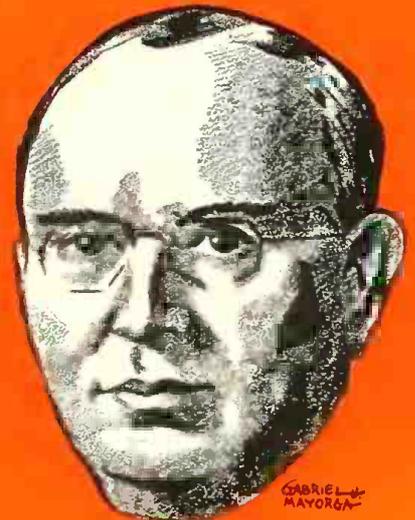
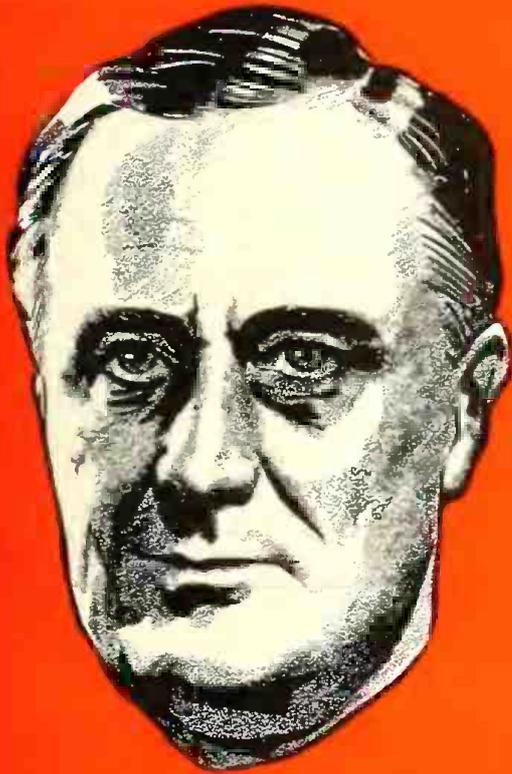


# RADIO TODAY

\$1 Yearly

Caldwell-Clements, Inc., 480 Lexington, Ave., New York City

May, 1936



## Because—

- 23,400,000 homes now have radios
- 3,700,000 autos have receivers
- 90,000,000 persons depend on radio for latest information
- broadcasting is unparalleled in shaping public opinion—

## RADIO WILL ELECT THE NEXT PRESIDENT!

# Here's the Real Reason Why People Buy Radios



## NBC Programs!

**Y**OUR customers want the handsomest radio set they can afford—with the newest mechanism, and the best possible reception—but more than these, they want the wealth of entertainment a radio can bring—drama, comedy, variety, music—news—all the riches of radio showmanship.

Naturally, this gives the broadcasting system an interest in common with the country's 15,000 radio dealer's. That's why, in stressing the finer programs of the National Broadcasting Company, we give dealers a most

powerful selling point. Programs sell radios, and customers understand that the finest programs are worthy of the finest reception. You can thus center their interests on the higher priced sets.

We think you can sell more and better sets when you point out the consistent quality of NBC programs,\* the popular features now scheduled, and the biggest of all summer radio shows in prospect. It includes the Olympic Games, Baseball, the Texas Centennial Celebrations, and the National Political Conventions.

\* Women's National Radio Committee has just awarded first place to NBC programs—in 3 out of 4 classifications for 1935-1936. Too, 9 out of 14 runners-up were NBC programs.

Tune in the RCA Magic Key Program every Sunday 2 to 3 p. m. E. D. T., on the NBC Blue Network

### NATIONAL BROADCASTING COMPANY, Inc.

A Radio Corporation of America Service

NEW YORK

CHICAGO

WASHINGTON

SAN FRANCISCO

NBC PROGRAMS ARE THE MAGIC



KEY TO INCREASED PROFITS

# AMERICAN-BOSCH

*... after 12 successful years, still*



# THE BEST IN RADIO

**The 1937 American-Bosch Radio Line will lead in performance, engineering and sales making features as important as metal tubes and the CentrOmatic Unit. Watch for announcements.**

---

**SEE**

**ZENITH**  
TRADE MARK REG

**FIRST**

---

*America's Most Copied Radio*

---

Introduced to Zenith Distributors on May 14th—Zenith for 1937 *absolutely astounded* some of the most hardened veterans and experienced merchandisers in the radio business! "This" they agree to a man—"Is a **LINE!** A Line to go to town with!"

**1 9 3 7**

---

SEE

**ZENITH**  
TRADE MARK REG

FIRST

---

*Always a Year Ahead!*

---

You know what happened last year. Zenith dealers increased fourfold in number last year—*why?* Because the public *demand*ed Zenith. Dealers made money—*why?* No excessive trade-ins . . . no large inventories at season's end . . . no cut price or clearance sales. This year Zenith is again a year ahead with *7 Big New Major Features* and more than a score of added improvements you can see, hear, touch and understand . . . many of them patented so they can't be imitated. Radio, like everything else in life, is highly competitive. The Indian thought his tent was a palace until he saw the white man's home. So don't load up until you have seen Zenith.

*As An Example*

*of what you can expect from Zenith this year, picture in this space a six tube model with Big Black Zenith dial, beautiful two toned walnut cabinet at only* **\$29<sup>95</sup>**  
list

**1 9 3 7**

# THERE'S Rhythm IN EVERY



## Rhythm SENIOR Model 527

Five meta-glass tubes. Standard band and foreign short wave. Walnut console 35" high, 18 $\frac{3}{4}$ " wide, 9 $\frac{1}{4}$ " deep. Eight-inch speaker. List: \*49.95.

Model 527-B, same as above, for six-volt battery: \*54.95.



## Rhythm MASTER Model 627

Walnut console 38" high, 21" wide, 11 $\frac{1}{2}$ " deep. Six meta-glass tubes. Three-band, all-wave dial. Full-range 10" speaker. List price: \*69.95.

Model 627-B, same as above, for six-volt battery: \*84.50.



## Rhythm QUEEN Model 927

Walnut console 40" high, 23" wide, 11 $\frac{3}{4}$ " deep. Nine meta-glass tubes. Three-band, all-wave dial, "Electric Eye," full-range 12" speaker. List: \*99.50.



## Rhythm KING Model 1127

Walnut console 42 $\frac{3}{4}$ " high, 25" wide, 12" deep. Eleven meta-glass tubes. Three-band, all-wave dial, "Electric Eye," full-range 12" speaker: \*150.00.



## Rhythm BABY Model 417

Four-tube AC table set. Standard and police bands. Walnut cabinet 11 $\frac{3}{8}$ " high, 9 $\frac{1}{4}$ " wide, 7 $\frac{1}{2}$ " deep. Five-inch speaker. List price: \*19.95.

Model 407, four-tube AC-DC. Standard & police. List: \*19.95.



## Rhythm BELLE Model 467

Four-tube AC table set. Standard and police bands. Walnut cabinet 8 $\frac{3}{8}$ " high, 13 $\frac{1}{2}$ " wide, 7 $\frac{3}{8}$ " deep. Five-inch speaker. List price: \*24.95.

Model 507, five-tube AC-DC. Standard & foreign. List: \*29.95.



## Rhythm JUNIOR Model 517

Five meta-glass tube table set. Standard band and foreign short wave. Walnut cabinet 17 $\frac{1}{4}$ " high, 13 $\frac{3}{8}$ " wide, 9" deep. Six-inch speaker. List: \*34.95.

Model 517-B, same as above, for six-volt battery. List: \*39.95.



## Rhythm MAID Model 617

Six meta-glass tube table set. Three-band, all-wave dial. Walnut cabinet 21 $\frac{1}{4}$ " high, 17" wide, 12 $\frac{1}{4}$ " deep. Eight-inch speaker. List price: \*59.95.

Model 617-B, same as above, for six-volt battery. List: \*69.95.

**PUT RHYTHM IN YOUR SALES**

*DETAIL OF THE 1937 LINE OF*

# ARVIN *Radios*

Wrapped up in that one little word—rhythm—are the sound reasons why this new 1937 line of Arvin Radios will sell and make extra profits for every dealer who stocks them, regardless of other lines he may carry.

## There's Rhythm in Arvin's Eye-Catching Beauty

A pleasing, modern rhythm of design gives all models a definite Arvin "family resemblance"—yet each one is a smartly styled individual in its own right. Beautiful natural woods of unusual grain, and appealing cabinet lines, harmonize perfectly with the scheme of things as a woman sees them in her home.

## There's Rhythm in Arvin's Ear-Pleasing Performance

The rhythm of every part working together perfectly is expressed in the tone, selectivity and station-getting ability of every model. No mystery or magic about Arvin's splendid features. Large rich-toned speakers, of course. Built-in aerial tuning system in all-wave models. Jumbo, open-face, reverse lighted dial—easy to see and tune. Oscillograph ray tube, or "electric eye" station tuning featured in the two large models. And all the other newest developments in radio.

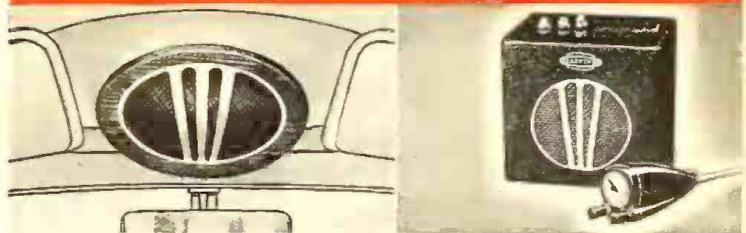
## There's Rhythm in Arvin's Purse-Fitting Prices

There's rhythm in the range of Arvin's prices—from \$19.95 for the compact 4-tube Rhythm Baby, standard and police-band table model, through a proportionately moderate scale to the big, impressive Rhythm King for those who want an 11-tube all-wave console model—at \$150.00.

The new Arvins have rhythm in everything—in appearance, performance, and price—the rhythm that people want in the radios they buy. There's a model to suit every desire. Stock Arvins this year and take advantage of the extra profits this splendid line will make for you. See your jobber or write us for complete information.

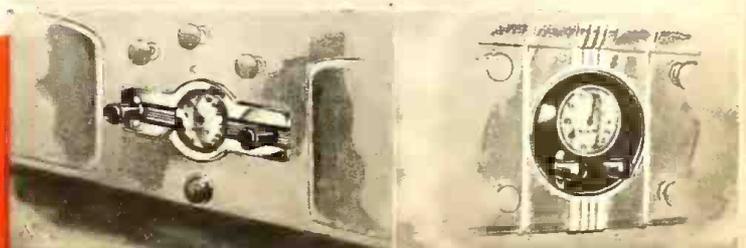
NOBLITT-SPARKS INDUSTRIES, Inc., Columbus, Indiana  
*All prices are list—slightly higher west of Denver*

*Sell Arvin "Tailor-Fit"*  
AND MAKE MONEY ON CAR RADIOS



*Overhead, separate case, or in-the-set speakers with steering column or matching panel controls. Everything to meet every requirement. Any combination your customers want. Prices as low as \$39.95. See o nearby Arvin jobber for full infarmotian.*

**WITH ARVIN!**





THERE'S Rhythm IN EVERY DETAIL OF THE 1937 LINE OF

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Five meta-glass tubes. Standard band and foreign short wave. Walnut coneole 35" high, 18 3/4" wide, 9 1/4" deep. Eight-inch speaker. List: \$49.95. Model 527-B, same as above, for six-volt battery: \$54.95.



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PUT RHYTHM IN YOUR SALES WITH ARVIN!

1935...

THANKS!

OUR sincerest thanks go out to the trade for joining hands with Philco and producing the biggest Spring business in the history of radio!

No company ever had more wholehearted, loyal support from distributors and dealers. We appreciate it—and we will endeavor to deserve this support more than ever in the new season!

Philco distributors and dealers have demonstrated that with a quality line and with proper advertising and merchandising back of it, Philco is a year-round business—this money can be made each and every month!

On Saturday of this week Philco distributors from every part of the country will head the "March of Bands" for the annual Philco Convention. They will see the new Philco—the "The Philco" that has been...

1936...

Thanks

Again!

Last year, at this time, it was our pleasure to run a trade-paper advertisement thanking Philco distributors and dealers for the largest Spring business in radio history.

What we said last year "goes double" this year! Again Philco distributors and dealers have broken previous records; and the months just closed show a tremendously greater sales volume than a year ago!

We appreciate that! So again we extend our sincerest thanks, coupled

with a pledge to do everything in our power to deserve the same wholehearted loyalty and support in the future that has been given us in the past.

And . . . we cannot overlook this opportunity to especially congratulate the Philco dealers who "rang the bell" in the big Philco Cruise Contests. The winners merit their well-earned trips to Havana, Cuba. We extend greetings to them for a "bon voyage" . . . and to all the Philco dealers goes our wish that 1936-1937 will be their most profitable year.

PHILCO RADIO & TELEVISION CORPORATION

Staff—

DARRELL BARTEE  
 RANDALL R. IRWIN  
 G. H. MAYORGA  
 M. H. NEWTON  
 B. V. SPINETTA  
 VINTON K. ULRICH

LEE ROBINSON  
*Sales Manager*

# RADIO TODAY

ORESTES H. CALDWELL  
*Editor*

M. CLEMENTS  
*Publisher*

480 Lexington Ave.  
 New York City  
 Tel. PLaza 3-1340

Vol. II, No. 5

## HAND THAT BUILDS THE PROGRAMS SELLS THE SETS

★ Who writes broadcasting history will need to save a nice big page for summer, 1936. The set-up is special and resultant benefits to the dealer are unlimited; he scarcely needed extra help from the studios in a Presidential year, but he got it anyway.

Stunt features and quality programs, deftly caught up by radio dealers for use in summer campaigns, have a significance which is easily striking enough to put a brand new aspect on receiver sales for the season.

The Louis-Schmeling fight, June 18, is expected to mean a mild boom for servicemen and dealers. Interest in this match is greater than the record-breaking to-do about the Louis-Baer scrap, and radio men have the advantage this time of having the uproar begun several months ahead. Networks made their broadcast plans, signed their contracts and arranged all details even before the date was set. Dealers have stepped in line with special service promotions already outlined.

## DEAR BROADCASTERS:

★ Miraculous items may be gathered up to show that persons by the millions take their radio programs very seriously. Not just the single success stories which air advertisers are inclined to brag about, but a long series of remarkable incidents:

Letters totalling 30,000 asked that America's Town Meetings be continued, Bob Decker got 200,000 requests for a can opener, 150,000 people enrolled in the Better Speech Institute. Oxydol had to judge 1,000,000 entries in a limerick contest, 418,000 persons wanted pictures of Orphan Annie, etc.

To continue: "Dot and Will" read 20,000 audience letters in 3 weeks, Omar the Mystic got 68,799 letters one week, Edgar Guest got 250,000 replies for one offer and 27,000 for another, Honey Boy and Sassafras pulled 13,000 for a casual offer to send a poem, Boake Carter received 100,000 requests for copies of a talk which he didn't offer to send, Eddie Cantor got 212,000 entries in his peace contest, "Cafe of the Red Dagger" program pulled 10,000 requests for a pack of Spuds, Fibber McGee got 12,000 people into a song-writing contest, Tim Healy averages 50,000 letters a week, the Carborundum program netted 100,000 customers in a week, Sinclair Minstrels got 1,000,000 responses to one offer, 14,000 people a day are asking The Singing Lady for a Song Book, a single offer pulled 8,000 requests for Climalene, Betty Crocker practically sold 2,000,000 cakes for General Mills in one week, and just the other day, 91,046 general letters came to NBC's mail room in New York.

## 22,869,000 RADIO HOMES

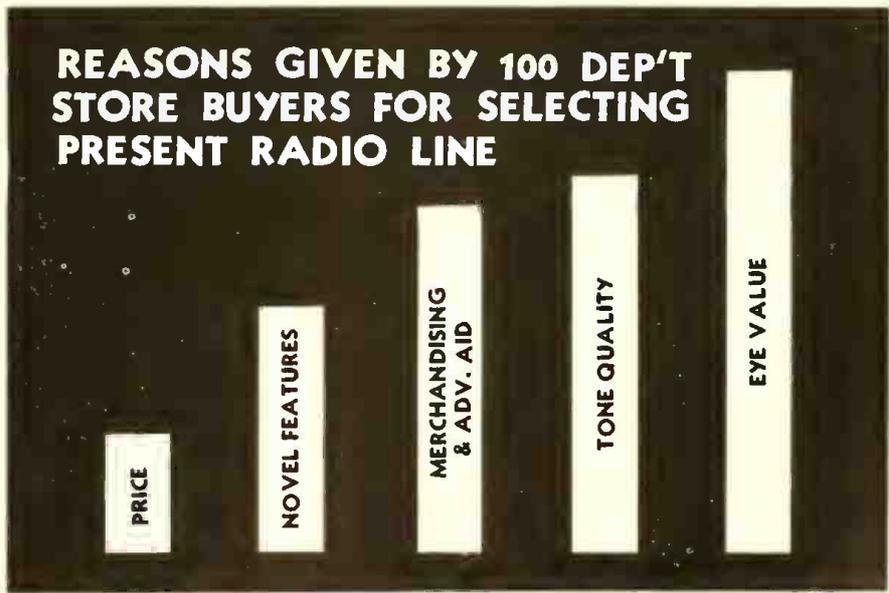
★ After repeated huddles since December, 1935, the Committee of Fifteen and its sub-committees, representing NAB, ANA and AAA, on May 1 brought in its estimates on radio in the U.S. as follows:

Radio families Jan. 1, 1936	22,869,000
Increase over Jan. 1, 1935	6.6%
Home radios sold 1935	4,400,000
Sets to homes previously radioless	32.1%
New radio families added 1935	1,413,000

The committee is now at work estimating the number of radio families by states and counties. These figures are promised "within a few weeks."

