

# RADIO RETAILING

INCLUDING  
SERVICE  
AND  
INSTALLATION  
SECTION

HOME ENTERTAINMENT MERCHANDISING

McGraw-Hill Publishing Company, Inc.

25 Cents Per Copy

You Can Earn as Much as **48.7%** Equivalent Compensation on RCA Tubes

*January 15 1935* NO *76*

## NATIONAL BANK

PAY TO THE ORDER OF *J. B. Brown* \$ *23.75*

*Twenty-Three* <sup>*75*</sup>/<sub>*100*</sub> DOLLARS

FOR *Compensation on past sales of RCA Radio Tubes on reaching higher sales bracket* *Radio Distributor*

### IMPORTANT

The bracket you have reached by the expiration of your first year's Agency Agreement determines your rate of compensation on all sales during the second year's Agreement, regardless of how many tubes you sell the second year. Think it over.



The RCA Radiotron Division believes its Agents should be compensated in proportion to sales produced. Thus, the compensation schedule is composed of brackets, or "steps", corresponding to yearly sales. The total equivalent compensation runs as high as 48.7 per cent.

With short steps, any Agent can easily boost his compensation to the next higher classification. And he does not have to wait until his Agency Agreement is renewed to earn the higher compensation. It takes effect as soon as his RCA Tube sales reach the higher figure.

And—get this—not only does he qualify for this compensation on future sales, but he is compensated for prior sales on the same basis. He receives a check or credit covering additional compensation for past sales...he makes additional money on tubes he has already sold.

Ask your Wholesale Agent how many dollars worth of RCA Tubes you have sold since the beginning of your Agency Agreement. With this figure and table shown you can determine how many RCA Tubes you have to sell to reach the next higher bracket; also the back compensation and the total additional compensation you receive.

## RCA RADIO TUBES

RCA Radiotron Division of the RCA Manufacturing Co., Inc.  
CAMDEN NEW JERSEY

### Compensation Schedule

Sales Volume	Compensation	Dollars Credit for Past Sales	Total Additional Dollars Earned
Under . . . . .	\$250 35-5	—	—
(Aver. sale of less than \$20 mo.)			
On reaching . . . . .	\$250 37-5	\$4.75	—
(Average sale of \$20 month)			
On reaching . . . . .	\$450 39-5	\$8.55	\$12.35
(Average sale of \$37.50 month)			
On reaching . . . . .	\$650 41-5	\$12.35	\$19.95
(Average sale of \$55 month)			
On reaching . . . . .	\$900 43-5	\$17.10	\$31.35
(Average sale of \$75 a month)			
On reaching . . . . .	\$1250 45-5	\$23.75	\$50.35
(Average sale of \$105 month)			
On reaching . . . . .	\$2250 46-5	\$21.38	\$116.38
(Average sale of \$187 month)			

\*No loss from price changes, no obsolescence, no investment, and assured profit are generally agreed to be worth 3 to 3.5 per cent and should be added to these percentages.  
\*\*Includes dollars earned as result of going to higher basis.

# NEW ARVIN

This Floor Demonstration Display is but one of the many features in the New Arvin Car Radio Sales Building Program this year.

# SALES BUILDER

**THE** merchandising program built around the new 1935 Arvin Car Radio line is designed to give you full support... the practical, effective selling help that builds sales volume and profits. In every way, it ties up at point of sale with the most powerful consumer advertising campaign in the history of car radio.

Full color pages in The Saturday Evening Post, with poster size reproductions for you to display, in addition to a complete kit of selling helps... beautiful window streamers, big window and wall posters, colorful counter cards, in fact everything.

The elaborately oil-painted floor display stand demonstrates any one of the three new Arvin models. It's a selling help that attracts everyone and arouses interest that leads to profitable sales.

The merit and appeal of the new Arvin Car Radios—the many new features that make it a pleasure to sell, install and service them—and Arvin merchandising—will make this a really profitable car radio year for Arvin dealers.

Every progressive dealer should cash in on the Arvin sales building program. See your jobber salesman or write for full information.

NOBLITT-SPARKS INDUSTRIES, Inc., Columbus, Ind.  
Also Makers of Arvin Hot Water Car Heaters

The new Arvin car radio program meets every desire of sales and "profit-minded" dealers



**FREE** with an order for 2 or more Arvins on Arvin Merchandising Deal No. 2

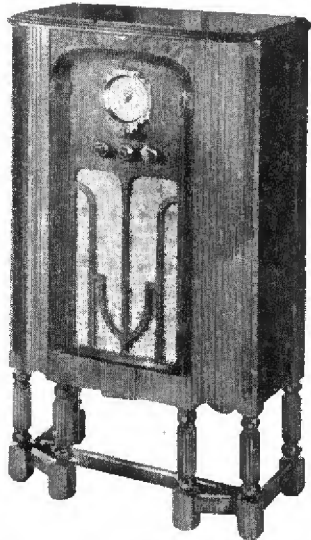
This attractive demonstrator is made of heavy reinforced fibre board—stands 54 inches high by 30 inches wide and is elaborately oil-painted in four colors and varnished. Everyone who comes in your place will stop, look and listen when the demonstrator is working. It has a compartment for storage battery—front and rear platforms for mounting single or double unit Arvin—with holes drilled for a quick and easy set up. Get one at once. Your local jobber knows all about it as the Arvin Car Radio Merchandising Deal No. 2.

# ARVIN

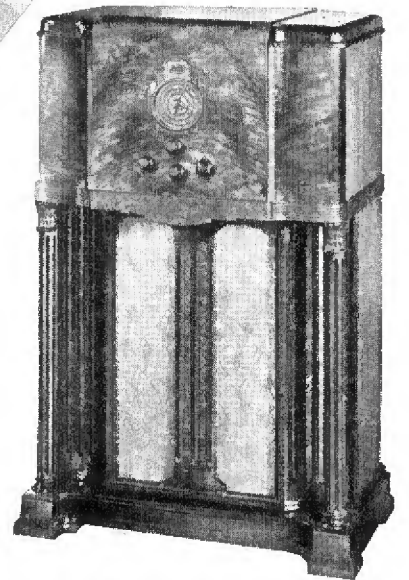
**THE MAGNIFICENT**

# Car Radio

# ZENITH widens your profit band



ZENITH MODEL CONSOLE 945 lists at \$59.95. 5-tube, Triple Filtering, Airplane Dial and Split-second Tuning.



ZENITH MODEL CONSOLE 990 lists at \$250.00. 12-tube, Triple Filtering, Airplane Dial and Split-second Tuning with Shadowgraph—dimensional tone.

## New 1935 Line Features

1. A wider price range—\$59.95 to \$250.00
2. New cabinet designs
3. Improved reception
4. Split-second Tuning added to all models

### WINS IN "BLIND SPOT" TEST!

In a nation-wide "blind spot" test Zenith Triple Filtering sets out-performed all others—in localities where some competitors couldn't pull in a station!

### TRIPLE FILTERING ON ALL MODELS

So successful was Triple Filtering designed to sift out noise that this feature has been adopted on all New Models—for clear, brilliant, noiseless foreign reception!

### SPLIT-SECOND TUNING AIDS LOGGING

On the Zenith Airplane Dial Split-second Tuning is an extra hand . . . like the minute hand on a clock. It permits you to log and accurately relocate foreign stations.

### DIMENSIONAL TONE

Accomplished by installation of one large dynamic speaker and one dynamic high frequency speaker to insure reproduction of the entire musical scale, retain rich, full character of broadcasts!

### STRATOSPHERE

A great new instrument with 25 tubes and three concert speakers—a truly world-wide instrument of great beauty and amazing performance. Ask your distributor for a copy of "A SUPREME ACHIEVEMENT"—illustrated brochure.

ZENITH has taken a chassis already noted for amazing performance . . . added improvements for even better reception . . . put all this in brand new cabinets and created new models to widen your "profit band"!

Everything is ready for your display floor; from the handsome little Model 945 to the splendid Stratosphere with its 25 tubes!

Your profits begin when you write or wire for complete franchise information. Do it today!



ZENITH RADIO CORPORATION, 3620 Iron Street, Chicago, Ill.

EXPORT DIVISION—CABLE ADDRESS: ZENITHRAD—ALL CODES

"MUSIC AT THE WHEEL"—The new ZENITH AUTO RADIO model 666. 6-tube. Six inch speaker. Lists at \$49.95. Prices slightly higher west of Rockies. Subject to change without notice

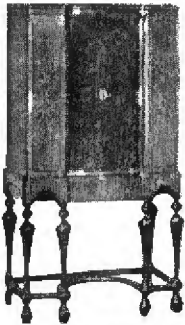


# NEW 60-M TREASURE CONSOLE

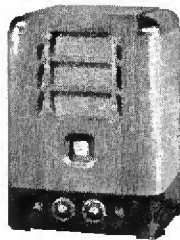
*The latest addition  
to the fast selling  
SHORT WAVE · STANDARD WAVE  
Sixty Series!*

**No. 60-M Treasure Console**

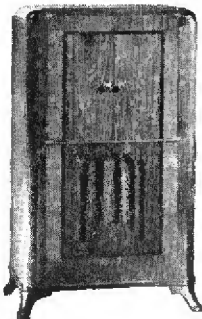
Walnut finish cabinet. Price, East of Rockies, \$115.00



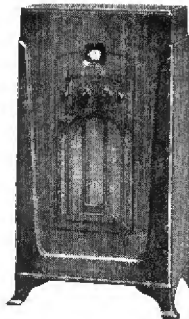
No. 60-H Treasure Highboy (at left). Sliding doors. Walnut finish. Price, East of Rockies, \$135.00



No. 60-T Treasure Chest (above). Finished in two tones of Walnut. Price, East of Rockies, \$75.00



No. 60-PR (at left) Treasure Console. Radio and Automatic Phonograph. Walnut finish. Price, East of Rockies, \$245.00



No. 60-LL (at right) Treasure Console. Finished in vertically grained Walnut. Price, East of Rockies \$99.50

That makes five! Here they are on this page. A rounded line of Stromberg-Carlson short wave-broadcast radios that are making history. Whatever style, whatever price — there's a brilliantly performing model to suit your prospect.

You know the features of the Sixty Series—great power, high sensitivity, world-wide range—both domestic and short wave programs received and reproduced with Stromberg-Carlson's NATURAL TONE.

The New No. 60-M meets all competition in its price class. It is handsome, as the picture hints, decorated with 45 degree, V-matched figured oriental wood on pilasters. Its performance proves anew the world-famed phrase, "There is nothing finer than a Stromberg-Carlson".

Stromberg-Carlson's range in price from \$69.50 to \$985 (East of Rockies).

STROMBERG-CARLSON TELEPHONE MFG. CO.  
ROCHESTER, NEW YORK

# Stromberg-Carlson

# IS A DISSATISFIED TUBE CUSTOMER A GOOD REFRIGERATOR PROSPECT?

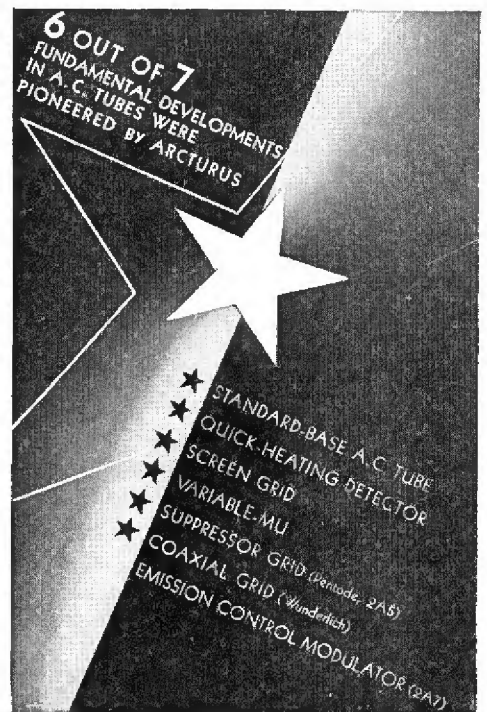
No! Not if you've sold him "just-as-good" tubes—for you've lost his good-will. Nor is he a prospect for sets, appliances, service, etc.—and you've lost these juicy profits. On that you agree.

Your present customers are your best prospects. And on that you agree.

Play safe with every customer and sell him Arcturus and you sell him confidence in your store and in your other merchandise. Arcturus, accepted as the quality standard of the industry, is endorsed by the most critical jury in the country—set manufacturers, engineers, and service technicians.

Arcturus pioneered 6 out of the 7 fundamental developments in a. c. tubes, innovations which the industry adopted. Arcturus' long-life records still stand unequalled. Make sure of repeat business on tubes, refrigerators, sets, service, accessories—sell the tube used by millions of set-owners and many manufacturers in the U. S. and 78 foreign countries. A tube that has accomplished so much won't play you false. On that you agree. *Arcturus Radio Tube Company, Newark, N. J.*

# ARCTURUS RADIO TUBES



## Every Form of DEALER HELPS in Arcturus' big Portfolio..SEND COUPON

Please check your favorite sales aids below. Send list with coupon today. Our jobber will show you this big portfolio.

- Tube Stickers
- Book Matches
- Post Cards
- Ad Reprints
- Cuts and Mats
- Electric Sign
- Decalomania
- Service Policy
- Window Streamers.
- Window Display Sets
- Characteristic Chart
- Portable Tube Tester
- Counter Tube Tester
- "Dayrad" Oscillator
- "Dayrad" Set Tester
- "Supreme" Analyzer



- Price Card
- Stationery
- Log & Price List
- Display Cartons and Tubes
- Rider's Manuals (incl. Vol. 5)
- "Supreme" Tube Tester (Neon lamp)

ARCTURUS RADIO TUBE CO.  
Newark N. J.

I want to look over your big portfolio of dealers' sales and service helps. (Dept. 235)

Name \_\_\_\_\_

Street \_\_\_\_\_

City, State \_\_\_\_\_

Jobber's Name \_\_\_\_\_

Jobber's Address, City \_\_\_\_\_

# 6 WORDS THAT MEAN



*This much more  
in a Shelvador*

EXCLUSIVELY IN  
**CROSLEY**  
ELECTRIC REFRIGERATORS

**N**INE brand new models—enhanced in beauty, improved in performance where possible. And a new selling slogan—"This much more in a Shelvador!" A slogan that is at once a claim and a demonstration of a definite, tangible advantage that distinguishes the Crosley Shelvador from every other electric refrigerator.

"This much more in a Shelvador"—and twice as easy to find! For the housewife, 50% more "usable" space and half the hunting. For the Crosley dealer, sales, sales, SALES!

During 1934 the Crosley Shelvador was the fastest growing electric refrigerator, in point of sales, in the entire field. And 1935 will be as much greater than 1934 as 1934 was ahead of 1935. Why? Because the Crosley Shelvador is the *one* outstanding feature electric refrigerator on the market. It is way ahead in roominess and convenience, ahead in beauty, ahead in quality, ahead in value. Its advantages are so obvious, so easy to see, that no housewife can fail to realize that if she doesn't get a Crosley Shelvador she doesn't get ALL that electric refrigeration can give her.

Think of the all-purpose utility of the 1935 Crosley Shelvador line: Two table model Shelvadors ranging from 2 to 3 cu. ft. capacity; 4 Shelvador models from 1 to 7 cu. ft.; 3 Tri-Shelvador models from 4.3 to 7 cu. ft. Prices that start as low as \$79.50, delivered. No wonder—you cannot afford NOT to handle Crosley during 1935. Get in touch with your Crosley distributor.

## POWERFUL 1935 ADVERTISING CAMPAIGN

Every housewife who reads or hears will know about Shelvador during 1935; for Crosley is inaugurating the biggest, most far-reaching, most commanding advertising campaign in Shelvador history. In many national publications, over the mighty WLW—"the Nation's Station"—the story will be told dramatically, vividly, effectively.

## THE CROSLEY RADIO

*Pioneer Manufacturer of Radio Receiving Sets*

**ALL PRICES INCLUDE DELIVERY..INSTALLATION..ONE YEAR FREE SERVICE**

# BUSINESS

## ...AND 9 BRAND NEW MODELS

*For every purse  
For every family  
For every condition*

### 2 TABLE SHELVADOR MODELS



**Table Shelvador FR-20**  
2 cu. ft. NET capacity. 2 ice trays—42 cubes. Semi-hermetic rotary compressor. Dimensions: 36" high, 23 1/2" wide, 25" deep.

**\$79.50**

**Table Shelvador FR-30**  
3.1 cu. ft. NET capacity. 2 ice trays—42 cubes. Rotary compressor. Same dimensions as FR-20.

**\$94.50**

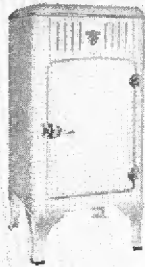


### NEW ROTARY COMPRESSOR

Used on table models. Only 3 moving parts; virtually trouble-free. Semi-hermetically sealed. Uses Theron liquid—non-poisonous, non-inflammable, non-corrosive, odorless.

### 4 SHELVADOR MODELS

ALL CROSLLEY SHELVADOR AND TRI-SHELVADOR MODELS HAVE THESE FEATURES: Automatic interior illumination, ventilated front, no-stop defrosting control, stamped-brass hardware, chromium plated, stainless steel rim around top, white lacquer, porcelain interior.



**Shelvador Model FA-40**  
4.09 cu. ft. NET capacity. 8.6 sq. ft. shelf area. 2 ice trays—42 cubes. Dimensions: 52 1/2" high, 23 1/2" wide, 25 1/2" deep.

**\$112.50**

**Shelvador Model FA-50**

5 cu. ft. NET capacity. 11.3 sq. ft. shelf area. 2 ice trays—42 cubes—one double-depth tray. Dimensions: 56 1/2" high, 25 1/2" wide, 24 1/2" deep.

**\$129.50**

**PFA-50:** Same with porcelain exterior **\$152.00**

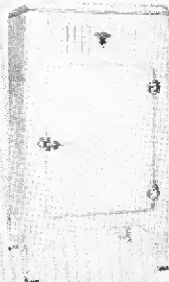


**Shelvador Model FA-60**

6 cu. ft. NET capacity. 13.5 sq. ft. shelf area. 3 ice trays—63 cubes—one double-depth tray. Dimensions: 56 1/2" high, 30 3/4" wide, 25 1/2" deep.

**\$149.50**

**PFA-60:** Same with porcelain exterior **\$174.50**

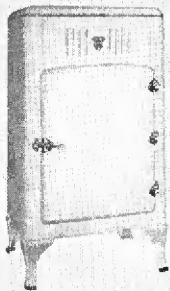


**Shelvador Model FA-70**

7.08 cu. ft. NET capacity. 14.9 sq. ft. shelf area. 4 ice trays—84 cubes—one double-depth tray. Dimensions: 57 1/2" high, 32 3/4" wide, 25 1/2" deep.

**\$169.50**

**PFA-70:** Same with porcelain exterior **\$194.50**



### 3 TRI-SHELVADOR MODELS



**Tri-Shelvador Model F-40**  
4.3 cu. ft. NET capacity. 9.15 sq. ft. shelf area. 2 ice trays—42 cubes—one double-depth tray. Dimensions: 56 9/16" high, 23 3/4" wide, 23 1/2" deep.

**\$139.50**

**PF-43:** Same with porcelain exterior **\$155.50**

**Tri-Shelvador Model F-55**

5.51 cu. ft. NET capacity. 11.6 sq. ft. shelf area. 3 ice trays—63 cubes—one double-depth tray. Dimensions: 57 1/2" high, 29" wide, 24 1/2" deep.

**\$164.50**

**PF-55:** Same with porcelain exterior **\$187.00**



**Tri-Shelvador Model F-70**  
7.08 cu. ft. NET capacity. 14.9 sq. ft. shelf area. 4 ice trays—84 cubes—one double-depth tray. Dimensions: 58 1/2" high, 32 3/4" wide, 25 1/2" deep.

**\$189.50**

**PF-70:** Same with porcelain exterior **\$219.50**

### TRI-SHELVADOR ADDS 3 FEATURES TO THE SHELVADOR

The Tri-Shelvador has all the features of the Shelvador and in addition the following:

- 1—SHELVATRAY.** Handy shelf that drops to horizontal position. Place articles on shelvatray and carry them (shelvatray and all) to table, range, or cabinet. (Patent pending.)
- 2—SHELVABASKET.** A non-refrigerated basket on bottom of door for greens, carrots, cabbages, and the like. (Patent pending.)
- 3—STORABIN.** Non-refrigerated bin in bottom part of cabinet for reserve bottles, potatoes, onions, and other bulk items. (Patent pending.)

In addition—self-closing stainless steel door to freezing chamber.



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

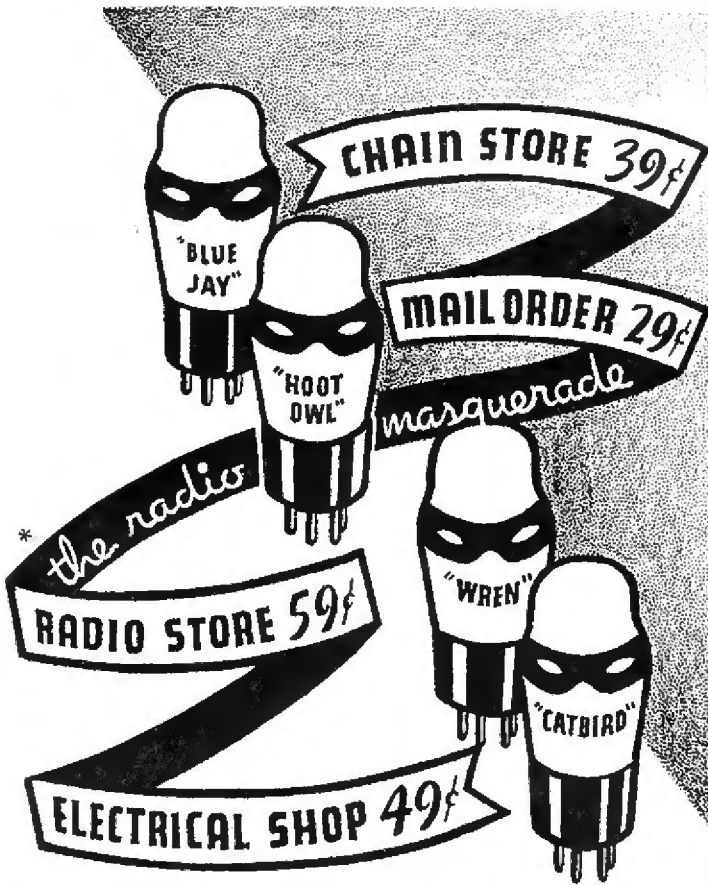
**CORPORATION • CINCINNATI**

POWEL CROSLLEY, Jr., President.



Home of "the Nation's Station"—W.L.W.—500,000 watts—most powerful in the world—70 on your dial.

**ALL PRICES INCLUDE DELIVERY..INSTALLATION..ONE YEAR FREE SERVICE**



# YOU *Can* BE SURE

that the tubes you carry aren't being sold elsewhere at lower prices, while masquerading under a series of different brand names.

\*Twelve licensed manufacturers have made 139 brands of radio tubes

Here is a tube with only one standard of quality and one name...TUNG-SOL ...and TUNG-SOL retail partners get full profit on every sale . . . . .



# TUNG-SOL

## Tone-flow radio Tubes

are marketed under a time-proved Protection Plan by selected Tung-Sol retail partners. Qualified independent dealers are invited to write us for complete details.

TUNG-SOL RADIO TUBES, INC., NEWARK, N. J.

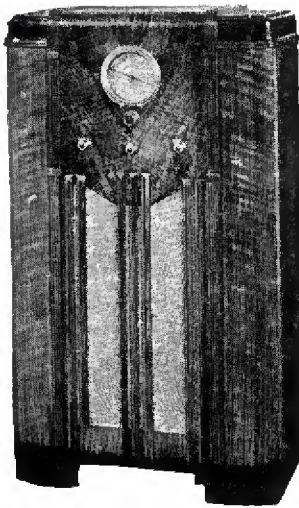




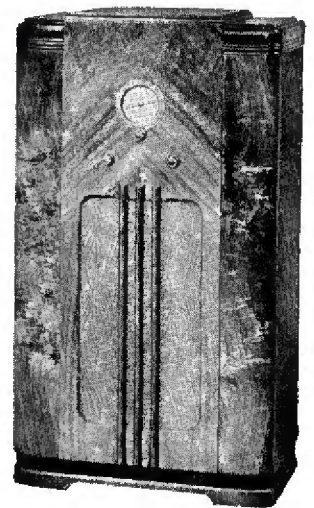
# Emerson Radio



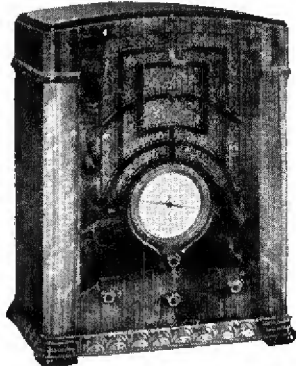
From Farm House to Luxurious Drawing Rooms, Emerson Radio Distributors and Dealers Meet Every Need with Only 12 Models—\$19.95 to \$99.50.



