 to 18200 kc. This set has a black full-vision airplane dial with colored tuning scales. \$69.95.

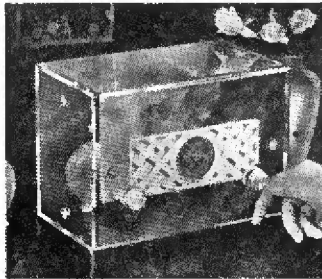
Model 565W, illustrated, employs the same chassis and is an upright table set listing at \$49.95.—*Radio Retailing*, January, 1936.

Gilfillan Radios

A most comprehensive line of radio sets ranging from a 4 tube compact table model to a 11 tube allwave console is announced for 1936 by Gilfillan Bros. Inc., 1815 Venice Blvd., Los Angeles, Calif.

One of the most unusual sets is its "mirror" radio for a.c. or a.c.-d.c. This smart 6 tube radio is housed in one of the new glass cabinets so much in vogue now.

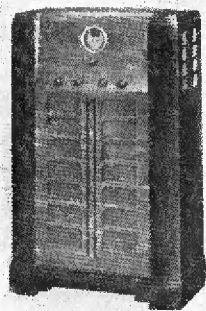
Other compact table models include: Model 43A, a de luxe 4



Gilfillan "Glass" Radio.

tube trf. set with carrying handle; Models 54A and 55A, 5 tube superhet in a modern cabinet, ac. or a.c.-d.c.; Model 62E with "Metaglass" tubes; Model 62X with metal tubes and Model 42A, an inexpensive 4 tube trf. set.

Table sets of the upright type



Gilfillan Model 97

include Model 116, 11 tube allwave super; Model 63, a 6 tube allwave set and Model 96, a 9 tube allwave job.

There are two consoles: Model 117 with 11 tube allwave chassis and Model 97, a 9 tube allwave radio.

All upright table sets and consoles may be had with either Metaglass or metal tubes.

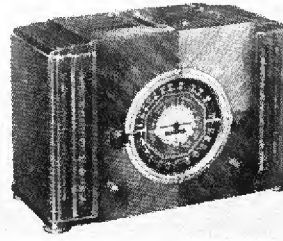
Gilfillan makes a battery set in either the console or table type cabinet covering from 16 to 55 and from 200 to 550 meters.

Model 8A auto-radio is an 8 tube superhet, dual unit, with 8-in. separate heavy pot dynamic speaker.—*Radio Retailing*, January, 1936.

Corona Table Set

A compact table model with large illuminated vari-colored airplane dial is announced by the Corona Radio & Television Corp., 420 N. Sacramento Blvd., Chicago.

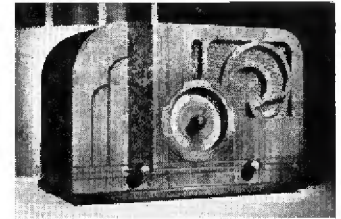
It will receive standard broad-



Stewart Warner Radios

Two new 5 tube sets, a table model and a console, have just been added to the line of the Stewart Warner Corp., 1826 Diversey Blvd., Chicago. Each uses the Ferrodyne chassis with 7 tuned circuits especially designed for metal tubes. The line up calls for a 6K7, 6J7, 6F7, 6F6 and 6X5. The tuning range covers from 525-1725 kc. The 2300-2500 police band is received on the 1700 band through the operation of a range switch.

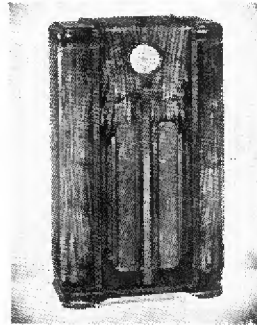
Model 1421 is the table set in



casts, foreign stations, police calls, etc. The speaker is in the top of the cabinet to provide an even diffusion of tone. This set uses five metal tubes (6-tube performance). Available for a.c.-d.c. or a.c. only.

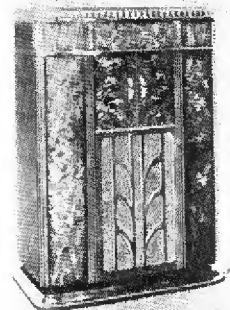
Corona also makes several other models as well as a compact auto-radio and a battery receiver.—*Radio Retailing*, January, 1936.

Emerson Model 102



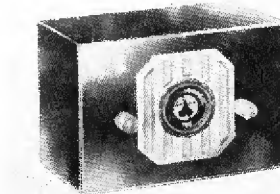
The latest addition to the line of the Emerson Radio & Phonograph Corp., 111 Eighth Ave., New York City, is its Model 102 console. This is an 8-tube superheterodyne for American and foreign reception, listing at \$89.95.—*Radio Retailing*, January, 1936.

GE Automatic Combination



A new eight-tube radio and automatic phonograph combination, designated as Model A-88, has been announced as an addition to the recently introduced line of the General Electric Co., Bridgeport, Conn. It is equipped with metal tubes exclusively and covers four bands including weather reports and European long waves (140-410 kc.) as well as standard broadcast and short-wave reception (540-19, 500 kc.) The cabinet is of modified modern design.

The automatic record changer accommodates nine 10-inch or eight 12-inch records and has an automatic stop for playing records singly.—*Radio Retailing*, January, 1936.



Freed-Eisemann "Mirror" Set

Freed-Eisemann "Glass" Radio

The cabinet of the new 5 tube a.c.-d.c. compact brought out by Freed Mfg. Co., Inc., 44 W. 18th St., New York City, is made of 1/2 in. mirrored plate glass and is available in silver, blue, pink and green.

This set covers from 75 to 550 meters and will be known as Model EG-357-P. It will list for approximately \$35.—*Radio Retailing*, January, 1936.

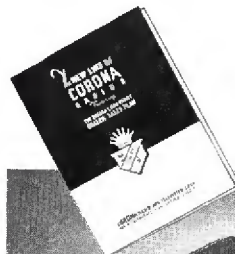
Five-Meter Handset

The magnetic field is over two and one-half times heavier in the new five-meter handset just issued by the Universal Microphone Co., Inglewood, Calif. This gives a better distribution over the diaphragm area.—*Radio Retailing*, January, 1936.

KEEP YOUR Sales Curves

UP

WITH THE *New* **CORONA** AND THE NEW LONG-PROFIT DEALERS' SALES PLAN



Sells for at least \$10.00 less than all other comparable radios, yet has many more features. Extra large illuminated, varicolored, airplane dial—covers standard broadcast and hottest short wave band. All police, amateurs, etc. Metal clad tubes—super quality throughout. Designed by nationally famous designer—super-dynamic speaker in top, diffuses tone equally to all parts of room. The first contribution in the New CORONA trail blazing program that will sell on sight and first hearing. If you want to boost your sales here is your chance—many thousands ordered in last thirty days. That's PROOF!

Don't hesitate — mail a post card TODAY for full details and copy of new

Long-Profit Dealers Sales Plan

You can't afford to overlook this opportunity if you want to make money this year. You'll see how you can make more profit—Important selling points—Display ideas—Features truthfully compared — The secret of sales and profits—Don't delay; write for this new plan and CORONA'S complete line of profit-making radios, NOW.

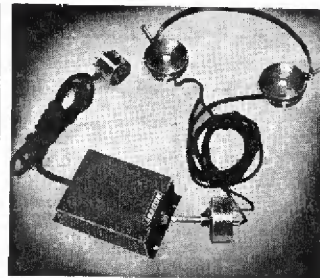
CORONA

RADIO & TELEVISION CORPORATION
420 N. Sacramento Blvd., Chicago, Ill. • Kedzie 0160

WRITE FOR DEALERS' SALES PLAN BOOKLET, TODAY

Corona FEATURES

- 1 Beautiful New Style Cabinet. Fine walnut veneer and finish.
- 2 New Large 6" Colored Illuminated Airplane Dial. Tuning greatly simplified.
- 3 Powerful, Dustproof, Dynamic speaker in top of cabinet. Provides a pleasant diffusion of extremely natural tone.
- 4 Covers all standard broadcast bands—brings in all police calls, foreign stations, interesting amateur radiophones and aircraft.
- 5 Five very latest metal-clad tubes—100% guaranteed.
- 6 Performance equal to 7-tube set account of double purpose tube.
- 7 Available in AC-DC or AC only.
- 8 Sharp tuning—separates stations easily.
- 9 Automatic volume control.
- 10 Full Range Tone Control. Adjust tone to suit your ear.
- 11 Licensed by RCA and Hazeltine.
- 12 Size 14½" wide x 11½" high 7½" deep.



Auriton

A simple and practical device for diverting signals from speaker to earphones has been designed by the Amplivox Laboratories, 227 Fulton St., New York City. It is called the "Auriton."