## THE NETWORKS BARGAIN

★ Expansive gestures currently made by the national webs appear to stop nowhere and at nothing. Determined attempts to perfect coverage are perhaps headed by the spectacular annexation by CBS of KNX, Los Angeles 50,000 watt. Columbia thus spent a reported \$1,250,000 to strengthen its position on the West



Factors that interest retailers, from survey conducted by "Radio Today."



W. J. Halligan, dynamic president Case-Hallicrafters, Inc., rushes everywhere by air, can handle his own plane.

Coast, and has elaborate plans to use its new clear channel station to promote Pacific Coast activity similar to NBC's.

President Lohr of NBC has announced that WJZ will go to 500 kw., rivalling Crosley's WLW.

Meanwhile, Boston's oldest radio station, WNAC, joins the NBC red network in the East, and by Fall will get into full operation as a National affiliate.

## MECHANICAL MUTT

★ Head-and-tail above the prize pooches of the day, stands an extraordinary newcomer who can and will out-growl any blue-blood watch-dog that the kennels can produce. You haven't been really growled at until you've heard the unearthly alarm this new creature is capable of.

Somebody with a sense of humor out in a western city owns one; he stands transfixed in an iron dog-house in the front yard, makes no display of affection, and doesn't have to be walked. Fact is, he's electronic.

The man-made mutt is equipped with a terrorizing buzzer and an amplifier adjusted to produce a robust growling effect. It's hooked to a photoelectric relay (electric eye) which is set to scan the sidewalk. When visitors pass down the walk and interrupt the beam of light, the magnetic voice is energized and the visitor is magnificently growled at. Harmless to look at, this robot watch-dog is no respecter of persons, and they say he sounds grossly underfed.

## TELEVISION 18 MONTHS OFF, ANYHOW

★ Although television tests start next month from the Empire State tower in New York City, at least a year will be required to test present equipment and plans in the field. Fifty television receivers, like that pictured on a following page, will be in use by RCA engineers during summer months to test reception in New York area. Earliest possible date for television sets to be put on market in limited way is therefore autumn, 1937. And even this date is conditioned on successful progress of tests.

Coming field tests, for which RCA has appropriated one million dollars, are to try out three things, explains F. R. Beal, who succeeds W. R. G. Baker as chairman of the RCA television committee:

1. Performance of present apparatus under field conditions.
2. Characteristics of the short-wave channels.
3. Program requirements for television, production methods.

Already one of the large NBC studios in Radio City has been rebuilt for television use, and will feed pictures to Empire State transmitting antenna, 1,250 ft. above Fifth Avenue.

## FRENZY, IN FRANCS

★ From a house called "Radio Amorique" in Nantes, France, comes an undecorated version of what it costs a modest French radio dealer to function for a year. Report was prepared for RADIO TODAY by Jorge Laboureur, 12 Rue Copernic 12, who doesn't miss much and who is inclined to fret about business taxes.

Changing Monsieur Laboureur's francs into American coin, it seems that yearly rent would cost \$312, and a license, \$253. The dealer should advertise to the extent of \$130, and it appears that he should have a "saleswoman" costing \$390. The "mechanic" will nick him for \$624 and a "boy" is worth \$195. Insurance amounts to \$143. French telephone companies have the nerve to charge an average \$163 for what is easily the world's worst service, and the average light bill is \$71.

Laboureur says too that there is a 2 per cent turnover tax (sales tax to you) and a 10 per cent tax on annual profits. In the end, a dealer charges \$60 for a "cigar box" receiver. Mon Dieu!

## RADIO DATES AHEAD

Republican National Convention, Cleveland, June 9.

Federal Communications Commission's radio-service allocation hearings, Washington, D. C., June 15.

Radio Manufacturers Association, twelfth annual convention, Hotel Stevens, Chicago, June 17-19.

Democratic National Convention, Philadelphia, June 23.

National Association of Broadcasters, fourteenth annual convention, Hotel Stevens, Chicago, July 5-8.

## FRESHMAN ART

★ To drag a group of wide-eyed high school youngsters through the studios of a broadcasting station is no stunt, but if the program director happens to have a clear period at the time, it isn't safe anymore. The students may find themselves on the air, and if they don't have their lessons done, faces are seen to redden.

Sociology students at Oakhurst, N. C., high school, recently got around to a study of communications and instructor R. A. Rainey toured them through the WBT studios at Charlotte, to have a look at the facilities. Charles Crutchfield, program chairman, was in an informal mood. He asked the instructor to conduct the class in a studio, and the whole procedure—questions, answers and all, went on the air.



Henry C. Forster, president Radio Speakers, Inc., is active in planning RMA convention in June.



Bill Grunow, head of General Household Utilities Corp., telling the world that his company is again going ahead in a big way.

## HEADPHONES FOR SHORT-WAVE TUNING

★ First prize in the indoor sport of "How to Torture Your Wife" goes to the short-wave fan who turns on volume and sensitivity to maximum and then proceeds to tune through the megacycles. To the poor unfortunates within earshot of such a short-wave pest the effect is that of a machine-gun squad turned loose in a boiler factory.

Headphones for such short-wave tuners is the solution offered by a Chicago dealer. He provides his customers with headsets which can be plugged in when the switch is made to shortwaves. With such a headset the shortwave fiend can tune through the boom-booms and tweet-tweets with only himself to be annoyed until some satisfying program is found, after which the loudspeaker can be turned on so that all may hear. Such headphone jobs are known to have prevented several trips to Reno.

## DEALERS MUST PROVE IDENTITY TO BUY

★ There is a new angle to the sale of parts and supplies by Mid-West wholesalers. Always there has been that group who will sell to anyone at wholesale prices, thus wiping out the spread that ought to be maintained for the legitimate trade.

But into this racket have recently stepped some concerns who operate

under a rigid and unique policy of protecting the dealer at all costs. To purchase from these, dealers must identify themselves, whereupon they are checked up and "registered" for future transactions. The prestige and the popularity of such distributors are gaining strength in Chicago, especially among those vets who recognize the advantage in the long run.

## MAY—MONTH OF RADIO CONVENTIONS AND CRUISES

★ Indicating the great stability and activity in which radio today finds itself, May has been a hectic month of manufacturers' conventions and gatherings of distributors—with two set-makers arranging chartered cruises into tropical waters. On one of these cruises alone, it was rumored that a million radio sets would be contracted for!

First to cast off was the General Electric cruise, with 380 radio dealers of New York and vicinity. Sailing May 1, ports of call included South American cities, the Panama Canal, and Jamaica. The cruise was under the supervision of Earl Poorman and D. W. May, of New York City.

The Crosley convention was held in the studios of WLW, Cincinnati, May 8, when 150 officials and distributors had their first showing of the new "Mystic Hand" which automatically tunes the receiver to the proper place on the dial. The automatic bass compensator and auto-expressionator in their new refinements were also demonstrated. In welcoming the distributors, Powel Crosley, Jr., declared that the company is set

for the biggest production schedule in its history, to care for the unprecedented demand for radios.

Zenith distributors met at the Hotel Stevens, Chicago, May 14 to 16, with Eugene F. Tracey, vice-president and general sales manager, presiding. Commander McDonald welcomed the distributors, and arrangements were made to show the new Zenith models. Paul M. Bryant, new addition to the executive staff as assistant to the president, was introduced. A number of skits made up the entertainment features of the convention.

Six hundred RCA distributors and representatives gathered at the Edgewater Beach Hotel, Chicago, May 14 and 15. President E. T. Cunningham welcomed the delegates, with Judson Sayre presiding. C. T. McKelvey presented the complete new line of RCA sets, and Tom Joyce told of advertising plans and increased publicity budgets. A production increase of 100 per cent is planned.

Eight hundred Philco distributors and salesmen were scheduled to sail from New York, May 15, on the *Monarch of Bermuda*, bound for Havana. A program of business sessions had been planned for the days at sea, with a full day in Havana, returning to New York, May 22. Important new advertising and merchandising plans were to be disclosed for the coming Philco season. Two other cruises to Havana for Philco dealers, were scheduled to leave New York, May 24 and June 1. During the May 15 cruise, it was learned orders for a million radio sets were expected to be closed, at a value of over \$25,000,000.



J. M. Skinner, president of Philadelphia Storage Battery Co., and Sayre M. Ramsdell and Larry Gubb, executives of Philco Radio and Television, conversing over the dinner table. Philco repeats its cruise on the "Monarch of Bermuda" going to Havana this year.

# SUMMER SALES FIND NEW LEVELS

Weeks in average vacation .....	2.58
Per cent of vacationists who go away .....	85
Per cent of all car owners without auto sets .....	85.7
Per cent of auto radio owners listening in the evening .....	90.6
Average Sunday listening hours in cars during summer .....	2
Per cent using their car sets over 50% of the time .....	60.1

★ BEATS all, how radio manages to stage a sales picnic on the current grass!

When dealers tear off the May calendar, they face the fact that a certain number of persons are determined to relax. Seasonal relaxers this summer, however, are not interested in the open air unless it has certain radio programs in it; they find themselves enthusiastically shopping for what's on the dial.

Broadcasters have therefore hustled about to get some scientific dope on what people do in the summer and what happens to their listening schedules. Naturally, the listener devotion to auto receivers was a major angle, so the broadcasters went into that, too.

NBC engaged experts to interview 7,456 families in five representative cities of the U. S. Among other welcome items, it was discovered that out of every 100 adults, 92 are at home during any one summer week,

and out of the 8 who go away, 5 are available to radio. If you took 100 adults who get vacations, you would find too that 15 spend them at home.

## Places to sell sets

Curious investigators also went into the matter of where the vacationists go, when and if. Out of the 100, it seems that 58 go to private cottages where 81 per cent of them are available to radio; 15 go to hotels where 63 per cent are available; 13 to camps where 42 per cent may listen; 8 travel where 21 per cent may remain broadcast fans; 4 go to boarding houses where 66 per cent may hear programs, etc. The rest, of course, are prospects for calls by radio salesmen.

In the same survey of the five cities, it was revealed that 75.9 per cent of the families had cars, and of these, only 14.3 had receivers already installed in them. The average sum-

mer listening period for week days was found to be, in cars, about 60 minutes, ranging from 35 minutes on Saturday, to 120 on Sunday.

If you want to compare these figures with those for winter driving, the average listening period for week days is 57 minutes, ranging from 30 on Saturday to 81 on Sunday. Any way you look at the set-up, it appears that there's a great sales field for summer merchandisers of auto sets, both from the standpoint of drivers still to be sold and car-owner interest in broadcasts.

CBS also made an important analysis of the listening done by the owners of auto-radio sets. A careful check-up revealed that 90.6 per cent of them actually tuned in for evening features; the figure for afternoon is 62.1 and the per cent of tuners-in for morning periods is 61.3.

## Drivers tune in

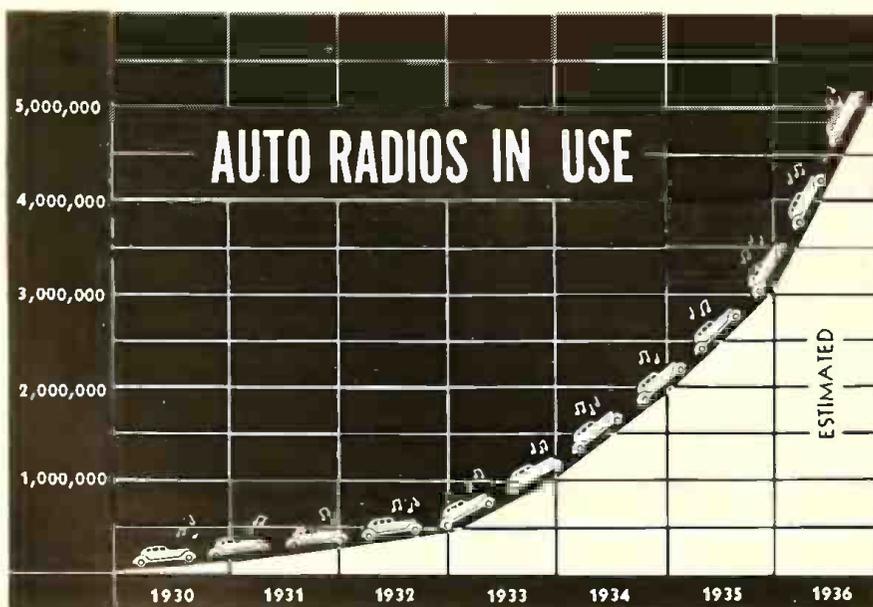
Interesting angle on the demand for car radio reception appeared when Columbia asked, "what is the average number of people who listen to your auto set?" Results were that 6.3 per cent said that 5 or more persons listen, 15.8 per cent said that 4 persons listen, 23.9 per cent said that 3 persons listen, 46.9 per cent said that 2 persons listen, and only 7.1 per cent reported that a single person listened.

Servicemen will be specially interested in the discovery by CBS that 60.1 per cent of auto radio owners use their sets over 50 per cent of the time. It appears that listening has become a definite part of highway activity.

## Seasonal features

Presented specifically for auto listeners, and offered only after it was found out when the demand occurred, a new feature by NBC has gone on the air Sunday afternoons on the Red Network. Feature has its tempo, its material, its essential nature based directly upon the needs of the driver; it is called "Sunday Drivers" and it features the variety artists, Fields and Hall.

This move by the broadcasters is described by them as the opening gesture of a series to be made at the



Herewith the steadfast uptrend in popular acceptance for car receivers, in a chart adapted by "Radio Today" from a recent analysis made by CBS.

studios, to keep motorists happy. Such statements have a powerful significance for the dealer, since active cooperation from the programs men is a boost that means plenty when it comes to the business of down-to-earth selling.

News to break within a few months has a signal quality which promises radio an exceptional summer. Naked truth is that the presidential contest will be the hottest in 20 years; political experts foresee the final showdown on the New Deal. What the Republicans do in Cleveland on June 9 will actually affect the financial destinies of so many persons that popular interest in universally tense.

### General furore

Further, nothing intrigues the public like the rumor that the Europeans are digging trenches, and there's a good war scare in the bag for summer. Ethiopian victory has changed the mood of Mussolini; France and England will find him hard to please. with the Italian tri-color flying in Addis Ababa. Hitler seems likely to take steps either in Austria or in Memel, and with the Japs so inordinately interested in Mongolia, anything can happen.

Broadcasters are ready with a full coverage of the summer's mix-up, knowing that a million extra hands will reach for the dial.

Air angle on big-league ball-playing: contracts for broadcasts of summer games have been signed by one sponsor alone for airings in 22 principal cities.

Dealers the nation over have already begun to use the ball schedules in their ads, with considerably more spirit and confidence than they exhibited last year. In areas where interest in sports is particularly pronounced, dealers have reported hook-ups with sporting-goods stores whereby each purchaser of baseball equipment is given a bulletin, with the radio angle of the season dramatized.



Special auto-radio broadcast now on the air for the benefit of auto-radio listeners—Fields and Hall, NBC's variety artists, Sunday p.m. at 5.

### STUDIO MAGIC

★ Broadcasting devices and studio tricks which are curious and unheard-of, are making their appearance in the new attempts of radio to get stage plays across without benefit of "sight." Topflight players and plays have definitely worked into important places in programs, and the creators of the radio versions find themselves confronted with a new art for which the rules have not, and cannot be written.

Sound effects must carry the whole narrative and action of the play, and yet there must be few enough of them to avoid confusion and to prevent dragging the tempo of the piece. The opening and closing of doors, squeaks and thuds, and adroit timing of dialogue must be arranged in perfect sequence with the completely re-arranged scenes of the play.

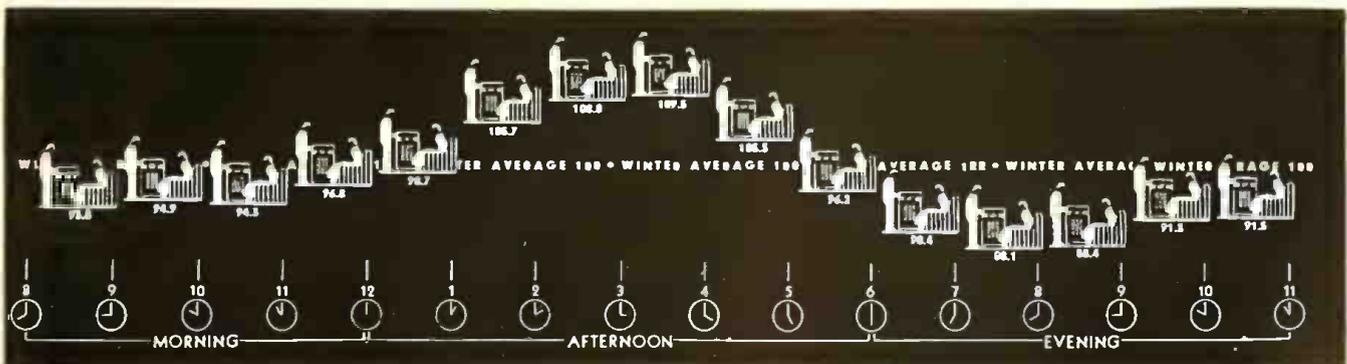
Few of the adaptation devices can be used twice, and only the most skillful sound experts know what to do in each instance. It's one of those

places in broadcasting where an extraordinary brand of originality is demanded.