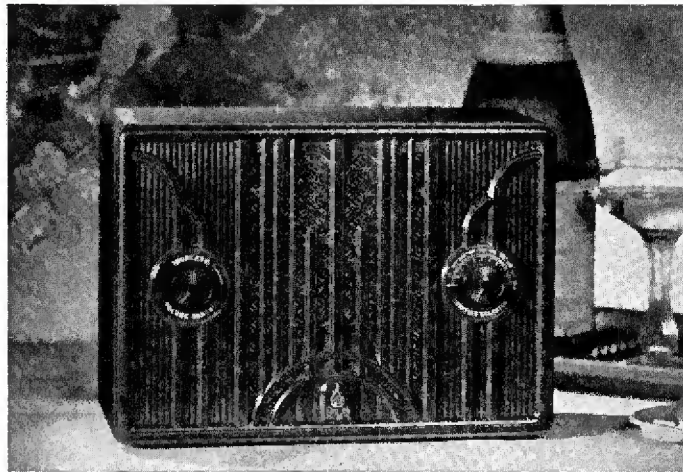
**Model 100.** All-Wave seven-tube AC superheterodyne. 13 to 555 meters. 12-inch dynamic speaker, automatic volume control and tone control. Walnut console. List price, \$99.50.



**Model 69.** Round-the-World six-tube AC superheterodyne. 19 to 53 meters and 170 to 555 meters. Dynamic speaker, automatic volume control, Walnut console. List price, \$69.50.



**Model 71.** All-Wave seven-tube AC superheterodyne. 13 to 555 meters. Dynamic speaker, automatic volume control and tone control. Walnut upright table cabinet. List price, \$69.50.



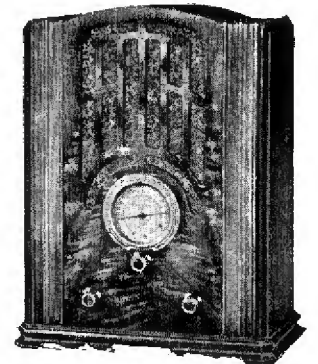
## Emerson AC-DC "Miracle 6" Six-Tube Performance in a Compact

**Model 19**—the four-tube superheterodyne sensation of the industry. Specially designed circuit employs dual-purpose tubes, automatic overload control, dynamic speaker and other big-set features. Neat Bakelite cabinet. List price, **\$19.95**

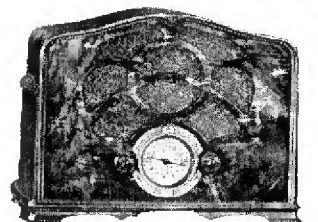
**Model 17**—Same as Model 19, in black cabinet with chrome trimming, \$25.00



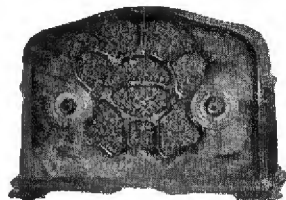
**Model 28.** Police, amateur and regular broadcast. Five-tube AC superheterodyne. Dynamic speaker, automatic overload control. Walnut upright table cabinet. List price, \$31.95.



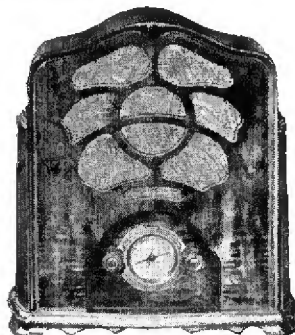
**Model 45.** Round-the-World six-tube AC superheterodyne. 19 to 53 meters and 170 to 555 meters. Dynamic speaker, automatic volume control. Walnut upright table cabinet. List price, \$44.50.



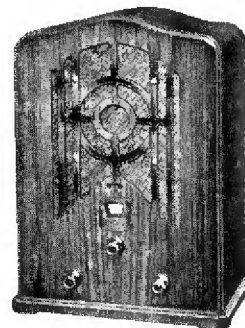
**Model 38.** Round-the-World six-tube AC-DC superheterodyne. 19 to 53 meters and 170 to 555 meters. Dynamic speaker, automatic volume control. Walnut midget cabinet. List price, \$39.50.



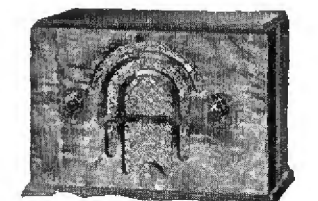
**Model 32.** Long and Short Wave five-tube AC-DC superheterodyne. Dynamic speaker, automatic volume control. Walnut compact cabinet. List price, \$33.00.



**Model 49.** Round-the-World six-tube AC-DC superheterodyne. 19 to 53 meters and 170 to 555 meters. Dynamic speaker. Automatic volume control. Walnut cabinet. List price, \$49.50.



**Model 280.** FARM Radio (BATTERY operated) Round-the-World Superheterodyne. 19.3 to 52.5 meters and 180 to 555 meters. Permanent Magnet Dynamic Speaker. Walnut cabinet. List price, \$44.50.



**Model 24.** Regular broadcast AC-DC. Four-tube superheterodyne. Dynamic speaker. Walnut cabinet. List price, \$25.00.

All Emerson Models Equipped With RCA Radiotrons  
Send for Details of the Emerson Proposition

# The idol of the refrigerator industry has become the idol of every housewife

THE F-M REFRIGERATOR, WITH THE NEW CONSERVADOR, IS SETTING A RECORD NOT ONLY FOR DEALERS BUT FOR HOUSEWIVES THROUGHOUT AMERICA . . . . .

● Wide-awake dealers have recognized the importance and exclusiveness of the CONSERVADOR—and have hooked their band wagon to Fairbanks-Morse. American housewives, with a habit of being thrifty, regardless of income—have instantly accepted this new outstanding feature. They like its convenient shelves because it keeps foods most frequently used right up in front where they belong. And they realize that the CONSERVADOR, by sealing in the main storage compartment, prevents the escape of cold air and saves electricity.

There is no doubt about it. The Fairbanks-Morse is selling fast—and sales are increasing daily! Find out about the 1935 F-M franchise. It will be the most valuable move you've ever made. Write, phone or wire for complete information and name of nearest distributor. Fairbanks-Morse Home Appliances, Inc., 430 South Green Street, Chicago.

Circle Address: FAIRMORSE, CHICAGO



## FAIRBANKS-MORSE

RADIOS-WASHING MACHINES-IRONERS



*Refrigerators*

105 YEARS OF PROGRESS IN PRECISION MANUFACTURING



# Factory Sealed!

## TO GUARANTEE LABORATORY QUALITY

More than 95 minute pieces of wire, metal and chemicals are processed with microscopic accuracy into the assemblage of a Raytheon Tube.

4-Pillar support anchors these elements rigidly and gives Raytheon Tubes a matchless sturdiness and makes them outstanding favorites, particularly where dependability and long life are vital factors. Now Raytheon Tubes are packed in "Factory Sealed" Cartons.

Sold by good radio dealers. Recommended and used by reputable service men everywhere.

**Dealers Note:** New 1935 displays are ready — use the coupon.

**Service Men Note:** 1935 Tube Characteristic Chart now available—use the coupon.



**TO TEST**  
Do not break corners. Push tube downward in box.

**RAYTHEON PRODUCTION CORPORATION**  
30 E. 42 St. New York    55 Chapel St. Newton, Mass.    445 Lake Shore Dr. Chicago    555 Howard St. San Francisco

**RAYTHEON**  
TRADE-MARK  
**4-PILLAR RADIO TUBES**

RAYTHEON PRODUCTION CORP.,  
Dept. A2, 30 E. 42nd St., New York, N. Y.

Please send  1935 Display Material  1935 Tube Chart

Name \_\_\_\_\_

Address \_\_\_\_\_

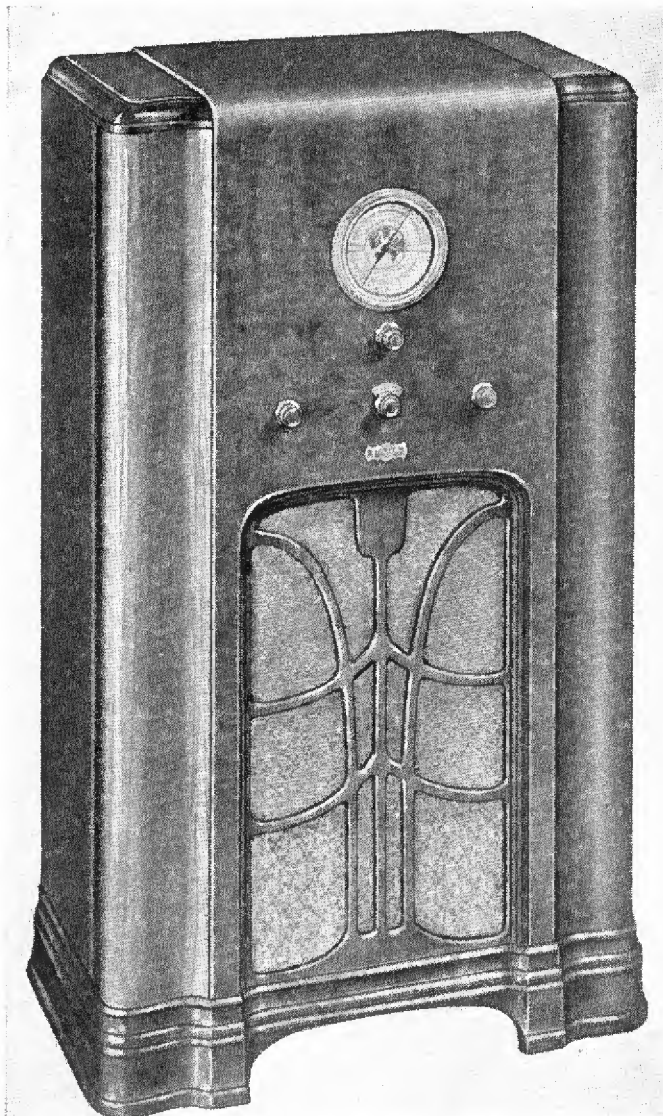
Dealer: (yes) (no)                      Service Man: (yes) (no)

1920  
The First  
Fada Radio  
was built

# FADA Radio

1935  
Over 1,000,000  
Fada Radio  
Owners

## PRESENTING 3 NEW 8 TUBE WORLD-WIDE RADIOS THAT ARE DESTINED TO BE GREAT



**FADA 1582J and 1582JK  
ARE HOUSED IN THIS SUPERLATIVE  
BURL WALNUT CABINET**

**FADA 1582 J CONSOLE MODEL:**—8-tube World Wide A-C Super-heterodyne giving 11-tube performance. Tuning range 540 to 1500 K.C.—5.4 to 15.8 M.C. 115 volts—50-60 cycles. Push pull audio system giving 6 watts undistorted output, automatic tone regulator inter-station noise suppression, 7 tuned circuits, 3 gang condenser, R.F. stage on both bands, full vision airplane dial calibrated in K.C. and M.C., dual speed tuning, phono jack, variable tone control, diode detection, rubber mounted chassis, full automatic volume control, electrostatically shielded to prevent line noises, 12-inch dynamic speaker.

**FADA 1582 JK:**—Same chassis specifications described above with High Fidelity reproducer with frequency range from 50 to 7500 cycles. The finest tone quality ever achieved in a radio selling for only \$124.75.

**FADA 1582 H TABLE MODEL:**—Same chassis specifications described above in an exquisite walnut cabinet, as illustrated, with large dynamic speaker of fine tone quality.

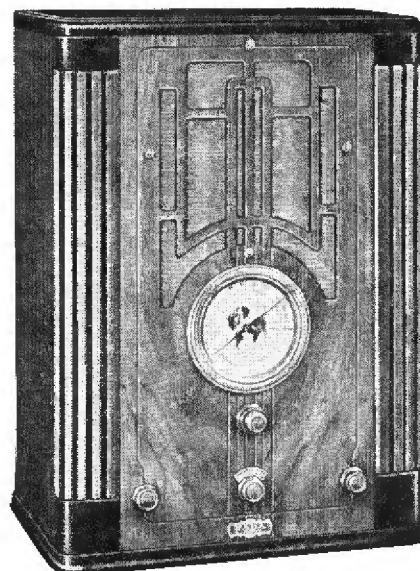
*All models Complete with RCA Tubes*

*Profit  
Makers*

**FADA 1582H TABLE MODEL • FADA 1582J CONSOLE • FADA 1582JK HI-FIDELITY**

**\$69<sup>95</sup>      \$99<sup>95</sup>      \$124<sup>75</sup>**

New 8-tube world-wide radios by Fada that give every dealer a **REAL VALUE LEADER** in the three fastest selling price classes. Their unusual beauty of design . . . their unsurpassed tone quality . . . their unmatched performance will win consumer acceptance immediately—with a real profit margin for the dealer on every model.



**FADA 1582H TABLE MODEL**

*There is  
a Fada  
Radio to  
Meet Every  
Buying  
Demand*

**PRICED FROM**

**\$19<sup>95</sup>**

to

**\$124<sup>75</sup>**

**FADA RADIO and ELECTRIC COMPANY**

*Cable address  
"FADARADIO"*

**LONG ISLAND CITY, N. Y.**

# RADIO RETAILING

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PAUL WOOTON  
*Washington*

FEBRUARY 1935

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## *A Challenge*

LAUNCHED by the wholesalers at Chicago last June as a "Five Point Plan" for the national promotion of radio; adopted by the RMA, in modified form, last August; scheduled to start last November—Radio's "All-Industry" campaign has been marking time. This is regrettable.

As is generally the case, inability to finance a sizeable "war chest" is the underlying cause. Manufacturers will not—or cannot—come across.

Radio needs constructive publicity, in large gobs, now more than ever before. Radio needs nation-wide, cooperative, promotion because the public now is taking this miracle for granted, and spending its money for other merchandise—where the appeal to buy is heard the loudest.

PUBLICISTS agree that \$100,000 for a national campaign would be but a drop in the bucket. Yet this minimum amount, on final analysis, seems to be beyond the powers of the RMA to raise.

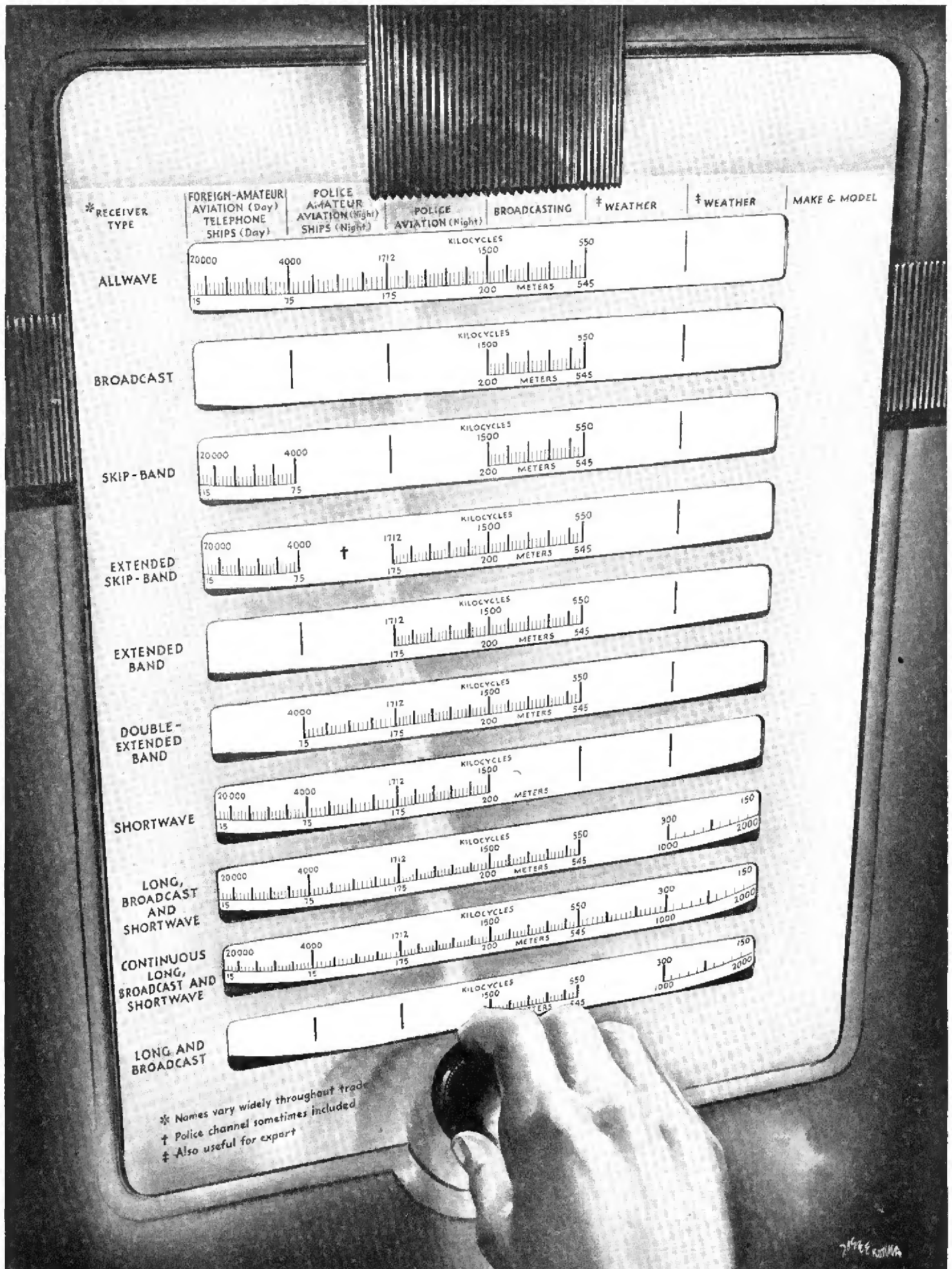
Another method, suggested by the Wholesalers' Committee on sales promotion, would be to enforce an industry tax of five cents per set on dealer, jobber and manufacturer—a total of 15 cents. Such a plan might yield five times \$100,000. Furthermore if each dealer and jobber has a small personal "stake" in such a campaign he will do everything in his power to promote it locally.

In the meantime, let's face the situation honestly. Possibly no one's to blame. It is conceivable that a sufficient sum just can't be raised by "moral suasion"—that, in his secret heart, the individual manufacturer prefers to use his own money in his own way.

BUT all is not lost by any means. This situation should be accepted as a challenge, as an urgent call for every dealer, jobber and manufacturer to do his own promotional job just that much more aggressively. Let territorial radio organizations tell the story of radio's vital contributions to the life of our nation. Let each radio man stand on his own feet and wave his own flag.

Sales effort, to a greater extent than ever before, is the battle order.

# A Yardstick for



* RECEIVER TYPE	FOREIGN-AMATEUR AVIATION (Day) TELEPHONE SHIPS (Day)	POLICE AM-AMATEUR AVIATION (Night) SHIPS (Night)	POLICE AVIATION (Night)	BROADCASTING	† WEATHER	‡ WEATHER	MAKE & MODEL
ALLWAY	20000, 4000, 15, 75	1712, 175	1500	550, 200, 545			
BROADCAST			1500	550, 200, 545			
SKIP-BAND	20000, 4000, 15, 75		1500	550, 200, 545			
EXTENDED SKIP-BAND	20000, 4000, 15, 75	† 1712, 175	1500	550, 200, 545			
EXTENDED BAND		1712, 175	1500	550, 200, 545			
DOUBLE-EXTENDED BAND	4000, 15, 75	1712, 175	1500	550, 200, 545			
SHORTWAVE	20000, 4000, 15, 75	1712, 175	1500	550, 200, 545			
LONG BROADCAST AND SHORTWAVE	20000, 4000, 15, 75	1712, 175	1500	550, 200, 545	300, 1000, 150, 2000		
CONTINUOUS LONG BROADCAST AND SHORTWAVE	20000, 4000, 15, 75	1712, 175	1500	550, 200, 545	300, 1000, 150, 2000		
LONG AND BROADCAST			1500	550, 200, 545	300, 1000, 150, 2000		

\* Names vary widely throughout trade  
 † Police channel sometimes included  
 ‡ Also useful for export

7/19/35 KLM

# EXTENDED-BAND *Receivers*

Presented as a Sales Tool for Dealers Who Must Explain Confusing Range Differences

**F**EW consumers understand exactly what is meant by such terms as "extended-band" and "allwave."

How much does an extended-band extend? How many waves are included in an allwave receiver? How wide a range is needed?

Explanations require complicated comparison of virtually every make and model with an equally complicated spectrum chart showing types of transmission at various frequencies. Usually, the consumer emerges in a fog . . . even if the salesman himself enters where angels fear to tread with a clear head.

On the opposite page, *Radio Retailing* presents a chart which will help simplify the problem.

We have attempted to break down types of receivers offered the man in the street into 10 groups, classified by approximate tuning range. These 10 types appear as horizontal bars and are arranged in the probable order of popularity.

At the left we have given each type a name. The names are not advanced as a standard and are probably no less ambiguous than others in common use. We simply needed a means of identification.

The headings of vertical columns indicate types of stations receivable. We have included only voice and

music service, in which the average consumer is primarily interested, omitting code channels.

The frequency and wavelength limits of each "band" is indicated above and below each bar. Where a bar is filled in with a scale it means the receiver tunes in that area.

For the benefit of sticklers: The width of the bars bears no relation to the relative width of the bands. And while the average receivers cut off at about the points indicated some sets do extend beyond these points . . . or do not quite reach them.

In other words, we claim "poetic license" in the preparation of this chart. It has been necessary to cut corners in order to produce a usable sales tool.

*How may it be used as such?*

*Check up on the frequency bands covered by receivers now in stock. List them in the column provided at the right, placing sets opposite bars which most nearly correspond. Then, when a customer wants more than just broadcast reception and appears puzzled as to how much more he wants give him a chart talk.*

For complete details as to the exact nature of assigned bands and their widths see the supplemental chart on pages 22 and 23.

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## ADOPT CONSERVATIVE TUBE DISCOUNTS

While a certain degree of improvement is apparent in the tube situation, the price picture is still far from satisfactory. The tube makers, with few exceptions, are still doing business at a substantial loss, while the discount structure remains topheavy—and the net profit income for the retailer (in dollars) is uninspiring. Price cutting continues despite the laudatory efforts of the manufacturers to do away with this practice.

It is clear that the right way to meet the cut price bargain offer is to stick to one's guns. Meet price salesmanship (?) with performance arguments—not by further cutting lists or spreading discounts.

Higher lists and a retail margin of approximately 40 per cent would work no injustice on the consumer and would operate for the maintenance of resale schedules. Such steps would give the manufacturer the compensation to which he is entitled and minimize excessive price cutting practices.

The reason for the present situation is due, primarily, to competitive tactics between manufacturers. It now remains to correct this practice. The tube companies

should bury the hatchet. They should adopt a scale of conservative discounts in line with margins which have stood the test of time when applied to countless other products of similar price range characteristics.

## SHORTWAVES IN THE "STICKS"

Shortwave receivers, or sets of the allwave variety tuning on shortwaves, are commonly purchased for the reception of foreign stations. There is another and extremely practical use for them. They may be used to provide good radio reception of American stations, many of which re-transmit chain programs over high-frequency channels, in rural districts so remote from regular broadcast stations that noise-free programs are rarely intercepted.

KDKA in Pittsburgh, WGY in Schenectady, KYW and many other high-power stations of both chains render such shortwave service in conjunction with their regular broadcasts. And these shortwave transmissions are often received in remote, rural areas quite as well as standard wave transmissions from local stations.

# Let's Trade Radios!

**OLDS WORTMAN & KING**

Phone BR 7711

*Week-Long Campaign  
Extended to 30 Days  
of Record Breaking  
Sales Volume*

WHEN Evan H. Giles, buyer for the radio department at Olds, Wortman & King Co., Portland, Oregon, planned a week long "Let's Trade Radios" campaign, he little dreamed that it would continue for thirty days of record breaking selling, with a gain of 175 per cent over sales of the previous year.

"Realizing that within our own territory there are thousands of obsolete sets in use," he says, "we launched the 'Let's Trade' event as a direct means of contacting potential replacement customers.

"Our first step was to work out a trade-in offer that would give the customer an advantageous price for the old model. We finally set this allowance at a maximum of one-third the purchase price of the new receiver. For the old set we would grant its estimated re-sale value minus the cost of putting it in perfect condition—a better trade-in proposition than he ordinarily gets."

Newspaper display advertisements featured the slogan "Let's Trade Radios," in conjunction with the phrase "We Handle the Big 6 of Radios." Tie-ups were arranged in window trims, within the radio department, and at arterial points throughout the store, where large framed posters repeated the catchy lines.

From the start results exceeded fondest expectations. The suggestion "Let's Trade" had a ready appeal, inasmuch as nothing was said about buying. People who did not wish to discard their old sets and buy new ones were delighted to know that their old ones had a substantial cash value.

As there was no indication of sales slowing down at the end of the first week, Olds extended the "Let's Trade" plan another six days. Still the increased selling continued. Thus encouraged, Mr. Giles ran it a third and then a fourth week, during which total time not one cent of markdown was taken on any of the new sets sold.

When Giles took charge of the Radio department of



**Let's Trade Radios!**

## Magic Brain Radios

A radio with an almost human master-unit which directs the intricate operation of world-wide reception. Built by talented engineers and skillful cabinet makers—RCA radios combine all the elements of truly superior performance.