This device automatically silences the speaker when the phones are plugged in. A circuit is incorporated for using the full amplification of the receiver for listening. This permits the Auriton to operate an extra speaker on the porch, in the bedroom, etc. It is easily connected as no wiring in the receiver is necessary.

Available in several models so that it can be used with either single audio power tube or with audio power tubes in push-pull. —Radio Retailing, January, 1936.



"Streamline" A-R Antenna

The new auto-radio antenna just brought out by the Victory Mfg. & Distributing Co., 2021 S. Michigan Ave., Chicago, Ill. has been designed especially for cars with all steel tops. It can be easily mounted under the running board. This aerial is rubber insulated, non-directional, weatherproof and of sturdy construction. All mountings, brackets and screws are cadmium plated. The antenna rod is heavily galvanized. —Radio Retailing, January, 1936.



"Vocalphone"

A system of voice transmitters and amplifiers for homes, offices, stores, etc., called the "Vocalphone" is made by the Dootman Mfg. Co., Los Angeles, Calif. It is said to operate clearly between stations while ordinary conversations are conducted in any part of a room. The speaking person is not confined to a fixed transmitter location.

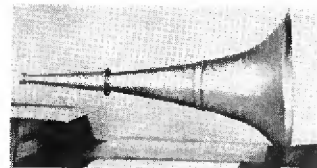
Master stations are equipped with a radial selector switch for calling outlying points and for

picking up conversations. Outlying stations are available for receiving voice instructions and immediate answering without the use of earphones or transmitter mouth-pieces. The system operates on a.c. without batteries and employs four standard radio tubes—Radio Retailing, January, 1936.

General Trumpets and Baffle Horns

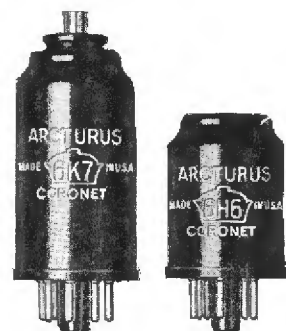
An all-aluminum deflector baffle may be obtained from the General Illuminating Co., 16 Calender St., Providence, R. I.

The directional trumpet, No.



22 (3½ ft. horn with 22 in. bell) is well suited for general indoor use where direct sound and long distance coverage is desired. It is especially good for outdoor use as, in addition to its tone features, it offers complete immunity from weather and atmospheric conditions. \$28.25.

The No. 10 10-in. baffle horn, \$11.25, permits a more even sound distribution and reduces feedback difficulties. This model baffle speaker is suitable for all 10, 11 and 12-in. cone speakers. Smaller speakers may be used by the use of a wood reducing ring. —Radio Retailing, January, 1936.

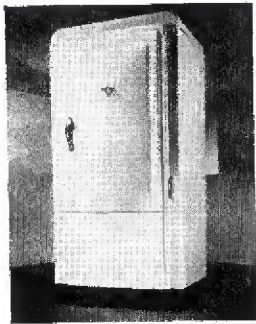


Arcturus "Coronet" Metal Tubes

A new line of metal tubes, called the "Coronet", utilizing a new and exclusive principle in receiving tube structure is announced by the Arcturus Radio Tube Co., Newark, N. J.

The use of the proved advantages of the vacuum tube art in the manufacture of the "Coronet" metal tubes has resulted in a material reduction of the input and output capacities and makes possible uniformity in inter-element capacities. A special process has been developed to permit proper bombardment of the inner elements to the temperature necessary to dispense with the residual gas troubles. The Coronet seal also precludes the possibility of shorts between wires and ground.

The types already in production are 5Z4, 6A8, 6C5, 6F5, 6F6, 6H6, 6J7, 6K7, 6Q7 and 6X5. —Radio Retailing, January, 1936.

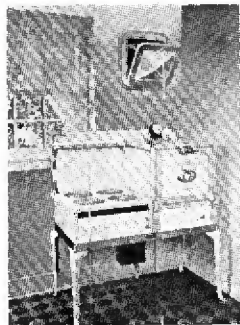


Stewart Warner Refrigerators

The 1936 line of "Sav-a-Step" electric refrigerators is now on the market according to an announcement from the Stewart-Warner Corp., 1826 Diversey Parkway, Chicago. These boxes hold all the things most used in handy places and make back shelf space front space, actually giving 30 per cent more from shelf space than other refrigerators of the same size, the bulletin reads. In addition, they have "Slide-a-Tray," "Tilt-a-Shelf," illuminated cold control with summer-winter economy range, jumbo vegetable fresh-

cooling unit, foot pedal door opener, ice tray release with hanger arrangement of door. In both the Monitor Top and Flatop lines, stainless steel doors, readily removed or installed, have been placed on the super-freezer.

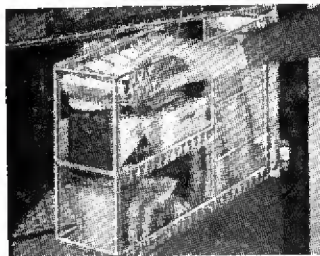
Hardware is of semi-concealed modern design, made of durable hard brass and finished in polished chrome with white inserts. Cabinets are of all-steel construction, consisting of a one-piece outer shell and a one-piece steel inner liner.—*Radio Retailing*, January, 1936.



Ventilating Fans

A home ventilating fan which draws off cooking odors, smoke and heated air from the kitchen may be obtained from the Buffalo Forge Co., Buffalo, N. Y. Comes in the 8 and 12 in. sizes, the former being the more popular for small homes and apartments.

Buffalo Forge also makes a glass panel "Breezo" home ventilating fan which fits the kitchen window. Comes in three sizes—one to fit windows from 26-36 in., another from 36-46 in. and the largest from 46-60 in.—*Radio Retailing*, January, 1936.



ener, sliding fruit basket, 4 piece glass set on revolving base and interior light.

There are ten models in the line to fit the size and need of every family. All are moderne in design with streamline bright chromium finished hardware.—*Radio Retailing*, January, 1936.

1936 GE Refrigerators

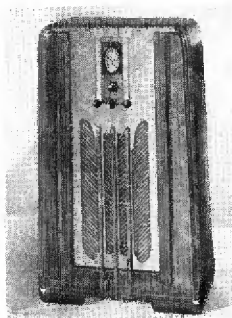
New refinements and improvements, coupled with distinctive styling, mark the new 1936 line of refrigerators of the General Electric Co., Specialty Appliance Division, Cleveland, Ohio.

All three lines—the Monitor



Top, Flatop and Liftop—boast the sealed-in-steel mechanism.

The Flatop refrigerators are known as the "V" line because of the new style doors. Features of the Monitor Top line include a new Monitor Top, new control of modern design with control defrost position, stainless steel



Philco 6 volt Set

The new 6 volt radio of the Philco Radio and Television Co., Philadelphia, Pa., operates entirely from one 6 volt battery—B or C batteries unnecessary. It is equipped with a newly perfected vibrator unit which provides B and C voltages from the regular storage battery.

This set has a power driven audio system, permanent field dynamic speaker and tone control. Covers broadcast, police, daylight amateur, ship and aircraft bands and both day and nighttime foreign and American shortwave bands. Utilizes 6 tubes.

Available in three cabinet styles—Model 624B, baby grand, \$74.95; 624F, floor type, \$89.95, and 624K, \$100.—*Radio Retailing*, January, 1936.

"Sylvania sure rings the bell with me! . . ."



"EXTRA PROFITS EVERY TIME I MAKE A SALE" . . .

"You said it, mister . . . the ring of that cash register is sweet music to *my* ears! I'm trying to make a living just like the next fellow . . . I want to see those profits. That's why I push Sylvania! They show me plenty of 'extra profits' . . . and 'extra profits' *count* in my business!"

Here's another thing . . . Sylvania certainly plays ball with the dealer! No flim-flam, no red tape . . . Believe me, it's a great thing to be able to give your customers a 100% guarantee . . . and *know* a company like Sylvania will back you up on it!

Are you cashing in on Sylvania's "extra profits" . . . Sylvania's straight-shooting sales policies? Start putting your tube business on a sound, profitable basis *right now!* You can get full sales information by writing to the Hygrade Sylvania Corporation, Emporium, Pa.

SYLVANIA

THE SET-TESTED RADIO TUBE

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Manufacturers of
radio sets,
tubes and parts!

Here's an opportunity to get your sales message before 12,000 dealers, distributors and manufacturers who will use this book throughout 1936 for reference and buying information

- The Appliance Specifications and Directory will bring together in one book the complete specifications of all models of all makes of radio sets so that the dealer or distributor can quickly compare your specifications with those of other similar sets in one source of buying information.
- It will place the specifications of your line before the dealers and distributors now handling your products and those who can profitably add your products to their present lines.
- It will provide dealers and distributors with a quick reference source of facts about your sets at the moment they are in the market for your products.
- It will help dealers sell your products to their customers by giving them useful selling information.
- It will offer you an opportunity to supplement your regular editorial listing in this book with both illustrations of your products and some hard-hitting selling facts in the advertising pages.
- It will enable you to maintain this profitable year 'round contact with your dealers and potential radio dealers, at a remarkably low cost.