### TRIGGER TOWN

★ Town of Evanston, Ill., still throbs with civic energy, even after the National Safety Council decorated the city with a grand prize for local finesse in managing traffic. Now, the city has called in some GE engineers and had one of its ambulances equipped with short wave transmitting and receiving apparatus. The device thus gives emergency drivers instant two-way contact with police and hospital officials and saves a great deal of time where time means life.

Evanston hospitals are given the high-sign on the condition of the patient and everything is made ready in the emergency ward. Ten of the police prowler cars are also equipped with two-way radio apparatus so that the hook-up is complete and practically delay-proof.

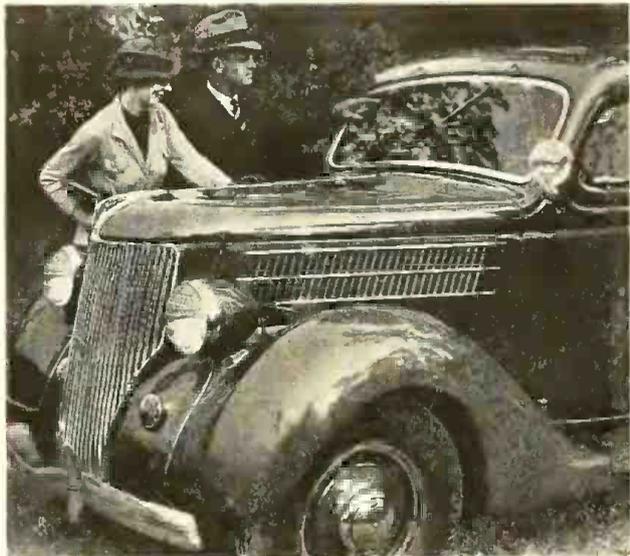


Ether interest during the summer day (compared with winter), frankly charted by NBC after a new investigation of the matter.

# NEW MANPOWER SELLING RADIO



Stokowski and his RCA-Victor orchestra complete a coast-to-coast tour. Tom Joyce holds Nipper, canine heir-apparent of "His Master's Voice."



Throughout the U.S., 160,000 automobile salesmen and dealers are now stressing the value of auto-radio as prime aid to motoring enjoyment.



Sporting goods dealers, vendors of vacation supplies, insist that portable radios like this Ansley are "must" items for outdoor interludes during summer.



In this new Gar Wood cruiser, a Philco radio is standard equipment. Along all the coasts and lakes and rivers of the nation, motor-boat salesmen are now "selling radio" as an indispensable adjunct to enjoyment of holidays on the water.



# SELLING MODERN "SOUND SERVICE"

- current season unusually sensitive to "PA" promotion
- servicemen, dealers and broadcasters find many prospects
- quality equipment and successful jobs best advertisements

★ DUMP or dock, park or prison, there's always a speaker or a musician who needs reinforcement.

From the dozens of places where "sound service" is in demand, radio dealers are picking up extra dollars by supplying appropriate amplifying systems. Season is so promising that in many cases they only have to make themselves known.

No better method of plugging a sound service can be devised than by piling up an impressive series of successful jobs, and gently bragging about them. A prospect is always attracted, in the PA business, by the dealer who has a "no failures" record. And when a sound man gets a job in which the speaker or the entertainer is a celebrity, it makes another item which can be used in promoting the service among future prospects.

Dignified reminders, sent by mail to institutions and organizations who are from the nature of their activity constant prospects for sound service, have been found valuable. In these ads, as in all sales arguments for PA, it is indiscreet to mention the matter of price. Each job is different and is worth a different fee; bargaining in this respect is distinctly the wrong cue. Shrewd dealers will explain how desperately unfortunate it is to use shaky apparatus, and then offer a dependable outfit at a reasonable price based upon the gadgets needed and the work involved.

## "Wherever a crowd gathers"

Engineers at station WOR, New York City, have made a singular success of permanent and temporary installations of public address and loud speaker systems "wherever a crowd gathers." Engineers J. R. Poppele and W. B. Davis, able and amiable technicians that they are, have worked out an important servicing style on such jobs. When a prospect contacts them, they begin to take a personal and special interest in the particular requirements of the job, as if they could never be happy again unless they did it up perfect.

Whether the installation is at a political meeting, wedding, ship launching, dedication, church, department store, school, studio, sales meeting,

style show, employees' hall, night club or cemetery, the acoustical and carrying effects are analyzed in a special fashion. Detailed attention is given to crowd-overflow matters, emergency equipment, insurance, announcing, flexibility of installations and final testing.

WOR has enjoyed robust success partly, too, because its experts give patrons the idea that they are not just a bunch of electricians, hired to drag in a mess of wire and horns to be superimposed upon local conditions in a standard and non-variable way. They are interested in the positive satisfaction of all within range of their systems in each case, under whatever conditions they work.

## California lesson

On this subject the C. C. Langevin Co., Los Angeles experts, outline their policy in one-syllable words: "We believe that a PA system is never right until everyone that is to hear can hear, and no one knows that there is a system working."

Langevin also mentions an angle which seems an important aspect of selling PA: "The average preacher or speaker, or what have you, wants to make as good an impression as possible with his voice and he will go to any lengths for something that makes his voice sound good, whereas he will not use anything that distorts it." Obviously, even a sound expert

cannot make a George Arliss out of a club-tongued politician, but it may be worth trying, considering the fact that everyone has quite a supply of personal vanity.

## "Let every word be heard"

N. D. Reiss, of Public Address Systems, Detroit, finds himself in the PA aristocracy of the Midwest because he went into quality work and landed job after job, handling up to 500,000 listeners. This company actually goes out to convince prospects that they should use sound systems, even if they had never thought of it. Promotion includes a mailing list and personal contactors; plugs are aimed at industrial plants, churches, clubs, convention halls, banquets, parties, sales promotions, "Soap Box Derbies," picnics, field meets, boat races, lawn fetes, street dances, moonlights, county fairs and football games.

The Detroit firm goes further and makes pick-ups for broadcast stations, which certainly requires fine technique. Reiss also goes in for modern talking service, offered throughout Michigan, northern Ohio and northern Indiana. Thus the company is able to publicize the exceptional completeness of its service, all of which acts as a magnet for more business. Great care is taken to discard items of equipment which have been replaced by improved products, so that the whole outfit may be offered as up-to-the-minute in all respects.

## Summer selling

Theater companies, playing at outlying houses during the summer season, are a good set of prospects. Many of the local theaters are by no means so elaborately equipped as those in metropolitan areas, and since a stage production usually requires the installation of several microphones and a delicately adjusted system in general, this source of revenue should turn out to be important.

Sound experts should, in the case of dramatic productions, count on a rehearsal or two as part of the service. Allowance will still have to be made for the presence of the audience, but that is an easy matter for experienced PA men.



Take your job by the horns—the mast for these is adjustable and speakers may be lowered for transit.

Where special rigging is needed for the speakers on big jobs, sound men will find it a good policy in the long run to hire local workmen. Union riggers will often be able to supply tips as to where other systems may be needed or have been used.

### More profit

Vogue among business men these days is to use sound effects along with feature advertising stunts. Controlled sound and synchronized action in window displays and special exhibits represent a profitable field of action for sound servicemen. Phonograph turntables, speakers and associated equipment come in for a big play on such jobs.

General Electric's "Talking Kitchen" is a fine example of the effectiveness and appeal of advertising with sound effects. Exhibited all over the country at assorted conventions, shows, fairs, etc., the appliances were arranged so that they actually appeared to talk in the first person, while action and illumination effects were showing off their points.

But whatever branch of sound service the dealer goes in for, there's always the matter of trucks. The experts will get themselves the sort of transportation which will carry delicate mechanisms without too much damage; trucks must be trim, modern, and decked with a certain amount of advertising in case they land in the center of a crowd.

Fuller Specialty Co., Parkersburg, West Virginia, has three such trucks,

## PLACES TO SELL "SOUND" AND P. A.

Airports	Advertising Agencies	Newspapers	Lecture Rooms
Auditoriums	Advertising Trucks	Offices	Memorial Parks
Band Stands	Amusement Parks	Orchestras	Music Schools
Alarm Systems	Arenas	Parks	Paging Systems
Cabarets	Armories	Playgrounds	Political Meetings
Burlesques	Athletic Fields	Prisons	Retail Stores
Colleges	Auction Rooms	Race Tracks	Railroad Stations
Churches	Audition Studios	Restaurants	Railroad Yards
Conventions	Banquet Halls	Sanitariums	Sales Meetings
Dance Halls	Baseball Parks	Schools	Soap Box Derbies
Dining Rooms	Bathing Beaches	Ships	Stock Exchanges
Exhibitions	Beer Gardens	Stadiums	Street Dances
Factories	Bus Terminals	Steamships	Steamship Piers
Fairs	Chain Stores	Stores	Summer Resorts
Golf Clubs	Civic Centers	Stockyards	Swimming Pools
Gymnasiums	Cooking Schools	Theatres	Talking Signs
Hospitals	Department Stores	Vaudeville	Weighing Stations
Hotels	Elocution Schools	Undertakers	Window Demonstrating
Lodges	Football Fields	Yachts	Yacht Clubs
Markets	Lawn Fetes	Picnics	Universities

one of which covers five states; the others operate within a 50-mile radius from headquarters. Fuller carries three additional sound jobs for rental or resale and thus handles any sound job "from a picnic to a complete circus."

### Special aspects

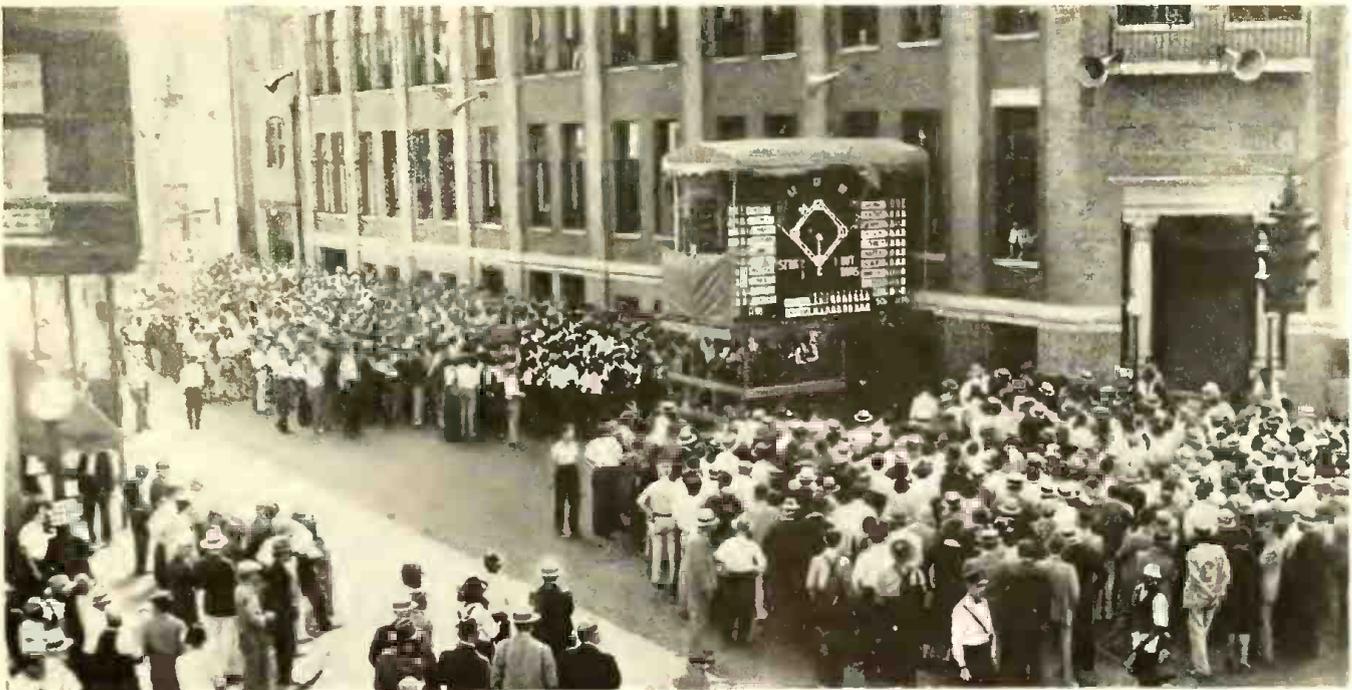
Dealers have been known to get along OK by lining up with a single political party for the season. Such contracts have to be important, of course, or they don't pay.

Politicians, the 1936 editions at least, are inclined to bring their own PA systems along with them, if they are in the midst of a long traveling campaign. But they often lack some equipment which is peculiarly neces-

sary in particular towns and cities.

When amplifying systems are used on the street, there is always that matter of permits from the police. Dealers may well familiarize themselves with the details of local rulings in that respect, and discuss them carefully with the client before the job begins.

For dealers who lack the capital to buy themselves completely new systems, there is another way to get hold of some expensive ones. Connect with the sponsors of a long series, and explain that they should buy their own outfit for such an extended job, with the agreement that you will buy the system when the affair is over. Your men may service the series, as an added inducement.



Gaping gents in this scene may not know it, but their flair for baseball is one thing that makes "sound service" a lively biz. Politics is another, particularly in 1936, when the White House may get a new tenant.

# THRU THE LABORATORY KEYHOLE

- details of new home television receivers for RCA tests at New York
- sight and sound tuned simultaneously in 33-tube experimental sets
- field tests to continue for a year. Commercial in Fall of 1937?

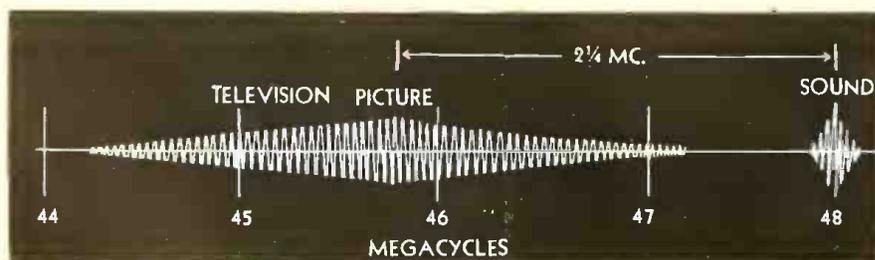
★ FIRST "home-model" television receivers of the lot of fifty which are being made ready for the RCA television field tests at New York City, are now at the laboratory at Camden, N. J. There they are undergoing local experimentation, before the Empire State tower tests start in June.

Each set comprises separate receivers for sight and sound, 33 tubes in all (including the vertical cathode-ray tube with 9-inch screen), and is housed in a good-looking console cabinet about 42 inches high, 25 inches wide, and 16 inches deep. Thus the complete sight-sound receiver is more compact than many present home-radio consoles.

## One knob tunes sight and sound

The two separate receivers, one for wide-band television, the other for high-fidelity sound, take their signals from a single antenna. The only wires entering the new television receiver are the same as has long been standard for home radio sets—antenna, ground, and 110-volt power cord. The television receiver, however, takes about 350 watts of 60-cycle power when operating.

Both television and sound signals are received in the 6½-meter short-wave region; during one series of Camden tests picture was tuned about 46 megacycles (46,000 kilocycles). A single tuning dial tunes in both picture and sound. Thus the user "tunes by ear"—merely adjusting the dial until the sound is heard most clearly and loudly; then the picture (which is on a carrier at a fixed interval of 2¼ megacycles from the sound carrier), is also sharply tuned.



Picture and sound channels are separated by exactly 2¼ megacycles. When sound is tuned sharply by ear, picture is also tuned in.

## Picture 343 lines; 30 frames per second

A television picture of 343 lines has been settled upon for the present field tests, with 30 complete "frames" per second. Since interlacing scanning is used—lines Nos. 1, 3, 5, etc., being first painted in—followed by lines Nos. 2, 4, 6, etc., on the succeeding scanning, one sixtieth of a second later—the effect of flicker is reduced to that of 60 frames per second. At this high frequency of visual impulse, coupled with some delay-fluorescence in the cathode-ray screen itself, flicker is practically eliminated so far as the eye is concerned.

For compactness the 9-inch cathode-ray tube or "kinescope" is mounted vertically, with its screen-end visible at the top of the console under a flat "picture-mask" aperture measuring 5¾ by 8 inches. This 5¾ x 8-in. picture is then viewed by reflection in a chromium-plated steel mirror, tipped at 45 degrees. A front-surface mirror was required to avoid double reflection, and steel was the material selected to guard against breakage. The inclined mirror thus brings the picture for horizontal viewing at the eye level of persons seated on chairs. A group of four to eight adults, thus seated, can watch such a television picture in entire comfort.

## Seven controls

On the front of the television console, within easy reach of the front-row "looker-listeners," are the seven principal control knobs.

At the center, just under the indicating dial, is the *tuning knob*, which

controls both picture and sound. At the right, in a vertical row, are the three knobs for the usual *sound control*—volume, treble tone, and bass tone.

Correspondingly at the left are the *television-control knobs*. The top-most knob adjusts "picture contrast"; the second knob controls picture detail (by sharpening or diffusing the pencil of the cathode-ray beam); and the bottom knob is for adjusting the general brightness of the picture.

These seven knobs on the front of the cabinet are the only controls that ordinarily need be operated by the user after the television receiver has once been set up and adjusted.

## Auxiliary features

For initial adjustment of the television picture, however, there are seven "secondary-control" knobs inconspicuously mounted on the top of the cabinet, alongside the cathode-ray screen. These secondary controls serve to move the picture right or left, or backward or forward in the mat frame, or to expand or diminish its scale, so that the picture can be pleasingly positioned in the picture frame.