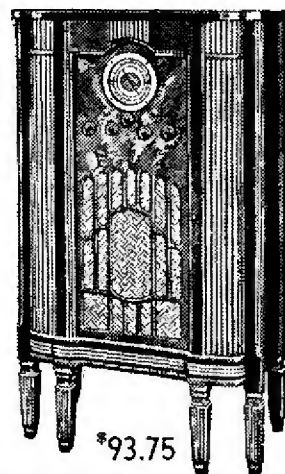
### Outstanding Features

- 1 You reach for more stations.
- 2 Tune in on world broadcasts with greater ease and accuracy.
- 3 You hear every tone with much higher fidelity.
- 4 You get the exclusive "X" bands (in 8, 10 and 18-tube sets).



Generous Trade-in Allowance  
Small Down Payment, Easy Terms

Radios—Fourth Floor



\$93.75

*Originally planned as a six-day campaign, results justified extending this slogan to a full month*

Olds, Wortman & King, less than a year ago, sales lagged. This was due to incomplete stocks.

"Our first step in reorganizing the radio department," he says, "was to build up stocks so that complete selections of the newest models in six nationally known makes were on display at all times. These we featured as the 'Big 6 of Radios.'

"The next step was to bring a volume of new traffic into the department. For this purpose we featured a low price midget set as a price leader during the store-wide promotions staged by Olds, Wortman & King the last three days of every month.

"Some dealers may refute the idea of using the midget model as a business builder, believing that it hurts the selling of high grade models. Our experience has proven, however, that the opposite is the case.

"In selecting a small set for our year-round promotions, we picked a type to retail, at a close mark-up, for less than \$15. In this number we do not feature brand, but rather *size* and *price*, hence are in a way to accept the most advantageous buys that the market affords.





*"People didn't seem to realize the cash value of their old sets until the catch phrase 'Let's Trade' woke them up"*

"During store wide promotions, we feature our midget radios at \$12.95. Throughout the remainder of the month they are priced slightly higher. We buy these sets 100 at a time.

"Just how effective the midget promotional idea is in increasing general sales throughout the department may be gleaned from the fact that unit set sales have been raised from the \$16.50 level of last year to \$34. Though we have sold as high as 154 midget sets, at \$12.95, in a single day, we lose no opportunity to grade these customers up to a higher priced model. During the 'Let's Trade' campaign a quantity of midgets was disposed of but the greater number of sales were for models priced around \$100.

"The scene for the grading up process is set in advance. *Every \$12.95 midget in the store is displayed in a group with sets at the next higher price level.* Thus the customer has her attention attracted to sets priced at \$18.95 and \$29.95. Seven times out of ten the sale reverts to a higher priced model in one of our featured 'Big 6' brands," according to buyer Giles.

### **Promotional Days Move Trade-ins**

Promotional events give Olds quick turnover on trade-in sets. They're grouped around a large show card, emphasizing the low prices on reconditioned sets.

Olds does not stage big sales of obsolete radios bought from some manufacturer at a price. This type of business is felt to be injurious to the radio department.

"With the midget set that we feature during promotions, the customer does not expect a great deal other than a small set which can be taken around on trips or vacations, or used as an extra set for the kitchen or bedroom. In our experience, the little cheap set is just another market for selling radios, and in no ways affects the sale of higher priced models," Mr. Giles once again emphasized.

"In so far as the selling of shortwave, foreign reception sets are concerned," he declares, "we were faced with a problem which we worked out with a sales policy based on selling experience.

"In the first place, Pacific Coast reception of European station broadcasts is not what the national advertiser claims for it. It in no way compares with the reception obtained from local stations. We thus have to overcome this obstacle of exaggerated manufacturer statements.

"We set about to convince customers that the short-wave models of our 'Big 6' of radios' will pick up foreign broadcasts better than any other we know of. We do not encourage our customers to tune in on broadcasts for the *quality* of entertainment to be derived, but rather for the *novelty*, and tell them that if they are particularly interested in some special foreign program that they will be able to obtain it with maximum satisfaction from an all-wave set purchased here."

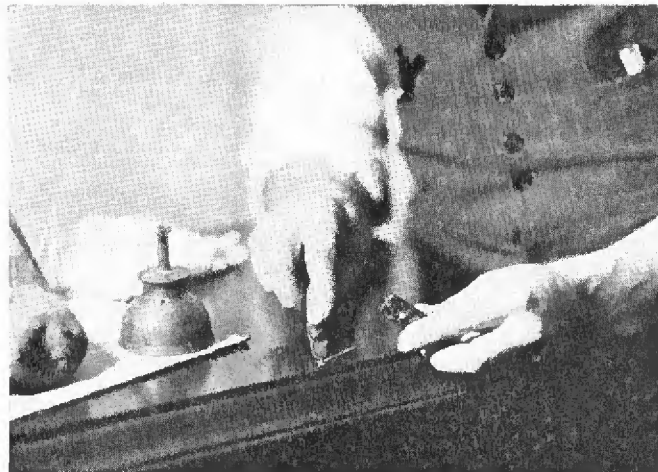


*Typical arrangement of receivers showing how the smaller sets are displayed in association with those in the next higher price bracket*

**HEAT** the knife over an alcohol flame, then gather on it a bit of shellac



**THEN** fill the indentation until surface comes slightly above the woodwork



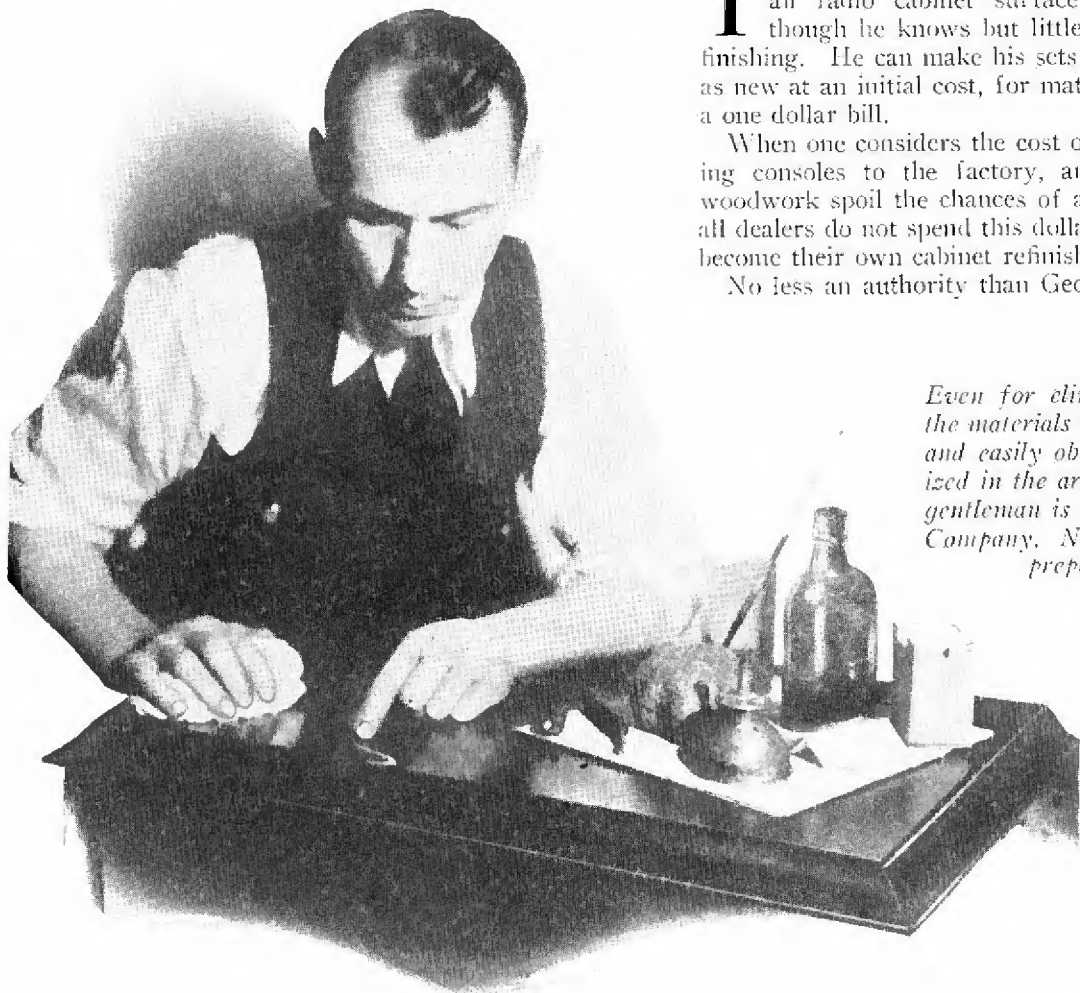
## *Every Dealer his own*

**T**HE average radio dealer can repair 80 per cent of all radio cabinet surface defects himself, even though he knows but little about the art of wood finishing. He can make his sets look practically as good as new at an initial cost, for materials, of not more than a one dollar bill.

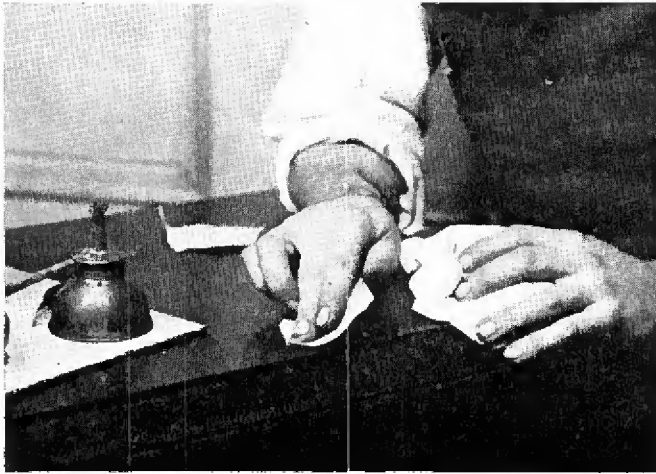
When one considers the cost of complaints, of returning consoles to the factory, and of having unsightly woodwork spoil the chances of a sale, one wonders why all dealers do not spend this dollar, practice up a bit, and become their own cabinet refinishers.

No less an authority than George Weiss, head of the

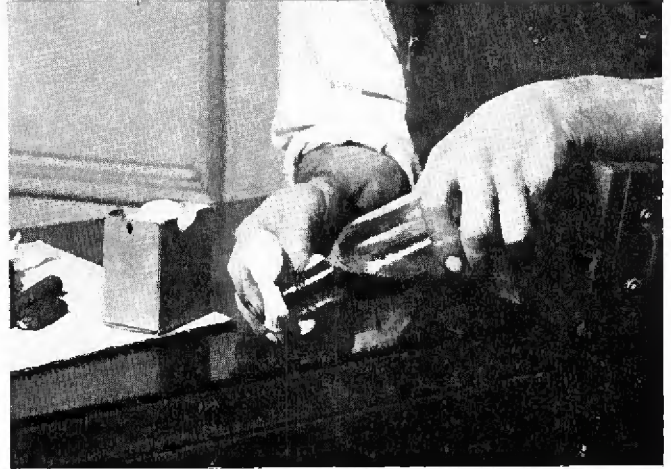
*Even for eliminating deep scratches the materials required are inexpensive and easily obtained. They are itemized in the article. The shirt-sleeved gentleman is GEORGE WEISS, Aeolian Company, New York, who helped prepare this article*



## SAND with a fine grade of sandpaper



## FINISH with crude oil, rubbing-in mixture



# FURNITURE REFINISHER

"get-ready" department of the Aeolian Company, and a cabinet craftsman of wide experience, is responsible for the preceding remarks.

According to Mr. Weiss there are five kinds of damage to fine woodwork finishes which generally can be repaired by the dealer: press marks (bruises due to improper packing; scratches (deep and surface); dents; rubbed edges and fractures.

The tools and materials required by the refinisher are:

Quart bottle of crude oil thinned with benzine— $\frac{2}{3}$ oil, $\frac{1}{3}$ benzine.....	\$0.15
Furniture glue.....	.10
Steel wool, very fine.....	.10
0000 pumice stone powder.....	.10
Walnut stain.....	.15
0000 sand paper.....	.10
Alcohol lamp.....	.10
Stick of transparent, burning-in shellac.....	.15
Small knife or scalpel.....	.05

\$1.00

All the above supplies may be obtained from any paint supply store. The scalpel can be shaped from a small table knife and the alcohol "lamp" made by cutting off the small end of a machine oil can nozzle and inserting a wick.

Now for the actual "technique" or procedure required for cabinet refinishing.

Many bruises and scratches come from careless packing or unpacking. If the cabinet has a "press mark," as it is called, first rub down well with the crude oil and benzine mixture. Follow with the pumice stone over the entire surface and finish with a dry rag. To apply the pumice, dip a rag soaked in crude oil in the pumice powder.

Surface scratches should receive the same kind of treatment but deep marks must first be filled. For the



## POLISH with dry rag over entire surface

latter, light the alcohol lamp, soften the shellac stick in its flame and get a piece of this transparent wax on the side of the rubbing-in knife. After the indentation has been filled, sand the projecting rough surface flush with the wood. The job is then finished in the same manner as for "press marks" or superficial scratches. Minor dents should be given similar treatment. Deep dents sometimes may be swollen flush by the application of hot water or steam. This process, however, requires care and moderation or the glue under the veneering will become moist and the veneer peel.

Rubbed edges are a common occurrence. They give the cabinet a shopworn look and should be attended to at once. Generally an alcohol rub, applied with a piece of felt, along these edges will suffice. This liquid should be colored with walnut, oak or mahogany stain according to the finish of the set. Bottles of these various stains should be kept on hand.

We



## Want BATTERY SETS

IT'S a sad tale, mates. Ten million unwired homes crying for battery sets; dealers and distributors imploring their suppliers to "please ship us farm market receivers"—and empty shelves when the prospect comes in to buy. Relief money waiting to be spent—and the set makers too busy with the city trade to organize their rural outlets or to tool up for battery set quantity production.

Receiver manufacturers from one to two months behind on deliveries. Distribution geared for the saturated wired home market but many missing cogs in the farm territory. Opportunists seizing their chance and supplying this market with unreliable sets through chain stores, catalogue houses and non-radio outlets.

These pitiable cases are now a part of 1934 history:

A prominent battery maker, who has spent over \$400,000 promoting the farm market deluged by distributors asking for battery sets. Three of the largest jobbers in the South writing that so great was the demand throughout the entire fall of 1934 they couldn't keep battery operated sets in their warehouses—and a majority of sales in the higher priced models, too.

Two hundred and seventy-five dealers signing an agreement with said battery manufacturer to exhibit a

special display promoting battery sets at county fairs and 25 per cent of these dealers unable to exhibit because they couldn't obtain sets.

At the National Corn Husking contest held in the Northwest, a special exhibit of battery sets was arranged. The state was scoured for battery sets. Less than half a dozen were obtained.

*In other words, the most fertile market for radio receivers today is being worked in a hit or miss fashion by the nationally known manufacturers while the cream is being skimmed by others. Wake up, Mr. Manufacturer, before the opportunists become so entrenched that it will be too late!*

The 1935 lines, with few exceptions, contain at least one battery operated receiver. Many of the manufacturers, and quite wisely, list two or three numbers, of which one is a high priced console. It isn't that this type of set has been overlooked by the designers. The modern battery receiver is a splendid instrument with beautiful tonal value and with low current drain. The trouble has been that the manufacturers have underproduced.

Right now is the time to correct this condition. Now is the time to build up inventories and to get behind the battery manufacturers who are developing this market.

### *Another Angle of the Battery Set Situation*

## How Shall We Answer This Dealer's Letter, Mr. Manufacturer?

We have been in radio since 1922. Have always handled a high grade set. But today, as never before, we are suffering from the onslaught of Sears Roebuck and Montgomery Ward. Seventy per cent of our sales are battery sets—and there is no way that we can find to compete with these houses. Their sets have the eye appeal and many of the features of the higher priced lines we carry. In many cases they are made by a manufacturer that makes a "standard" brand set. How can we sell against this competition?

If this situation continues the battery set business of

the manufacturers and jobbers, as well as we dealers, will soon be gone. These mail order firms are selling a receiver for \$60 while I must ask \$90 for one of similar appearance and performance. I will agree that, many times, my line is somewhat better—but there is too much difference in price.

What is the answer? What are the set makers going to do to protect the country dealer against this kind of competition?

EVERGREEN LAWN FARMS  
Stanesville, W. Va.



## In Letters 3 Feet High

—and five inches deep, this radio-electrical merchant registers his store, unmistakably, as "Refrigeration Headquarters."

They're made with wall board and painted in three colors. Total cost, time and material, \$29—"and worth it."

Incidentally, a band saw is a mighty handy tool. Your display man should have one.

SPRING'S "just around the corner." And with its coming the young (married) man's fancy will turn to thoughts of electrical refrigeration. Beat him to it! Now is the time to identify *your* store, definitely, as "Refrigeration Headquarters." The sale starts with the display sign. If well done, the bigger the better.

And then follow through—by telling the world that it's the radio sales-engineering type of dealer that has demonstrated, in three short years, his special ability and facilities to sell—and service—that naturally allied product, the electric refrigerator.

Who developed a new refrigerator? A radio manufacturer! Who first realized the food storage possibilities of the refrigerator door? Right. A radio man! And who's doing the best distribution job? Radio wholesalers! Likewise it's the radio dealer who is best equipped to do a real selling job to the consumer.

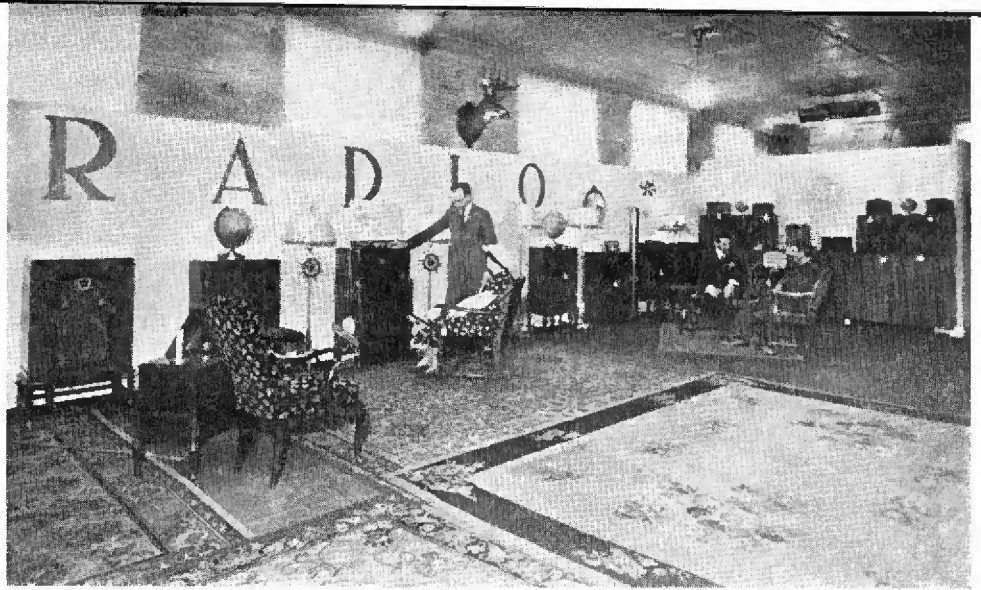
So we say, get started now! After the sign is made and placed in position and your 1935 models suitably arranged at its base, photograph this pretty scene. Then get out a circular with this picture on the front page.

The mailing list is a "natural." In addition to your radio customers, cover all the newly weds, find out who's moved to town, hire a couple of girls and make a "survey."

But the main thing is to get going. The very act of dolling up your store will start other trains of action—some of which, indirectly, will put you in touch with prospects for radio receivers. For, in your enthusiasm, don't forget your first love . . . radio.

# In the Public Eye....

Keep there by using these effective display and advertising ideas



*The large streamer identifies the radio department in a large furniture store, speeds up store traffic and also helps the appearance of the department.*



*A mirror backs up the set, provides a good-looking back-drop and at the same time permits the chassis to be examined without moving the merchandise.*

**P**ROPER display of sets within the store is an art, and, in this instance, art certainly pays. The raised pedestal idea employed by many dealers glorifies merchandise but, says dealer Fanton, of Riverside in sunny California, even this lily can be gilded.

He not only mounts sets on low platforms to bring them up to eye level but places large mirrors on the wall behind each one. The reflectors provide an excellent backdrop and permit him to point out details of chassis construction to the technically-inclined without turning the set.

Interesting window displays are always difficult to think of and often prohibitively expensive after you get the idea. Fanton solves both problems by playing ball with local people who ride hobbies. A display of model airplanes contributed by a club, for example, stopped street traffic for a full week and pleased the model builders no end. If no other benefit had resulted it was worth while to cultivate members of the club alone. Earlier this year a friend possessing a \$3,000 collection of rare firearms contributed a window and was glad to get the publicity as it put him in touch with other local collectors.

Paul G. Freed, far away in Philadelphia, found a much less elaborate window streamer quite effective. It read: "GOOD? I've got to be good! Paul Freed, member of Official Manufacturers & Philadelphia Radio Service Associations." These words were lettered on a streamer 15 inches wide by 6 feet long, plastered across the upper half of the store window. Simple enough, and yet it brought in \$38 worth of business from new customers in the first week and is still pulling. Curiously enough, it

*(Please turn to page 29)*

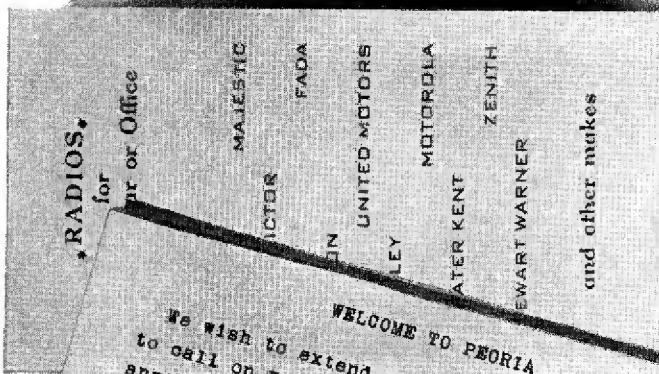
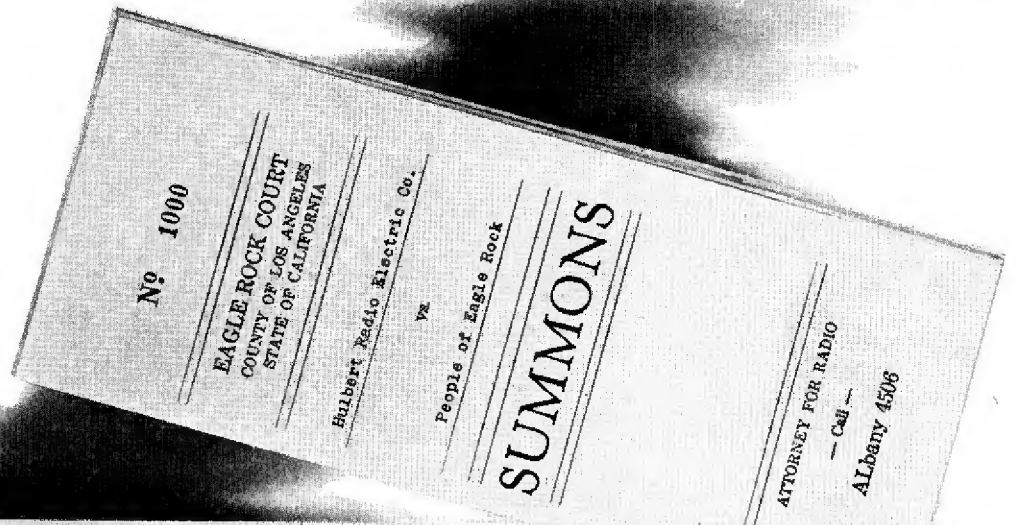


(Left) A display of model airplanes, borrowed from a local club, pleases the many club members and at the same time proves of interest to passersby.

(Right) Public-address in a trolley-car, a new idea so far as we know. The speakers atop the car attracted much attention and brought some rental inquiries.



Would you open this circular up if you received it in the mail? We'll say you would! It's a summons inviting you to see new radios and refrigerators.



(Above) Even the lowly business card can be improved. Note the use of this dealer's store photo. It can't help but impress the customer as a reliable place.

(Left) A nice touch this. And it does a job. Cost: \$20 per year. Results: \$1,000 worth of additional business over this same period.