*Full particulars on request.
Forms close February 1, 1936.*

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

West Coast Survey

(Continued from page 25)

that the novelty was the real key to business improvement. Distance "fans" have organized many clubs, publish their own newspapers and log-books and have started a listening trend.

"What we need now," say many dealers, "is more dependable shortwave transmission, more stations and more power, to hold the interest of people who are not dx fans and find such reception too spotty for continuous entertainment."

Another suggestion by West Coast trade: Overlooked generally is the fact that except for the thickly populated metropolitan areas this is a sparsely settled region (40 per cent of the U. S. area, but only 10 per cent of the country's population), with broadcasting stations favorably located as regards population concentration, but not so good for rich rural districts. Increased set sensitivity is essential. Western set makers, recognizing this requirement, have included it in their products. This explains to some degree why they continue to be a factor in the local market.

So, too, have the makers of auto-radios. These sets are from three to five times as sensitive as the average home receiver, and it is not unusual to find people in places where reception is difficult using their car sets in preference to home models because pickup is better and electrical interference less.

Midgets

Says one prominent distributor: "Southern California (and whisper it gently) was the mother of the goddam midget. It nearly ruined everybody with its low price and lack of sufficient margin. It did more than anything else to make radio lose caste with the public." But today there appears to be a sincere effort to fit the midget into its rightful place in the market. Where there were 50 makers on the Coast three years ago today there are only eight of any consequence, all of them licensed.

Total western production in 1935 was perhaps 175,000 sets, 10 to 15 per cent of them exported. Practically all sales effort was confined to the West. Fact is, the midget is growing up, it is larger than its parent and is now a cross between the original midget and a baby console in size. Factory supervision, a decent profit margin and the determination to put value into even four-tubers has given the midget some dignity and respectability.

Practically the entire trade reports a continued demand for small table models for use as second or third sets. With space at a premium in many apartments it is felt that this demand will continue. The small combination auto-d.c.-a.c. sets for transients will still be asked for by many. There is, however, a feeling that midgets will continue to grow up, the place small sets formerly occupied being absorbed to some extent by used console models at practically the same prices. This is one solution to the trade-in disposal problem.

Model and Price Trends

The average retail selling price has been upward for two years, is today approaching the \$100 mark. Coast dealers report that consoles are moving better, with higher priced models actually outselling medium consoles. So it is with table models, too, \$60 to \$89.50 being the most popular prices at the present time.

Delayed purchasing due to expectancy of television

has vanished. The trade is more interested, apparently, in the possibilities and probabilities of television than is the consumer.

One strong trend is toward better radio furniture. Metropolitan dealers report it. Separate cabinets different from the ordinary run would probably do well at moderate prices, many believe.

Dollar volume, as reported in an earlier paragraph, is up about 23 per cent. Some metropolitan dealers report lesser gains, some semi-rural districts report considerably greater. Adverse conditions attributed to labor conditions upset the appletart somewhat in San Francisco, Portland and Seattle early in the season. December business offset these losses. October was the best month in several years.

The trade expects confidently to hold and even exceed gains in the year to come. If manufacturers have properly estimated production and if the Coast is not littered with distress merchandise toward the end of the season, as it has been in past years, these hopes seem certain to be realized. Over-all business conditions are much improved. Farmers are prosperous and this is reflected in metropolitan centers. And 1936 will be an election year, which is always good for the radio business.

Fair Trade Act

(Continued from page 22)

firm from any further business in the state. Injured parties may recover damage for violations which have brought them injury, even to three times the amount of the actual damages. Violation is a misdemeanor and punishment by fine and imprisonment may be imposed.

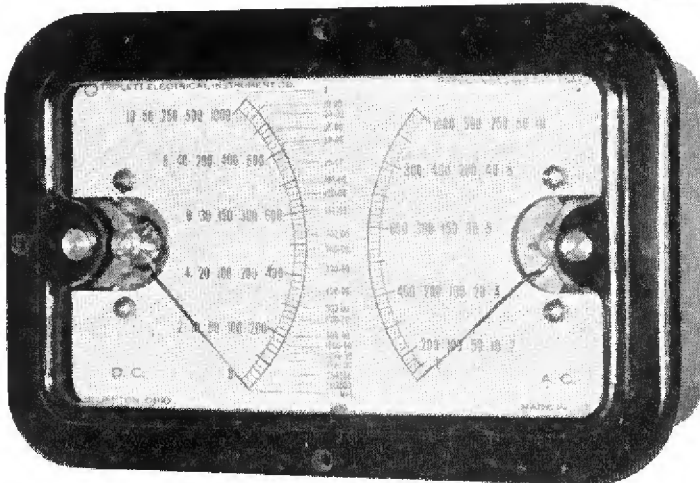
THE provision upholding the maintenance of price by contract is the one which is considered of greatest importance to dealers and distributors. "Wilfully and knowingly advertising, offering for sale, or selling any commodity at less than price stipulated in any contract entered into . . . whether the person so advertising, offering for sale, or selling is or is not a party to such contract, is unfair competition and is actionable at suit of any person damaged thereby." Thus non-signers are prevented from making a contract void by purchasing somewhere, somehow, of a stock of radios, for instance, and dumping them in any market in California at prices that make a dealer with a legitimate contract for resale price maintenance wonder if his franchise is just a scrap of paper.

A prominent trade association attorney in San Francisco, Walter J. Walsh, explained the reasoning of the two San Francisco Superior Court judges who have upheld the act in the following example:

"A man, throwing rocks, on the corner of Market Street would be run into jail mighty quick, whereas if he were to stand on top of one of the Sierras he could throw rocks to his heart's content and no one would be bothered in the least. The act of throwing rocks would be the same in either case, but the courts held that it is not the act in itself that is dangerous, but the surrounding circumstances. And today a merchant cannot break the price level that is established soundly without hurting a large number of other persons, directly or indirectly, and therefore should be enjoined from creating a condition that is harmful to society."



INSTRUMENTS COULD TALK...



You could easily find out why each Triplet instrument is guaranteed to maintain accuracy within 2%. (Some are guaranteed to maintain accuracy within 1%). First the design—Tried and checked from every angle. Then the selection of material—The finest without reservation. The construction and assembly—Master craftsmen and factory workers with years of instrument manufacturing training. Final inspection—Checked by experts. Each step shouts Triplet Quality.

Precision Without Extravagance

TWIN Instrument

Standard Combination No. 120 (Same dial as used in Triplet Model 1200 Master Volt-Ohm-Milliammeter.)

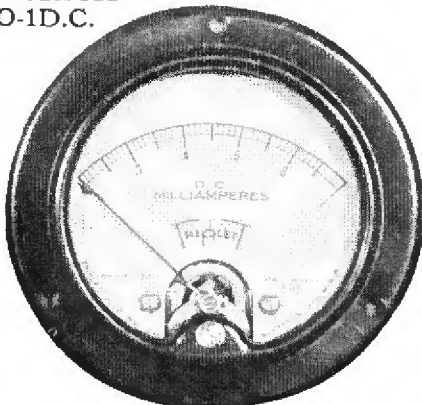
TWIN Instrument

Dealer Net Price, \$10.33

The Twin is furnished in any combination of standard 3" A.C. or D.C. movements. Both are included in the special rectangular molded case that requires a minimum of space for special installation.

Simultaneous readings can be taken on both instruments when connected in same or separate circuits. Prices on special combinations given on request.

Model 321 O-1 D.C.



Model 521—Volt-Ohm-Milliammeter

Dealer Net Price, \$7.00

Beautiful in Appearance, yet Accurate to 1%. Body 4 3/8", Flange 5 1/4", Body depth, 1 1/2", scale length 3 1/2". Knife edge pointers, molded Bakelite Case. Flush Mounting.

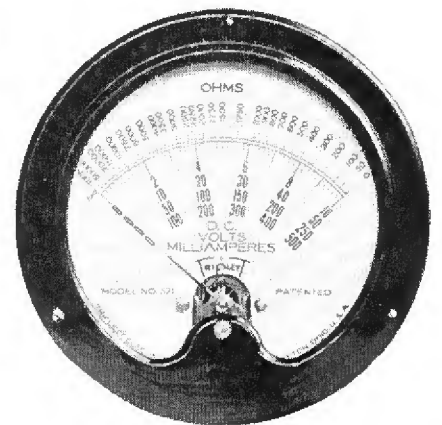
An extra large Foundation Instrument. Has long visible scale. An instrument that stands out on your test panel. Can be used to handle practically any values by using proper shunts and multipliers. Available also in projection mounting.

Model 321—O-1 D. C.

Dealer Net Price, \$4.67

3 1/2" in diameter, Flush Mounting, Bakelite Case. Available also in projection mounting. Triplet offers a complete line of 2", 3", 4" and 5" instruments.