In order that the lighted tuning dial may not distract attention from the picture, a new form of dial had to be worked out in which small illuminated numbers are silhouetted against a black background. The lighted dial, while visible, thus does not interfere with the television picture.

## Picture color and detail

The cathode-ray screen mixture at present used gives pictures of a greenish-yellow hue which are both brilliant and pleasing. In fact picture detail is so good, and scanning is so steady that the television medium itself is quickly forgotten by the observer who focusses his attention on the scenes being brought to him. Indoor studio groups; outdoor scenes, such as the Camden fire department extinguishing a roof blaze; and extracts from movie films, have all been televised for the benefit of visiting

officials and newspaper men, who have seemed much impressed at the clearness of the results obtained.

Objectively compared, the quality of the picture now being shown by the new television receivers, is somewhere between the degrees of detail usual with 16-mm movie film and 8-mm film.

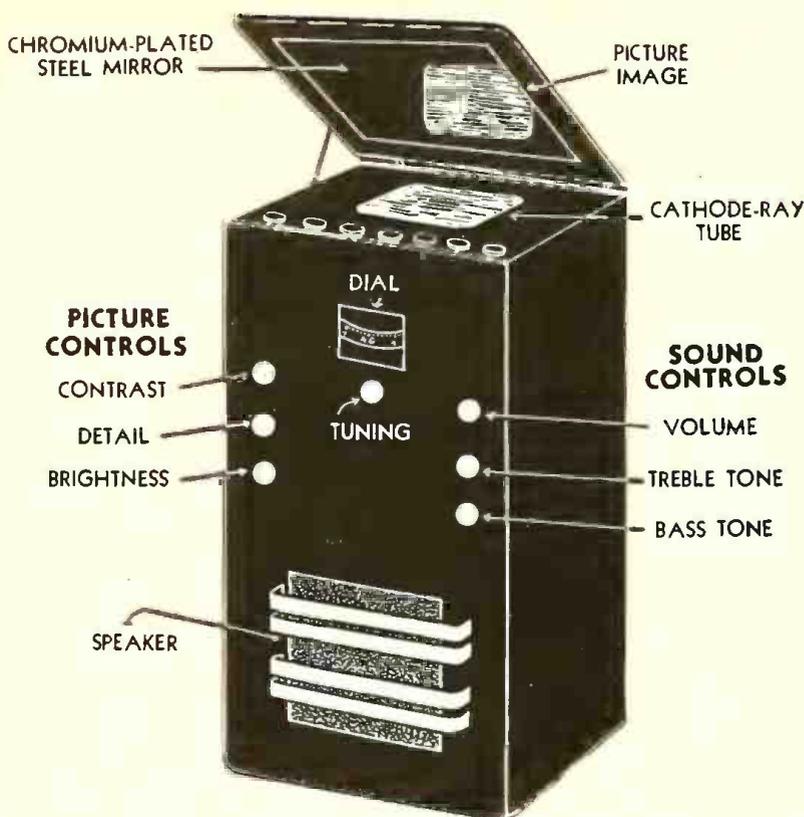
No estimates are available as to the production cost of the present 33-tube television sets if produced in commercial quantities. Aside from the cabinet and two chassis, the principal item of initial expense is probably the 9-inch cathode-ray tube. While these television tubes have not yet been manufactured in commercial quantities, similar tubes built for commercial test purposes, indicate that such television tubes in limited production might sell at a price of about \$100, although this figure would be later reduced with quantity manufacture. Taking into account all these factors, it seems likely that television sets of the type now contemplated can be produced to sell at from \$250 to \$500. The cathode-ray tubes used have a life of about 1,000 hours, although some tubes have been in use in the laboratory 3,000 hours or more. All of the other tubes used in the television set are regular radio types from which similarly 1,000 hours' life may be expected. In the 33-tube television sets thus far made up, 31 of the tubes are of the glass type, the other two being metal units.

For the preliminary Camden experiments now going on, the television receivers have been set up in an RCA warehouse about one mile from the laboratories where a 30-watt transmitter sends out the signals. At the receiving point a field intensity of about 5 millivolts is delivered.

### Tests to continue a year

Field tests from the Empire State building, New York City, are to begin in June, and will continue for a year. One of the NBC studios in Radio City has been reconstructed for television use, and is now about ready for operation. Some fifty of the television consoles of the type described will be issued to members of the RCA technical staff in the New York territory, and for the next twelve months thorough tests will be made of receiver performance, wavelength characteristics, and suitable program material.

Thus by the Fall of 1937, if the tests are successful, it is predicted that television receivers may be offered for commercial sale in the New York territory on a limited scale.



Experimental-model home television receiver, one of fifty now being made ready for New York City field tests beginning in June.

## EXEC VIGOROUSLY STATES TUBE POLICY

★ Spirited version of the tube situation comes special to **RADIO TODAY** from Sayre M. Ramsdell, Philco vice-president.

"Philco's tube policy, proven sound and successful in 1936, will remain the same in 1937. Our engineers have specified high efficiency glass tubes for our 1937 line because glass tubes work better, cost less and give the minimum of trouble.

"Philco is not 'pro-glass' or 'anti-metal.' Our policy is simply to use whatever is best in all parts of a set. In the case of the 1937 tubes, called 'G-tubes,' the 'octal' base has been used because it has greater convenience. However, this tube has a strong, solid guide pin instead of a hollow guide pin.

"Because of this base, but purely as a by-product, some G-tubes and metal tubes are interchangeable. However, there is no metal equivalent in 50 per cent of the types. Because of the 'octal' base and to make it easier for the trade we have consistently used what would be the metal tube type names with the letter 'G' added.

"The number of types of metal tubes remains too limited to cover the performance standards required by Philco. Of 25 G-tube types needed for this performance in the new line, only 11 have any metal tube equivalent.

"Some may say that Philco was foolish not to choose entirely different base for these G-tubes so that

no metal tubes would be interchangeable. Broadly speaking, however, we think this would be short-sighted because other tube manufacturers would be compelled to create replacements for any types introduced, and the result would be confusing. Feeling as we sincerely do, that it was a mistake to complicate the tube situation with a great many metal tube types last year, we have done all we can to keep down the number of types by using the 'octal' base. Result is that no tube maker who really believes that metal tubes are a better value to the public than the G-tubes need ever make G-tubes.

"We do not recommend that the public be given their choice between G-tubes and metal tubes even on those types which are interchangeable. We do not believe that the non-technical radio public is in position intelligently to decide whether metal or glass is better. It is unreasonable to thrust a choice upon them. Engineers who design the sets are obviously in the best position to decide. Philco engineers recommend only Philco High Efficiency glass tubes for our receivers.

"Prices of G-tubes will fall between the old glass tubes and metal tubes. While metal tubes were unreasonably high, and the old glass tubes unreasonably low, G-tubes are reasonably low priced to the consumer and give a reasonable profit to the trade."

Engineering memoranda on the new Philco line, also special to **RADIO TODAY**, is presented on page 41 of this issue.

# DEALERS BID FOR EXTRA SALES

News digest of special ideas from radio merchandisers

## DELIVERY TRUCK DRESSED UP

★ A delivery truck can become a good radio salesman, according to the execs at Poll's Radio & Electric Supplies, Jamaica, Long Island, N. Y. Poll's put a big sign on their truck, with a picture of a featured set and some dramatic copy, and since the truck is around the town all day, results were O.K.

"The driver had a lot of inquiries, and we had a great many at the store," was the report on Poll's sign on the truck.

Additional item of interest from Poll's was that "three out of five of our sales are made to families who already own a set or sets."

## FREE-TRIAL POLICY

★ Kuss Bros., Inc., Hackensack, N. J., have settled on a free trial policy which has interest and value. Store does not distribute trial sets as freely as some; no receiver is put into a home until the customer has agreed that he will buy some sort of a set. He may change his mind as to the make, within a week, but his signature is certainly forthcoming.

Kuss Co. builds up good will in the community by attention to the mat-

ter of loans of sets. Friends and former customers of the store are persistently calling and asking for a receiver for a few hours with which to hear a special broadcast event. Offices and hospital patients lead the list, and in most cases the borrowed receiver is to be used to tune in on a baseball game.

## DEALER TAKES THE AIR

★ Consistent use of radio advertising for 1936 radio sets has far surpassed newspaper advertising in results and costs considerably less money, according to Reed R. Smith, manager of the Electrical Appliance Dept. at Wright's Dept. Store, Ogden, Utah.

"We have always," says Mr. Smith, "handled just one line of radios in our store. This year, however, because two other dealers carried the same line, we took advantage of an opportunity when it presented itself to take on a second and exclusive line. First line carried had the reputation of being by far the best-selling radio in the country. The other line was third from the standpoint of national sales.

"We conducted a most interesting

experiment. We devoted exclusive newspaper advertising to the first line, amounting to approximately \$250.00 a month. Very little newspaper publicity was given the new line except in the introduction to the public. Thereafter the entire advertising expenditure was put into radio programs fifteen minutes in length, three times a week, and amounting to only \$50.00 a month, one-fifth of the amount spent on the first line. At the end of three months we had figures showing that the second line, advertised over the air, was selling better than 5½ to 1 of the first line.

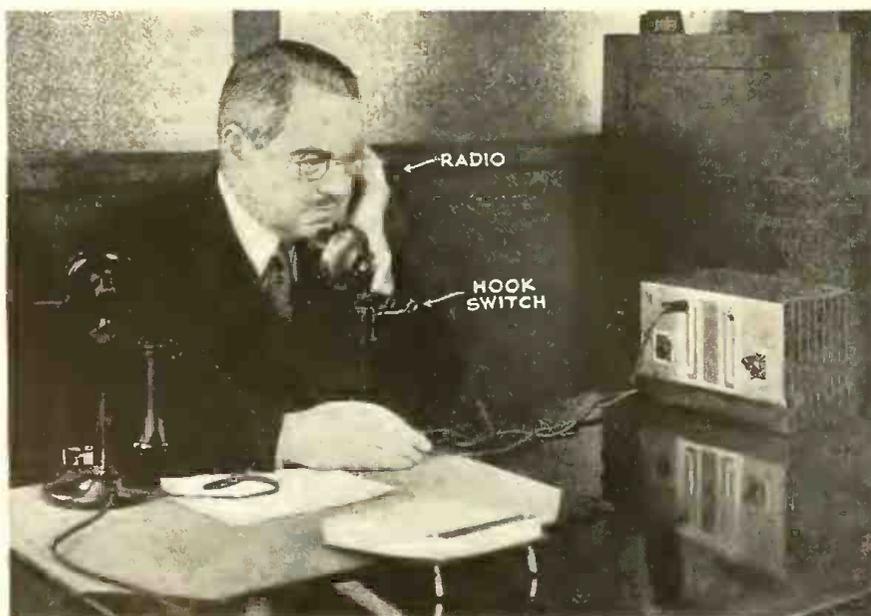
"With results as gratifying as this," continues Mr. Smith, "we are increasing our radio advertising expenditure on the second line proportionately. We confidently expect to sell 500 or more sets of the second radio—and all promotional credit goes to the consistent, hard-hitting use of radio."

## DESK-PHONE RADIO FOR OFFICE

★ With the political conventions, baseball, and election ahead, this is the season to sell radios to offices.

One New York dealer who sent men with sets into office buildings found that sets selling under \$25 had the best chance, since minor office executives can pay this amount out of "petty cash" without getting authorization from someone higher up.

This dealer also found that many important executives wanted radios in their offices, but felt sheepish before their secretaries and office employes, at listening during office hours. So he had his serviceman fix up a standard desk telephone like that shown, with the radio wired to the hand-receiver. Lifting the receiver off the hook turns on the radio set. Mr. Business Man can then listen to his favorite station and anyone seeing him might think he was listening to a long-distance telephone call. The small radio, with its controls, was concealed in a handy desk-drawer at the left. A flip-switch turns on the loud-speaker, if he wants office guests to hear the program.



Lifting receiver off hook turns on radio. Appearing to be waiting for a long-distance call, the busy executive is really getting market report or "following the ball-game"! Radio-set can be concealed in desk-drawer.

## SHORT-WAVE SHOW-OFF

★ "Now we can demonstrate right in our store the kind of short-wave reception the manufacturer advertises," exclaims J. J. Thompson, manager of Philip Levy & Co., radio dealer of Newport News, Va. Levy company has installed a flexible all-wave aerial, a la Philco, which operates with a multiple switch and represents all the foreign reception dreams come true.

This switch automatically connects the aerial to whatever set is being demonstrated the instant the switch of the set is turned on. Connections do not have to be changed from one set to another while demonstrations are in progress. The scheme shows off the entire broadcast band to advantage and frees the dealer from the curse of local noise at critical times in sales presentations.

## KEEPS PERPETUAL INVENTORY

★ Airtight stock records kept by the Bishop-Parker Furniture Co., Montgomery, Ala., show a complete picture of the company's radio business at all times.

A detailed record of each separate set is kept in the company's files, from the time it arrives until it is sold. Sheets are loose leaf so that they may be transferred from the "in stock" files to the "sold" group as sales are made. System makes formal inventory unnecessary, but the firm makes one every 30 days anyway.

## ORIGINAL PLUGGING

★ Window stunt which turned out to be a good stopper for the City Radio Service, Paterson, N. J., was a layout featuring the "Magic Spot." By touching the outside surface of the glass at a certain spot, a jig dancer was set into motion. The dancer has been seen before, but the relay by which the pedestrian's hand started him off was rigged up by men at City Service. Window was filled with radio parts in which considerable interest was stirred up.

Store also is noted for a monthly calendar service to its prospects—a post card plugging home and auto radios with a series of cartoons using the same characters. Company also makes a bid for patrons by maintaining a parking space to the back of the shop, by loans of PA systems and receivers to local clubs and social groups, and by keeping a colorful sign always on its delivery truck. Latter

## NEW ANGLE TO USE IN YOUR RADIO ADS

When You Buy Your New Radio Set—

*Install a New Improved Antenna.  
Don't try to use the old one!*

*You wouldn't take the tires off your old car and put them on your new 1936 auto!*

*Give your new receiver the same break!*

sign, by the way, is not the same on both sides, so the Paterson population believes that the firm has two trucks.

## DEALER PLAYS BALL

★ During baseball seasons, everybody within a range of 50 miles of Muncie, Ind., if they have any interest in amateur baseball at all, hears of Grimes Radio Shop. Headed by E. B. Grime, the shop has uniformed and equipped a club of its own and takes on fast schedules of games in the area. A truck with an amplifying system follows the team and plugs the shop in Muncie, and the team never fails to get notices in sport columns.

"Our business from outlying points has increased tremendously and our name is fast becoming known farther from home. Individual players are also boosters, and lessen sales resistance," writes Mr. Grime of the project.



Hard-hitting Hoosiers—a radio dealer's baseball team schedules games in Indiana, with benefit of sound effects and headlines.

## CITY SALES DAYS

★ Consistent space-buying in local newspapers is a good move in local districts where the municipal authorities have plans for sponsoring city sales days. There is positively no other way to move in on the benefits of these special city-wide events, according to the notions of the ad men at Irving Stores, radio dealers at Flushing, Long Island, N. Y. The stores get a break in the news columns and considers its year-round cooperation with the local sheets and the city plans a big factor in its sales volume.

Radio man at Irving's is Ed Shapiro, and he maintains a special display department under the direction of Al Winer, who takes the manufacturers' mats and makes them into lively ads with the right local angle. Store has its own plates made and can use them to have its circular printing done. Maintenance of the store's display department, a policy which is rare among radio dealers except in the metropolitan area, has had an important part in general expansion at Irving's.

## EVENING NETS 14 PROSPECTS

★ Swank Furniture Company, Evansville, Ind., placed a radio just outside the main entrance of the store and a neon sign and two floodlights above the radio. Two salesmen were selected each evening to stay at the display until 10 p.m. Fourteen good radio prospects were obtained the first evening the plan went into effect.

# A STATION GETS WISE

- manager hikes listening hours and interest
- works smoothly with servicemen and dealers

★ ROUSING news of how a radio station edged itself into the esteem of a huge audience, comes from a Michigan city.

Out in Grand Rapids, servicemen are running ads promoting the local station, at their own expense. Dealers are seriously examining the plugs in RADIO TODAY which accent their dependence upon program builders, and local listeners hear through their receivers, advice to the effect that they should "see their authorized serviceman at least twice a year!" Reception in the area has been improved and the radio audience is quite happy about their newest deal.

Point is, local Station WOOD, managed by the able Stanley W. Barnett and operated by the Kunsy-Trendle Broadcasting Corp., has fixed things so that all radio people in the territory, including the audience, work quietly and earnestly together to further profitable business and general satisfaction.

## A great project

At the outset, Mr. Barnett got the servicemen together and told them that he intended to plug their business on the air. It was understood that the whole outfit, program men and servicemen, were out to promote more hours of listening, more satisfaction and enjoyment, better tone.

The gents from the service shops got the idea — WOOD would plug servicing at strategic times on the air. And in return, servicemen in their contacts at their stores or in homes would use WOOD for demonstration, point out the quality of its programs, and mention the advantages of keeping the set tuned in at all hours.

WOOD had plenty of program appeal to talk about, since its features are piped from both Red and Blue networks of NBC. The station sends weekly program bulletins to the service shops to keep its new henchmen posted on the details. Dealers and servicemen alike were invited to visit the studios at will, and the friendship was complete.

## Public be pleased

Surprising, the number of people who benefited from the get-together. Listeners got better reception consistently and were inclined to do more of it; they made discoveries on the dial and they were willing to spend more time at their sets if they behaved nicely. So WOOD advertisers benefited directly.