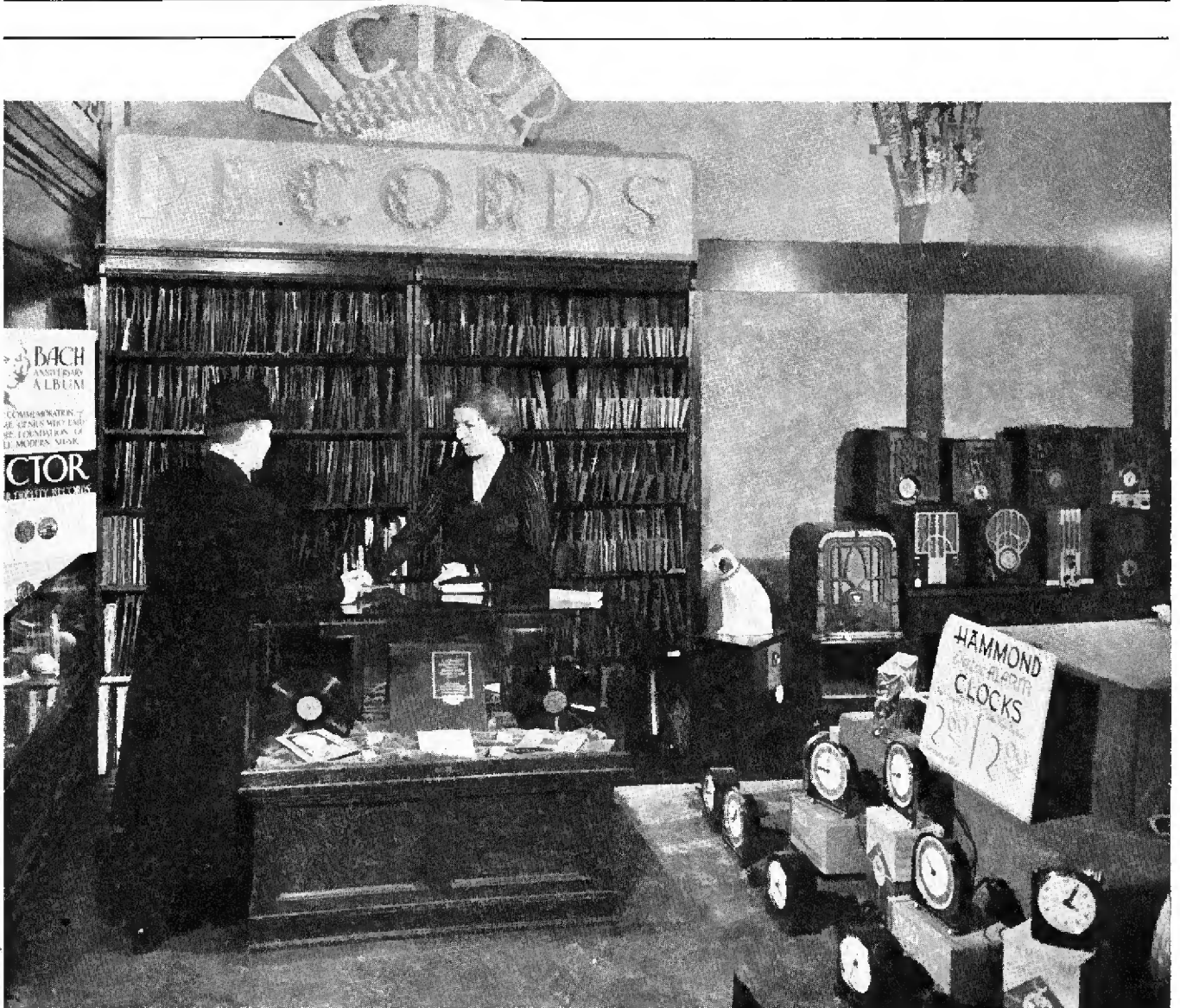
# FREQUENCY ASSIGNMENTS IN THE RADIO SPECTRUM FOR STATIONS IN THE UNITED STATES

10.05 - 56.20	56.80 - 158	159 - 355	368 - 515	549 - 1548	1550-2156	2184 - 2728	2732-3150	3155 - 3725	3730 - 4235	4240 - 4775	4780 - 5410
CLASS OF SERVICE FREQUENCY IN KILOCYCLES 30,000 Meters	CLASS OF SERVICE FREQUENCY IN KILOCYCLES 3,000 Meters	CLASS OF SERVICE FREQUENCY IN KILOCYCLES 1,500 Meters	CLASS OF SERVICE FREQUENCY IN KILOCYCLES 600 Meters S.O.S.	CLASS OF SERVICE FREQUENCY IN KILOCYCLES 500 Meters Compass	CLASS OF SERVICE FREQUENCY IN KILOCYCLES 400 Meters	CLASS OF SERVICE FREQUENCY IN KILOCYCLES 300 Meters	CLASS OF SERVICE FREQUENCY IN KILOCYCLES 200 Meters	CLASS OF SERVICE FREQUENCY IN KILOCYCLES 150 Meters	CLASS OF SERVICE FREQUENCY IN KILOCYCLES 120 Meters	CLASS OF SERVICE FREQUENCY IN KILOCYCLES 100 Meters	CLASS OF SERVICE FREQUENCY IN KILOCYCLES 75 Meters
10.05 to 17.60 Point to Point 17.60 to 18.00 Gov. 18.00 to 18.20 P-P 18.20 to 18.40 Gov. 18.40 to 19.60 P-P 19.60 to 19.80 Gov. 19.80 to 20.00 Point to Point 20.00 to 22.75 Gov. 22.75 to 23.00 P-P 23.00 to 23.25 Gov. 23.25 to 23.75 P-P 23.75 to 24.00 Gov. 24.00 to 24.25 Point to Point 24.25 to 25.90 Gov. 25.90 to 26.20 Gov. 26.20 to 26.50 Point to Point 26.50 to 28.30 Gov. 28.30 to 28.60 P-P 28.60 to 28.90 Gov. 28.90 to 30.20 P-P 30.20 to 30.60 Gov. 30.60 to 31.00 P-P 31.00 to 32.00 Gov. 32.00 to 33.00 P-P 33.00 to 33.40 Gov. 33.40 to 33.80 Gov. 33.80 to 34.20 Point to Point 34.20 to 37.80 Gov. 37.80 to 38.20 Gov. 38.20 to 38.60 Point to Point 38.60 to 42.20 Gov. 42.20 to 42.70 Gov. 42.70 to 43.20 Point to Point 43.20 to 45.70 Gov. 45.70 to 46.20 Gov. 46.20 to 53.30 Gov. 53.30 to 54.40 P-P 54.40 to 55.60 Gov. 55.60 to 56.20 Gov.	56.80 to 57.40 P-P 57.40 to 58.00 Gov. 58.00 to 58.60 Gov. 63.60 to 64.40 P-P 64.40 to 65.20 Gov. 65.20 to 66.00 Gov. 66.00 to 66.80 Gov. 66.80 to 74.00 P-P 74.00 to 75.60 Gov. 75.60 to 82.00 P-P 82.00 to 83.60 Gov. 83.60 to 93.20 P-P 93.20 to 94.80 Gov. 94.80 to 96.80 P-P 96.80 to 100 Gov. 100 to 101 Gov. 101 to 102 Gov. 102 to 103 Gov. 103 to 104 Gov. 104 to 105 Gov. 105 to 106 Gov. 106 to 107 Gov. 107 to 108 Gov. 108 to 109 Gov. 109 to 112 Gov. 112 to 113 Gov. 113 to 114 Gov. 114 to 115 Gov. 115 to 116 Gov. 116 to 119 Gov. 119 to 120 Gov. 120 to 121 Gov. 121 to 122 Gov. 122 to 123 Gov. 123 to 127 Gov. 127 to 128 Gov. 128 to 129 Gov. 129 to 131 Gov. 131 to 132 Gov. 132 to 134 Gov. 134 to 141 Gov. 141 to 142 Gov. 142 to 143 Gov. 143 to 144 Gov. 144 to 145 Gov. 145 to 151 Gov. 151 to 154 Gov. 154 to 155 Gov. 155 to 156 Gov. 156 to 158 Gov.	159 to 161 Gov. 161 to 171 Gov. 171 to 172 Gov. 172 to 173 Gov. 173 to 174 Gov. 174 to 175 Gov. 175 to 176 Gov. 176 to 179 Gov. 179 to 180 Gov. 180 to 181 Gov. 181 to 184 Gov. 184 to 185 Gov. 185 to 186 Gov. 186 to 189 Gov. 189 to 190 Gov. 190 to 191 Gov. 191 to 192 Gov. 192 to 193 Gov. 193 to 194 Gov. 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920 to 930 Gov. 930 to 940 Gov. 940 to 950 Gov. 950 to 960 Gov. 960 to 970 Gov. 970 to 980 Gov. 980 to 990 Gov. 990 to 1000 Gov. 1000 to 1010 Gov. 1010 to 1020 Gov. 1020 to 1030 Gov. 1030 to 1040 Gov. 1040 to 1050 Gov. 1050 to 1060 Gov. 1060 to 1070 Gov. 1070 to 1080 Gov. 1080 to 1090 Gov. 1090 to 1100 Gov. 1100 to 1110 Gov. 1110 to 1120 Gov. 1120 to 1130 Gov. 1130 to 1140 Gov. 1140 to 1150 Gov. 1150 to 1160 Gov. 1160 to 1170 Gov. 1170 to 1180 Gov. 1180 to 1190 Gov. 1190 to 1200 Gov. 1200 to 1210 Gov. 1210 to 1220 Gov. 1220 to 1230 Gov. 1230 to 1240 Gov. 1240 to 1250 Gov. 1250 to 1260 Gov. 1260 to 1270 Gov. 1270 to 1280 Gov. 1280 to 1290 Gov. 1290 to 1300 Gov. 1300 to 1310 Gov. 1310 to 1320 Gov. 1320 to 1330 Gov. 1330 to 1340 Gov. 1340 to 1350 Gov. 1350 to 1360 Gov. 1360 to 1370 Gov. 1370 to 1380 Gov. 1380 to 1390 Gov. 1390 to 1400 Gov. 1400 to 1410 Gov. 1410 to 1420 Gov. 1420 to 1430 Gov. 1430 to 1440 Gov. 1440 to 1450 Gov. 1450 to 1460 Gov. 1460 to 1470 Gov. 1470 to 1480 Gov. 1480 to 1490 Gov. 1490 to 1500 Gov. 1500 to 1510 Gov. 1510 to 1520 Gov. 1520 to 1530 Gov. 1530 to 1548 Gov.	1550 to 1552 Gov. 1552 to 1568 Gov. 1568 to 1570 Gov. 1570 to 1572 Gov. 1572 to 1576 Gov. 1576 to 1580 Gov. 1580 to 1588 Gov. 1588 to 1592 Gov. 1592 to 1600 Gov. 1600 to 1602 Gov. 1602 to 1604 Gov. 1604 to 1608 Gov. 1608 to 1612 Gov. 1612 to 1616 Gov. 1616 to 1620 Gov. 1620 to 1624 Gov. 1624 to 1628 Gov. 1628 to 1632 Gov. 1632 to 1636 Gov. 1636 to 1640 Gov. 1640 to 1644 Gov. 1644 to 1648 Gov. 1648 to 1652 Gov. 1652 to 1656 Gov. 1656 to 1660 Gov. 1660 to 1664 Gov. 1664 to 1668 Gov. 1668 to 1672 Gov. 1672 to 1676 Gov. 1676 to 1680 Gov. 1680 to 1684 Gov. 1684 to 1688 Gov. 1688 to 1692 Gov. 1692 to 1696 Gov. 1696 to 1700 Gov. 1700 to 1704 Gov. 1704 to 1712 Gov. 1712 to 1716 Gov. 1716 to 1720 Gov. 1720 to 1724 Gov. 1724 to 1728 Gov. 1728 to 1732 Gov. 1732 to 1736 Gov. 1736 to 1740 Gov. 1740 to 1744 Gov. 1744 to 1748 Gov. 1748 to 1752 Gov. 1752 to 1756 Gov. 1756 to 1760 Gov. 1760 to 1764 Gov. 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5500 - 6730	6235 - 7000	7300 - 8400	8410 - 9550	9560 - 12155	12255 - 13585	13990 - 16670	16640 - 20125	20140 - 23125	24075 - 26275	26280 - 40100
5500 to 5505 STG to 5515 Gov CTG 5520 STG to 5535 Gov CTG 5540 CTG to 5555 AV to 5570 Gov Av 5580 5595 AV to 5625 5635 5640 AV to 5695 5700 5715 P-P to 5720 5725 5735 5745 5750 5755 to 5840 5845 5855 5860 Gov 5865 5870 to 5920 5925 5935 5970 to 5990 5995 6000 RE to 6010 6015 RE to 6130 6135 6160 6180 Gov STG 6190 6200 Gov STG 6220 Gov STG 6230	Gov 6235 6240 6250 CTG to 6260 Gov CTG 6290 6300 CTG to 6320 Gov CTG 6330 6340 6350 Gov 6355 6360 to 6380 6385 6400 Gov 6405 CTG 6410 6420 6430 6440 Gov 6445 PR 6450 Gov CTG 6460 Gov 6465 Gov CTG 6470 Gov CTG 6480 AV 6490 Gov Av 6500 6520 AV to 6530 Gov Av 6540 6550 AV to 6590 6600 Gov 6620 Gov 6625 Gov AV 6630 Gov 6635 Gov AV 6640 Gov 6645 Gov STG 6650 Gov STG 6655 Gov STG 6660 Gov STG 6670 Gov STG 6680 Gov 6690 Gov 6700 Gov 6710 Gov 6720 Gov 6730 Gov 6740 Gov 6750 Gov 6760 Gov 6770 Gov 6780 Gov 6790 Gov 6800 Gov 6810 Gov 6820 Gov 6830 Gov 6840 Gov 6850 Gov 6860 Gov 6870 Gov 6880 Gov 6890 Gov 6900 Gov 6910 Gov 6920 Gov 6930 Gov 6940 Gov 6950 Gov 6960 Gov 6970 Gov 6980 Gov 6990 Gov 7000	Amateur to 7300 Gov 7305 P-P to 7310 P-P to 7320 Gov P-P 7330 7340 7350 Gov 7385 7390 P-P to 7450 Gov 7455 P-P Gov 7460 7470 P-P to 7490 P-P Gov 7500 7510 P-P to 7530 Gov 7535 Gov 7540 7545 7550 7560 7570 7580 7590 7600 7610 7620 7630 7640 7650 7660 7670 7680 7690 7700 7710 7720 7730 7740 7750 7760 7770 7780 7790 7800 7810 7820 7830 7840 7850 7860 7870 7880 7890 7900 9020 9030 9040 9050 9060 9070 9080 9090 9100 9110 9120 9130 9140 9150 9160 9170 9180 9190 9200 9210 9220 9230 9240 9250 9260 9270 9280 9290 9300 9310 9320 9330 9340 9350 9360 9370 9380 9390 9400 9410 9420 9430 9440 9450 9460 9470 9480 9490 9500 9510 9520 9530 9540 9550	Gov 8410 8420 8430 8440 Gov 8470 CTG to 8500 8510 Gov 8520 8530 8540 8550 8560 8570 8580 8590 8600 8610 8620 8630 8640 8650 8660 8670 8680 8690 8700 8710 8720 8730 8740 8750 8760 8770 8780 8790 8800 8810 8820 8830 8840 8850 8860 8870 8880 8890 8900 9020 9030 9040 9050 9060 9070 9080 9090 9100 9110 9120 9130 9140 9150 9160 9170 9180 9190 9200 9210 9220 9230 9240 9250 9260 9270 9280 9290 9300 9310 9320 9330 9340 9350 9360 9370 9380 9390 9400 9410 9420 9430 9440 9450 9460 9470 9480 9490 9500 9510 9520 9530 9540 9550	RE 9560 9570 9580 9590 9600 9610 9620 9630 9640 9650 9660 9670 9680 9690 9700 9710 9720 9730 9740 9750 9760 9770 9780 9790 9800 9810 9820 9830 9840 9850 9860 9870 9880 9890 9900 9910 9920 9930 9940 9950 9960 9970 9980 9990 10000 10010 10020 10030 10040 10050 10060 10070 10080 10090 10100 10110 10120 10130 10140 10150 10160 10170 10180 10190 10200 10210 10220 10230 10240 10250 10260 10270 10280 10290 10300 10310 10320 10330 10340 10350 10360 10370 10380 10390 10400 10410 10420 10430 10440 10450 10460 10470 10480 10490 10500 10510 10520 10530 10540 10550 10560 10570 10580 10590 10600 10610 10620 10630 10640 10650 10660 10670 10680 10690 10700 10710 10720 10730 10740 10750 10760 10770 10780 10790 10800 10810 10820 10830 10840 10850 10860 10870 10880 10890 10900 10910 10920 10930 10940 10950 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12870 12885 12900 2415 P-P to 13035 CTG to 13050 to 13080 13095 Gov to 13155 CTG 13170 P-P 13185 13200 STL to 13275 13290 to 13335 13350 P-P to 13375 Gov 13380 13390 13540 Gov 13545 P 13555 P 13570 Gov 13575 13585 13990 14005 to 14395 14410 38 Channels 46 Channels 20 Channels 15100 15115 15130 15145 15340 15355 to 16035 16045 16060 16075 16090 16100 16115 16130 16145 16160 16175 16190 16205 16220 16235 16250 16265 16280 16300 16315 16330 16345 16360 16375 16390 16405 16420 16440 16460 16480 16500 16520 16540 16560 16580 16600 16620	16640 16680 16700 16720 CTG to 16800 Gov 16840 to 16920 Gov 16940 CTG to 17000 17020 Gov 17040 Gov 17060 17080 to 17120 17140 17160 17180 17200 to 17280 17300 17320 17340 17440 17460 17500 17520 17540 17560 17580 17600 17680 17700 17720 17740 17760 17800 17820 18040 18060 18080 18100 18120 18300 18315 18330 18345 18360 18375 18390 18405 18420 18440 18460 18480 18500 18520 18540 18560 18580 18600 18620 19980 20000 20020 20040 20060 20080 20100 20120 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# RECORDS STAGING



## Krauss Radio Store Reopens Record Department in Response to Public Demand—Hires Experienced Clerk

SPECIAL TO "RADIO RETAILING," CINCINNATI, OHIO, FEB. 4—Responding to an increasing demand for all types of phonograph records, Morris Krauss, proprietor of the Krauss Radio Stores, this city, has added a record department to the many activities of this well known electrical appliance emporium. Miss Dorothy Doemling, who has studied music in Europe and in the United States, has been engaged to serve the recorded music require-

ments of the southern Ohio clientele. In the halcyon days of the phonograph Krauss' record counter dominated the entire left side of his store.

"Although the record department has been reopened less than seven weeks, sales have been heavier than anticipated," states Miss Doemling. "With present-day delivery and sales promotional services, which the record makers have developed, it is possible to take care of all requests for popular numbers

and the classics without maintaining an inventory of unsafe proportions."

Miss Doemling has built up a mailing list of music lovers whose sales productivity already more than covers the cost of direct-by-mail circularization. Names are obtained primarily from the published lists of those attending local concerts and from the secretaries of Cincinnati's musical organizations.

Of special interest to radio dealers is the stimulating effect which the availability of records has had on the sale of combination instruments. Miss Doemling introduces all record customers, whose phonographs are out of date, to the floor salesman on radio sets. Likewise, prospects for the better receivers are conducted to the record counter in an endeavor to interest them in the superior entertainment value of an instrument that will play the latest recordings.

# STRONG COMEBACK

## Survey of Music Stores in East Reveals 50 Per Cent Increase in Demand for Phonograph Discs

People are becoming more music-conscious. This is the majority verdict of New York state and New England dealers in phonograph records, combinations, pianos and sheet music. Disk sales have risen steadily during the past six months, say these merchants, thus confirming *Radio Retailing's* many predictions that recorded music was about to stage a strong comeback.

America's leading weekly, the *Saturday Evening Post*, wanted to know just what the public was doing for home entertainment these days. It ascertained, among other things, that record sales are up approximately 50 per cent. Here are typical statements from music dealers:

The Baumer Piano Company, New Rochelle, N. Y., reported increased sales of portable phonographs and electrical pick-ups as well as records. Said its manager: "Our record business is twice that of a year ago. Many customers prefer music of their own selection. Have been selling pianos for 28 years and have yet to see as lively a demand for both new and used as right now."

Baumer's White Plains branch reported a 75 per cent increase in record sales. Hunt's, same city, is selling twice as many records as last year. Donnell's, Rye, N. Y., observes a healthy increase in the disk business—"haven't gone after it particularly"—and is moving quite a few portables and radio-phonographs. The same tale from Weale's, Middletown, N. Y.

Fastman's, Newburg, noted a 30 per cent increase in record sales and has promoted the "Duo Junior" with profitable results. Hickok's, Poughkeepsie, reported a "decided" increase in popular records. All the preceding also report large increases in the sale of sheet music.

In Connecticut, Meade's, at Greenwich, was gratified with its better record business: "We recently sold a number of electric pick-ups and player piano rolls have begun to be in demand." Fufrer's, Stamford, say, "Sheet music sales are way ahead, so are records. . . . More customers than ever seem to select their own music for en-

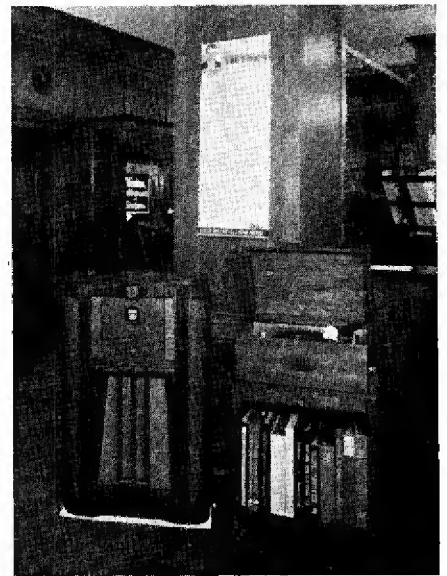
tertainment." Same sentiments from the Piquette store, Bridgeport.

Records always have sold well in college towns. The Loomis Temple of Music, New Haven, reported the sale of records, particularly of the better type, double that of last year: "We are selling numerous sets in albums at prices from \$6 up to \$20 . . . also more phonographs. In fact, 90 per cent of our sales have been combination phonographs." In Waterbury, McCoy's claimed a 100 per cent increase at its disk counter and suggested that manufacturers will have to start making more straight phonographs or inexpensive combination sets. The New England Music Shop, in the same city, is going after business from schools—and finding it worthwhile.

## Metropolitan Mid- Winter Sales Best in Seven Years

NEW YORK CITY, FEB. 5—Special survey discloses many dealers, who have done little disk business during the depression, surprised at present demand and re-stocking records. Bruno-New York, Inc., Victor jobber, reports largest record turnover in years. Phil Silverman, head of this department, states that his recent holiday business equalled that of 1929. "Many retailers did a splendid job with turn-table attachments for radio sets, making new customers for records whenever one was sold."

The recently revitalized record department at G. Schirmer, Inc., plugged this item consistently. A small ad in *The New Yorker* sold five "Duos" the next afternoon and netted \$60 worth of records to these same purchasers. "Every instrument sale eventually is equalled by orders for records to go with it," states the manager of this



Lacking a suitable factory-made model, Schirmers designed and had assembled this special a.c.-d.c. turntable and pick-up for its quality trade. It sells for \$35.

Note the manner in which floor consoles are protected from dirt and damage by placing them on a square of beaver board.

department, a well known music critic.

"As a large part of Manhattan Island uses d.c., we had to build an accessory housing a universal motor that could be used with these sets. We located the right size cabinet, installed an efficient motor and a quality pick-up. We sell the outfit for \$35, more than twice the amount asked for the a.c. attachment. We get around the troublesome converter problem by hooking one of these d.c. turn-tables to an X model d.c. Philco. This provides a combination of superior tone quality for only \$135. The new radios offer little installation difficulty and in every case where the set has a large speaker, records reproduce exceptionally well. Of course we display a number of phonograph attachments in the store; that sells the customer nine times out of ten.

"However, not every dealer is taking advantage of the opportunities for installing pick-ups. Connections to the ground and grid do the trick. Hook a few of the turn-table and pick-up attachments to sets in your store—you'll be getting on the recorded music band wagon before you know it. It's not the uphill pull you might believe," concludes Schirmer's radio and record manager.

# NEWS OF THE MONTH

## CODE OPERATING PLAN ARRANGED BY RMA WITH NRA AND NEMA COMMITTEE

### Compromise Worked Out—Petition for Independent Radio Code Withdrawn

Continued NRA operations of the radio industry under the present electrical code but with definite allocation of receiving set and other manufacturers into distinct radio and electrical groupings was arranged at the Washington conference on January 15 of NRA with code committees and the National Electrical Manufacturers Association.

No revision of the electrical code is in prospect. Therefore, the present wage and hour labor provisions, trade practices, etc., of the electrical code promise to continue indefinitely.

At this conference RMA presented and the National Recovery Administration accepted an agreement on a course of code action affecting radio manufacturers. It provides that the RMA and the radio "industry" be officially recognized by the government and by NEMA, to include manufacturers of receiving sets and a large number of parts and accessory manufacturers. These were definitely allocated under the present code supervisory agencies with Arthur T. Murray, of Springfield, Mass., for set manufacturers, and Leslie F. Muter, Chicago, for parts and accessory manufacturers, as now in effect. Provision was made also for future allocation (to the radio section) of tube and other parts manufacturers by majority vote of their respective groups.

Final agreement was not reached on the code status of manufacturers of audio and radio power transformers, long and short wave switches, public address equipment, commercial receivers, including police, aircraft, government, etc., and a number of minor parts and accessories. These will temporarily continue their present code operation subject to further negotiations between RMA and NEMA with later decision by NRA. That transmitting apparatus and microphones were properly part of the electrical industry and under NEMA jurisdiction was conceded by RMA.

An important feature of the RMA agreement, which was approved by the National Recovery Administration exempts RMA members from any code expense or assessment by the NEMA code authority. It is provided that the RMA make such payment to NEMA in a lump sum for RMA members, the amount to be mutually agreed upon between RMA and NEMA, "if and when application is made for a supplemental code."

Another important clause of the agreement declares and recognizes that "trade association functions and activities are entirely distinct and separate from code authority functions and activities."