Model 521



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Triplet Electrical Instrument Co.
162 Harmon Drive
Bluffton, Ohio

Please rush your new 1936 Catalog.....

I am particularly interested in.....

Name

Address

City State.....

WRITE FOR CATALOGUE—SEE YOUR JOBBER

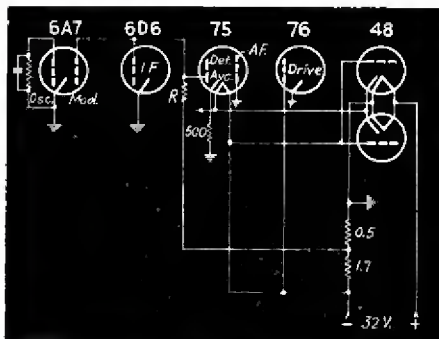


SERVICE SECTION

CIRCUITS of the MONTH

32-Volt Set Biasing

About the only troublesome thing to understand about the new-fangled receivers operating from 32-volts d.c. and using no potential higher than this throughout the chassis is the method of obtaining various bias voltages. Here's a skeleton diagram of a typical receiver, the Sentinel-Eria 36L, stripped of input



and output load resistors and coils to illustrate just this function.

The two 30 volt type 48 output pentode heaters are hooked in parallel and connected directly across the line through 2.2 ohms (1.7 and 0.5 ohms in series). The negative input leg is more negative than ground, therefore, by the couple of volts of IR drop produced by heater current in these resistors.

The 76 driver cathode is connected to ground while the grid of this tube is connected to the negative leg of the supply line. It will be seen that the drop caused by 48 heater current in the two resistors makes the driver's cathode more positive than its grid or, more clearly, biases the 76 grid negative with respect to its cathode.

The modulator section of the 6A7 and i.f. 6D6 are similarly connected but in this case use of a tap between the two resistors reduces the bias on these stages to a required lower value. In addition, d.c. developed by the 75's a.v.c. diode's signal-rectifying action across resistor "R" is applied in series with the fixed bias, making grids more negative on strong signals and reducing gain.

The triode audio section of the 75 is

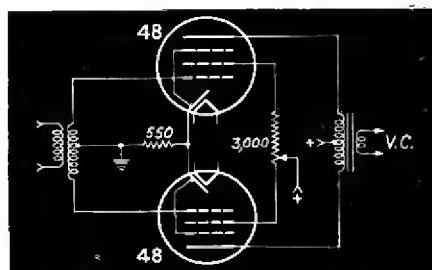
self-biased by means of a 500 ohm cathode resistor, drop in this resistor produced by the tube's own plate current being used in the usual way. Which leaves only the biasing of the 48's to be puzzled out.

The grids of the 48's are connected directly to the negative leg of the d.c. supply line. To this same point is connected one heater terminal of the 75. The 48 cathodes are connected to the other 75 heater terminal and as this point is farther along toward the positive leg of the line by the amount of drop in the 75's heater the 75's heater drop biases the 48's.

The oscillator section of the 6A7 is grid-leak biased.

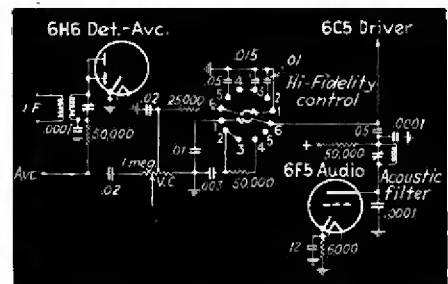
Hum Balance in Screens

A unique method of providing hum balance controllable by the installation man is employed in Ansley's late type D-1 Dynaphone phonograph and crystal pickup amplifier. A 3,000 ohm potentiometer is included between the 48 screens, screen voltage fed through the movable arm.



Combined Fidelity and Triple Tone-Control

Grunow's chassis type 11-C (type 12-A similar but not identical) contains two i.f. transformers whose coupling is



variable in six steps, ranging from maximum spacing and selectivity to maximum mutual and fidelity. Coupling is controlled by a front-panel knob which also introduces or removes tone control by-pass condensers from the first a.f. and driver stage inputs in corresponding steps. A third type of tone correction is introduced by movement of the tapped volume control, which reduces highs (accentuates lows) at low levels, this effect being most pronounced in selective positions of the fidelity switch. A low-pass filter in the plate lead of the first audio is tuned to 10,000 cycles, eliminates noise at higher frequencies which might otherwise ride through.

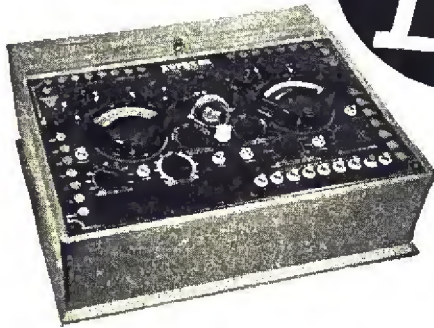
Audio developed by the 6H6 is applied through a .02 condenser across the volume control. In switch position 1 (maximum selectivity) i.f. transformer windings are widely separated, action of the upper part of the switch diagrammed connects the tap of the v.c. to ground through 25,000 ohms and the .02 condenser between v.c. and this resistor provides some tone control by-passing right in the first audio 6F5's input control circuit. The lower section of the switch simultaneously connects a .01 from the grid of the 6C5 driver to ground, increasing the tone control effect.

In position two the switch cuts a .01 in the first audio input circuit instead of grounding the v.c. tap through 25,000 ohms, reducing tone control action. A .003 condenser is substituted for the .01 in the driver input, further reducing audio by-pass action. In position three the upper switch section changes the .01 first audio by-pass to a .015 while the lower section remains the same as in

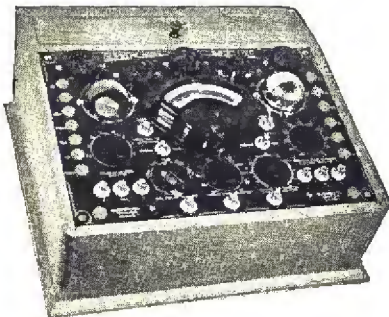


SUPREME INSTRUMENTS

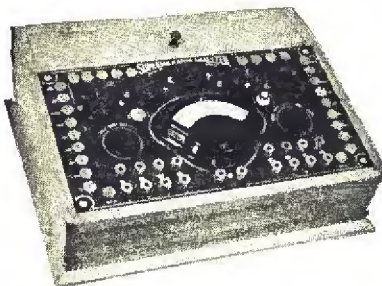
Approved for
F.H.A. LOANS



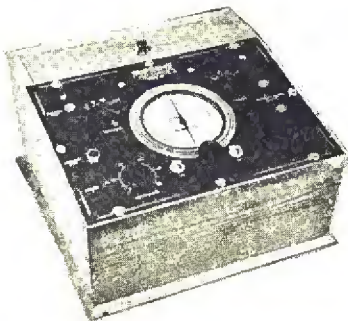
SUPREME 385 AUTO-MATIC LABORATORY MODEL **\$77⁹⁵**



SUPREME 89 DeLUXE TUBE TESTER LABORATORY MODEL **\$45⁹⁵**



SUPREME 339 DeLUXE ANALYZER LABORATORY MODEL **\$39⁹⁵**



SUPREME 189 SIGNAL GENERATOR LABORATORY MODEL **\$36⁹⁵**

Let Uncle Sam equip YOUR shop NOW with the New Supreme Laboratory models you need, at no more cost than your telephone.

No Down Payment. As Long as 18 months to pay. Present FHA act expires in April. See your jobber NOW.

Now every serviceman can modernize his testing facilities with new time-saving, money-making Supreme equipment—WITHOUT PAYING A CENT DOWN. And pay only a fraction each month of the new business and profits this equipment will make possible.

Yes, Supreme has arranged with Uncle Sam to extend the provisions of FHA loans to the purchase of the new Supreme laboratory models pictured to the left. Your jobber will welcome your order on this business—will make arrangements, without red tape, for handling with his bank or directly with Supreme. It's incredibly easy now to have Supreme equipment.