Increased listening hours actually hiked the business available to local servicemen and dealers, and there was more to divide up. Special reception difficulties could be taken up by everybody concerned with the radio

biz, and since the broadcaster was in on it, there was no reason at all why radio should not be developed as a perfect public service.

As for the persons in the Grand Rapids area who were prospects for new sets, WOOD noticed an ad in RADIO TODAY, run by broadcasters, which drew attention to the use of programs in selling fine sets. The station saw to it that each local dealer saw that ad, and the cooperative plan went forward into more and more results for all concerned.

## It had to happen

Dealers and servicemen in Michigan reported readily on the results of the project. Statement from the Royal Appliance Co. was: "The radio listener becomes accustomed to higher standards of reception. Faults in his receiver become more noticeable and naturally, we benefit . . . the listener has also benefited . . . we think it is an excellent arrangement."

From the Spoelstra Radio Co.: "This is one of those happy arrangements whereby everybody benefits . . . it is a perfect example of what can be accomplished by intelligent cooperation."

Sentiment from Gray Radio Service: "I highly recommend it . . . it is very beneficial to all concerned."

King Radio Service reacts: "I have created customer good will by suggesting that they tune to WOOD and have clear reception all day long."

Servicemen Lawrence L. Lardie, and Clair Wellman, reported, respectively: "It is accomplishing two very important things—it has increased business to a very notable extent, and programs are being heard with fewer disadvantages," and . . . "great advantage to all concerned . . . has increased our business considerably."

## Tried elsewhere?

George R. White, radio-interference inspector of the city of Grand Rapids, wrote his views on the plan: "This department is especially interested in this situation and in the way this cooperative plan is working because we are engaged in locating and eliminating man-made interference . . . the plan undoubtedly embodies many elements of benefit to radio listeners in this territory as well as to the station and servicemen."

Several of the radio men involved in the cooperative plan came right out and suggested that it should be taken up in other cities. The machinery is so simple, the value so obvious, the impulse so natural.

**What! no static—**

It is possible to listen to the very finest radio programs without the least bit of static. Both the Red and Blue networks of the National Broadcasting Company are available by tuning your dial to Stations WOOD-WASH at 1270 kilocycles.

The members of this association listen to radios all day long and are aware of the variety and excellence of the programs on WOOD-WASH and believe these stations deserve your frequent attention.

**RADIO SERVICE ASSOCIATION OF GRAND RAPIDS**

This advertisement sponsored and paid for by members of this association.

**Remember April 14th--**

That is when the baseball games start. When radios stop playing it is usually in the middle of an exciting ball game. Have your radio thoroughly checked over by a reliable man who charges reasonable prices. Call one of the men below. There is one near you.

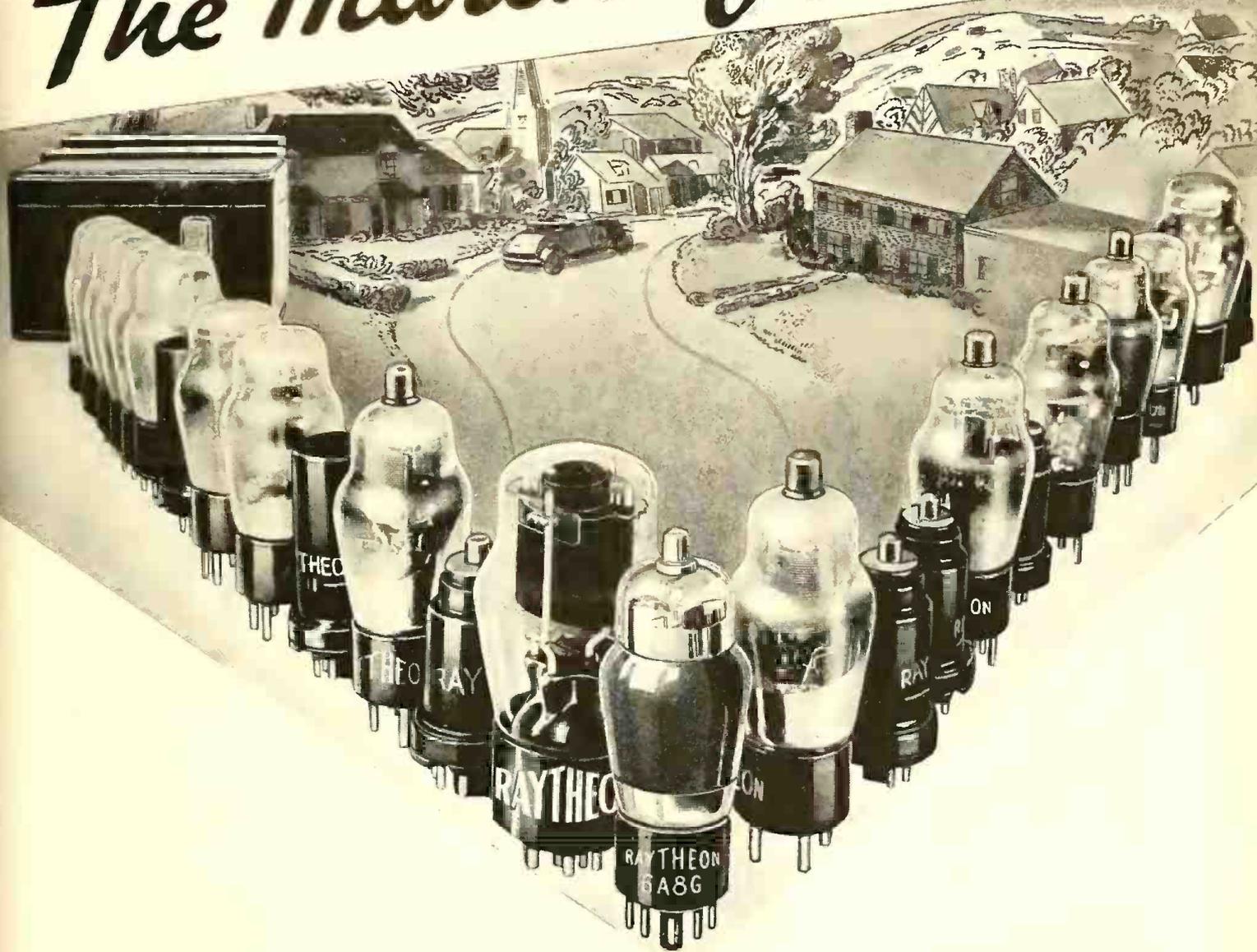
**Radio Service Association**

**OF GRAND RAPIDS**

<b>Gray Radio Service</b> 26 Travis, NW. 7-9962	<b>Don Matter</b> 1976 Division, S. 3-8074
<b>Grant &amp; Grant</b> 1360 Plainfield, NE. 7-2844	<b>Edw. Mayhew</b> Royal Appliance 503 Leonard, W. 7-1625
<b>R. Jessup</b> Electric Service Station 53 Commerce, SW. 9-3274	<b>Radio Hospital</b> 1137 Grandville, SW. 9-7324
<b>King Radio Service</b> 46 Division, S. 8-1438	<b>Roy's Radio Repair</b> 656 Michigan, NE. 8-2624
<b>Lawrence L. Lardie</b> 529 Delaware, SE. 5-5551	<b>Spoelstra Radio Serv.</b> 750 Franklin, SE.
<b>Ed. Michalowski</b> Mark's Radio Dept. 331 Monroe, NW. 9-3785	<b>Clair Wellman</b> 511 Delaware, SE. 6-9902

Presenting, gladly, Exhibit A and B—two newspaper ads showing how Michigan broadcasters, servicemen and dealers work together.

# The March of Tubes!



## From Set Manufacturers to the Homes of America . . .

**AS TIME MARCHES ON** — Raytheon's momentum increases and it will be further accelerated by Raytheon's new line of "G" tubes.\* Thousands of new sets will be equipped with Raytheon "G" tubes, paving the way for more Raytheon replacement sales.

Leading set manufacturers prefer Raytheon quality and performance, Raytheon's painstaking attention to details, Raytheon's research and production engineers. That's why Raytheon is the fastest growing tube producer today.

Raytheon dealers and servicemen are capitalizing this

established, ever growing replacement market.

**A COMPLETE LINE**—"G" types, standard glass and Genuine All-Metal types. New technical information now available. Write for it.

### RAYTHEON PRODUCTION CORPORATION

420 Lexington Ave. . . . . New York City  
55 Chapel St. . . . . Newton, Mass.  
445 Lake Shore Drive . . . . Chicago, Ill.

555 Howard Street . San Francisco, Cal.  
415 Peachtree St. N. E. . . Atlanta, Ga.

# RAYTHEON

TRADE-MARK

## 4-PILLAR RADIO TUBES



\* Glass tubes with octal base. 6A8G base illustrated.

# CLEAR OUT OLD MODELS

- make room for new radio lines this month
- mark down prices to move old receivers

By H. L. M. CAPRON

★ NOW—as the end of the regular “home-radio” season approaches, and a new and unusual season dawns—is an appropriate time to give earnest attention to those “cats and dogs” in your stock which have survived an excellent selling season.

Presidential elections occur but every fourth year—and since 1920 each succeeding “Presidential Year” has had an increasingly greater effect on radio—and radio sales—than all of its predecessors combined.

This year radio will probably also exercise a far greater influence on the actual election of a President than ever before. In fact—“Radio will elect the next President.”

This will be a “summer season” the like of which the radio industry has heretofore only dreamed about.

The nominating conventions in June—the Olympic Games—the Louis-Schmeling fight—the Presidential Campaign—each presents a series of events to be broadcast, events of universal appeal.

## Move “cats and dogs”

Manufacturers will present new—and better—models earlier than usual—and the public will buy more—and better radio—earlier than usual.

With new models coming soon—you must move your soon-to-be-obsolete “cats and dogs”—and do it fast.

Consult your sales and stock records—and your inventory—to learn:

1. What models are in stock—and moving slowly.
2. What is their rate of sale.
3. Is rate of sale accelerating or decelerating.

With this information—the extent of the price mark-down will be largely a matter of experience and judgment.

A reduction of 20 per cent may be expected to double sales—while a reduction of 50 per cent should multiply sales by 10.

This guide should not, of course, be expected to hold true if your prices, either old or new, are above the prices of your competition—or above the prices of equally good competing models.

In marking down prices of slow or non-moving models, there is a general and natural tendency to wait too long, and to mark down too little, in a common desire to conserve profits.

## Don't wait too long

This is a genuine mistake—because:

1. Merchandise which does not sell cannot be wanted by prospective customers for some good reason.
2. Unwanted merchandise depreciates in value very fast with time.
3. The longer that price revisions are delayed—the greater the revisions—and the losses—will have to be.
4. Unwanted merchandise in your store increases general sales resistance.
5. Capital invested in non-moving merchandise cannot be turning over—and paying a profit—and makes it more difficult to buy and sell the wanted merchandise.

*But—there is a price at which anything can be sold.*

Do not delay your price revisions

so long as to clutter your stock with non-moving models—and make it difficult to buy the new models which the public will soon be wanting as never before during the summer.

## Mark low enough

Do not be afraid to mark down low enough—for the desire is not so much to conserve profits as to reduce losses—and get rid of the cats and dogs you have.

If you operate a modern stock control system—such as I have outlined in previous issues of RADIO TODAY—there is no reason why you should not approach the end of a selling season with no problem in slow-moving—or non-moving—models. For such can—and probably should be eliminated as soon as records indicate they are slow-moving.

So long as a model does sell it cannot be a problem—if you have not bought too many and do not buy more. And a modern stock-control system—intelligently used—will authorize buying only to meet actual demand, will warn of a change in rate of sale in ample time to be in no trouble, and will not let you buy in too large quantities—or unwanted models—without your knowledge.

Of course if you pit your hopes—or your hunches—against the facts you must expect to lose sometimes, but few good business men are willing to consistently do that.

Get out your cats and dogs—your passé models—mark them down—quickly and plenty—and be ready for the greatest summer's radio business you have ever known.



Great American Bargain Hunters will pick up radio sets now in stock, via special offers; dealers find a place for glittering new models.

# THE MOST IMPORTANT RADIO MARKET

---

The most important radio market is the "*time payment market*," because the great majority of radio receivers sold are sold on "time."

Therefore a safe, sound and economical time payment plan--the Commercial Credit Company plan--is of vital importance in the sales program of radio receiver manufacturers, distributors and dealers.

---

## COMMERCIAL CREDIT COMPANY

**Capital and Surplus \$48,000,000**

**HEADQUARTERS • BALTIMORE**

*OFFICES IN ALL THE PRINCIPAL CITIES OF THE UNITED STATES AND CANADA*

# ALIGNING MODERN SETS—HOW, WHY

★ INCREASE in the complexity of modern sets has made proper alignment an essential for satisfactory reception. A set not properly aligned will have poor selectivity and sensitivity, may produce numerous whistles or squeals as the set is tuned, may have severe image frequency interference, may be affected by code interference on the intermediate frequency. In addition, with high-fidelity sets the reproduction may be noisy and poor in quality.

All-wave receivers and sensitive superheterodyne circuits require that the serviceman have apparatus with suitable flexibility and good accuracy—but most important of all, he must be able to utilize this equipment. Since the old tuned radio frequency sets were easy to align and required no precision oscillator and output meter, many servicemen are still trying to work on supers under the illusion that there is no need for modern test equipment.

## Three Frequencies in Superhets

In the superheterodyne receiver there are circuits operating at three different radio frequencies, each one having a definite relation to the other two.

The intermediate frequency or i-f. amplifier works at a constant frequency, usually considerably lower than the lowest frequency to which the set can be tuned. The reasons for using the i-f. amplifier are many

—the two major ones are: it will permit a very large amount of amplification and provide for good selectivity regardless of what frequency the signal is being received on.

## Variable Frequencies

Then there are the signal frequency circuits consisting of first detector (and r-f. amplifier, if used). These circuits should always be tuned to the frequency of the station being received.

The oscillator is also of variable frequency—the numerical difference between the oscillator and the signal frequency should always be equal to the intermediate frequency. Most frequently the oscillator is higher in frequency than the signal—although in a few sets it is lower.

As this is not a discussion of how the radio circuits themselves perform, it suffices to state that the signal frequency and the oscillator voltages are mixed in the first detector; that the output of the detector feeds the i-f. amplifier with a voltage whose frequency is exactly equal to the difference between the oscillator and the signal frequencies.

First in the alignment of any superhet is the i-f. amplifier. For this the serviceman must have a modulated oscillator capable of supplying a test signal at the i-f. frequency and a suitable device for indicating when the trimmers are properly adjusted.

The test oscillator must have an

accurate calibration—if it is set to 450 kc. it should deliver a signal of that frequency—remember that an error of only 1 per cent is 4½ kc. In addition the output of the signal generator should be variable over a wide range; it should have sufficient output so that an i-f. signal can be driven through the r-f. portion of the set when adjusting wave-traps; it should also have a very low output when the attenuator is set at minimum so that an AVC set can be aligned below the AVC operating point. Otherwise the AVC will broaden the response and make it difficult to obtain the peak setting for the trimmers.

The indicating device can be any one of the numerous types of output or resonance indicators or the cathode ray oscillograph. If the set has a resonance tuning meter, it can be in place of an output meter. Since practically all resonance indicators are operated by an AVC circuit, the oscillator input signal should be sufficient to make the AVC function.

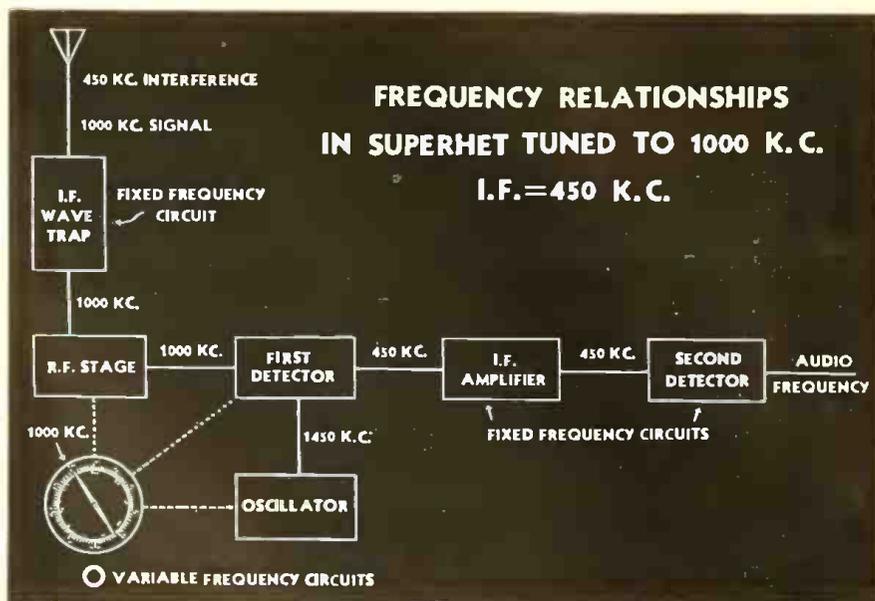
When feeding the i-f. signal into the set, it will be found that the signal comes through the set regardless of the setting of the gang condenser. This is as it should be because gang condenser controls only those circuits preceding the i-f. amplifier—remember the test signal is being fed directly into the i-f. stages.