In consideration of the partial compromise settlement recited formally, and with the definite understandings for continued operations under the electrical code, the RMA withdrew, "without prejudice to the making of a new application," its request of June 19, 1934, for exemption of radio manufacturers from the electrical code and a separate radio code. However, this will

permit RMA, if it is deemed desirable later after Congress revises the National Recovery Administration in June, to make further application for a separate radio industry code. NRA officials asked when a supplemental radio trade practice code, under the basic electrical code, might be submitted, but Chairman Sparks and the RMA Committee could give no definite opinion at present.

### RMB to Sponsor Public Show

Substantial progress on the national radio promotion project of the RMA was reported to its board of directors, at a meeting January 10 at Chicago, by Powel Crosley, Jr., chairman of the trade promotion committee. The board provided for further development of this project and considered important radio and other industrial legislation expected in the new Congress and forty-four State Legislatures now convening.

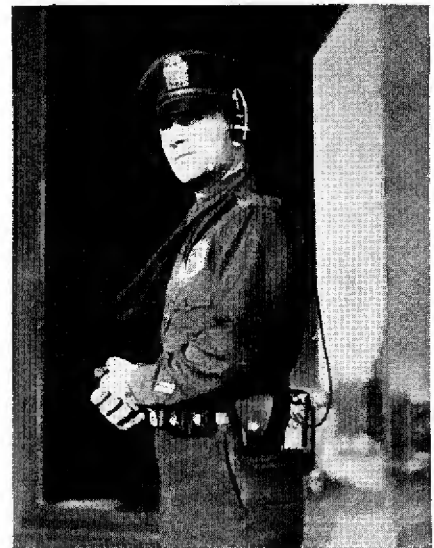
In its future plans, the RMA decided to include sponsorship of a radio public show next October in Chicago. To the trade promotion committee, was added E. F. McDonald, Jr., Chicago; George A. Scoville, Rochester, N. Y.; and N. P. Bloom, Louisville, Ky., to assist chairman Crosley.

### Radio Institute of the Audible Arts Inaugurated

To stimulate a wider and more active appreciation of good radio programs, the Radio Institute of the Audible Arts has been founded by Philco. It is hoped to cultivate a broader appreciation of the audible arts and generally to advance from a broad social standpoint the effective utilization of the radio today. The Institute will attempt to stimulate public recognition and appreciation of the best in radio thus creating a wider demand for good music, news broadcasts, etc., and encouraging the public to reap the fullest benefits from existing broadcasting.

Literature will be distributed and special articles and talks will be prepared to be used as the basis of lectures and discussions.

Readers interested in receiving these very helpful and interesting manuals are referred to the "Dealer Help" page in this issue.



### Soup's On, Come Home!

The attention of police departments throughout the United States is focused on the new individual portable radio equipment recently put into use by the police of Los Angeles, California.

These tiny one-tube (National Union) sets are strapped on to a specially designed Sam Browne belt which carries an aerial sewed into the shoulder strap. An earphone is attached to the policeman's hat and he is, by means of this remarkable invention, in constant contact with the central station through shortwave.

### Excise Taxes Up

Large increase in radio sales during the final quarter of 1934 are reflected in official government reports of radio excise tax collections. Such collections during November, 1934, were \$462,638, an increase of 87.7 per cent over the taxes of \$246,526 collected in November, 1933.

For the first eleven months of 1934 the total excise taxes were \$2,952,000, an increase for the eleven months of about \$300,000 over the entire excise taxes of the whole calendar year of 1933. December sales and taxes have been uniformly larger, indicating the excellent business enjoyed by the radio industry during the past year.

### J. N. Cole Wins Freed Prize

A Weston tube checker recently was awarded J. N. Cole, Rutherford, Tenn., by the Freed Radio Company, of Philadelphia. Mr. Cole submitted the winning answer to the Freed contest question: "Why is it impossible for a reliable radio service man to be successful in the service business, if he does not use a Chuckker to eliminate guess-work in what is wrong and what to charge?"

## Crosley Jobbers Prepare for Record Year of Refrigeration Sales

### View 1935 Line of Radio Receivers

A full quota of distributors from the entire United States met in Cincinnati Jan. 4 to view the 1935 Crosley radios and Shelvador electric refrigerators, and to take back with them the merchandising and advertising program for the new year. All look for substantial increases in sales. An almost sensational comeback was reported in the farming regions by jobbers from the cotton, fruit and grain-growing states.

In his address to the distributors, Powel Crosley, Jr., pointed to the fact that there was an improvement in various lines of industry in 1934 ranging from 5 to 40 per cent, a gain of about 16 per cent in retail sales and an increase in the incomes of farmers estimated from one to one and a half billion dollars.

The meeting was held in Studio A of WLW, owned and operated by the Crosley Radio Corporation. The distributors were taken on a tour through the plant and shown the additions and changes which have just been completed, doubling the manufacturing capacity to 2,000 refrigerators a day.

Officials stated that the production of Crosley refrigerators in 1934 was the largest in the company's history and its production of radios the greatest since 1928, the record year in radio.

Fourteen Crosley distributors were awarded especially designed bronze plaques for establishing outstanding sales records in their districts during the window display contest which was held during August and September.

Orders for refrigerators were three times as great as those placed at the meeting held a year ago, Howard E. Richardson, assistant to Mr. Crosley, announced.

"These orders were accompanied by definite shipping schedules commencing immediately," Mr. Richardson said. "Our production program for 1935 calls for 300,000 Shelvador refrigerators."



### "Step On It, Kid!"

*Here's a new method of installing an auto-radio. The speaker is placed in the floor of the rear part of the body and the tuning control is set in the arm of the seat. Better quality is claimed as well as convenience. Sheet metal cover is placed over unit under the floor boards to keep it dry. Water heater appears to left of radio.*

### Two New Crosley Dealers in Miami

The Burdines Department Store, Miami, largest in Florida, is now carrying the Crosley line, having been appointed by the Consolidated Automotive Co. of Jacksonville. Consolidated also named the Red Cross Department Store, Miami.

A third new dealer for Crosley is located in Ruston, La.—the R. C. Lyons Store, appointed by the Lee Hardware Co.

### Harold Walton With Flechtheim

A. M. Flechtheim & Co., Inc., announces the appointment of Harold E. Walton, of Saginaw, Mich., as representative for all Flechtheim products, in the state of Michigan. Mr. Walton has been associated with the radio industry for many years.

### Candid Camera Covers Crosley Convention



*"Shake and be friends," says C. S. Tay (center) manager of the Crosley Distributing Corp., Chicago, to Howard Richardson, Crosley sales mogul, and Herb Hieb, Des Moines leading jobber. Herb is a handsome guy. Too bad his head is turned away.*



*Back to the wall, but full of fight, meet Jimmie Beckman, new Director of Public Relations for Crosley. "Your announcer (center) is W. B. McKenzie, of the Power City Radio Co. Sioux Falls. The thoughtful gentleman is Jack Brindley, La Crosse, Wis.*

## Public Prefers Sets Under \$20 or Over \$50, Zenith Jobbers Report

### Laud New Models at Convention

Demand for radio receivers has swung to the two extremes of present price ranges, during the last four months of 1934, according to the majority opinion of the 80 Zenith distributors, in conference at Chicago last month. Sets under \$20 or over \$50 sold best, they said. This would indicate that the public now clearly realizes the relation of price to performance, and that is buying either for "utility" purposes or for tonal value.

Significant was the warm reception accorded Zenith's \$750, 25-tube "Stratosphere" model, opinion being that there is developing a sizable market for such an instrument.

The convention was in charge of E. A. Tracey, sales manager. Mr. Tracey stated that Zenith sales had been remarkably well sustained during 1934.

Instructive talks were delivered by president McDonald, by Parker H. Erickson, advertising manager and by C. T. McKelvy, assistant sales manager. The latter speaker presented a practical "step-up" sales plan which was enthusiastically received.

## Aerovox President Endorses Moderate Lists and Discounts

That the service man and set builder fares better under a policy of moderate list prices and normal trade discounts, as against higher list prices and abnormal trade discounts, is the observation of S. I. Cole, president of the Aerovox Corporation.

"Today radio list prices generally stand for something pretty definite," states Mr. Cole. "The radio trade has, during the past few years of hard sledding, learned that great fundamental of business, namely, that one must make a fair profit to remain in business. Also, the buyer today, while interested in quality, is naturally price minded as well, so that list prices and discounts must also be right.

"For the good of the business generally reasonable list prices and normal discounts is the best practice today, and that is our policy," concludes Mr. Cole.

### Maxwell Wins Bond Prize

The Maxwell Hardware Co., Berkeley, Calif., wins the first prize of \$100 offered by the Bond Electric Corp., in its recent window display contest. The windows were supposed to tie in with Bond's broadcasting program. "The Treasure Adventures of Donald Alger." One of the judges was Howard W. Mateer, manager of *Radio Retailing*.

THE GRAYBAR ELECTRIC CO., has been appointed distributor for CROSLLEY radios and refrigerators for the Philadelphia trading territory. A. L. Halstrom is manager and George F. Bertke, merchandise manager for the Atlantic district.

## FADA'S HAT IS IN THE RING—NEW OWNERSHIP, POLICIES, MERCHANDISE

**J. M. Marks Appoints Louis Chatten as Sales Manager—Move into New Plant in Long Island City**

The many loyal friends of the Fada Radio & Electric Company, Long Island City, N. Y., are receiving with enthusiasm the welcome news that this old and well-known set manufacturer is out for national distribution under sound and aggressive policies and captained by a new, able and experienced managerial organization. Outstanding among Fada's policy, as outlined to *Radio Retailing's* representative by general manager J. M. Marks, is the firm decision to appoint only dependable radio distributors and dealers and to limit the number of these appointments in order that each Fada representative may receive the territorial protection to which he is entitled.

Louis J. Chatten, whose knowledge of the Fada traditions and of radio salesmanship and of radio dealers' requirements is based on many years' experience with this organization, will head the sales department. At present "Lou" is away on one of his many personal tours appointing new distributors and investigating field conditions first hand.

Fada now is established in its new and efficient quarters in Long Island City, N. Y., where facilities for filling quantity demands are more than ample. Engineer-



J. M. Marks

ing, laboratory and line production equipment is brand new and modern in every respect.

"There will be no compromise with quality," states Mr. Marks.

### Franklin Heads Own Company

Albert W. Franklin, who will be remembered as former vice-president in charge of engineering and production for the Freshman Radio Corp., is back in radio as president of his own company, the Albert W. Franklin Manufacturing Corporation. This concern will maintain a plant and office at 137 Varick St., New York City.

Mr. Franklin's new company will manufacture radio and electrical parts for the domestic and foreign trade. Most of the items offered will be designed by Mr. Franklin personally.

### Carolina Dealers Hold Rally

Approximately 500 dealers and salesmen from the Carolinas attended a meeting held in Charlotte January 10 by A. K. Sutton, Inc., distributor for Philco.

Plans for a vigorous selling campaign in the Carolinas were outlined. Dick Hargis, sales promotion manager for Sutton, told of plans for placing the new line before the public. "Your Business and Ours," was discussed by G. O. Fulenwider, vice-president of the Sutton Company.

### Sparton Returns to Air Feb. 10

Sparton returns to the air on Sunday, Feb. 10, with an enlarged program, the time being extended to a half-hour broadcast starting at 4 P.M.

Jolly Coburn and his orchestra, who play in the world's highest dining and

dancing rendezvous, the Rainbow Room on the 65th floor of Radio City, will again be featured in these Sunday programs.

In addition to the Triolians and a group of specialty artists, the new broadcast will feature the Sparton Embassy choir, a group of mixed voices capable of rarely beautiful singing.

### Meissner Advances L. C. McCarthy

George V. Rockey, sales manager of the Meissner Mfg. Co., 2815 W. 19th St., Chicago, Ill., announces the appointment of L. C. McCarthy as sales manager of their newly created jobbing division. Meissner has supplied IF transformers, coils, trimmers, etc., to radio manufacturers for many years and are now entering the replacement end of this business with a new line of replacement items for dealers and service men.

### Facsimile Progress

Facsimile experiments have reached the point where organized development is being undertaken by the RMA Engineering Division. A special committee on facsimile, headed by E. W. Engstrom of Camden, N. J., has been organized.

The romantic appeal as well as the service aspects of facsimile are both being considered by the RMA engineers in directing scientific progress toward eventual development of a practicable facsimile broadcasting system. The drum type of facsimile apparatus is now in use but eventual development of a continuous type of recorder, taking its paper from a feed roll, is regarded as the ultimate practical solution for broadcast facsimile recording. Higher speed also is an engineering goal.

## 2,300 Servicemen Guests of Wholesale Radio Service

The largest audience of radio servicemen, engineers and amateurs ever assembled reported at the Hotel Pennsylvania, New York, Jan. 21, for an educational meeting sponsored jointly by Wholesale Radio Service Co. Inc., and RCA Manufacturing Co. Over 2,300 people, by actual count, jammed the grand ballroom and balconies to overflow capacity. An unusual array of technical talent kept the audience interested until midnight.

John F. Rider, well known service manual publisher, was master of ceremonies. Before introducing the speakers, he remarked that radio servicing was rapidly developing into radio engineering and that he was glad to see such a large gathering of servicemen interested in learning more about technical advances in the field.

Speakers of the evening were E. M. Hartley, service manager of the RCA Mfg. Co. and C. C. Aiken, also of RCA, who described the new cathode ray oscillograph. The highlight was a spectacular demonstration by Dr. Irving Wolff of his newly developed 9 cm. radio beam transmitter.

### Prize Winner

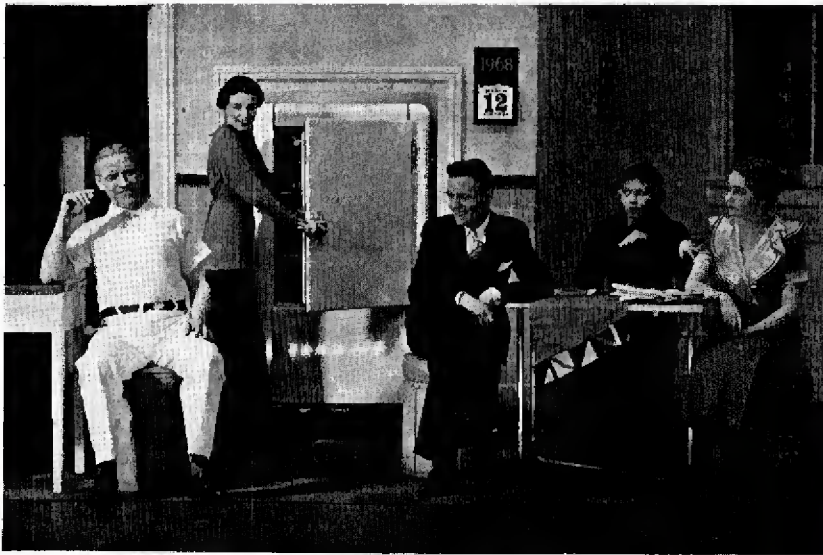
*George C. Beck, independent service extraordinary, the lucky winner of the door prize—an \$85 RCA cathode ray oscillograph tester.*



*As another step in its program of aggressive expansion of distribution facilities, STEWART-WARNER announces the appointment of PHILADELPHIA DISTRIBUTORS, INC. to handle its radio and refrigerator lines. Harry Ellis is president and Albert Hughes vice-president, of this well-known and long established Quaker City firm.*

HYMAN READER, the California jeweler who entered refrigeration three years ago and made an outstanding record selling CROSLLEY Shelvadors in his jewelry store at Taft, California, has been appointed distributor for Crosley radios and refrigerators for Houston and surrounding territory. Mr. Reader's retail store will continue in business as before.

*The World Radio Company, with headquarters in Boston, operating thirty-three stores in New England, has taken on Crosley Shelvador electric refrigerators and will sell them through all of its outlets.*



### The Freedom of the Shes

Off to an earlier start than usual this year, the refrigerator manufacturers are developing many novel sales promotion ideas. Norge, for example, is firing an opening barrage in mass selling which promises to be a pace maker. This will be accomplished through a 57 city showing of a rollicking comedy, "The Freedom of the Shes." The underlying

theme is the new revolution in home life brought about by modern electric appliances. The five acts, designed primarily for presentation to dealers, winds up in a surprise closing laid in the year 1968 in which Norge products continue to deliver life-lasting values.

Two troupes, in special Pullmans carrying casts of Broadway start, orches-

tra, stage hands and a complete stage setup, are making the tour.

Norge is introducing a new line of kitchen ranges, both gas and electric, along entirely new style lines. This action was influenced by disclosures from its recent interviews with 23,000 home makers to the effect that 27% intended to buy a new kitchen range in 1935. Radio dealers and jobbers are beginning to give this new appliance item serious consideration. Among the most recent converts is Charles Naddy, well known Columbus, Ohio, retailer and jobber, who has decided to give kitchen ranges an energetic try-out this spring.

### Peirce-Phelps to Handle Grunow

Exclusive distributorship of Grunow products has been granted to Peirce-Phelps, Inc., large Philadelphia firm, by the General Household Utilities Co. This appointment renews a direct relationship between William C. Grunow and his associates and Peirce-Phelps which started originally in the earliest days of radio. This Philadelphia firm's first connection with Mr. Grunow was as a distributor of "Majestic" A and B eliminators.

NATIONAL ELECTRIC SUPPLY Company of Washington, D. C., announces its appointment as distributors of NATIONAL UNION radio tubes and allied National Union products.

## In the Public Eye *(Continued from page 21)*

has induced many customers to bring their sets right to the shop for repair.

Still another dealer, Bert Blass, of Mitchell Furniture, Poughkeepsie, N. Y., uses a streamer—but within the store, rather than outside. He has long had trouble identifying the radio department at Mitchell's—house-furnishings take up so much space that a small department is lost. A long cloth streamer tacked to the wall the whole length of the department and carrying the single word "Radio" has helped speed up store traffic and is decorative too.

Outdoor advertising is carried one step further by the Maine Radio Company of Portland. In this case a community chest campaign rather than the store was advertised but inasmuch as the company's public address equipment was used it resulted in several inquiries for rental of similar systems. A 26-watt amplifier was installed within a street car loaned the campaign manager by the local transit company. Two direction speakers were mounted on top of the car and it operated throughout the business district.

### Direct Mail Methods

Direct mail advertising is an equally important part of the retail business in which we are engaged and the trick seems to be something novel and new enough to attract attention. Routine circulars have just about worn out their usefulness.

Hulbert Radio Electric, Eagle Rock, California, found the answer in a throw-around with a title page identically like that of a court summons. Needless to say everybody who got one at least opened it up to see what was inside. It turned out to be simply a summons to see new radios

and refrigerators. Readers were prevented from throwing the circulars away by numbering each one and announcing within the folder an attendance award based on the presentation of the summonses bearing the proper numbers.

The name of the court (see illustration) is fictitious, there being no such court. Five thousand summonses were distributed and, believe it or not, 3,000 people came to the store to register them. A "one-shot" idea, of course, but a good one if it has never been done in your town.

Jay's Radio Service, of Peoria, Illinois, employs a somewhat better known direct-mail expedient. But there are many dealers who have not yet tried it. Jay's mails a penny-postcard to each person who moves into town, within three days after arrival. It is simply a welcome and an invitation to look over the shop's excellent display of merchandise and take advantage of its service facilities.

According to I. M. Jacobson, of Jay of Jay's, many people who have just come to town require antenna installations and find that transportation jostling has damaged their set. They are not acquainted with the city and must rely on the classified directory when trying to locate reliable merchants to make repairs. He states that approximately 150 cards a month or 1,800 a year are mailed at a total cost of \$20. Business obtained as a direct result is estimated at \$1,000 annually.

Manager A. Nazareth, Radio Center, Los Angeles, does tricks with an ordinary business card. He uses a folded card and prints the picture of his building on the inner fold, contending that the impressiveness of the building builds confidence in the minds of customers.

The cards are used by salesmen, on their calls, and are frequently mailed out as advertising folders, being complete in themselves.

# NEW MERCHANDISE



American Bosch Model 470U

## New American Bosch Models

An advanced spring line of "Round-the-World radio for 1935" is announced by United American Bosch Corp., Springfield, Mass.

The new line introduces several features which are designed to create greater buying interest. Notable among these is area tuning employed in Models 470U console and 470G console (7 tubes, 540-20,000 kc.) The need for reference to charts, maps and other data is eliminated by area tuning, which takes advantage of the fact that the principal short wave stations are grouped close together in certain areas on the dial. On the tuning scale each of these areas is identified with letters from A to H, and beneath the tuning scale the areas in which programs for each country can be found are indicated by letters.

Another feature found in Model 480D (10 tube, 540-22,500 kc.) is a special sensitivity control and between stations noise eliminator. This adjustable control enables the owner to "individualize" his set to his



American Bosch Model 470G

own taste and to local conditions. Right angle tuning.

A novel and attractive tuning device in the form of a calibrated and illuminated compass dial is found in Models 450L and 450H (6 tubes; 540-1,750, 2,000-2,600, 5,800-18,000 kc.)

Model 430J is a 5 tube console and 430T is a console set, each covering 540-1,750, 2,000-2,600, 5,800-18,000 kc.

Model 420 is a portable 5 tube set for a.c. Range 540-3,600 kc. For a.c.-d.c. operation and with the extra 2,000-2,600 kc. band, it is known as Model 402.

Model 376N is a 5 tube, plus current control tube, superhet battery console. Range 540-1,600 kc. In console cabinet, the model number is 376BT.—*Radio Retailing*, February, 1935.

## Wilcox-Gay Battery Model 5A6-75

A six tube, 2 volt table style battery radio, Model 5A6-75, is now ready at the factory of the Wilcox-Gay Corp., Charlotte, Mich. It has full vision airplane dial, a.v.c., eight tuned circuits and is equipped with a 6½ in. special magnetic speaker.

The six volt cable is arranged for use on any desired battery combination and the battery requirements are 135 volts for "B," 22½ volts for "C" and a two volt "A" battery. The current consumption is low, the "A" battery drain being 460 mills and the "B," 23 mills, the announcement states.

The tube complement consists of a 1A6, 2-34's, 2-30's and a 33. \$39.90.

The same chassis in an attractive full sized console is \$49.90.—*Radio Retailing*, February, 1935.



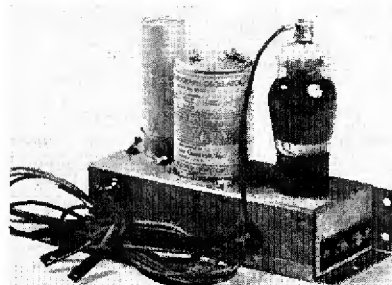
Wilcox Gay Model 5A6-75

## RCA Phonograph Oscillator

The RK-24 phonograph oscillator of the RCA Mfg. Co. Inc., Camden, N. J., is a small broadcast band oscillator unit designed for use with radio sets of all types and kinds. In addition it may also be used for attaching any type of magnetic pick-up to any receiver with slight modifications.

The primary purpose is to insure proper phonograph reproduction, avoiding the necessity of any circuit changes. Suitable leads with special contacts are provided for obtaining filament and plate power for the oscillator unit so that internal wiring to the chassis is not necessary. May be used with sets having either the 2.5 or 6.3 volt tubes.

The RK-24 is actually a miniature transmitting station, modulated with the output of the phonograph pick-up. \$7.75, less tubes.—*Radio Retailing*, February, 1935.



Stromberg-Carlson Model 60M

## Stromberg Carlson Model 60-M

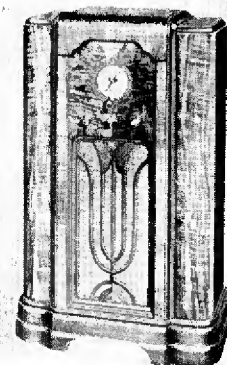
A fifth member of the "Sixty" series is announced by the Stromberg-Carlson Tel. Mfg. Co., Rochester, N. Y.—a shortwave console to be known as Model 60-M.

It is a gracefully designed six-legged console. Covers 540-1,750 and 5,500-15,500 kc. Price, \$115.—*Radio Retailing*, February, 1935.

## G.E. Model M-42

A neat table model has just been announced by the General Electric Co., Bridgeport, Conn. The cabinet is distinctly modern, finished in two-toned hand rubbed walnut.

The circuit is a four-tube superheterodyne and the speaker is of the 6-in. size. Two reception bands are provided—540 to 1,500 kc. and 1,600 to 3,500 kc. This set supercedes Model K-43.—*Radio Retailing*, February, 1935.



Crosley "Centurion"

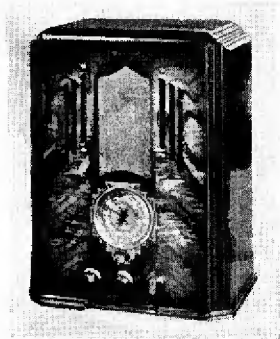
## "Crosley Centurion"

The de luxe field has been entered by the Crosley Radio Corp., Cincinnati, Ohio, with a new all-wave radio to be sold for \$100 in the lowboy style and \$79.50 for the table model. This 10-tube superbet is called the "Centurion."

Both models have five tuning bands which take in all the broadcast waves—American, foreign, police, amateur, aviation and weather. Have band spread pointer, illuminated airplane type dial and full floating moving coil electro-dynamic speaker.—*Radio Retailing*, February, 1935.