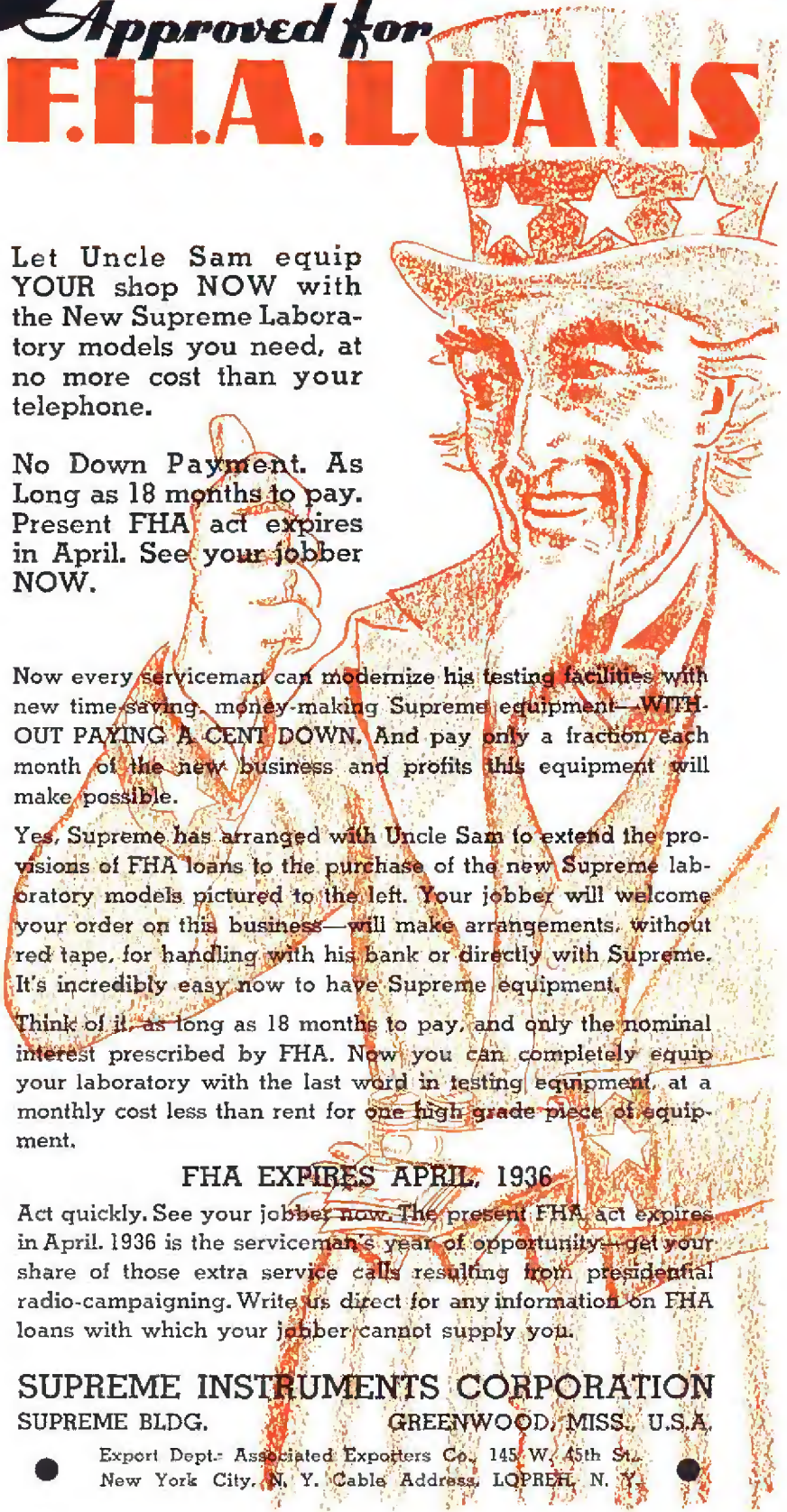
Think of it, as long as 18 months to pay, and only the nominal interest prescribed by FHA. Now you can completely equip your laboratory with the last word in testing equipment, at a monthly cost less than rent for one high grade piece of equipment.

FHA EXPIRES APRIL, 1936

Act quickly. See your jobber now. The present FHA act expires in April, 1936 is the serviceman's year of opportunity—get your share of those extra service calls resulting from presidential radio-campaigning. Write us direct for any information on FHA loans with which your jobber cannot supply you.

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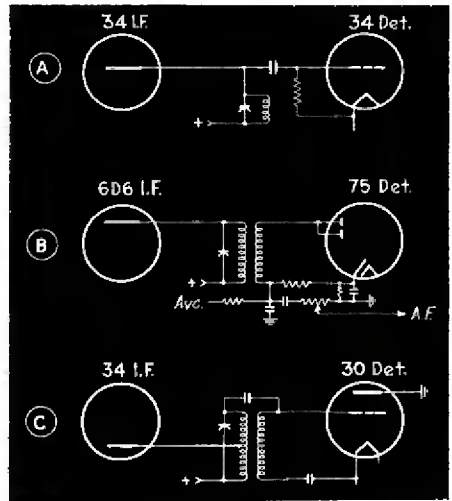
SERVICE SECTION

position two. In position four the upper switch section remains as in position three but the lower cuts a 50,000 ohm resistor in series with the .003, making it smaller in effect. In position five (and here a slight change in progression is made) a .05 is substituted for the .015 in the upper circuit. But tone control is entirely removed from the driver input by the lower, the combination further opening up the audio system.

In position six (maximum fidelity) the i.f. transformer windings are closest together. All audio by-passing (with the exception of the .02 volume compensator from the v.c. tap to ground) is removed from first a.f. and driver input circuits.

noted in Stewart-Warner models 1361 to 1369. From its position in the second detector circuit it will be seen that not only does the T.C. arm by-pass the desired audio frequency to ground but the resistor acts as a filter, preventing i.f. and audio from reaching r.f. and first detector-mixer stages through the a.v.c. lead.

An additional 110,000 ohm resistor is used in the first detector-mixer grid-return lead. The i.f. stage of the receiver does not receive a.v.c. control voltage.

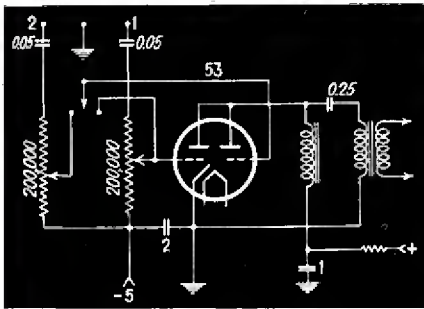


I. F. Coupling Variety

New Howard receivers have tuned primary and secondary coils in early i.f. stages but some variety is found between final i.f. tubes and second detectors. Series 5G battery models use capacity coupling in this position, as shown at "A." Series 6S auto-radios use untuned detector input coils and tuned primaries, which simplifies adjustment and sacrifices little selectivity due to the difficulty of tuning a low-impedance diode's input circuit sharply any way. See figure "B." Series 7H allwave battery models use the arrangement shown at "C," a combination of transformer and capacity coupling with an untuned secondary. Note the plate tap on the primary coil, used to better impedance match between pentode and following diode.

Bias Cell Popularity Grows

Mallory's 1-volt "bias cell" (described in August) is catching the eye of the receiver designer. The latest company to employ it is The Hallicrafters, in the grid circuit of the Super-Skyrider's 6F5 high-gain first audio stage. Other manufacturers utilize the cell in a similar manner, where the new high-gain triodes are used for audio work. Look for it, too, in duo-diode triode circuits where low hum level is important and simplified wiring desirable.



Flexible Input Circuit

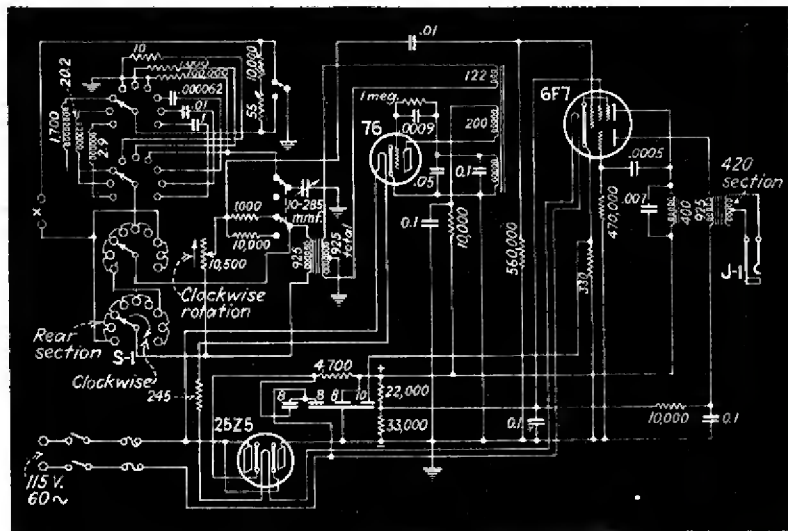
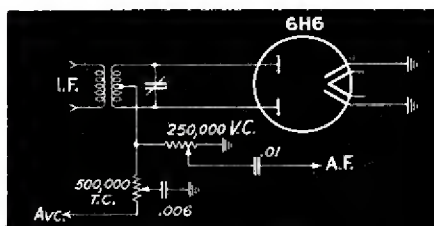
A new 38-watt, Class A-B amplifier by Jefferson uses this flexible input circuit. It permits mixing of two input sources without additional pads or special transformers.