## Wave Traps

After the i-f. amplifier has been tuned to its correct frequency, the wave-trap should be adjusted, leaving the oscillator frequency the same as was used in aligning the i-f. stages. Feed a large intermediate frequency voltage into the antenna circuit of the receiver—adjust the wave-trap trimmer so that the output of the set is *minimum*. This is absolutely essential if the wave-trap is to keep unwanted signals from getting into the i-f. of the set, thereby producing interference. The purpose of the trap is to absorb or trap all interference which is on the same frequency as the intermediate frequency.

Unless the serviceman has an accurate oscillator, preferably using fundamental frequencies on all bands, alignment of the oscillator and radio frequency circuits may not be precise—the calibration of the dial may

(To page 30)



# IRC Leadership is a living thing

... for IRC engineers are alive to the needs of the industry . . . and equally alive in meeting them with creative research and advanced developments as evidenced by the constant appearance of new products.

Leadership is reflected in the design, construction, quiet operation and superior performance of the IRC Type C Volume Control. It is equally apparent in the Type BT Insulated Metallized Resistor—an outstanding engineering development of IRC

creative pioneering. You'll immediately recognize it in the IRC Type MW Wire-Wound Resistors—a radical departure from conventional design. You'll see the evidence of that leadership in IRC Type BW new Low Wattage Wire-Wound Resistors.

Space limitation prevents the listing of other IRC innovations. But IRC leadership knows no limitations.

Acquaint yourself with the full facts concerning IRC engineering achievements.

**NEW**  
TYPE C  
Volume Control

**NEW**  
LOW WATTAGE  
RESISTORS

**NEW**  
INSULATED  
METALLIZED  
RESISTORS

**NEW**  
WIRE-WOUND  
RESISTORS

**IRC**  
REG. U.S. PAT. OFF.

INITIATIVE—RESOURCEFULNESS—COOPERATION  
to advance the interests of industry

**INTERNATIONAL RESISTANCE COMPANY**  
401 North Broad Street, Philadelphia, Pa.

*Factories or Licensees in*

CANADA	ENGLAND	FRANCE	GERMANY
ITALY	DENMARK	AUSTRALIA	



# Sound



Back of the age-old culture of Egypt rear the mighty Pyramids—undying symbols of great and sound engineering... just as today back of radio's great accomplishments stands RCA—symbol of success in sound engineering.

RADIO CORPORATION OF AMERICA

# Engineering

## The Three Pyramids of Radio...

COMMUNICATIONS... BROADCASTING... RECEPTION

*all engineered by RCA*

---

**L**IKE links in a mighty chain, RCA joins the entire world in a series of International, Domestic and Marine *Communications* systems . . . sending and receiving messages via Radiomarine from ship-to-ship and ship-to-shore—messages "Via RCA" Communications to 47 foreign countries and all leading cities in the United States!

*Broadcasting* is another phase of radio in which RCA is active, serving the public and advertisers with varied programs on 88 powerful stations . . . associated with the National Broadcasting Company.

In *Reception*, RCA leads the way, manufacturing radio receiving sets for city, farm and automobile use, as well as transmitters, tubes and

specialized equipment for all purposes—all made in plants of the RCA Manufacturing Company. Not only does the Radio Corporation of America serve the world with these varied activities, but through RCA RESEARCH LABORATORIES it *has* given a long list of radio "firsts" that are harbingers of all that is still to come. Some day, RCA will engineer *sight!*

The nation's buying public is conscious of the fact that RCA knows radio. Hence it has *confidence* in anything bearing the RCA trademark. Confidence make sales. That's why RCA dealers do a better business—enjoy greater profits. They are allied with RCA—the only organization engaged in every phase of radio—and Radio's Leader!

*Listen to "The Magic Key of RCA" on WJZ and associated NBC stations every Sunday, 2:00 to 3:00 P. M., E. D. S. T.*

ERICA • *Radio City* • NEW YORK





# Sound Engineering

## The Three Pyramids of Radio...

COMMUNICATIONS... BROADCASTING... RECEPTION

*all engineered by RCA*

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Back of the age-old culture of Egypt rear the mighty Pyramids—undying symbols of great and sound engineering . . . just as today back of radio's great accomplishments stands RCA—symbol of success in sound engineering.

RADIO CORPORATION OF AMERICA • *Radio City* • NEW YORK

for  
GREATER  
RADIO ENJOYMENT



# Elim-O-Stat

U. S. TRADE MARK

## RADIO NOISE SUPPRESSORS

Available in a complete standard line designed to cover the wave band requirements of modern radio receivers

**RA**—Very inexpensive, this capacitor type removes all low intensity noises.

List Price 40c

**RN**—Designed to prevent all types of radio noise from passing into the radio set from the power line. A capacity-inductive unit with sectional band-suppression construction.

List Price \$5.00

**AD**—Especially designed for small appliances, where grounding of the frame is advisable.

List Price \$1.25

**DJ**—For application to dial telephones which create radio noises.

List Price \$1.25

**AL**—Special Oil-burner type, with full sectional band suppression construction. Highly efficient.

List Price \$7.50

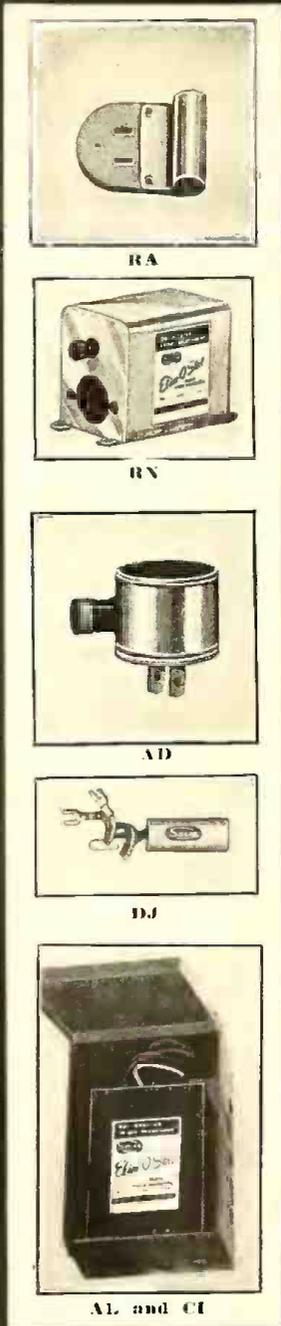
**CI**—Large units for suppression of interference from motors, generators, farm lighting, plants, etc. Capacitive-inductive type.

LIST PRICES

5 amperes .....	\$8.75
10 amperes .....	14.00
20 amperes .....	21.00
30 amperes .....	30.00

The SOLAR Interference Laboratory offers free service to manufacturers in the design of special lowest-cost "Elim-O-Stats", "tailor made" to fit appliances or factory equipment.

**SOLAR MFG. CORP.**  
599-601 BROADWAY  
NEW YORK CITY, N. Y.



Further details and literature furnished promptly on request.

### FANCY LABELS

★ Some months ago a well-trained radio repairman of Long Island, N. Y., made plans to open a new shop. Somewhat over-zealous to parade his technical superiority, he hung up a shingle on which he had proudly written, "Radiotrician." His friends scarcely knew what the word was supposed to mean; his father looked bewildered and suggested that he change it to plain "Radio Repairs."

Long Island citizens appeared to be cool to the fancy "Radiotrician" and the business folded in two months. Later, he chose to step from his pedestal and used the "repairs" moniker; now he enjoys a flourishing trade.

### NOISE REDUCTION IN PARTICULAR CASES

★ Elimination of man-made noise in a radio set is achieved by preventing the noise from reaching the highly sensitive circuits of the set. In general this can be done in two ways—either isolate the pick-up circuits of the set (such as antenna and unshielded leads) from the noise—or eliminate the difficulty at the noise sources.

The former method was described on page 26 of the April RADIO TODAY. In most cases a properly installed antenna will reduce noise to a negligible level. If the noise is still objectionable, the second method must also be applied.

Small motors such as found on fans and vacuum cleaners can be cured by installing a small paper condenser at the motor. When applying a filter to any device—always install it as close as possible to the noise producing part. For instance if a condenser were attached to a fan at the end of the cord, the five or six feet of wire would radiate or transmit the noise, and the condenser would produce little benefit. Thermostats, switches, flashing signs require the same treatment—application of condensers at the contacting parts.

Large devices and those which produce severe interference often require a more elaborate filter composed of chokes and condensers. Again, they should be located at the noise-source, using the shortest possible leads.

X-ray machines require complete shielding of the device and filtering of the supply lines to prevent radiation.

It is necessary to consider the current and voltage requirements of the

(To page 37)

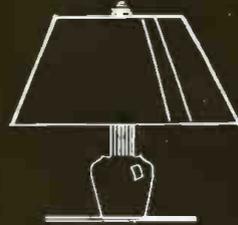
# SOURCES OF RADIO NOISE

Where to look for interference—How to eliminate the trouble



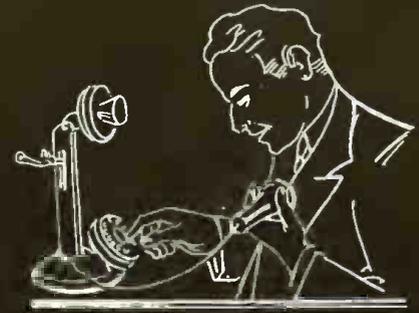
## HEATING PADS, THERMOSTATIC DEVICES

Thermostat causes clicks, vibrating thermostats produce roaring sound. Tropical fish aquariums and automatic irons cause similar trouble.



## LAMPS, LIGHT BULBS, WIRING

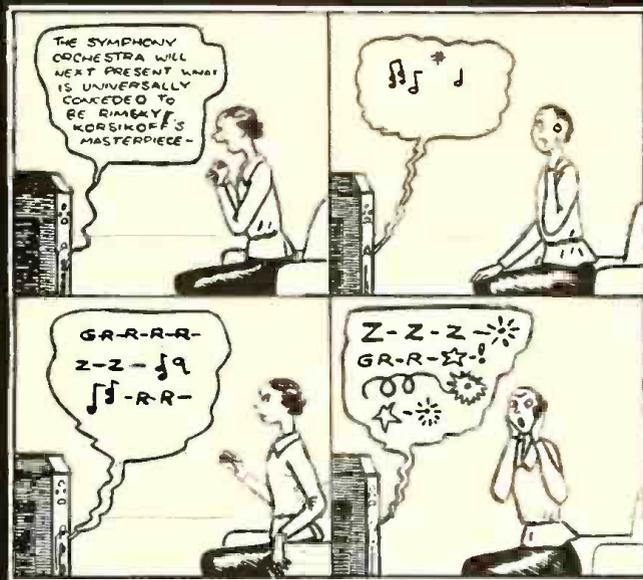
Roaring sounds—arcing.  
Clicks—operating switch.  
—loose connections.



## DIAL TELEPHONES

Clicks caused by make-and-break while dialing. Also jiggling hook.

## The Public is Entitled to Better Broadcast Reception

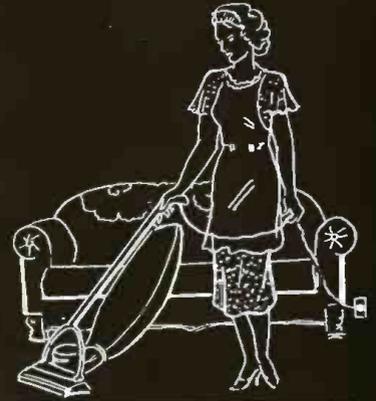


WEBSTER IN N.Y. HERALD TRIBUNE



## OIL BURNERS, HIGH TENSION DEVICES

Ignition produces intense rasping and hash until oil ignites. Defective neon signs have similar symptoms



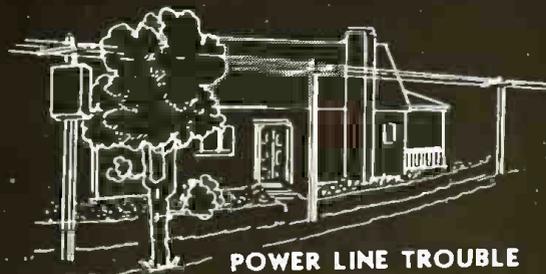
## DEVICES WITH COMMUTATOR MOTORS

Vacuum cleaners } Intense hash  
Washers } and rasping of  
Drink mixers } high pitch.  
(Refrigerators while starting).



## FLASHING SIGNS, TRAFFIC SIGNALS

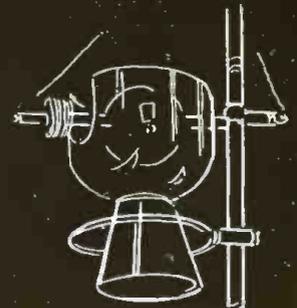
Intermittent clicks



## POWER LINE TROUBLE

Leaky and dirty insulators  
Defective power transformers  
Bare wires contacting trees

Intermittent and steady rasping and hash.



## X-RAY MACHINES

Rasping and hash.

## TO REDUCE NOISE HEARD IN SET

- Install a modern antenna, with noise reducing lead-in.
- Use line filter between set and power mains.
- Install suitable choke coils, condensers, or filters in supply line at source of trouble.
- Shield X-ray and other high-tension devices.

© 1936 by

**RADIO TODAY**

# ALIGNING SETS

(From page 24)

be way off, and sensitivity on short waves may be seriously affected if the wrong beat of the oscillator is employed.

Since it is the oscillator frequency which determines the calibration of the tuning dial, this circuit is the first one to be aligned. Alignment of the oscillator should take place at the highest frequency to which the set will tune for any particular wave band—that is, with the gang condenser plates 90 to 100 per cent unmeshed.

The tuning dial on the set should be set to the recommended alignment frequency, and the test oscillator should be set to the same frequency—its output being connected between the antenna and the ground terminals.

The padding condenser in parallel with the oscillator variable condenser (often called the high frequency oscillator trimmer) should be adjusted for maximum output. Next the first detector and antenna trimmers should be adjusted for maximum output at the same frequency.

## Oscillator Tracking

Before describing the adjustment of the low frequency or oscillator series padding condenser, the purpose of this condenser might well be explained. The first question to be answered is, what would be the result if this condenser were not used.

Assuming that the desired station

is to be received at 1,600 kc. and the i-f. is 450 kc., the oscillator must operate at  $1,600 + 450$  or 2,050 kc. (see Fig. 2). The curves show that for a 1,600 kc. station the r-f. and first detector must be tuned to 1,600 and the oscillator to 2,050.

It is found that for a 1,000 kc. station the oscillator should operate at 1,450 kc. But if the series condenser is not used, the diagram shows (dotted line) that the oscillator really performs at 1,280 kc. This is because the capacity of the oscillator tuning condenser increases too rapidly when identical condenser sections are used. One remedy for this difficulty is the use of a special oscillator section in the gang condenser, but in all wave sets this type of condenser cannot be used. Therefore, another means of limiting the maximum effective capacity of the condenser must be used—current practice is to use a trimmer in series with the variable one.

## Oscillator Series Condenser

As the effective capacity of the oscillator condenser is diminished, the frequency increases—therefore the dotted line representing oscillator frequency without series padder approaches the ideal oscillator frequency shown as a heavy line, when a series condenser is inserted in the circuit. When the series condenser is properly adjusted, the oscillator will remain 450 kc. higher than the r-f. circuits.

Since the difference between the solid and dotted lines is greatest at the low frequencies, the series con-

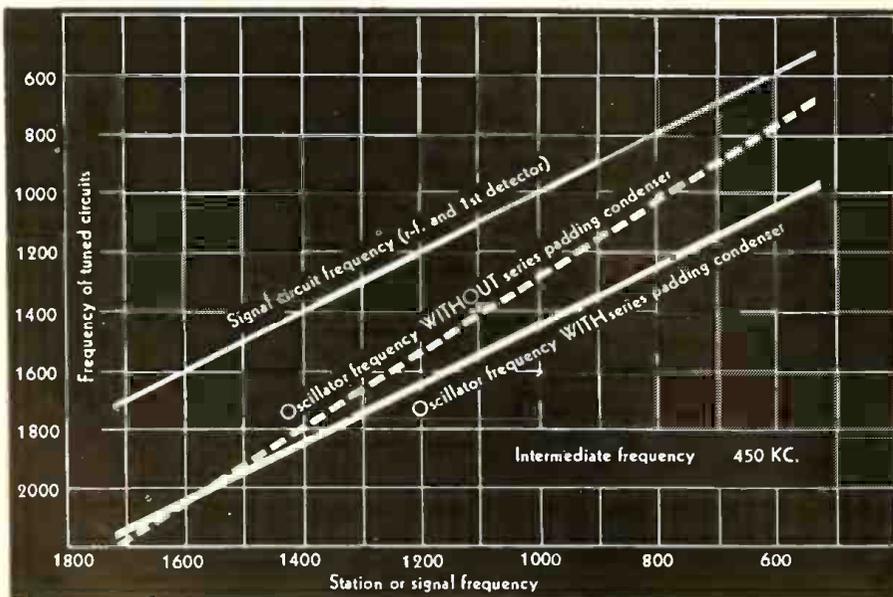


Fig. 2. The oscillator and 1st detector work at different frequencies—the difference between them always being equal to the i-f. frequency. This is shown by the two solid parallel lines. When identical condenser gang sections are used in set without series padding condenser the circuits do not track as shown by dotted line.