*Radio Retailing*, February, 1935





Zenith Model 908

## Zenith 1935 Radio

Eight new sets have just been brought out by the Zenith Radio Corp., 3620 Iron St., Chicago.

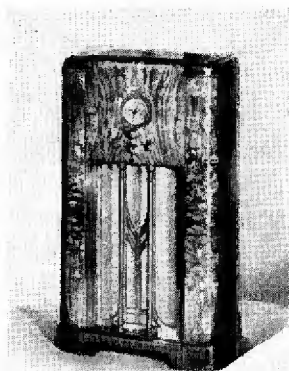
With five tube chassis (6A7, 6D6, 75, 42, 80) there are Models 950 and 945. Model 950 is a floor type console with 10-in. speaker.

Model 945, same tube line up and tuning range, is a lowboy.

With the six tube chassis (2-6D6, 6A7, 75, 42, 80) there are three models: Model 908 is a table set of the upright type, 18½x14½ in. Model 960 is a 6-legged console with satin piano finish. Model 961 is a floor console with tilted instrument panel of V-matched woods.

With the twelve tube chassis (3-6D6, 6A7, 5-76, 2-42, 5Z3) there are: Model 930, a floor type modernistic console with 12-in. speaker. This also has shadowgraph and split-second tuning. Models 985 and 990 also are floor type consoles designed along modernistic lines. These sets have two speakers—a 12 in. dynamic and a 6-in. high frequency—dimensional tone.

The five tube sets cover 535-1,520, 1,460-4,550, 5,800-18,500 kc.; six tube models, 537-1,520, 1,490-4,450, 5,400-15,800 kc. The 12 tube radios, 535-1,520, 1,450-4,300, 4,100-10-550, 9,000-23,500, 18,000-46,000 kc.—*Radio Retailing*, February, 1935.



Zenith Model 980

## ICA Threaded Coil Forms

A threaded coil form made of Insulex, (a specially impregnated molded ceramic of low dielectric loss) suitable for amateur transmitting purposes, has been brought out by the Insuline Corp. of America, 25 Park Place, New York. The form is 2½ in. in diameter and 5 in. long and accommodates 25 turns of any size wire up to No. 10 with a spacing between centers of 1¼ in. This new form is especially suited for 20, 40 and 80 meter oscillator or amplifier tank coils. Amateurs will find it convenient for both fixed and experimental outfits. Without supporting legs, \$1.50; with legs and hardware, \$2.

Insuline is also making shielded "handle type" plug-in coils which fit on the front panel. Supplied in sets of four to cover the entire shortwave range from 16-217 meters. Two and three winding types are made. Blank forms are also listed for experimenters. Ready wound coils are \$6.50 a set; blank coils are 95c and the shielded receptacles are 65c.—*Radio Retailing*, February, 1935.

## Clarion Receivers

Eight new Clarion receivers for 1935 are announced by the Transformer Corp. of America, 100 Sixth Ave., New York City. Model TC-38 is a 6-tube a.c.-d.c. table set, tuning from 13 to 2,000 meters in five distinct bands.

Model TC-47 is a 7-tube console covering the popular 18-53 meter channel in addition to the 190-540 meter band. Combination models with phonograph equipment are available. In a mantel cabinet as Model TC-39.

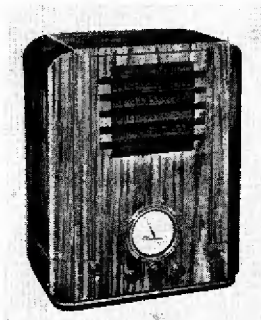
Model TC-37 is an 8-tube a.c.-d.c. mantel type set with full 13-2,000 meter coverage.

Model TC-36 is an ultra-modern 6-tube a.c.-d.c. set in a table style cabinet. Tunes from 17.5 to 53 and 190 to 560 meters.

Model TC-35 covers the same tuning range but is a 5-tube model for a.c. only.

Model TC-53 is a 9-tube all-wave set in a modernistic table cabinet. Tunes from 12 to 560 meters in four ranges. Phonograph jack provided. A model with European 850-2,000 meter band included is also available.

Model TC-59 is a 5-tube a.c.-d.c. in a compact cabinet. Tuning range, 500-1,575 kc. A model covering the 190-2,000 meter European band is obtainable on order.—*Radio Retailing*, February, 1935.



Clarion Model TC55

## Crosley Refrigerators

Every refrigerator in the line of the Crosley Radio Corp., Cincinnati, Ohio, has the "Shelvador" including the two new "table" models.

These new table models are especially suited for small homes and apartments or as a second refrigerator. They have a porcelain table top which makes them useful as a table as well as a refrigerator.

The small model FR-20 has 2 cu.ft. net capacity and 5.2 sq.ft. shelf space. There are two ice trays. The other model, FR-30, has 7 sq.ft. of shelf space and two ice trays.

In the regulation models there are four "Shelvadors," ranging in sizes from 8.6



sq.ft. of shelf space with two ice trays to 14.9 sq.ft. and four ice trays.

In the "Tri-Shelvador" models, in addition to the Shelvador there are a Shelvatory, Shelvabasket, Storabin and many other features. The smallest has 9.15 sq.ft. of shelf space and 2 trays and the largest has 14.9 sq.ft. and 4 trays.

These new refrigerators are streamlined in snow-white and jet black with chromium hardware.—*Radio Retailing*, February, 1935.



## Sparton Refrigerators

Six improved models featuring 7-point economy and new innovations were shown to Sparton distributors at the recent convention of the Sparks-Withington Co., Jackson, Mich. Among the new features is a "Baskador," a wire rack permanently fastened to the inside of the door. With this, as an integral part, is the new "Handishelf" which can be pulled down and used for convenient handling of foods.

Another feature is the "Vegabin," a roomy compartment at the base of the cabinet for storing vegetables and other bulky materials.

These refrigerators have the anti-frost electric clock, exclusive with Sparton. A positive ice tray lever allows the trays to be released easily from the freezing compartment. Interiors are automatically lighted.

The complete line of Sparton refrigerators range in size from 4.6 cu.ft. to 9 cu.ft. and the prices run from \$119.50 to \$296.00 f.o.b. factory.—*Radio Retailing*, February, 1935.



## "Coin-A-Day" Electric Clock

There's a new "coin-a-day" electric clock on the market which won't let the customer forget to insert the coin because every 24 hours, according to the time set, a constant buzzing reminds him that it's time to make the daily deposit. The 25c pieces fall into a box, the key to which is retained by the dealer. The box is removable so that it is not necessary to bring the entire clock to the store. Four quarters may be inserted at one time, if desired.

The clock itself is modern in design and well made and stands on a three-tiered black base.

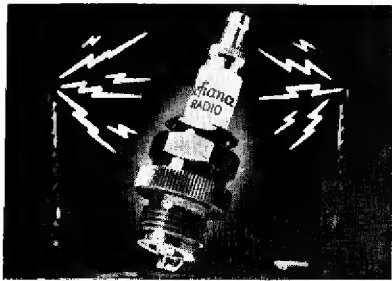
With removable coin box the price is \$3.95. With built-in coin box, \$3.25.

Obtainable from Coin-A-Day, Inc., Schofield Bldg., Cleveland, Ohio.—*Radio Retailing*, February, 1935.

## Cathode Ray Oscillograph

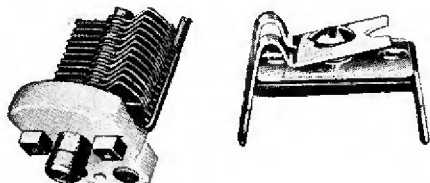
Type CR-1 cathode ray oscillograph (with 60 cycle and linear sweep circuits) of the United Sound Engineering Co., 2233 University Ave., St. Paul, Minn., operates from 110 to 220 volts, a.c. 60 cycles. The many and varied uses of this type of instrument make it almost indispensable to engineers, service men, experimenters, etc. \$77.00. Type CR-2, without linear sweep circuit, is \$29.

United Sound also makes a single unit a.c. pre-amplifier for velocity, dynamic and crystal microphones, \$87.50 and \$97.50; two amplifiers, one listing at \$16.60 and the other at \$42.40; a portable amplifier in two models, \$83.50 and \$85 and a "Handicall" system listing at \$37.00.—*Radio Retailing*, February, 1935.



### Defiance Radio Spark Plugs

After three years of research, Defiance Spark Plugs, Inc., Toledo, Ohio, is marketing a revolutionary radio spark plug which eliminates radio interference at its source without the use of a suppressor. In addition to a positive electrical connection, several additional engineering improvements have been incorporated. There are no springs or pressure contacts subject to corrosion and causing high resistance. Low resistor value with correct electrical characteristics eliminates fouling of spark plugs. Scientific design removes the necessity of very close gaps, which means fewer gap adjustments and thus assures better idling.—*Radio Retailing*, February, 1935.



### Hammarlund Condensers and Transformers

An unusually interesting midget equalizing condenser has just been developed by the Hammarlund Mfg. Co., 424 W. 33rd St., New York City. It is so light in weight that it is self-supporting, in the wiring of any circuit.

Hammarlund has also developed a true midget, space saving, Isolantite base, air padding and tuning condenser. The largest of the type, 100 mmf., measures only  $1\frac{1}{2} \times \frac{1}{2} \times \frac{1}{2}$  in. It is ideal for short wave or ultra-short wave work or for tuning i.f. transformers, trimming r.f. coils, and gang condensers, antenna tuning, etc.

The new midget i.f. transformers this company is putting out are useful not only as original equipment but for replacement purposes in midget sets or automobile radios, or where the saving of space is an important factor. They are of the tuned grid, tuned plate type, with lattice wound coils impregnated to prevent moisture effects. They are made in the 465 and 175 k.c. style.—*Radio Retailing*, February, 1935.

### Cable Plugs and Plug Connections

A line of cable plugs in all sizes from 5 to 7 prongs is announced by the American Phenolic Corp., 500 So. Throop St., Chicago. The base is molded bakelite and the cap is drawn of steel with a self-locking catch so that it will snap into place with little effort.

For use with these plugs are connec-



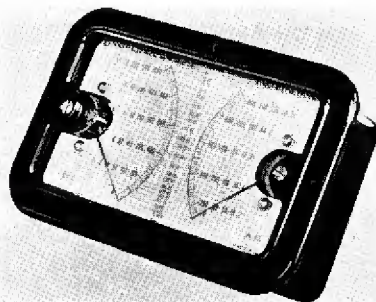
tors. They are drawn steel shells which slip over the cable and screw together so that there is no danger of the plugs pulling apart.

Adapted for auto radio, microphone connections, p.a. installations and wherever a semi-permanent dependable connection must be made.—*Radio Retailing*, February, 1935.

### Triplett Volt-Ohm-Milliammeter in Kit Form

The No. 1200 volt-ohm-milliammeter of the Triplett Electrical Instrument Co., Bluffton, Ohio, is now available in kit form and is designed for use with built-in shop equipment.

It is identically the same as the Master Model except that it does not have the panel, the adjustable feature on the meter, the batteries or case—but does have index marking. Furnished complete with all shunts, resistors, condensers, coils, drilling template, blueprints and instructions.—*Radio Retailing*, February, 1935.



### Lafayette Short-Wave Converter

The new Lafayette short-wave converter of the Wholesale Radio Service Co., Inc., 100 Sixth Ave., New York City, covers from 200 meters down to 13, is self powered and has adjustable i.f. coupling stage between mixer tube and receiver input for selectivity and proper matching.

Four tubes are used. Four pairs of fixed coils, with suitable trimmer condensers are controlled by a five-position switch giving comfortably spread out bands as follows: 1.5 to 3.2 mc., 3 to 6.8 mc., 5.7 to 12.5 mc., and 11.5 to 25 mc. In the fifth position the switch connects the aerial directly to the broadcast receiver.

The complete converter measures 10x7x7 1/2 in.—*Radio Retailing*, February, 1935.

### Continental Suppressor

A new distributor suppressor, Type T-13, may be obtained from the Continental Carbon, Inc., 13900 Lorain Ave., Cleveland, Ohio. In place of the older rating of 15,000 ohms the type T-13 has a standard resistance of 10,000 ohms.

A spring insert, molded into the bakelite housing of the suppressor, fits  $\frac{1}{4}$  in. below the top of the distributor well to minimize high tension leakage. The insert is easily adjusted with a pair of pliers to fit any hole and with any desired spring tension.—*Radio Retailing*, February, 1935.

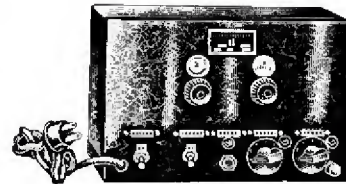


### Meissner Replacement Coils

A complete line of exact Majestic replacement coils—antenna, r.f., oscillator, and intermediate frequency—may be obtained from the Meissner Mfg. Co., 2815 W. 19th St., Chicago. These coils are absolutely exact in mechanical dimensions, as well as electrical specifications.—*Radio Retailing*, February, 1935.

### Spring Action Safety Plug

A new plug for radios, lamps and electrical appliances is being made by the Allied Mercantile Co., Newark, N. J. It is called the "spring action" safety plug and features blades which incorporate the principle of flexible spring action. This plug fits securely in all convenience plugs, even worn ones, eliminating fading and noises caused by faulty contact. A cube-tap with "spring action" blades is also available.—*Radio Retailing*, February, 1935.



### Clough-Brengle All-Wave Battery Operated Oscillator

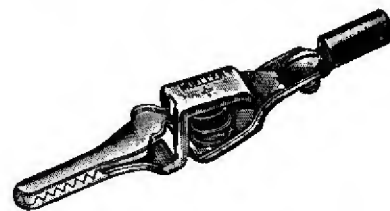
Embodying all the features of their a.c.-d.c. operated all-wave test oscillator, the new Model OD battery operated oscillator just placed on the market by Clough-Brengle Co., 1134 W. Austin Ave., Chicago, meets the needs of many servicemen for rural and auto-radio servicing applications.

It is continuously variable from 50 kc. to 30 mc., all on fundamental output. Each instrument is hand calibrated over the entire frequency range and offers three separate outputs: 400 cycle modulated r.f., unmodulated r.f. and 400 cycle a.f. voltage. A plug-in jack allows external modulation from a phonograph pick-up or variable frequency audio oscillator.—*Radio Retailing*, February, 1935.

### Mica Transmitting Condensers for Stacking

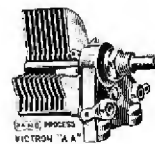
Departing from the conventional pointed-end design, the Aerovox Corp., 70 Washington St., Brooklyn, N. Y., has put out a mica transmitting condenser which can be stacked and at the same time offer any combination of electrical connection. Available in capacities from .00005 to .04 mfd., and in 1,000, 2,500 and 5,000 volt ratings.

Further accentuation of the compactness for which the electrolytic type condenser is already known is made possible by a new and ingenious concentric winding for multiple section units which Aerovox has just announced.—*Radio Retailing*, February, 1935.



### Alligator Clip

A small clip with slender, elongated jaws for radio and electrical test work may be obtained from the Mueller Electric Co., 1583 E. 31st St., Cleveland, Ohio. It has meshing teeth on three sides of the jaws. May be had with or without insulator.—*Radio Retailing*, February, 1935.



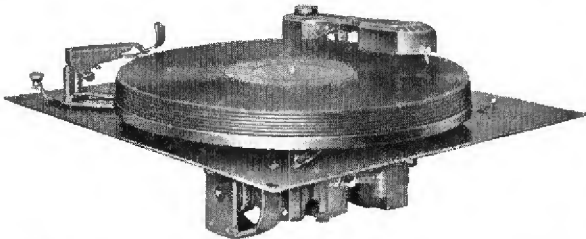
### Victron Shortwave Condenser

The new shortwave condenser made by the Alden Products Co., Brockton, Mass., is insulated with Victron "AA" whose power factor at r.f. is only 0.0002, the release states. The self centering, self tightening cone bearing cannot become loose or wear to produce a noisy rotating contact. Capacitances: 15, 50 and 140 mmf. List price, 140 mmf., \$1.50 each.

Alden also offers its Model 9EP universal earphone adapter which enables earphones to be attached to any set. The list price is \$2.50.—*Radio Retailing*, February, 1935.

## THERE ARE PROFITS IN THESE AUTOMATIC RECORD CHANGERS

Ideal for Permanent or Portable Installations



- MODEL "L"**  
Plays and automatically changes eight 10" records or seven 12" records—78 r.p.m. or 33-1/3 r.p.m.
- MODEL "K"**  
Plays and automatically changes eight 10" records or manually plays and repeats one 12" record—78 r.p.m. or 33-1/3 r.p.m.
- REPEATS**  
Will repeat any record as often as desired.
- VOLTAGE**  
May be had in all commercial voltages and frequencies and with Universal Motor for 110 volts AC-DC. May be had in 6 volts DC for sound trucks.
- COMPACT**  
Requires small cabinet space for mounting. Light in weight.
- REMARKABLY SIMPLE.**  
No intricate working parts to get out of order.
- SELF-CONTAINED**  
Shipped complete ready to place in cabinet.
- FINISHED**  
In pleasing statuary bronze.

IMMEDIATE DELIVERIES MAY BE HAD

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by the  
COMPANY  
THEY KEEP

In case you haven't already noticed it, we want to call your attention to an important fact you can readily verify: *Sprague Condensers are*

*today featured by more of the better parts jobbers than any other make of condensers.*

Jobbers of this type know quality—and feature it accordingly. Even though they may carry other makes of condensers, chances are ten to one they'll recommend Sprague's to the man who wants the best. Ask your jobber and see! **SPRAGUE PRODUCTS CO., NORTH ADAMS, MASS.**

# SPRAGUE CONDENSERS

MADE RIGHT



PRICED RIGHT

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STANDARD EQUIPMENT IN LEADING SETS

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RESISTORS



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MILLION  
IN USE

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1255 South Michigan Ave., Chicago

## MAJESTIC REPLACEMENT COILS

Matches perfectly chassis and shielding designated. Mechanical and electrical properties and mounting arrangements are as required. Wound according to latest developments. Complete assemblies containing shield cans, trimmer condensers, resistors, by-pass condensers, and original Majestic coding of leads, as required. Approved by former Majestic engineers.

Majestic Number	Code	Description	List Price
3908	MADE	1st I. F. model 20	\$2.50
3907	MADE	2nd I. F. model 20	2.50
10148	MADE	1st I. F. model 460	1.50
10253	MALL	2nd I. F. model 460	.90
4420	MASK	Antenna models 15 and 15B	1.00
4421	MASH	R. F. models 15 and 15B	1.00
4428	MALT	Composite Osc. and I. F. models, 15, 15B and 15C	2.75
4429	MANE	1st I. F. local-distance switch, models 15 and 15B	1.70
8384	MANY	1st I. F. without local-distance switch, models 15, 15B & 15C	1.60
8323	MARS	1st I. F. model 111	2.00
6984	MART	1st I. F. model 120B	2.50

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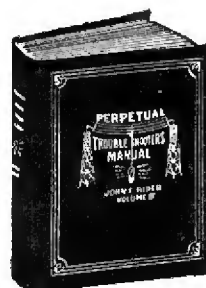
1200 pages crammed with **FACTS** for service Men—112 leading manufacturers, covered as never before—elaborate data on 946 models, the most complicated American receivers—more schematics, more I-F peaks than any other manual—easily the best in the field! From 1920 right down to date, **RIDER'S** five manuals cover the Radio Industry! Why even

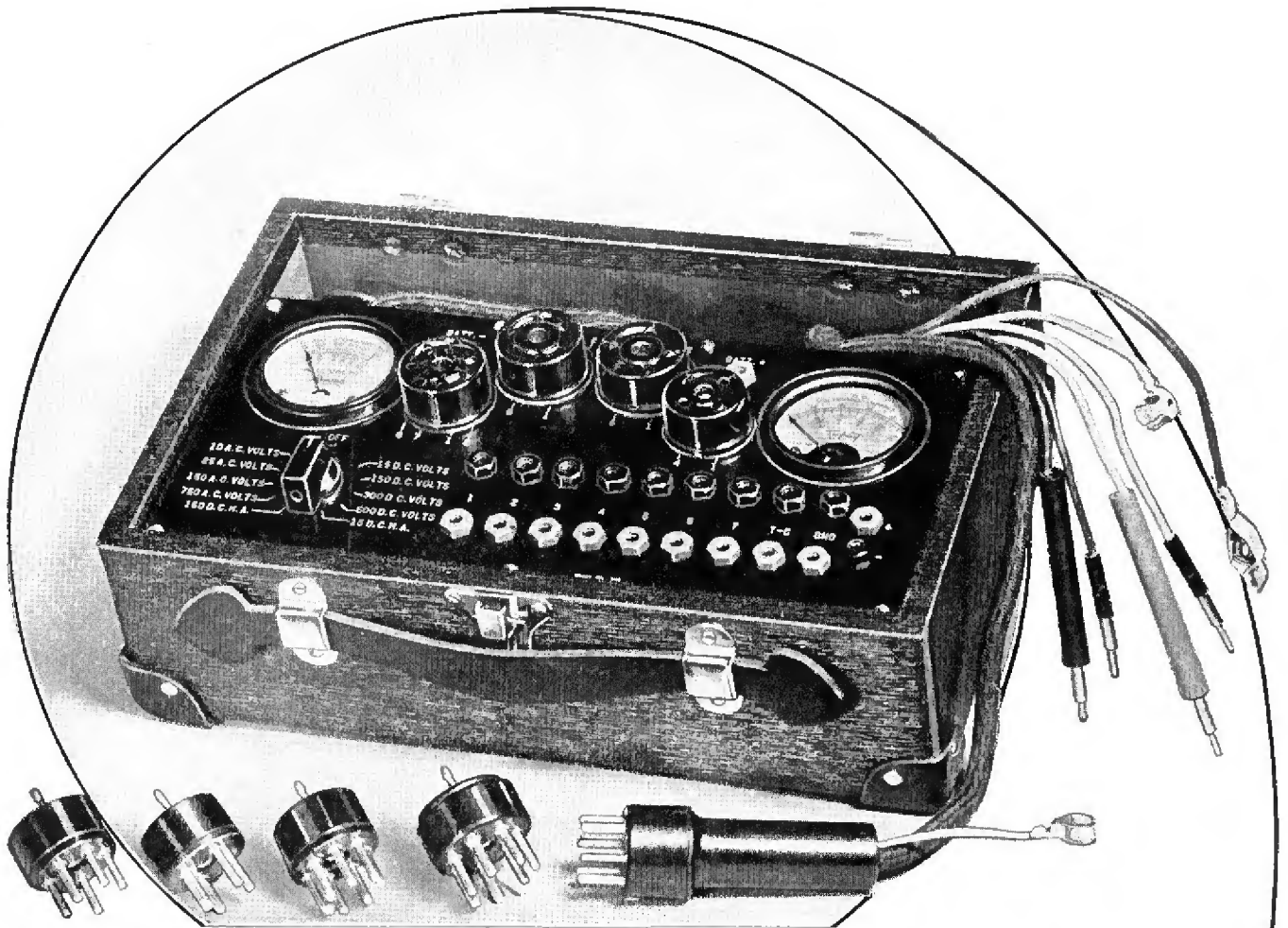
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## HARD-TO-FIND TROUBLE SPOTS

# *Now Quickly Located!*

NO longer need you waste hours puzzling over a set as you try to locate some trouble spot. No longer need you depend on guesswork and hit-or-miss methods to service a radio.

Up and coming service men know inefficient equipment means lost time, inaccurate work and unsatisfactory results. More and more, they are turning to the Readrite No. 730

Tester because it takes the guesswork out of servicing and enables them to quickly and accurately locate trouble spots, such as:

Corroded connections that cause frequency drift . . . intermittent operation caused by defective chokes, by-pass or coupling condenser . . . cold soldered joints . . . distortion due to leakage between the anodes of the electrolytic condensers . . . and many others.

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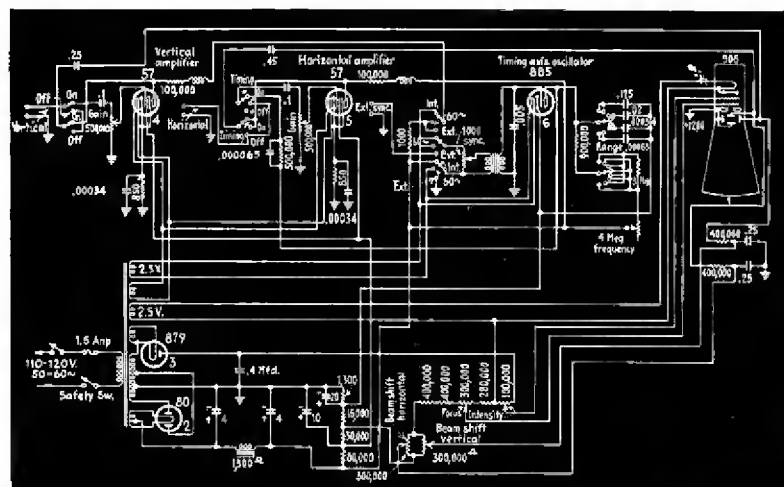
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# SERVICE SECTION

Conducted by  
W. MacDonald

Including  
Installation Data

## CIRCUITS of the MONTH



### Cathode Ray Oscillograph

Interest in cathode ray testing equipment is running high. So the moment we heard that RCA had one ready for the market we started "worrying" the factory for a circuit diagram. One has just come in, thanks to the kind efforts of W. H. Bohlke of the service division. To the best of our knowledge *Radio Retailing* is the first to publish it.