The switch shown in the schematic connects both grids of the 53 to input number 1 or throws one grid to input number 2. The rated gain and highest fidelity is best obtained on position 1. If both channels are used simultaneously the gain of each is somewhat reduced.

Input transformers providing the proper match are, of course, connected between terminal 1 and ground or between terminal 2 and ground. The 53 is followed by a 59 in Class A driving four 45's in parallel push-pull.

Tone Control is A.V.C. Filter

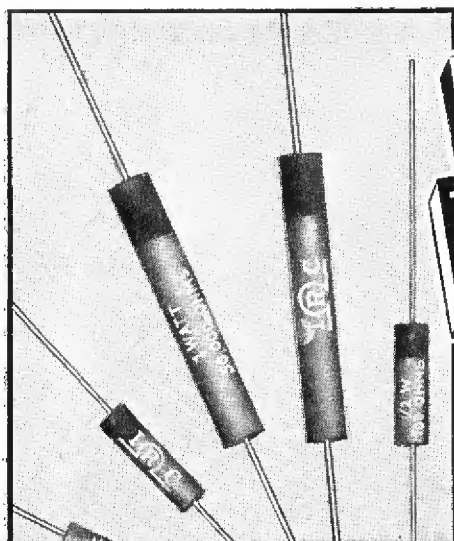
A clever method of making the tone control resistor serve double duty is



Universal A.C. Bridge

Here's the complete circuit of RCA's model TMV-132-A universal a.c. bridge, just announced, a variable-ratio-arm Wheatstone arrangement having three standards each of inductance, capacity and resistance. Inductances between 100 microhenries and 10 henries may be checked. The capacity range is from 10 microfarads to 10 mikes. And the resistance range covers 1 ohm to 1 megohm.

A 25Z5 is used as a rectifier-doubler high d.c. voltage supply unit operating a 76 triode 1,000 cycle tone generator and a 6F7 triode-pentode two stage amplifier. 'Phones may be used as a balance indicator.



NEW
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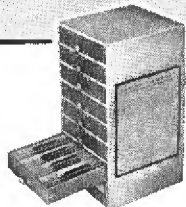
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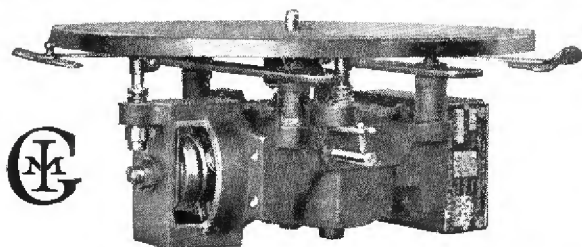
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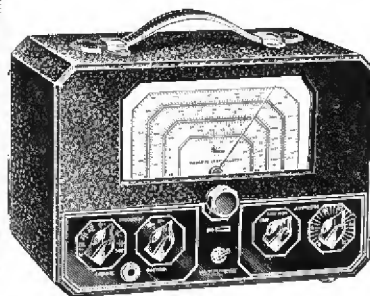
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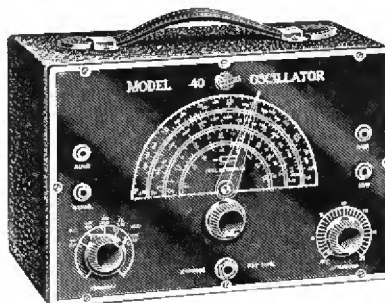
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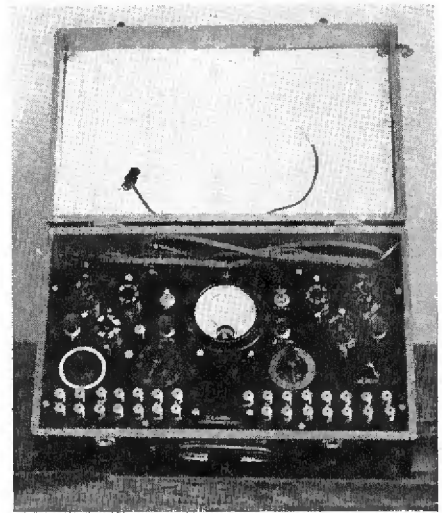
Chicago, Ill.

SERVICE SECTION

PORTABLE ANALYZER, TUBE-CHECKER

Low cost instrument is equally useful
in a.c. or battery radio districts

By Raymond E. Snoddy



FOR the past month I have been using a portable test instrument for all my service work in the home. It is no so-called "portable laboratory," but does incorporate every feature that I have found essential to locate trouble and permit accurate estimates on repair jobs in the field. The device contains an a.c. operated tube tester, a.c.-d.c. voltmeter, ohmmeter, output meter, and also tests tubes by means of the power supplied by the receiver. It is portable and its cost is low. In my case it happens to be my old tube tester revamped and some additional features added.

Let us look at some of the features of the tube tester. It contains six sockets. Socket No. 1 is a combination 4-5-6-prong socket. No. 2 is a combination 5-prong and large 7-prong. No. 3 is an 8-prong octal base socket. These three are for testing the more common type of tubes, No. 2 being for 47's and 59's. Sockets 4 and 6 are the same as 1 and 3 and No. 5 is a combination socket for both large and small 7-prong tubes. These sockets have their terminals all brought out to tip jacks. Tubes having the small 7-prong base and all odd type tubes including the 5Z4 and twin triodes are tested in these sockets by "patching" to the proper terminals in the tube tester which are also brought out to tip jacks. Separate plates of diodes can also be tested in these sockets. This method may not be fast, but is accurate and very flexible and the cost of expensive rotary gang switches is eliminated. Moreover, I find that over 90 per cent of the tubes encountered can be checked in sockets 1, 2 and 3.

In one position of SW1 the meter is in the tube-testing circuit and in the other position it is in the volt-ohmmeter circuit. Line voltage adjustment is made

by throwing SW1 to the "meter" position, SW2 to AC. SW3 is then depressed and SW7 is adjusted so that the proper filament voltage as read on the 25-volt scale is obtained. Now with SW1 back in the "tube" position we are ready to test tubes.

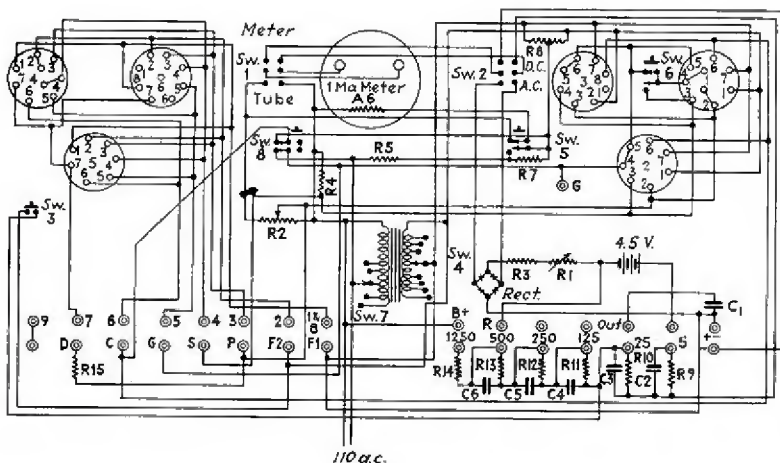
The tube is inserted in the proper socket. SW4 is adjusted to give the proper filament voltage and R2 is set to the proper point for that particular tube. This point is best determined by testing the different tubes in a reliable tube tester and then adjusting R2 so that the same reading is obtained on the meter of the tester being calibrated. The meter scale is, of course, calibrated "good" and "bad." I might also point out here that the manner in which this potentiometer is connected across the meter, spreads out current ranges of the meter better than a simple variable resistor across the meter. Now the tube is tested by depressing SW5. This decreases the bias and at the same time

removes the protective shunt from across the meter. When testing screen grid tubes of the 4- or 5-prong variety SW6 is depressed at the same time. This applies the proper potential to the screen. No short test is provided, but a short will be shown by an erratic action of the meter. Cathode leakage is indicated by depressing SW8. This switch not only opens the cathode circuit but also disconnects the grid from its normal position and ties it directly to the cathode, thereby preventing a high negative bias being built up on the grid and blocking the flow of plate current.