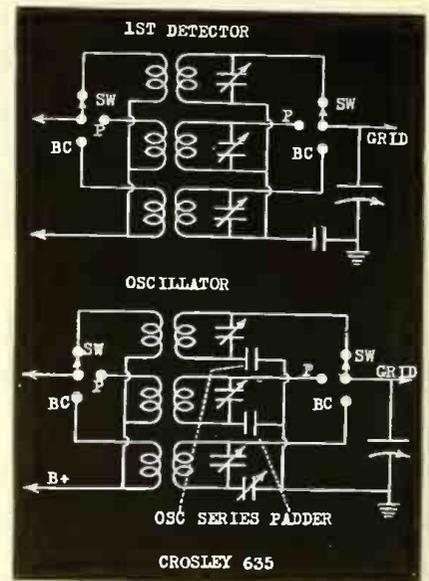


Fig. 3. Separate trimmers are used for each band in Crosley's 635.

denser is adjusted at the low frequency end of the dial because any slight discrepancy in its value will be immediately detected. In other words, the setting of this condenser is more critical at the lower frequencies.

For broadcast band the series condenser is usually adjusted at 600 kc. or thereabouts. Since any change in adjustment of the series condenser changes effective capacity of the circuit, the high frequency oscillator trimmer should be readjusted at the frequency at which it was first aligned.

The order in which to align the various bands in all-wave sets depends upon the arrangement of the trimmers. If the set uses a separate trimmer for each band, connected across the coil and utilized only when the coil is in the circuit, it does not matter which band is first aligned. Fig. 3 shows one set using this system (Crosley 635). The adjustment of a trimmer on one band is entirely independent of the adjustments on any other band.

## Interlocking Trimmers

Other sets employ trimmers which are in the circuit on more than one band. Therefore, the trimmer must be adjusted first on the band in which it is the only trimmer in the circuit. In Fig. 4 part of the Stromberg-Carlson 58 high-frequency circuit is shown. Note that for the broadcast band there are three trimmers in series—one across each of the three series coils.

This set must first be aligned on the highest band when two of the

(To page 34)

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# SERVICING NEW CIRCUITS

## CROSLEY 6625

★ Diagram on page 32 gives schematic circuit of Crosley 6625 receiver along with trimmer condenser locations and socket voltages. Arrow heads in diagram indicate path of radio signal through set.

Note the 6C6 second detector—plate and cathode of this tube forms diode rectifier, while control grid, screen grid, and cathode are employed as a triode audio amplifier. The screen is utilized as the plate and its resistance coupled to 76 audio tube.

Two volume controls are employed—one in the grid circuit of the 6C6 audio tube and one in grid circuit of 76 amplifier. Note unusual combination of resistors and condensers in the grid circuits of these two tubes. Purpose of extra parts is to provide a definite audio frequency response.

I-f. frequency is 450 kc. Broadcast band aligned at 1,700 kc. and series padder at 600 kc. Police band aligned at 6,000 and series padder at 2,500 kc. Short-wave band aligned at 18,000 kc.

## ZENITH 7-S SERIES

★ Seven-tube Zenith 7-S-28, 7-S-30, 7-S-53 sets are a three-band job with r-f. preselector. Arrow heads show the signal path through set.\*

Circuit is quite conventional employing tapped coils for band change—switches short out unused portions. Alignment of set to be done in following order (see chassis layout): i-f. at 456 kc.; set oscillator—6,000 band B; 21,000 band C; 6,000 band B; 1,700 band A; 600 band A; 1,700 band A. Note that there are no trimmer condensers in the r-f. and 1st detector circuits.

## COMPOSITION VS. WIRE VOLUME CONTROLS

★ Servicemen are often required to choose between the wire-wound and the carbon composition types of volume controls. The wire type is capable of handling fairly heavy currents, but it does not permit a great choice of resistance tapers

and the maximum value of resistance possible is quite limited.

Composition type offers almost unlimited possibilities in resistance tapers and extremely high values of resistance—however, the current ratings of composition volume controls are decidedly lower. Choice of control to be used is largely a matter of the circuit application—not merely the opinion of the serviceman.

## NOISY ELECTRIC LIGHT BULBS

★ Simon's Radio Service of New York City have found that old electric light bulbs can be the source of intense interference on both broadcast and shortwave. Bulb wears out—filament opens—then the filament makes a poor contact and a small arc results. Occasionally a defective socket will be found that causes the same trouble. When the noise has been isolated to a single socket, try replacing the bulb before tearing the lamp or fixture apart. Also old corroded fuses can cause much noise—either poor contacts or internal arcing.

\*The editors will appreciate comments on "Radio Today's" new style of portraying and explaining circuit diagrams. Also any suggestions concerning the contents of the service section will be welcomed.

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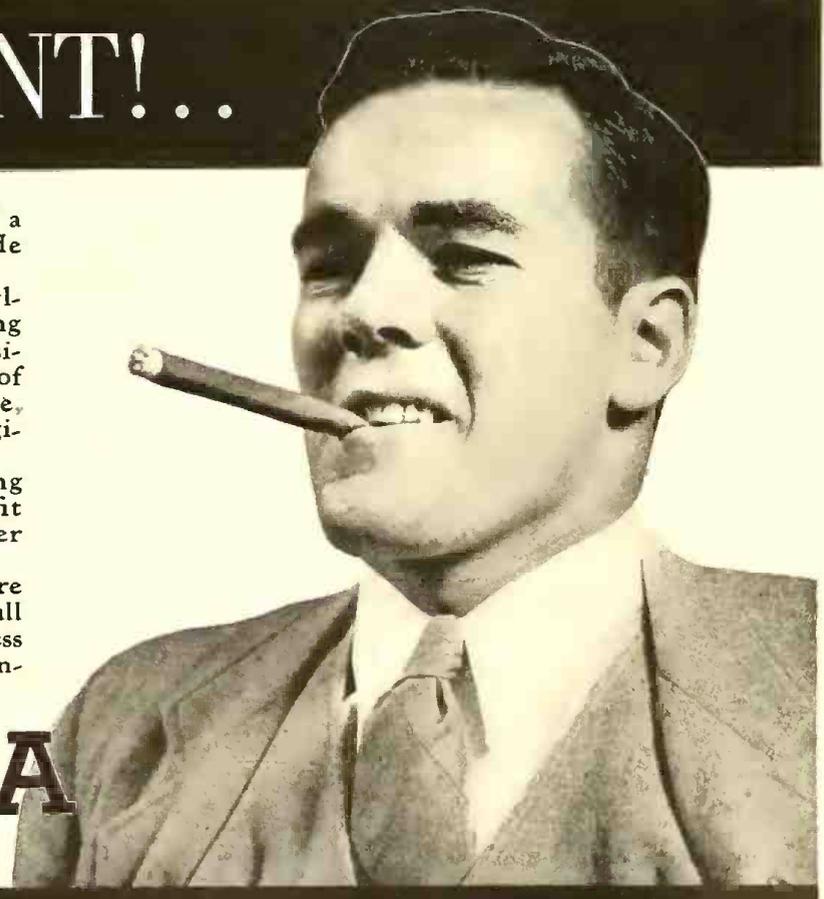
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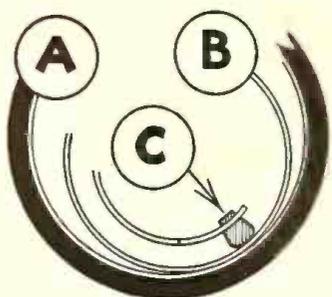
# SYLVANIA

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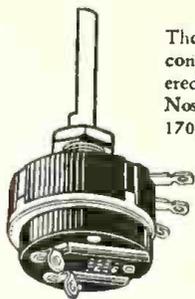
# ALIGNING SETS—SERVICE NOTES

(From page 30)



## The ABC of Good Volume Control

- A.** Resistor strip on inner circumference of Bakelite case has longest possible length to insure smooth volume control and low noise level.
- B.** Highly polished non-rotating metal band contacts the resistor over a large area. Result, low contact resistance with light pressure, low noise level, no resistance change or wear.
- C.** Oilless wood bearing provides the contact pressure and glides over the polished metal band when control is rotated. Permanently quiet and smooth turning.



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coils and their trimmers are shorted out. Then comes the medium band, and finally the broadcast band. If the broadcast band were aligned first, alignment of the two other bands would nullify the settings on the BC band because the condensers are not independent of each other.

Another type of circuit is found in the RCA T7-5 set. Here a trimmer is connected permanently across the variable condenser and is in the circuit for all bands. It should be adjusted at the highest band to which the set will tune and then left alone. There is no trimmer adjustment in this set for the medium wave band. The broadcast band has its own trimmer.

### Fixed Tracking Condensers

On a few all-wave sets it will be found that there is only a series oscillator padding condenser for the broadcast band—if this is the case, the series condenser for the medium and short-wave bands is in the form of a fixed capacitor.

In all the adjustments much reliance has been placed upon the calibration of the test oscillator. The calibration of the dial of the receiver will be no better than that of the oscillator. Also use has been made of the oscillator calibration in setting series oscillator padding condensers. It does not take much thought to realize that if the oscillator series condenser is adjusted in the broadcast band to 630 kc. when it should be 600 kc., proper tracking cannot be obtained. And the error would only be 5 per cent.

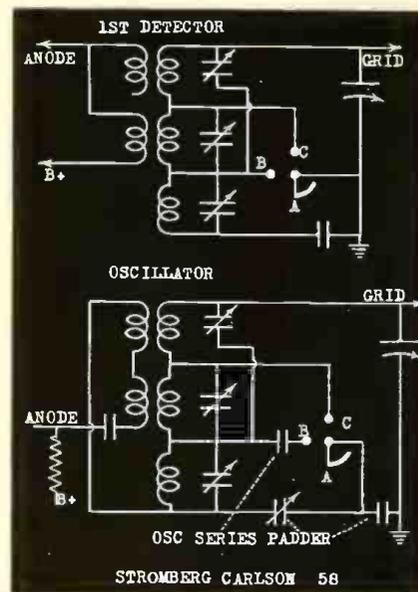


Fig. 4. While separate trimmers are used on S-C 58, their operation is interlocking, because of tapped coils.

### Use of Harmonics Difficult

Use of harmonics instead of fundamentals for high-frequency bands is out of the question. Assume that the test oscillator is working at 1,000 kc. The difficulty of telling the difference between 16,000, 17,000, and 18,000 kc. is very great and it is too involved for most servicemen. Of course, it can be done—but it takes time, and time is money. Even with suitable equipment many servicemen find all-wave sets complicated enough without having to find out whether they have the 15th or 16th harmonic of 1,000 kc.

So far nothing has been said about regenerative i-f. amplifiers and high-

## CATHODE RAY OSCILLOGRAPHS

Model No.	Net price	Dia. of tube	Sensitivity with amp.	Sensitivity without amp.	Freq. range of amp.	Fund. sweep freq.	Syn. sweep	Calib. screen	Power supply	Dimensions	Wt.
<b>CLOUGH-BREngle CO., 1134 W. Austin Ave., Chicago, Ill.</b>											
CRA	\$84.50	3	.4	.75	10-50M	15-16M	Yes	Yes	110 AC	14½x8x17½	32
<b>ALLEN B. DUMONT LABORATORIES, INC., 542 Valley Rd., Upper Montclair, N. J.</b>											
148	\$94.50	3	.3	.75	10-100M	10-100M	Yes	Yes	110 AC	14x7½x18	39
148	106.50	5	.2	.50	10-100M	10-100M	Yes	Yes	110 AC	14x7½x18	39
154	74.50	3	.75	.75	10-1,000M	10-150M	Yes	Yes	110 AC	11x6½x13	18
<b>JACKSON ELECTRICAL INSTRUMENTS CO., 430 Kiser St., Dayton, Ohio</b>											
420	\$79.50	3	.75	.30	15-100M	10-20M	Yes	Yes	110 AC	9x10x16½	29
<b>RCA MFG. CO., Camden, N. J.</b>											
9545	\$84.50	3	1.9	.75	20-90M	20-15M	Yes	No	110 AC	12½x7½x17½	39
9640	110.00	3	1.9	.75	20-90M	20-15M	Yes	No	110 AC*	12½x7½x17½	39
9641	110.00	3	1.9	.75	4-90M	4-18M	Yes	No	110 AC	12½x7½x17½	39
*25 Cycles											
<b>RADIO PRODUCTS CO. (Dayrad) 125 Sunrise Place, Dayton, Ohio</b>											
65	\$99.25	3	NS	NS	15-100M	15-15M	Yes	NS	110AC	NS	NS
<b>TRIUMPH MFG. CO., 4017 W. Lake St., Chicago, Ill.</b>											
800	\$79.50	3	.2	.75	NS	20-50M	Yes	Yes	110 AC	12½x18½x8¾	21½

Data compiled by RADIO TODAY from information supplied by manufacturers whose equipment is described. N.S.—Information not supplied.

## COMPLETE ELECTRIC PLANTS



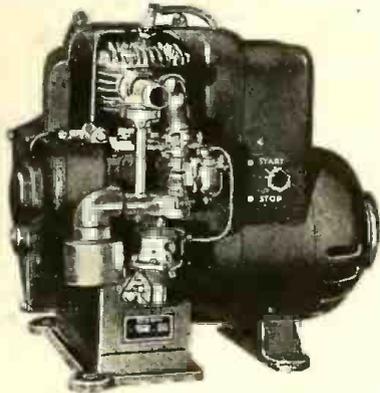
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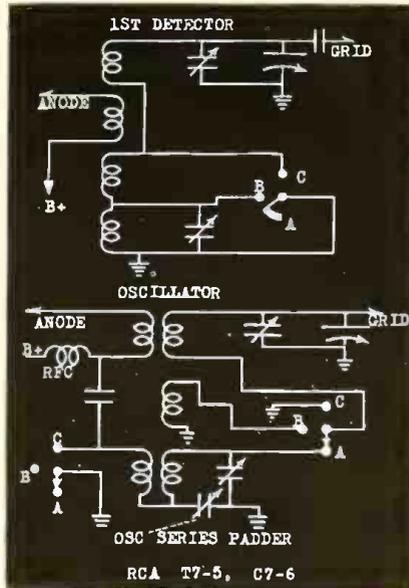


Fig. 5. RCA T7-5 set has separate coils but interlocking padding condensers.

fidelity systems. The former is described in a short item on page 36 of the service notes. Band pass for hi-fi sets is a problem in itself for each set—for proper alignment reference should be made to the manufacturer's service sheets, particularly if the cathode ray oscillograph is employed.

## OSCILLATION AND NOISE

★ Dirty wiper contacts on variable condensers can be the cause of oscillation in r-f. circuits and of noise on the short-wave bands. As a matter of general practice, the wiper blades should be cleaned when a set is brought into the shop for repair.

## INTERMITTENTS IN DELCO AUTO SETS

★ A defective 6B7 has been found to cause intermittent reception in many of Delco's recent auto radios, reports MacAdams Equipment Co., Inc., of New York City. Tube will often test good on the checker—difficulty seems to be intermittent internal shorts.

Another source of trouble may be a form-fitting shield on tubes that are not supposed to be shielded. MacAdams have found sets with shielded 6F7's that would operate after the shields were removed—shield was not furnished by manufacturer.

(Continued on next page)

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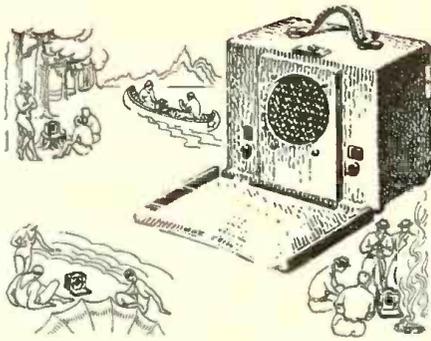
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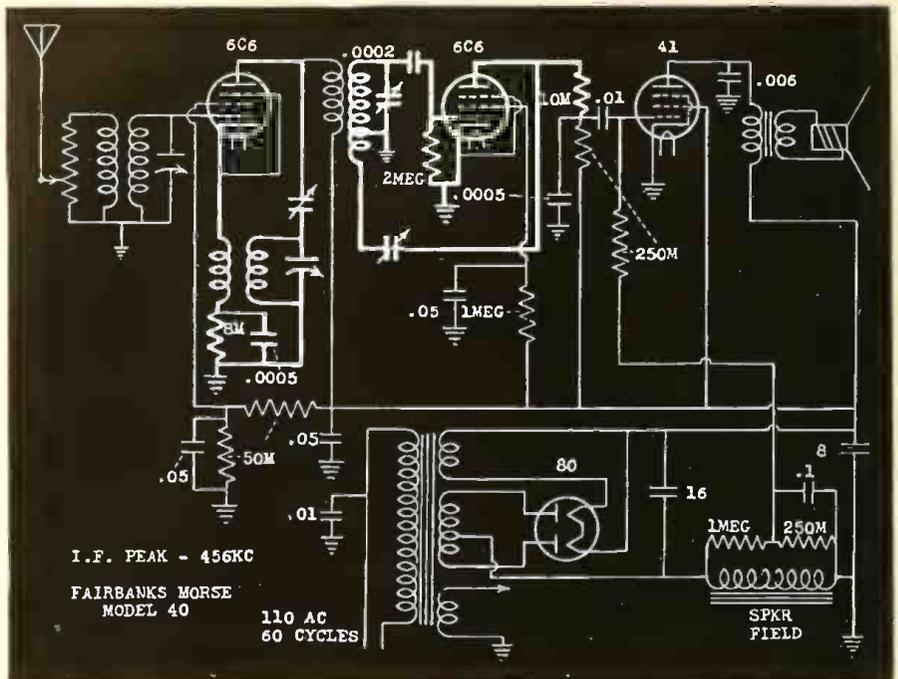
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# SERVICE NOTES



## HIGH-GAIN MIDGET SUPERHETERODYNES

★ Circuit of the Model 40 Fairbanks-Morse 4-tube superhet is fairly representative of the midget sets employing a regenerative second detector in place of an i-f. amplifier and what is said here will apply to many similar sets. Also a pentode is used as an oscillator-first detector.