A cathode ray oscillograph may be simply described as a voltmeter which also records time. This particular device uses as the "meter" a 906, 3-inch cathode ray tube which requires about 1,000 volts on its high-voltage anode. An 879 hooked up as a half-wave rectifier supplies 1,200 volts.

Tube No. 4 is an amplifier having a gain of approximately 40 and almost "flat" frequency characteristics from about 20 to 90,000 cycles. It drives the cathode ray tube's vertical plates. Tube No. 5 is a similar amplifier applying signal voltage to the horizontal plates. Through the use of these two amplifiers sensitivity of 2 volts per inch of horizontal or vertical ray deflection is achieved.

The 80 supplies plate and grid voltage to the two amplifiers. Note that a single power transformer is used for the 80 and the 879 but that their outputs are individually filtered.

Tube No. 6, the 885 timing axis oscilla-

tor, produces linear sawtooth timing frequencies variable between 20 and 15,000 cycles. It permits examination of a single cycle up to 15,000 cycles, or six cycles up to the limit of the amplifier (90,000 cycles). Suitable switching is provided so that either the internal timing oscillator or an external source of frequency may be connected to the cathode ray deflection plates through the amplifier. Or the input binding posts may be connected directly to the plates for operation without the amplifiers above 90,000 cycles, with a sensitivity of 75 volts per deflection-inch.

It is obvious that because the internal oscillator does not operate at radio frequencies in the shortwave, broadcast or i.f. channels an external, variable high-frequency oscillator and a frequency modulating unit are required accessories for such work. Both accessory units, which are relatively simple and inexpensive by comparison with the oscillograph itself, are available.

### 5 & 10 Meter Transceiver

Transmitting equipment is out of our line, professionally, although the Editor makes a hobby of it. We print this complete diagram of the Acratex 5 & 10 meter transceiver (for sending or receiving voice over short distances) for two reasons:

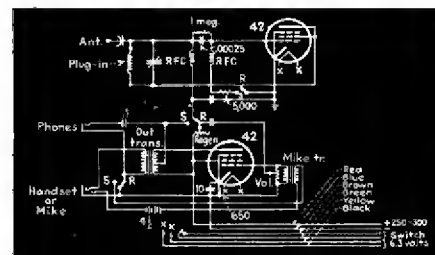
We have had a number of letters asking for a typical transceiver circuit and we assume there is sufficient listening, if not transmitting, going on among "bel's" to produce inquiries relative to the equipment at radio stores. And the switching employed in this device is so clever that it cannot fail to be of interest to technicians.

The upper 42 is used as a super-regenerative, "self-quenching" detector when the switches (ganged) are in the "receive" position. The 1 meg resistor is responsible for "squelch" action. With the switches in the "send" position the 5000 ohm grid leak is cut in and the tube operates as a straight cw oscillator. The tube works as a triode in both instances.

The lower 42 is a pentode audio amplifier in the receive position. Close study of the circuit will reveal the fact that the pentode is resistance coupled to the detector. The regeneration control serves as the detector's plate load resistor and the volume control in shunt with the microphone transformer secondary serves as the leak for the pentode. This is a tricky setup and took us quite a time to figure out.

In the send position the lower pentode serves as a modulator. Plate current for the oscillator flows through half the primary of the output transformer. Inasmuch as the modulator's plate current flows through this entire winding "Heising" plate circuit modulation is obtained. Neither the volume control nor the regeneration control are operative in this position. Both of them are effectively out of the circuit.

The transceiver is designed for use with separate microphone and headphones or with a "handset" combination of both. When separate 'phones are plugged into the upper jack these are cut across half the output transformer primary in series with the .1 mike d.c. stopping condenser. When a



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# SERVICE SECTION

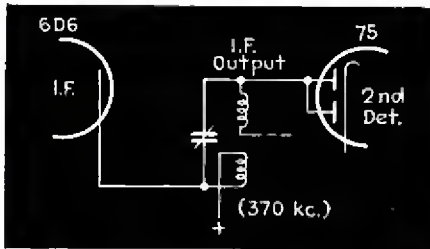
handset is used a special plug with three conductors comes with it. The "shank" of the plug is a common 'phone-microphone connection. The tip is the "hot" microphone lead. And the "segment" between end and shank is the hot 'phone lead. In this case the receiver unit of the handset connects across the secondary of the output transformer.

## "AUDIO FREQUENCY"

more doesn't seem to improve reception much.

WE HEAR THAT THERE IS much scurrying around in search of antenna systems suitable for installation in metal-topped cars, a trend which will undoubtedly spread as gas-buggy makers save a few assembly dollars. The body of a modern car is sufficiently "high" above ground to make a pretty good collector but the rub comes when we attempt to install an effective counterpoise-type ground.

INSULATED BUMPERS, TIRE CARRIERS, trunks have been suggested as possible antennae. These, we find, are very of ten directional because of shielding by the body of the car itself. Results vary widely from one car to another. The operation of under-car collectors, in fact, is anything but uniform as some chassis have transmission or body projections which approach the ground more closely than others. The underside contour of a car obviously determines to some extent the effective potential difference which may be obtained between chassis and counterpoise-plate. And cars are steadily getting closer and closer to the road, which makes it increasingly difficult to design under-car collectors.



### "Mutual Tuned" I. F.

The input i.f. transformer of Belmont's Model 585 is tuned in the usual manner, a trimmer being wired across the primary and another across the secondary. The output transformer tuning is, however, not conventional.

It appears that both windings are simultaneously tuned through the mutual inductance between primary and secondary, using a single trimmer as diagrammed. We haven't checked with the factory but presume that this system, employing a properly designed transformer, simplifies alignment and is satisfactorily sharp. Input and output i.f. transformers must be aligned separately to 370 kc.

ENGINEERS TELL US THAT THE efficiency of under-chassis types is directly proportional to their area, effective distance from chassis and, more particularly, proximity to ground. Auto-radio antennas, apparently, consist largely of capacity, having little inductance, hence the stunt is to get maximum capacity to ground from one plate of the "condenser," minimum for the other, so creating the greatest possible potential difference between plates. The most effective method would probably be to use the car as the antenna, let a large wire "sleigh-ride" along the ground. This has, in fact, been tried, but the dragging or sagging wire gets tangled up in manhole-covers or the like. A long length of wire running around in the form of a square, under the car on long insulators screwed fore and aft beneath the running boards, also works well if relatively close to ground but this counterpoise, too, suffers from abrasion.

SO THE SCURRYING AROUND CONTINUES. Someone will eventually hit upon a solution. In the meantime don't get the idea that metal-topped cars preclude all possibility of good radio reception. Such is not the case. We understand that because radio engineers little understood the characteristics of auto-radio antennae last year their receiver input circuits were poorly matched and afforded little gain. This year more attention is being paid to matching of input circuits with the result that despite 25 per cent decrease in antenna effectiveness overall gain is apt to be slightly better than last season. So many new sets operating on less efficient antennae may well have greater pickup!

### "Rolled" Under-Car Antenna

Fishwick's "Effarsee Senior" under-car antenna is of considerable technical interest. It consists of 92 No. 30 copper wires 9 feet in length, embedded  $\frac{3}{8}$  inches apart in a flexible insulating sheet. As shown in figure 1 a lead-in is capacitively coupled to the end of each wire.

The sheet is rolled up lengthwise, forming each wire into a spiralled coil. There is, obviously, both inductive and capacitive coupling between coils, and just capacity coupling between the entire pickup unit and the lead-in. The roll is finally placed in a waterproof protective cylinder made of insulating material and equipped with mounting brackets.

About 830 feet of wire is used.

PRACTICAL SYSTEMS CONTEMPLATED include a "trombone-like" bend of tubing slid into insulating grommets factory-included in running board or fender braces, wires embedded in the floorboards and conventional plates. Because of their relatively small area, or distance above ground these are not, we understand, as effective as old top-types. Best estimates place the efficiency of the average under-car antenna at not more than 75 per cent of that achieved by the average top-type. This makes the average under-car antenna about as efficient as a top-antenna in a coupe.

AND SIGNAL-TO-NOISE RATIO will be definitely better. Chassis pickup has been reduced to a point where spark-plug suppressors are rarely necessary by design improvements such as the following: (1) Building of first r.f. and first i.f. stage complete in a small, compact and individual shield container, eliminating nasty eddy-currents from the chassis. (2) Inclusion of a line filter which really does a job between battery and powerpack. (3) Shorter connections in all i.f. and r.f. circuits. (4) Use of condensers shielded by the very nature of their construction. (5) Electrical isolation of metallic control cable from the condenser-gang shaft by means of an insulated coupling.

POSSIBLY, AS ONE ENGINEER SUGGESTS, the trend toward streamlining may simplify the problem. Why not, he asks, build a "stabilizing fin" of insulating material down the length of the car top and include an antenna rod or wire in its top edge? A fin seems necessary anyway in order to break up the "flatness" of extreme streamline design and, in addition to its usefulness as a parking place for the radio antenna, might conceivably steady the car at high speeds. This idea will take "selling" to car designers and for this reason is not an immediate solution. It is by no means a "wild-eyed" dream, however, as a fleet of streamlined New York taxis already have small decorative fins. We gather that a fin would have to be about 3 inches high. Less gives poor pickup.

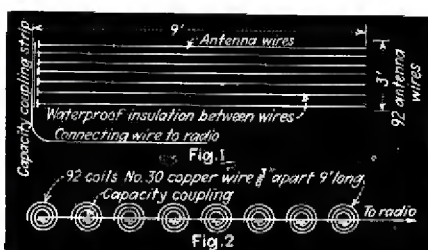
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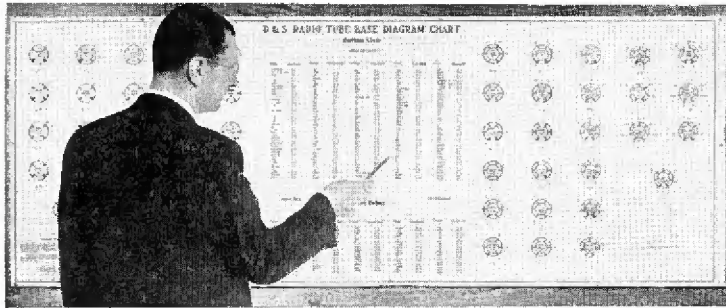
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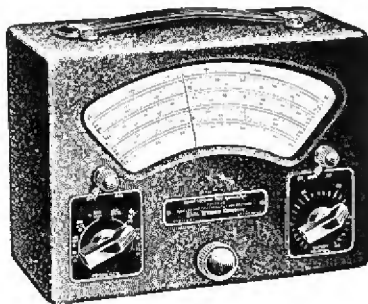
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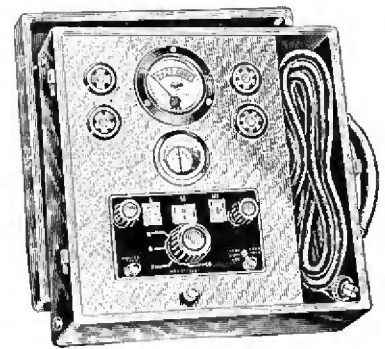


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## HOW TO BUILD AND USE A GRID-DIP OSCILLATOR

By JIM KIRK

THE grid-dip oscillator is in use on some service benches but most of those in use cover only the broadcast band. Or they employ plug-in coils to obtain complete coverage.

To do away with the nuisance of plug in coils, I have built the grid dip oscillator shown in the photograph and schematic. It has easily become the most valuable testing instrument I use. There is nothing novel about the schematic. It is an ordinary Hartley with coil switching, midjet coupling condenser and an external power pack. A 3 position switch is provided to connect the 2 gang condenser in series, parallel or single section.

A sheet metal worker built the galvanized iron box with the sloping panel. I drilled the necessary holes and then had the finish baked on. It is called variously, Crystalline, Frostine or Crackle.

The coils are all shielded and must be placed at right angles to each other, or separated as far as possible. They are wound on small diameter forms to make their fields as compact as possible. If all this is not done you will find mysterious dips when nothing is connected to the output. These would be caused if one of the unused inductances happened to resonate with a harmonic of the coil being used.

Coils may be home-wound or purchased.

The meter may be any one handy, reading from one to ten milliamperes, full scale. The value of the cathode resistor depends on the meter and the plate voltage used. It is best to use a low plate voltage and select a cathode resistor that gives about three fourths scale reading on the meter.

A sheet metal man made the tin frame that holds the calibration chart and protecting glass. The escutcheons were drawn on paper with india ink and covered by heavy celluloid obtained from an auto curtain dealer.

Each circuit is color-coded. The ground pin-jack is black and is connected to the chassis when measuring the coils in a receiver. The other pin-jack is red. You might pass over the dip by turning the dial rapidly and using minimum coupling condenser capacity. So I usually set the condenser about half in so as to get a pronounced dip. When the dip is found, I reduce coupling to minimum to obviate "trigger" effect and obtain accuracy.

### Calibration

When I came to the problem of calibrating I ran into a snag. If you have access to a variable inductance standard, it is easy but who has? I had to find some other method.

I thought it would be fine to have it calibrated in micro-henries and millihenries. Then when some constructional article said, "Use 1.6 millihenries of inductance" I could say,

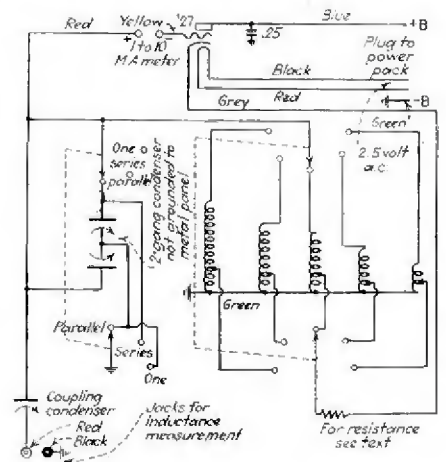
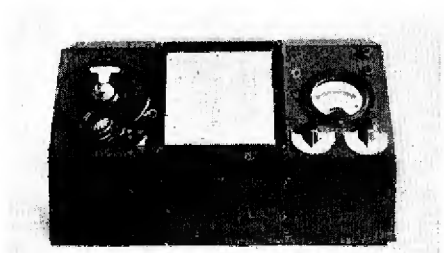
"Oakie-Doak." But the only method I could think of was rough and inaccurate. In fact, I have found it so inaccurate that you might say it is simply an arbitrary system. Still, I used it in combination with my final method so I will describe it.

I took a flock of honeycomb coils from the junk box and found the resonant point of each. Then I looked up the manufacturers' inductance ratings for these coils and drew curves to obtain other values of inductance. Honeycomb coils vary so much that this only gave me a rough idea of inductance value.

So I re-calibrated in the following way. While this does not calibrate the instrument in terms of inductance, it does present an accurate and serviceable calibration. I hooked up a regenerative honeycomb coil detector circuit and calibrated this circuit from my manufactured signal generator. Then I turned off the current in the regenerative detector, took off the signal generator clips and clipped the grid dip oscillator on the grid inductance. I repeated this process for each band and now I know the inductance and capacity combination for any frequency in the range of the grid dip oscillator. If anyone knows of a better method, especially of a method of calibrating directly in terms of inductance, I will be glad to hear from him.

### PARTS LIST

- 1 Metal shielding cabinet, black crystalline finish
- 1 Vernier Dial
- 1 Double-deck 5 point inductance switch
- 1 Milliammeter. (See text)
- 2 small switch knobs



- 1 double pole three position switch
- 1 2 gang variable condenser
- 1 50 mmfd (or approximate) midjet variable condenser
- 1 .25 MFD fixed condenser
- 2 Insulated tips jacks (One red, one black)
- 1 5 prong tube socket
- 1 27 tube
- 5 shielded inductances
- 1 Cable and plug
- 1 frame, chart and glass
- 1 cathode resistance (See text)

### Uses

Here are ten of the commonest uses I find for the grid-dip oscillator:

1. To discover whether a set needs balancing or not.
2. To find which socket is r.f., which i.f., which o.s.c. and a.f. in an unknown set.
3. To go through a dead set to see if there is any r.f. trouble, such as shorted trimmers, shorted or open r.f. chokes.
4. To measure capacity of small condensers both fixed and variable.
5. To do a rough preliminary balancing job where the trimmers are badly off and you must start from scratch.
6. To find out how many turns to wind on a coil for construction work.
7. To see whether the oscillator tube in a super-heterodyne is set at sum frequency or difference frequency.
8. To measure r.f. resistance roughly and so compare r.f. coils for efficiency.
9. To cut down a receiver for police band reception.
10. To test new inductances, i.f. transformers and chokes before installing them in receivers.

Taking up these ten uses more in detail we start with number one. A set is received that seems to lack pep. It may need balancing and then again it may not and some other cause may be responsible for its lack of sensitivity. Instead of using the signal generator and actually trying to align the receiver to find out if it needs aligning, I simply ground one lead of the grid-dip oscillator to the chassis and rapidly, one by one, touch the control grids with the other. If the dial of the grid-dip oscillator must be readjusted quite a few degrees each time, you are safe in telling the customer that the set needs a re-balance job. If you get a dip at the



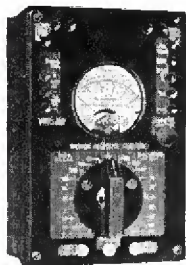
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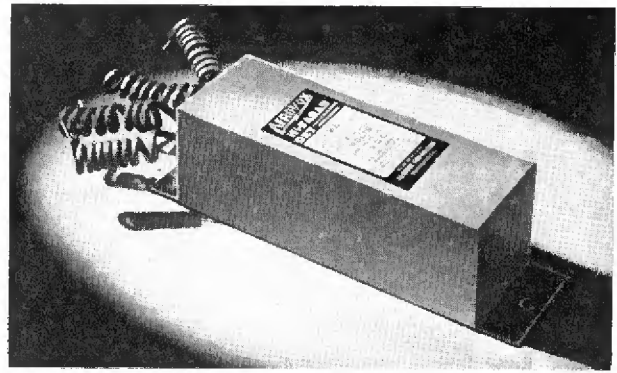
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# SERVICE SECTION

same point, the set can not be badly out and something else is causing the lack of sensitivity.

Suppose you get an orphan superheterodyne, or a set you are unfamiliar with, and you do not have a service manual for it. Often the sequence of the tubes is not the same as the circuit sequence. Ground one grid-dip oscillator lead and take all the tubes out. (The beauty of the grid-dip oscillator is that you do not have to have any current in the set to test it). Touch the other oscillator lead to the control grid terminals one by one. R.f. tubes will dip somewhere in the broadcast band (or in the short wave band if you have an all wave receiver to test). The oscillator tube will dip at a higher frequency than the r.f. I.f. tubes will dip at the intermediate used and incidently this will tell you roughly what intermediate frequency is being used. Second detectors will give a dip at the i.f. frequency on the control grid but the plate will not dip, though the i.f. amplifier plates will. You can not get any dip at all on the a.f. tubes.

A shorted trimmer condenser or shorted coil will cause the set to be completely dead. Few men have ohmmeters that go down to low enough value to detect the difference between the resistance of the coil and the same coil shorted. Even if the service man has such an ohmmeter, resistance analysis is long and tiresome and he is likely to try everything else before painstakingly making a thorough resistance analysis. Besides, correct resistance tables for all receivers are lacking, so the thorough resistance analysis of diagnosis is not used often. Of course, this would catch the shorted trimmer or coil but it is all so easy with the grid-dip oscillator. You can really use the grid-dip oscillator for a continuity tester for all inductances.

Small fixed condensers are rarely

what they are marked on the case. It is not important that their capacity be exact unless they are padding condensers or used for tuning. In these cases, or where it is desirable to measure condensers up to 500 mmfd., their capacity can be accurately determined with the grid-dip oscillator. Hook the condenser to be measured in parallel with a honeycomb coil or handy inductance, whose resonance falls conveniently somewhere in the broadcast band. Hook the grid-dip oscillator leads to this combination and turn the dial until you get a dip. Leave everything set; remove the unknown condenser and in its place substitute a variable condenser calibrated in capacity. Rotate this calibrated condenser dial until you get a dip and read the capacity of the unknown directly from the dial of the calibrated condenser.

I have had the following thing happen twice. Perhaps no customer of yours ever did the following stunt, but if he did, the grid-dip oscillator would have saved a great deal of time. The customer referred to owned a superheterodyne receiver with many trimmers and the set did not perform just right to suit him and he decided to be his own mechanic. He noticed a lot of trimmer screws were loose and knowing from automobile experience that all chassis screws and nuts should be kept tightened, he proceeded to screw every trimmer down tightly! One customer even decided to do a thorough job and put metal spring washers under every trimmer, replacing the insulating mica, which he threw away as being too flimsy! Thus I had to make insulating mica washers for each trimmer and start from scratch. The grid-dip oscillator saved a great deal of time in both finding the trouble (he did not tell me at first what he had done) and in making the rough adjustments I finished off with a signal generator and output

meter used for the final alignment.

For construction work the grid-dip oscillator is the "berries." You can discover how many turns you need on a coil before you mount it in the set and make it unnecessary to tear the whole set apart to remove a few turns. You can even build the r.f. section of the receiver first and align it roughly before you build the a.f. or power supply.

A superheterodyne that is designed to work at a sum frequency (and most commercial supers are) may sometimes be accidentally adjusted to difference frequency. As such it will work, but improperly. There is a complicated method to find out if the oscillator tube in the super is adjusted to sum frequency or difference frequency but the grid-dip method is simplest and easiest. Just touch the grid and find out.

To compare r.f. coils for their r.f. resistance, measure them both without touching the controls. Everything else being the same, the coil which causes the greatest dip has the lowest r.f. resistance.

It is difficult to cut a receiver down to police calls by listening until you hear the calls. The calls are off and on and sometimes 15 minutes elapses between them. You might easily cut too much off by this method. It is easier when you have a calibrated signal generator but the grid-dip oscillator method is the easiest of all. Just cut slowly, testing continually with the oscillator until you hit it.

Once upon a time I ordered a 175 kc. intermediate transformer. Through an error the clerk filled the order with a 260 kc. transformer. There was no identifying mark on the transformer and if I had not made it a habit to test new inductances with the grid-dip oscillator before installing them in a set, I might have torn considerable hair before I discovered the error.

## SHOP SHORTCUTS

### Tube-Type "Mixer"

By Paul E. Griwet

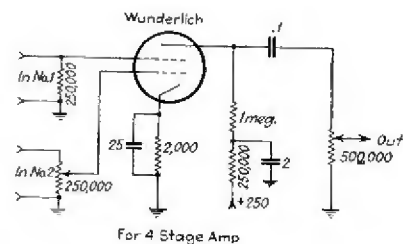
Quite often, in order to realize greatest flexibility from an amplifier, it is desirable to have two input circuits, at least one of which may be varied from zero to full output without affecting the level of the other. This may, of course, be accomplished with an extra mixing and attenuator panel but the same result may be achieved in a simpler and less expensive manner.

After experimenting with different circuits I found that a truly flexible mixer could be made up by using a six-prong, 2.5 volt heater "Wunderlich" tube put out by Arcturus. This tube has two concentric input grids with a conventional cathode and plate. In all

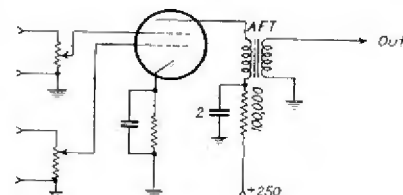
cases a tube of this type is used as the first amplifier stage, irrespective of what the original input circuit may be.

In the event that the first stage is a 57 in a three-stage amplifier the mixer tube is added ahead of the 57, making a four-stage amplifier and using the first circuit diagrammed. Where a 56 is used as the first stage the Wunderlich may sometimes be substituted without changing anything except the socket to make provision for the extra grid. This, however, does not always work out and either of the two output arrangements shown may here be used substituting, if necessary, a fixed resistor for the 50,000 ohm variable in the first diagram.

The reason for placing the volume control after the Wunderlich when it is used in a four-stage job is that in order



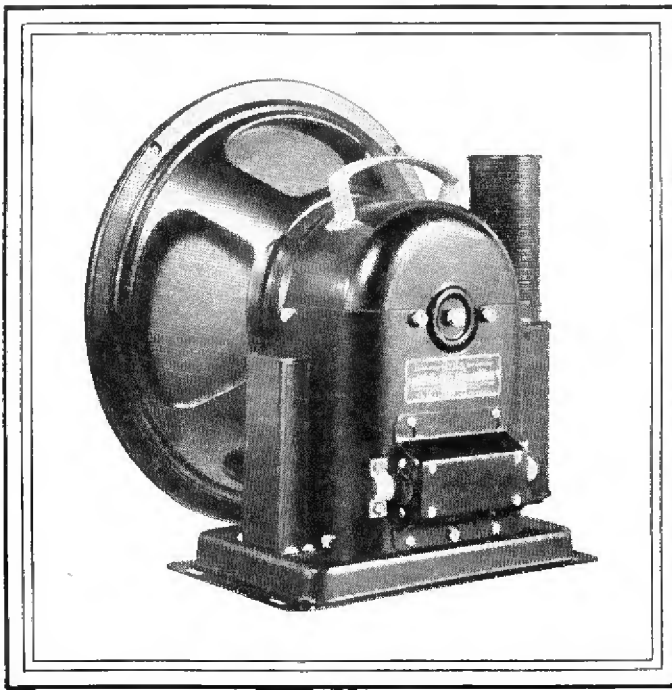
For 4 Stage Amp



For 2 or 3 Stage Amp.

to minimize hum it is best to work the first stage at high level and control the volume in the second stage input circuit.