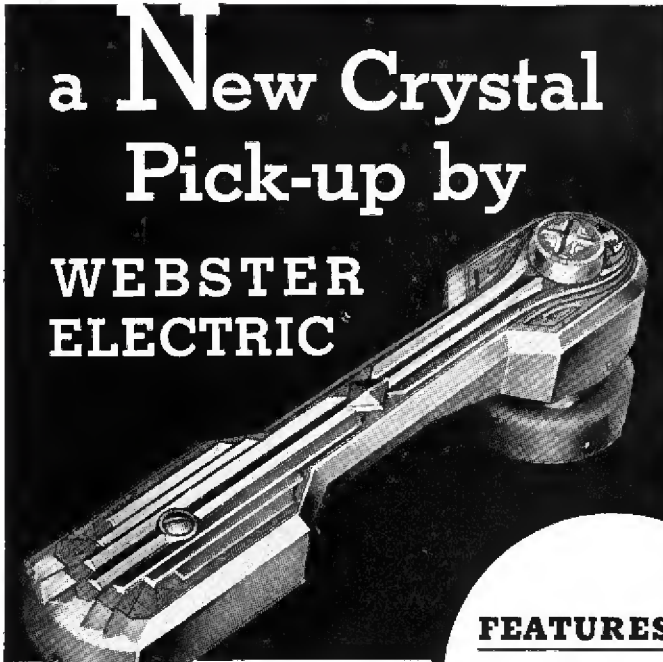
I do not have a great many calls to make in the country where no a.c. is available, nevertheless I do have a few and an a.c.-operated tube tester is useless in such a case, so I incorporated means of testing tubes with socket power of the receiver. By means of an analyzer cable and adaptors and the proper "patching" the milliammeter is inserted in the circuit and the plate current may be read with normal bias supplied by the set, with 4.5 volts additional bias or with no bias at all. Calibration of R2 is made for battery type tubes with the usual plate voltages used on these tubes.

Voltages and resistance may also be measured at the analyzer cable terminals. Notice that the adaptors for the 7-prong plug are wired the same as sockets 4, 5 and 6, and that these numbers correspond as nearly as possible to the new RMA standard system of numbering.

Now a few words about the volt-ohmmeter circuit. There is nothing unusual about this circuit. By the use of a separate plus-minus connection for a.c. a small double-pole-double-throw switch is used in place of a larger triple-pole-double-throw. Condensers are connected across the series resistors to correct the a.c. scale reading, permitting a.c. voltages to be read directly on the d.c. scale. A 4.5-volt battery is used in the ohmmeter circuit so that the ohmmeter can be used where no a.c. is avail-



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- 3—All entries must be postmarked not later than February 28, 1936.
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SERVICE SECTION

able, which would not be the case if it were a.c. operated.

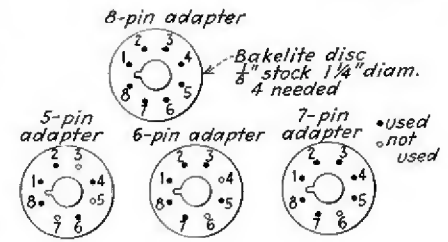
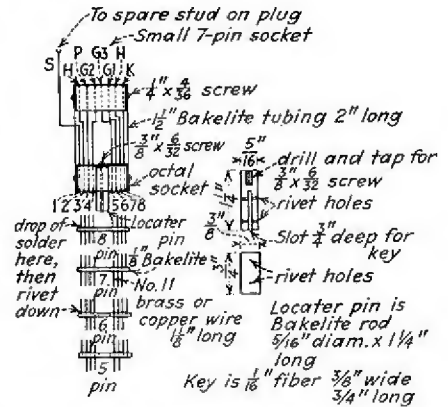
The following voltage ranges are available (both a.c. and d.c.), 5, 25, 125, 250, 500, 1,250. For output ranges the same jacks are used except that the jack marked "out" is used instead of the plus-minus a.c. jack. The resistance range is 0 to 100,000 ohms. Curves can be drawn for a wide range of capacity measurements by placing the capacities in series with the a.c. voltmeter and an a.c. voltage. 110 a.c. is available at the tip jacks marked B+ and G, and lower voltages are available at the jacks F1 and F2.

The whole instrument is assembled on a panel 7x14 in. and is inclosed in a case, the inside dimensions of which are 8½x14x3½ in. A list of parts follows:

- SW1 & SW2.....Double pole double throw toggle switch
- SW3Single pole single throw push button switch
- SW410 point rotary switch and dial plate. Off, 1 to 10
- SW5 & SW6.....Push button switch. Opens one circuit and closes another
- SW75 point rotary switch

- SWSDouble throw double pole push button switch
- R11000 variable
- R2100 ohm potentiometer and dial plate 0 to 100
- R34000 ohms
- R425,000 ohms
- R5100 ohms
- R65 ohms
- R72000 ohms
- R840 ohms
- R94950 ohms
- R1025,000 ohms
- R11100,000 ohms
- R12125,000 ohms
- R13250,000 ohms
- R14750,000 ohms
- R15100,000 ohms
- C11 mfd. 600 volts
- C2, C3, C4, C5, C6. Determined by experimentation

- Two combination 4-5 and 6 prong sockets
- Two octal base sockets
- One combination large 7 prong and standard 5 prong socket
- One combination large and small 7 prong socket
- Milliammeter, 0 to 1 ma. (internal resistance 50 ohms)
- Tube tester filament transformer
- Copper oxide rectifier
- Combination grid clip for glass and metal tubes
- Thirty pin tip jacks
- 4.5 volt C battery
- 8 wire analyzer cable with 7 prong plug and adaptors for 4 prong, 5 prong, 6 prong, small 7 prong, and octal base sockets
- Test leads and six "patch" cords.



set one side of pin in rod, put the other rod down on the other side of the pin and tap gently. This gives a good, tight job on all pins.

The shield connection hooks on an extra stud on the analyzer plug. Run another lead up the cable, bringing the chassis up to the analyzer plug. This makes socket-to-chassis tests simple. The dimensions of locator pin may vary with different types of sockets. Use two small pieces of No. 18 copper wire for riveting key in locator pin. When pin is assembled trim up with file for nice fit.

SHOP SHORTCUTS

Repairing Dynamic Fields

By Harry D. Hooton

While it is generally desirable to replace defunct dynamic speaker field coils some men prefer to repair them. The following procedure will be of value if this is done.

If soldered leads are ok and shorts or opens are not apparent by examination of leads and edges of the coil unwind wire until the break or short is found. If close to the outside merely leave off the unwound turns and make a new connection. The removal of a few turns will not materially affect operation.

If the break is near the center of the winding unwind wire until found, winding it on another spool to prevent kinks. Solder the break, apply a coating of coil dope to insulate it and rewind the wire back on the form.

Where wire has a scorched look or its insulation appears poor rewind the entire field. The usual stumbling block is estimation of the required number of turns. To lick it first determine the original wire size with a gauge and note the type of insulation. Obtain new wire having the same characteristics. Wind this new wire on the form in the original direction and test frequently with an ohmmeter and a set of sharp needle prods. When the resistance reaches the value specified in manuals, stop.

Another method giving approximate

results is to remove the old coil from the speaker and strip all tape and binders from it. Then weigh the coil. Replace it with new wire and weigh occasionally until the weight is the same as the original.

Field coils can be wound on an electric drill or coil winder. Where considerable work of this kind is considered obtain a coil winding machine of the type sold for \$4 or thereabouts and a small sewing machine motor, complete with foot-pedal attachment. Couple the winder to the motor and mount the entire assembly on the bench low enough to allow the operator's arms to rest on the bench. A medium speed position of the pedal is generally best.

Octal Socket Adapters

By Al Beers

The sketches show construction of a complete set of octal socket adapters. These will fit the end of present 7-prong analyzer plugs.

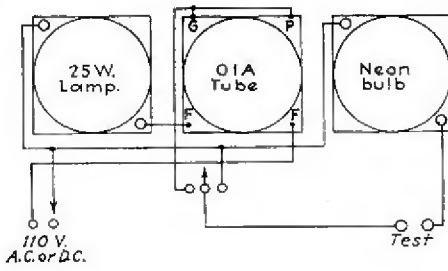
When fastening the pins in the adapters, drill holes permitting a very tight fit and tap the pins in place with a light hammer. Then put a drop of solder in the position shown in the drawings. Rivet solder down tight by drilling a clearance hole in 2 pieces of 1/8 brass rod. Fasten one rod in a vise,

A.C.-D.C. Condenser Tester

By F. G. Kehrer

The circuit appearing with this article illustrates a simple and effective instrument designed to test condensers on either a.c. or d.c.

Condenser condition will be indicated as follows: One short flash, condenser ok. No flash, condenser open. Short intermittent flashes, condenser leaky. Neon lamp lit continually, condenser shorted.



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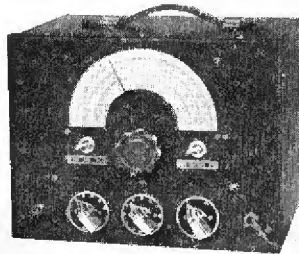
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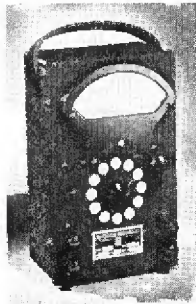
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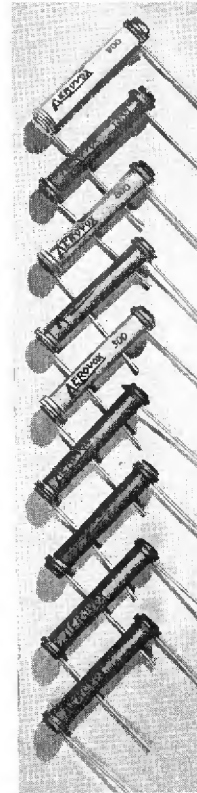
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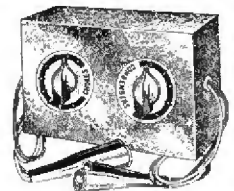


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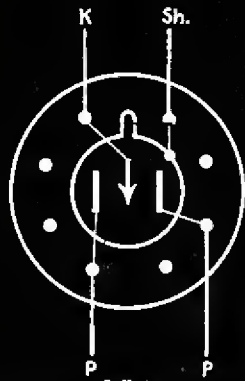


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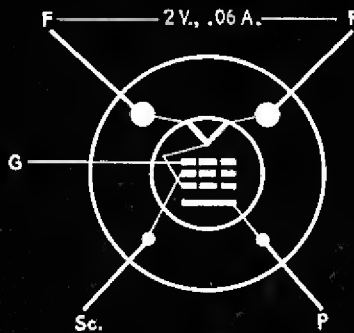
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Tube Socket Connections

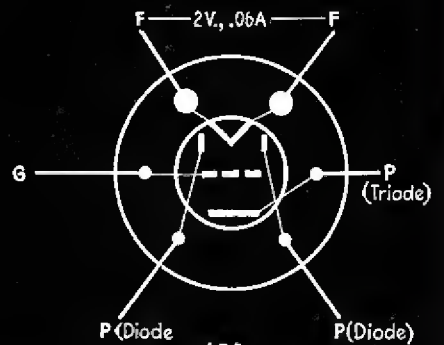
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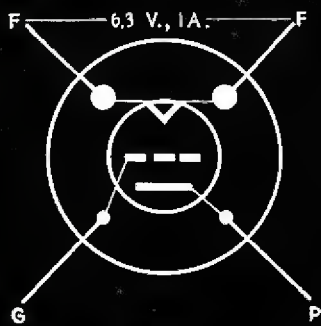
0Z4
(Full Wave Ionic Rectifier)



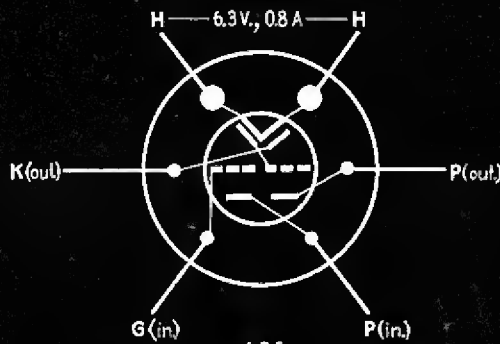
1A4
(R.F. Pentode)



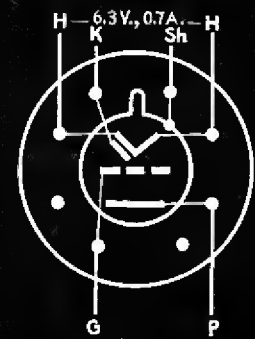
1B5
(Duplex Diode-Triode)



6A3
(Power Amplifier Triode)



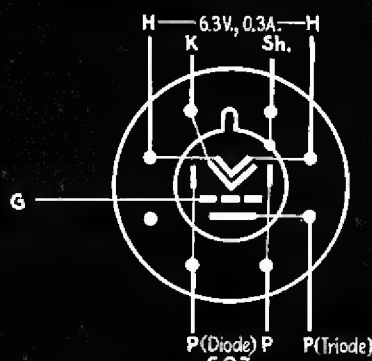
6B5
(Duplex Triode Amplifier)



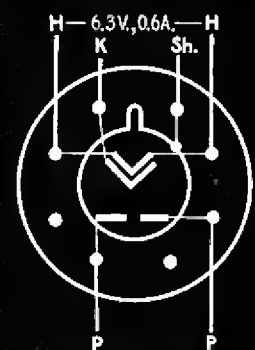
6D5
(Power Amplifier Pentode)



6Eb
(Twin Triode Amplifier)



6Q7
(Duplex Diode-Hi Mu Triode)



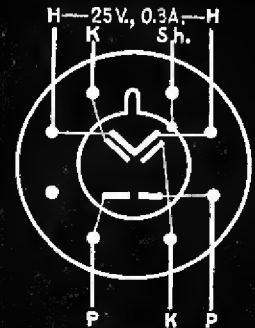
6X5
(Full Wave Rectifier)



25A6
(Power Amplifier Pentode)

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AK 60, 60C. Low plate voltage, noisy reception, little volume . . . Check two a.f. grid resistors. One should be 40,000 ohms, the other 65,000. They have a habit of dropping in value.

ARVIN 17, 27. Oscillation while tuning . . . Condensers No. 17-4731 and No. 17-4712 may be making poor ground contact through metal collar to chassis. Replace with new type No. 17-14020 and No. 17-14007 equipped with separate ground leads. Ignition noise . . . See that cables are grounded. Some came through without lugs.

CLARION 220. No reception . . . Very often traceable to an open control grid clip to the 24A detector-oscillator. The connection between clip and tuning condenser is short piece of 1,000-ohm wire inside a sheath. An open is not readily noticed except by a complete analysis. To remedy, use a 1,000-ohm, ½-watt resistor in series with a new lead.

CROSLEY 167. Low volume and distortion . . . Frequently traceable to leak between filter condensers and cathode by-pass section for the 2A5.

GE H31, H51. Intermittent reception . . . Check primary of i.f. transformers. Trouble is usually in the second. Distortion at low volume settings of the volume control on locals . . . Usually caused by drop in value of 110,000 ohm unit on resistor strip.

GLORITONE 26, 26P. Howling or whistling . . . See that lead from antenna post to volume control runs from post to corner of chassis and from this point to next corner, thence to control. Slide it under all other wires so that it rests directly on the metal chassis all the way around.

LYRIC S6. Tone distorted, everything appears to check ok . . . Replace 200,000 ohm resistor in circuit of unshielded tube on rear of chassis if value is materially higher than this. Plate voltage will appear normal on an analyzer.

RCA R32, R52, RE45. Intermittent reception, little volume, voltages ok . . . See if cone has become torn around fibre washer at center. It will be necessary to remove the speaker to discover such a break.

RCA 241B. Intermittent reception . . . Corrosion where leads are welded to coils, both input and output transformers.

SPARTON 26. Fading caused by mechanical contacts, all shields and obvious parts apparently tight . . . Die-cast rotors of condenser gang frequently make high resistance contact to shaft, this resistance showing up only on Wheatstone bridge analysis. Drill and tap holes in each rotor through to shaft and insert setscrews.

ZENITH 755. Oscillator fails to operate below 850 kc. . . . Antenna coil frequently absorbs moisture and should be rewound or replaced, carefully doped with good coil dope to avoid repetition of trouble.

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McGraw-Hill Publishing Company, Inc., 330 West 42d Street, New York, N. Y. Branch offices: 529 North Michigan Ave., Chicago; 883 Mission St., San Francisco; Aldwych House, Aldwych, London, W. C. 2; Washington; Philadelphia; Cleveland; Detroit; St. Louis; Boston; Atlanta, Ga.
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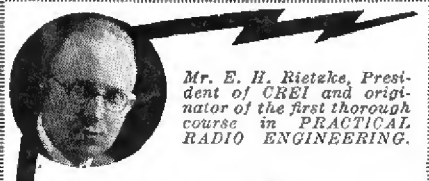
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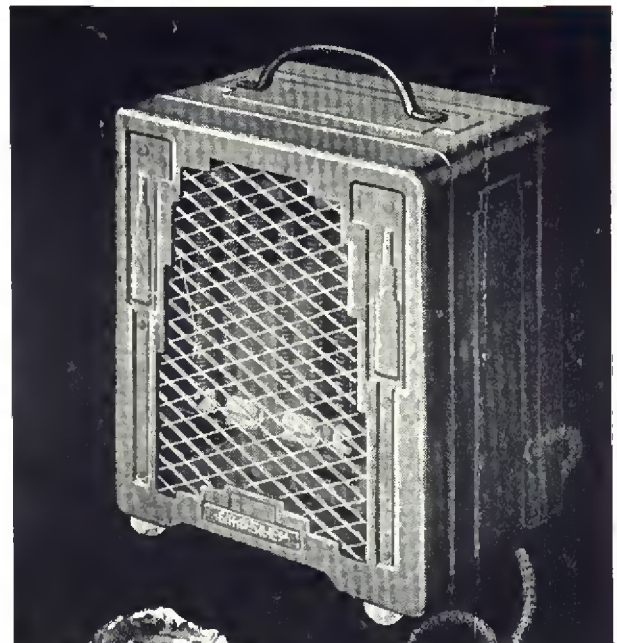
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