With the arrangement shown in the



# New ROLA Model G-12

FOR HIGHEST QUALITY RADIO  
AND PUBLIC ADDRESS EQUIPMENT

● Mirror like fidelity makes the Rola G-12 group of models a splendid addition to the finest public address or radio equipment. They represent a distinct advance in speaker design. The high fidelity design has a variation within 10 DB over a range of 50 to 7500 cycles. The general response design has variation within 10 DB over 50 to 5000 cycles. They are essentially quality units, with greater power handling capacity, ideally suited for use with all types of radio equipment, electro musical instruments, theater and public address systems. Ten years of cumulative improvements have been embodied in this latest of Rola products.

- New cone designs permitting either wide range or general response characteristics as may be required to meet specific applications.
  - A new method of cone suspension.
  - A new large high efficiency Voice Coil.
  - A new centering and clamping means.
  - An improved method of balancing the cone and Voice Coil assembly.
- Rola's recent development that makes possible a new low and high frequency balance.

Model G-12 is a full 12" speaker with massive field coil structure (Maximum 3½ pounds wire capacity), a quality reproducer with structural strength and ruggedness capable of giving long and satisfactory service. Available in either high fidelity or general response and for either AC (any voltage or frequency) or DC, of any field resistance, and with transformer to meet any output tube requirements.

## BETTER QUALITY PUBLIC ADDRESS SELLS BETTER

This is an obvious fact which puts the speaker right on the spot. If the speaker equipment is not right, the finest engineering back of it is lost. Rola Speakers improve the selling value of any radio receiver or public address system.

Our engineering department will gladly furnish any additional data on request.

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ASK FOR  
CATALOG  
OF EXTREMELY  
COMPACT TYPES  
HANDY FOR SERVICE

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Says Fred D. Kerridge  
of Minneapolis, Minn.



"So far this year (1934), I have used about 800 of them, and to date, have replaced only two tubes, which is about 400 per cent better than any other tube I have ever used.

"I am personally SOLD on National Union tubes and I am selling only National Union.

"I have taken advantage of five of your shop equipment offers, and they have certainly been a great help in my work... thanks to National Union."

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# SERVICE SECTION

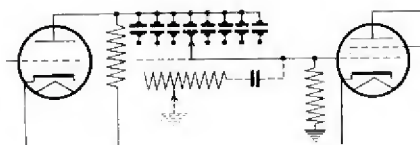
first figure, the level of the input to No. 2 grid must be at a higher level than on No. 1 in order to get full flexibility out of the arrangement.

## Improved Tone Control

By J. P. Kennedy

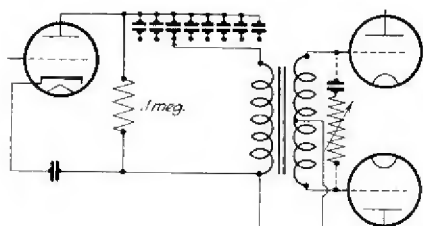
An inherent defect of conventional tone control systems is the decrease in volume which occurs when the controls are adjusted for maximum bass response. The use of straight capacity-type controls greatly reduces this annoying effect.

The first diagram is that of a more or less standard detector and resistance-coupled a.f. stage. The position of the usual combination variable resistance



and fixed capacity control is shown by the dotted lines. Remove this control and substitute an 8-step condenser, marketed for tone control use, or a 4 to 8 point tap switch with associated condensers as shown. Values of condensers which will give smooth control in such a system are: .00025, .0005, .001, .0025, .005, .01, .025 and .05.

The second diagram illustrates the use of this same tone control system in a push-pull power circuit. Note that in this case plate current for the detector or first a.f. stage is diverted from



the transformer primary and flows, instead, through a .1 megohm resistor. Removal of d.c. from the primary often improves overall tone quality.

The conventional control, shown from power-tube grid to grid by dotted lines, is removed.

**PHILCO 80 AC.** Noise . . . Plate lead from i.f. transformer to first 36 rubs coil base and insulation is punctured. Or, grid resistor number 26 for 42 tube, lying close to socket, shorts to prong.

**ZENITH 50 SERIES.** Loud hum, all parts and tubes checking ok . . . Connect 250,000 ohm resistor from grid to grid of push-pull second audio tubes.

## TRICKS of the TRADE

**AK 55, 60.** Motorboating, all parts in detector and a.f. check ok and all condensers working properly . . . Make careful resistance check of all choke coils in r.f. system. A short of only 2 ohms in just one choke will cause this trouble.

**CHEVROLET 364441 (1933).** Oscillator dead on all or part of dial . . . First section of candohm strip, 4,200 ohms, .002 condenser across this resistor and tube all ok. Replace oscillator coil even though continuity test reads perfect.

**CHEVROLET 1929, 30, 31, 32.** Obstinate cases of ignition interference . . . Bond the body to the frame, or chassis, at both sides, in the front. Right about at the bulkhead is a good spot to do this. This is particularly effective when the car has run up a lot of mileage. Use a piece of heavy shielding and self-tapping screws both in body and in frame. In extreme cases of noise move the electrolock cable and wire up ignition like later model, with one switch in hot lead.

**CROSLEY 27, 28.** No reception, weak signals or intermittent reception . . . Check for faulty 1 mike bypass connected between s-g of 32 detector and ground. It is in a can, with two terminals exposed. Each terminal is a separate condenser with the common connection to ground.

**ECHOPHONE S-5.** No signals . . . Remove cardboard cover from coils at end of chassis. Move coils close and keep at 90 degree angle.

**FORD-MAJESTIC.** Set completely dead . . . Plug in and note ammeter drain. If abnormally high remove transformer pack and replace small vibrator condenser at side of transformer. If screen voltage is absent remove speaker and plate cover to right of speaker and then replace the brown resistor.

**KOLSTER International.** Fading, after a few minutes of operation . . . Often caused by shorting of resistor located near volume control to one of control terminals.

**KOLSTER-BRANDES B15, B16.** Poor volume . . . Replace all wire wound grid resistors with new 3,000 ohm units.

**MAJESTIC 90B.** Intermittent reception . . . Sometimes defective choke in r.f. lead. To remedy, short out choke. Performance is not noticeably impaired.

**MAJESTIC 55, 15.** Oscillation not traceable to filter condensers or resistors . . . Replace detector coupling condenser behind resistor board rear wall with .05, 400 volt type.

**PHILCO 15.** Cuts on and off . . . Replace resistance-condenser combination No. 24 on schematic. This is the cathode resistance and bypass. Use 200 ohms and .1 mike.

**PHILCO 45, 145.** Distortion or no signals, trouble not due to tubes . . . Replace bypass number 30-4170M with .05, 600 volt.

**SILVERTONE 1570.** Trouble due to electrolysis . . . To completely cure this for all time use a dpst switch to replace the spst switch in order that the B minus lead as well as the A positive may be broken. Change oscillator coil to one using bakelite form or lay Empire cloth between form and winding.

**SILVERTONE 1580.** Improving sensitivity . . . Use 200 ohm resistor in place of 400 ohms found in series with volume control.

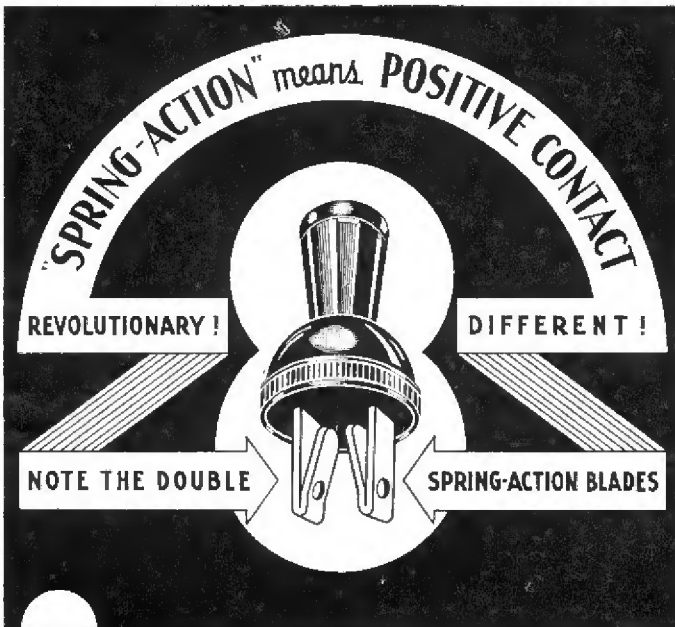
**SPARTON 16.** Intermittent noise, erratic operation, become increasingly noticeable if any part of chassis or tubes is tapped . . . Due to looseness of condenser rotors on shaft. Rotor hubs are cast. Drill and tap, with a bottoming tap, the hub of each rotor for two short 6/32 setscrews. Or solder one end of each hub to the shaft with a large, hot iron and spatterless flux. Also desirable to ground center of shaft with flexible pigtail in place of original brush.

**STEWART-WARNER Converter.** No reception . . . Remove both tubes and clean prongs thoroughly with sandpaper. Also see that 27 oscillator shield is not touching condenser gang. Cross-talk from broadcast band while listening to shortwaves . . . See that broadcast receiver dial is set just above 1,000 kc. and make the connecting wire from output of converter to antenna post of bc job as short as possible.

**TRAVELER.** Noise in models using a yellow coated, heavy bus wire around an r.f. coil for coupling . . . Remove heavy bus wire very carefully and see if insulation is not worn off, shorting to windings of coil underneath.

**UNITED MOTORS 4038 (CHEVROLET 600249, 600565, BOP 980459).** Low or intermittently low volume accompanied by poor quality and missing bass notes . . . Check primary of push-pull input transformer carefully. Trouble is deceptive as voltages are not affected.

Most encouraging in 1934 was a marked increase in the list price of sets and a falling off in the sale of low priced merchandise—a trend which should be accentuated in 1935. An advertising message in *Radio Retailing* will reach the 20,000 retailers who do the bulk of this profitable business.



**JOBBERS! DEALERS! MANUFACTURERS!**

HERE is the most outstanding improvement in Attachment Plug Caps in all electrical history. Because of its absolute safety and greater efficiency, the patented Spring-Action Plug will eventually replace all ordinary plugs. This plug will not fall out of ceiling outlets or work loose in wall outlets. It will even function in worn outlets. No other plug is like it. It is setting a new standard . . . creating new sales opportunity.

The Spring-Action Plug may be had in a variety of sizes in either bakelite or rubber. A cube-top with Spring-Action Blades is also available. For samples, prices and descriptive information, fill in coupon and mail it to us today. Approved by Underwriters' Laboratories.

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**ATTENTION MANUFACTURERS:** Use of the Spring-Action Plug completely eliminates service calls and returned merchandise resulting from failure of the plug to make contact.



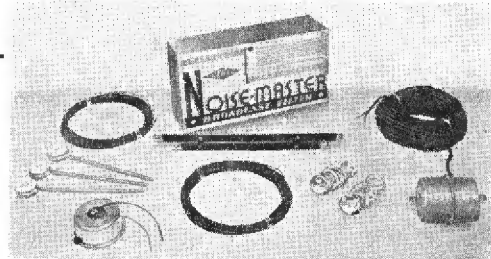
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Makes Bad Reception Good  
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Upholding our reputation for best antenna and radio wire products . . . a scientifically engineered unit which eliminates “man made” noises over both broadcast and short wave bands. Licensed under Amy, Aceves & King patents. Permits operation of more than one set from one aerial. Here is the peak of antenna efficiency—try it on your next servicing job.

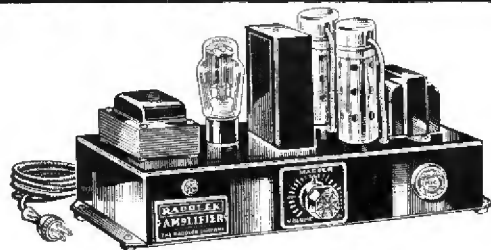
Write for latest bulletins.

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**RADOLEK'S** New All Electric Pre-Amplifier makes any standard two or three stage Amplifier operate at maximum efficiency with modern Crystal, Ribbon, or Dynamic microphones. All-Electric, operates from 115 volt, 60 cycle A. C. with negligible hum. Makes any amplifier have better tone and volume.

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**TECHNICALLY SPEAKING:** The Radolek Pre-Amplifier employs an 80, 75 and 77 tube. A practically distortionless and humless gain of 70 Db is secured over a frequency range of 40 to 9000 cycles. The Tremendous gain couples any Crystal, Ribbon or Dynamic microphone at highest efficiency, to the power amplifier. Input “Z” 5 Megohms; Output to 200, 400—500 ohm or high “Z” line. size 14 x 4 3/4 x 8” high. Wt. Approx. 12 lbs. List Price, \$33.00 with tubes.

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Free Crystal P. A. Book and 1935 Profit Guide!

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● The Grunow picture, from the first, has been one of individuality and leadership. From the beginning, Mr. Grunow has never followed a style trend. But he has set plenty of them.

Throughout his amazing career W. C. Grunow has always had the uncanny knack of sensing the trend of public taste and, with sure and deft touches, creating a masterpiece in wood or steel that had the beauty and glamour necessary to make people want it on sight.

As "different" as all Grunow products have been, none of them has ever remained on dealers' floors or failed to attract public acclaim.

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Then he tackled the job of setting an absolutely new style in radio cabinets—not any easy job, surely, but a job for a master mind to approach with deference, considering the hundreds, yes thousands of cabinets that had gone before, representing the creative genius of everyone from Norman Bel Geddes to Joseph Dokes.

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The construction of our streamlined cabinets, that have helped to make the Grunow famous as a radio of beauty and tone quality, has certain patented features protected under Letters Patent issued by the United States Patent Office under No. 1981494, and we give notice to the World that recourse will be had against any and all infringers of said patent.

streamline design of cabinets which are the trademarks of genius.

And again they followed the leader. They have tried to copy Grunow's refrigerator cabinet—they have tried desperately—and with fair success, some of them, to copy Grunow's radio cabinets.

Copies are imitations. Grunow originals cost no more than the imitations. That's how Grunow has built and maintained his leadership.

Time and again copyists have paid tribute to Grunow's originality, but it is unfair to always let them go undisturbed. This organization will take steps to protect its dealers and enable the public to distinguish the original roll front—streamline design of the Grunow cabinet from those which have followed and embodied its distinguishing characteristics.

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 Owner and former General Factory Manager of A. H. Grebe & Co., Inc.

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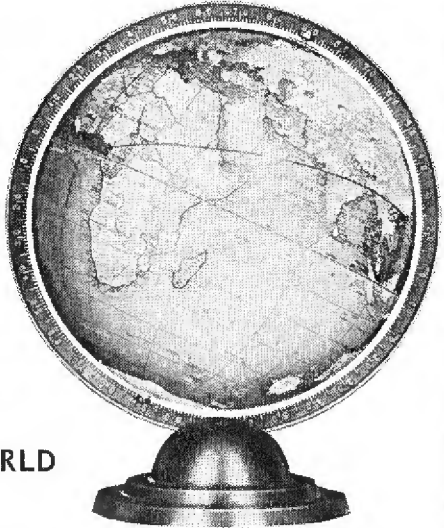
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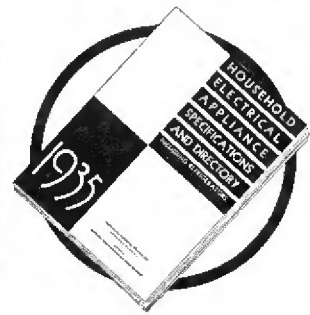
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For your convenience "Radio Retailing" provides this digest of current dealer help material and makes it easy for you to order—on one blank—your selection of printed matter or display pieces desired. Please circle, on the coupon below, only those numbers you really will use.

1. An elaborate consumer brochure on ZENITH'S "Stratosphere" radio, containing a photo of the set in natural colors, is yours for the asking. Bound in a pale blue; printed in "cocoa" shade, vivid blue and black.

2. The popular "Black and White" charts run in *Radio Retailing* have been enlarged upon and combined with a characteristic-interchangeable radio tube chart by NATIONAL UNION. Carries a wealth of information about characteristics, interchangeability and base pin connections on 231 types of tubes.

3. A newsy house organ is put out monthly by OHMITE. In the issue on our desk is an article on George Simon Ohm, who evolved the Ohm's Law, a column of "curiosities" and, of course, the very latest from Ohmite's laboratories.

4. Double duty is performed by the catalog sheet of CORNISH WIRE. One side shows a map of the world with call letters and location of all short-wave stations while the other covers the complete line of antenna kits, parts, etc.

edge a condenser manufacturer is presenting his product by means of pictures. SOLAR'S new handy size booklet shows the steps its electrical capacitors take from the time they leave the design laboratory until they are ready for the market.

8. The new 8-page folder on the ERLA (Electrical Research Labs.) line of a.c., d.c., portable, auto and battery radios is an attractive two color job.

9. A dealer's handy pocket size catalog describing and illustrating the complete 1935 CROSLEY line will be sent upon request.

10. SUPREME INSTRUMENTS is out with a well illustrated booklet on its testing instruments.

11. If you would like the special PA-17 bulletin of the WEBSTER CO. (Chicago) and also have your name put on its mailing list for technical bulletins and selling suggestions, circle this number below.

12. Word has just been received that HAMMARLUND is ready to send out its new illustrated Catalog 35 on condensers, coil forms, sockets, transformers, chokes, shields and other precision products for ultra short wave, short wave and broadcast receiving and transmitting.

13. TOBE DEUTSCHMANN'S condenser merchandiser is created for the proper display of its exact duplicate electrolytic condensers. This silent salesman comes complete with one each of the most popular types, and is free with each order. If you're interested in further details, check the number below.

14. Three promotional pieces on the ALL STAR JR. (the radio sponsored by 11 parts manufacturers) are now ready. You'll want these if you're going in for this new idea in radios.

15. A vest pocket combination price list and radio log as well as tube stickers to show date of sale are offered by ARCTURUS. Tube stickers are free but will be imprinted for \$1 per 2,000. Please note on coupon if you wish imprint.

16. RADIO INSTITUTE OF THE AUDIBLE ARTS is publishing manuals that will aid in the appreciation of broadcast programs of music, education, news, entertainment, etc. Will send copies to those interested.

17. Dealers interested in all-wave antenna systems, in noise suppression in auto-radios and in wires of all types will want Catalog 44 and supplement issued by CONSOLIDATED WIRE.

CIRCLE . . . SIGN . . . CLIP . . . AND MAIL

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**SEARCHLIGHT SECTION**

*Classified Advertising*

Classification Page



## WE SENT THIS MAN OUT TO INTERVIEW SOME DEALERS . . .

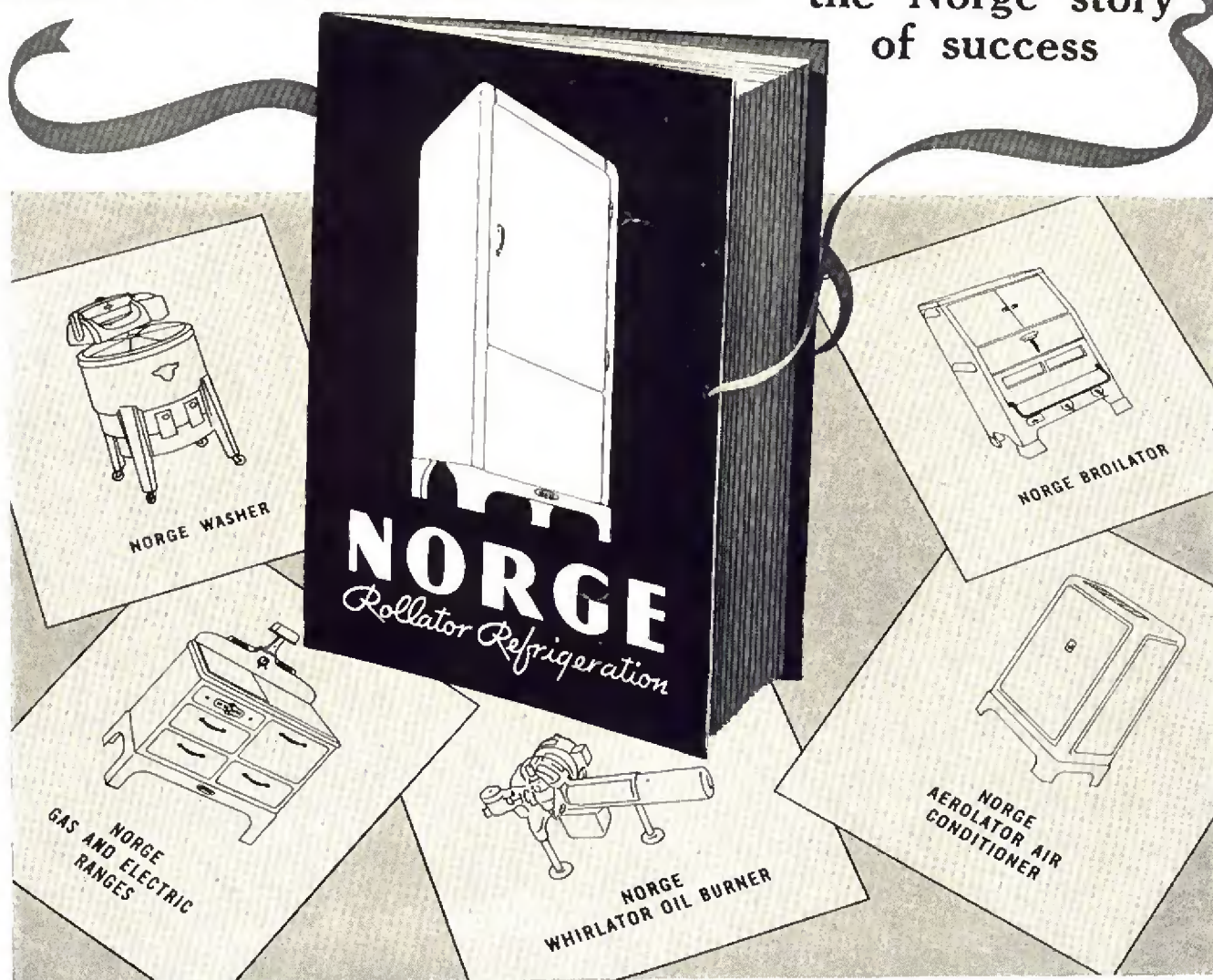
"Go out," we told him, "and ask some frank questions. Get some frank answers. What do they think of the product? What do they think of the service? Remember! Dealers and servicemen are the *only* people who can tell us what we want to know..."

Our man went out. He talked a little. He listened a lot. And he found that the successful, money-making dealers had two "slants" on Sylvania.

First, they liked the tube. "There's no better tube on the market," they said. "It's a high quality tube—and we don't have any trouble pushing it successfully, and earning a real profit. We need and have a right to expect the profit from sales at full list price. Sylvania Tubes are the cleanest on the market when it comes to price cutting."

"And we like your company, too," they said. "You

# NEW CHAPTERS to be written in the Norge story of success



## NOTABLE NEW PRODUCTS ...ALL NORGE QUALITY

• When you sell a Norge Rollator Refrigerator, you turn a customer into a friend. Now there are new Norge products to help you turn that friend into a customer again. And how much easier it will be to make the sale when the customer has learned about Norge quality and dependability through Rollator Refrigeration.

Norge dealers have made a spectacular success with *one* product. Think what they can do with these new additions to the line. You may be well assured that each and every one of these new products exemplify Norge style, beauty,

quality and performance ... and carry typical Norge sales support.

The high expectancy of salability to which Norge dealers have been educated, will be further stimulated by these splendid new products. They will sell to old customers, create new customers, new store traffic and new profits.

Write, wire or phone today for complete details.

**NORGE CORPORATION**  
Division of Borg-Warner Corporation, 606-670  
East Woodbridge Street, Detroit, Michigan.

• Rollator Refrigeration • Electric Washers  
• Broilator Stoves • Aerolator Air Conditioners •  
Whirlator Oil Burners • Gas and Electric Ranges

# Climb Aboard!

## THE G-E RADIO BAND WAGON IS GOING . . . . . YOUR WAY



### What the G-E Radio Bandwagon Gives You

A line of outstanding receivers . . . An impressive advertising campaign . . . Sales promotion of sure-fire effectiveness . . . A dealer campaign that offers valuable prizes and a trip to The House of Magic at Schenectady, N. Y., all expenses paid . . . Mail the Coupon NOW.

The radio dealer who is "going places" today is the one who has a definite objective. He has a goal, and he's headed for it. All his plans point in that one direction.

It is not by chance that G-E Radio's objective and the goal of established, profit-making dealers coincide. General Electric *knows* where it's going. Past performance proves that General Electric *gets* where it's going.

Ride the General Electric Radio Bandwagon and you'll be in the best of company. What's more, you'll be sure of getting somewhere worth while!

General Electric Company,  
Merchandise Department,  
Bridgeport, Conn.

Attention: Sales Promotion Section

This G-E Radio Bandwagon business sounds good to me. Please let me have the details at once.

Firm Name.....

Street address.....

City.....

State.....

Signed by.....

# GENERAL ELECTRIC

## ALL-WAVE RADIO