Heavy portion of circuit shows regenerative stage—energy is fed back from the plate to the grid coil via a small variable coupling condenser, size of which determines amount of regeneration. The 10,000 ohm resistor in the plate circuit acts as an r-f. choke so that the energy will feed back instead of going into audio system.

When lining up the i-f. the feed-

back condenser should be set so that no oscillation is present. The condenser across the i-f. transformer should be adjusted for maximum response, then the regeneration condenser advanced until the set just oscillates. Back up the regeneration condenser slightly (so that set does not oscillate) and check alignment of main i-f. condenser. Alignment of the r-f. portion of set is same as any other.

If this type of set (employing a pentode oscillator-modulator) refuses to operate or works intermittently, trouble is often due to a poor 6C6 tube. This type of oscillator is usually critical as regards the oscillator tube—tube tester will often show tube to be satisfactory—best method is to try other 6C6 tubes in oscillator socket.

**UTAH RADIO PRODUCTS CO.** DORLEANS ST. CHICAGO, ILL.

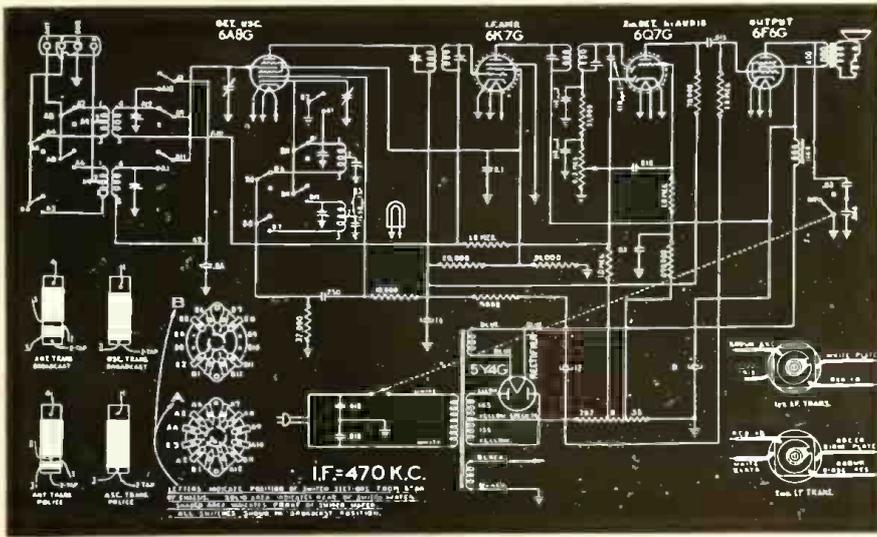
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Schematic of Philco's 1937 model 37-60 set employing "G" series tubes.

## NOISE SILENCERS VS. GOOD ANTENNAS

★ Much ado about noise-silencing circuits has created impression that the devices of the J. J. Lamb type will eliminate all noise and static. Truth in matter is that it will eliminate noise which consists of extremely short impulses separated by relatively long periods of silence. Also the crashes must be of greater strength than the signal being received.

While the device is ideally suited for code reception and other special purposes, it does not seem to be a source of income for the serviceman.

In order to sell such a customer such a device, much emphasis must be placed on the noise reduction characteristics. Then when the device has been installed, it will be found that some of the noise still exists—that type of noise that the silencer will not remove. Result is that the customer is not satisfied—particularly when the device costs upwards of \$10-15.

Logical approach in noise reduction as far as customer is concerned, is to recommend installation of noise reducing antenna system—thereby providing signal pick-up in a relatively noise free area. Even more effective is the installation of filters at the sources of noise, if they can be found; but a modern antenna is usually most practicable.

## NOISE ELIMINATION

(From page 28)

circuits. Line filter chokes should be able to carry the current required by the device—it is usually stated on the nameplate. Condensers should have a rating much in excess of the peak line voltage. Remember that 115 volts AC has a peak value of 163 volts. Also voltage surges several times this value may occur.

Such difficulty as defective line power transformers, dirty insulators, bare wires, and telephones should not be remedied by the serviceman. A telephone call to the utility company will usually give immediate results.

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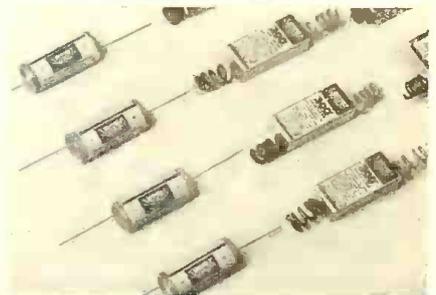
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# WHOLESALERS

★ Officials of the Cinaudagraph Corp. used the auditorium of the Wholesale Radio Service Co., New York City, last month to demonstrate to a crowd of radio men the company's new line of magic magnetic speakers. Cinaudagraph execs on the program were D. P. O'Brien, sales director; Lionel B. Cornwell and Hallton P. Friend, engineers.

★ New official of the Taylor Electric Co., Milwaukee, Wis., is Howard E. Richardson, recently named vice-president and director of the company. Taylor Co. distributes RCA radios and Leonard refrigerators.

★ Into a thoroughly remodeled two-story lay-out, Radio Service Laboratory, Manchester, N. H., has moved its recently enlarged stocks. New address is 1187-97 Elm St., and with twice its former floor space the firm will continue its wholesale service to New Hampshire amateurs, dealers and servicemen. Recent house-warming activity was led by Reynolds W. Smith and Arthur A. Levesque, company heads.

★ Allied Radio Corp., prominent Chicago parts jobber, is a recent addition to the list of distributors for Ken-Rad tubes. A. Davis heads the Chicago firm.



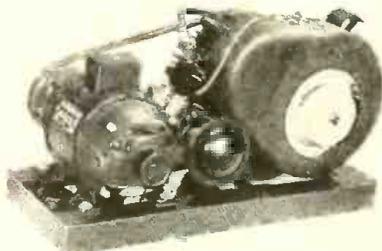
Times Appliance, leading New York wholesalers, takes over metropolitan distribution of Fada Radio. Here are Willard Ray and Ed Ingraham, Times Appliance executives, flanking the center figure of J. M. Marks, president of Fada

★ At the big auto radio salon of the MacAdams Equipment Co., Inc., New York City, president Maurice B. McCallough has completed plans to distribute GE auto radios in the Metropolitan area.

★ Electric Supply Co., jobbers of Oakland, Cal., who distribute Arvin, Emerson, Aerovox, Centralab, Radiotrons, Raytheon and other lines, have opened a new branch at 711 M St., Sacramento.

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# RADIOBAR WITH PHILCO

NEW 1936-37 MODELS



**D**ON'T delay another day...get in touch NOW with your nearest Philco distributor for complete details of the new, 1936-37 line of RADIOBARS. Buy today for "higher unit sales PROFITS" this summer! A BIG season is opening... summer homes, country homes, resorts, beaches, mountains...all are prospects for "America's Greatest Entertainment Combination" RADIOBAR-WITH-PHILCO...the finest in private bar equipment for the home with world-famous radio for the Living Room, Library, Sun Room, "Play" Room or Den. National Magazine advertising beginning, new folders now ready. Wire, write or phone your nearest Philco distributor TODAY!

★  
Just Starting Great Summer National MAGAZINE ADVERTISING CAMPAIGN

See —  
COLLIERS . . . May 9th  
TIME . . . . . May 4th  
NEW YORKER, May 2nd  
ESQUIRE . . . July Issue  
out June 1st



RADIOBAR 107, extraordinary value in this low priced leader in grained Walnut with latest PHILCO Radio and fine, private bar service.

## For the Sixth Year, RADIOBAR makes Entertainment History with 1936-37 Models..!

Outstanding in this great line of many models is the new RADIOBAR 550, shown above, a magnificent Period design, RADIO-PHONOGRAPH-BAR combination. Automatically playing and changing from 1 to 8 records, this beautiful Matched Burl Walnut & Satinwood Inlay unit houses Philco's finest ALL-WAVE Radio Receiver & Aerial and Radiobar's own distinguished private bar service for 12

**\$99<sup>50</sup> to \***  
**— \$795**



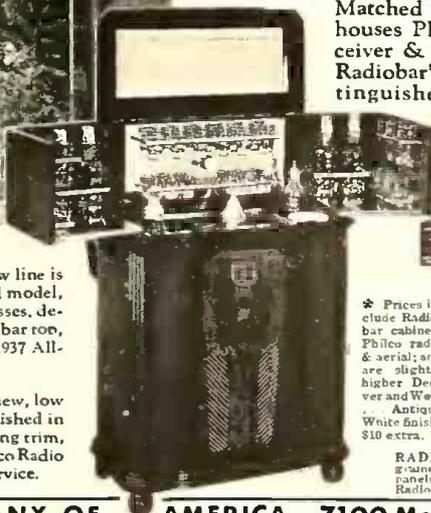
RADIOBAR 510, hand carved period cabinet for fine homes... 1937 PHILCO Radio and private bar service for smart entertaining.

Above:

### RADIOBAR 515

—a smart addition to the new line is this superbly designed Period model, completely equipped with glasses, decanters, shaker, mirrors, metal bar top, etc., and with Philco's latest 1937 All-Wave Radio Receiver.

Right: RADIOBAR 504—a new, low priced combination, hand-finished in grained Walnut and contrasting trim, fully equipped with latest Philco Radio and Radiobar's private bar service.



\* Prices include Radiobar cabinet, Philco radio & aerial; and are slightly higher Denver and West Antique White finish, \$10 extra.

RADIOBAR 507, beautifully grained American Walnut, curved panels, bar equipped, 1937 Philco Radio. A 12c00c!



RADIOBAR 528, modern design in costly Oriental woods for today's smart host, latest PHILCO Radio, bar service for 8.



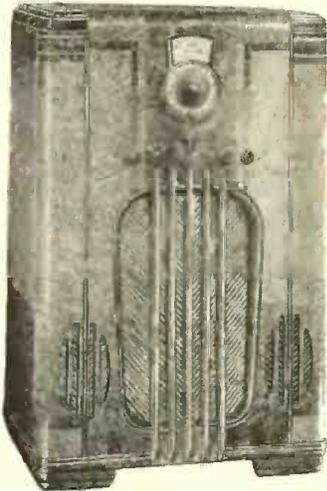
RADIOBAR 536, a gorgeous Walnut, curved panel model, latest PHILCO Radio and Radiobar's own distinguished bar service.

RADIOBAR COMPANY OF AMERICA.. 7100 McKINLEY AVE., LOS ANGELES.. 70 WARREN ST., N.Y.

# PREVIEW OF NEW 1937 RADIOS

## Philco with automatic tuning

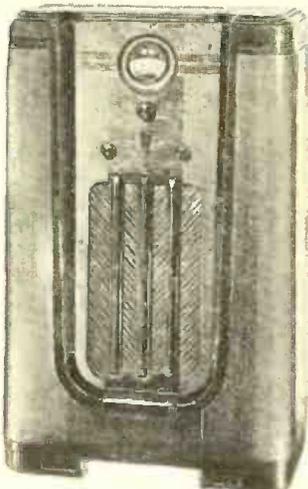
Newest Philco high-fidelity set features automatic tuning. Magnetic tuning brings station into perfect tune when dial is tuned to approximately correct frequency—off-resonance tuning impossible. De luxe model 37-116X has other exclusive Philco features, such as acoustic clarifiers, automatic aerial tuning, inclined sounding board, wide-angle sound diffusion. Separate bass and treble tone controls—variable treble



tone control adjusts selectivity of set. Spread-band dial with names of foreign stations—glowing beam tuning range indicator. Noise excluding signal amplifier—5-band all-wave operation—15 octal glass tubes. List \$195 less aerial. Standard model (without automatic tuning feature)—\$175.

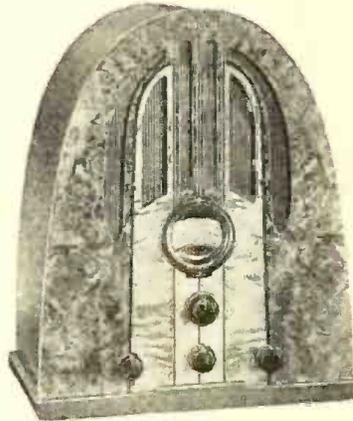
## Philco 6-tube all-wave console

Three-band American and foreign receiver. Six octal glass tubes—pentode audio system. Philco dual-ratio color dial with glowing



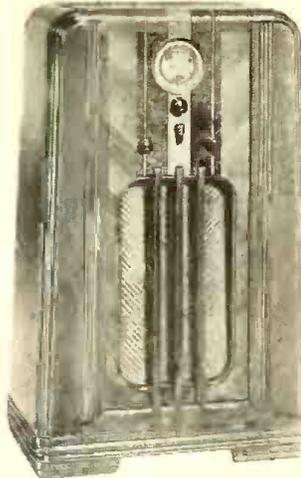
beam tuning range indicator. Unit construction—noise excluding amplifier—shadow tuning indicator. Walnut cabinet with various grain effects. Model 37-630X—list \$79.95. Table model—list \$62.50.

## Philco low-cost Baby Grand



Five-tube skip-band receiver—covers standard broadcasts plus daytime and nighttime short-wave bands. Wide-vision dial with station names—dual-speed vernier. Foreign tuning system for tuning aerial automatically—12 tuned circuits. Pentode audio output—two-point tone control. Philco unit construction—octal base tubes. Satin finish cabinet of matched burl, butt, and straight-grained walnut with holly and black inlays. Model 37-61B—list \$37.50. Console model—\$49.95.

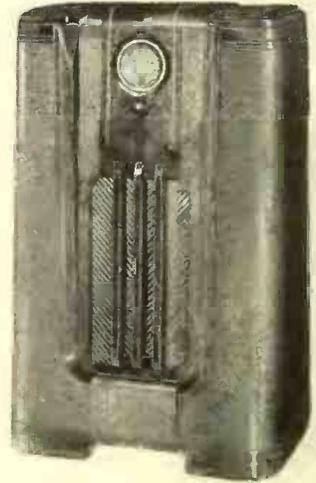
## Philco American and foreign set



Three-band 7-tube all-wave console—17 tuned circuits. Philco color dial with shadowgraph tuning—50% greater spread on short-wave band. All basic Philco features plus 3-point tone control—noise excluding amplifier—inclined sounding board. Cabinet—figured butt walnut panel set off at sides and center by light colored narrowwood inlays edged with black. At sides, "V" matched straight-grain pin stripe walnut sets off this center panel. Three darker toned vertical grille posts—end panels of matching walnut veneer slope slightly inward toward the top. Hand-rubbed finish. Model 37-640X—List \$89.95. Console in mahogany—\$95. Baby grand—\$69.95.

## Philco spread-band all-wave radio

Eight-tube foreign and American receiver—spread-band dial gives three times greater separation on short-wave stations. Dual-ratio dial names and locates foreign stations for convenient, rapid tuning—shadow tun-



ing meter indicates resonance. Four-point tone control. Inclined sounding board—push-pull audio output—concert grand dynamic speaker. Model 37-650X—list \$100. Baby grand model—\$79.95.

## Philco 9-tube all-wave

Four-band receiver covering American and foreign broadcasts. Balanced superheterodyne circuit—nine octal glass tubes—20 tuned circuits. Three times greater selectivity. Spread-band dial with four times greater speed—glowing beam tuning range indicator—dual ratio vernier—



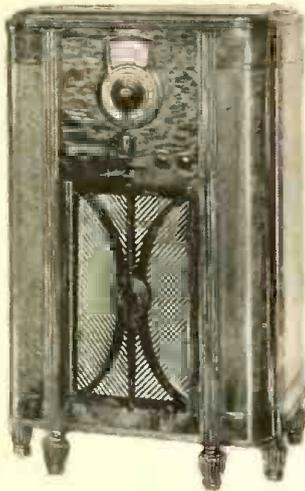
shadow tuning indicator. Super class A audio output of 10 watts—inclined sounding board. Four-point tone control—concert grand speaker. Model 37-660X—list \$115. Baby grand model—\$89.95. Philco Radio & Television Corp., Philadelphia.

Advertisement

# NEW THINGS FROM THE MANUFACTURERS

## Complete 1937 line

★ New line of Philco sets includes over 50 models (25 chassis). Outstanding feature is automatic (telephone dial) tuning as predicted in *RADIO TODAY* for February. Automatic frequency control labelled "magnetic tuning" guarantees perfect tuning. Octal glass tubes in all models.



Model 37-675X de luxe—12-tube 5-band with automatic tuning plus AFC. Spread-band dial with dual-ratio tuning. Unit construction for shorter leads—noise-excluding signal amplifier. Class A audio output of 10 watts—auditorium speaker—separate bass and treble controls. List \$169.50. Standard model (no automatic tuning)—\$150.

Other automatic tuning models.  
37-116X 15T 5-band hi-fi cons., \$195  
37-690X 20T 5-band hi-fi cons., \$375



Model 37-630T—modernistic 6-tube 3-band super with shadow tuning. Dual-speed vernier dial—50% greater separation on short waves. High overall selectivity—unit type construction—tone control. Automatic volume control—airial tuning system. List—\$62.50. Console—\$79.95.

### Other models:

Model	Cons.	Table
37-60	5T 2-band	\$42.50 \$33.50
37-61	5T 2-band	49.95 37.50
37-84	4T 1-band	20.00
37-89	6T 2-band	50.00 39.95
37-600	5T 1-band	25.00
37-610	5T 3-band	59.95 42.50
37-640	7T 3-band	89.95 69.95

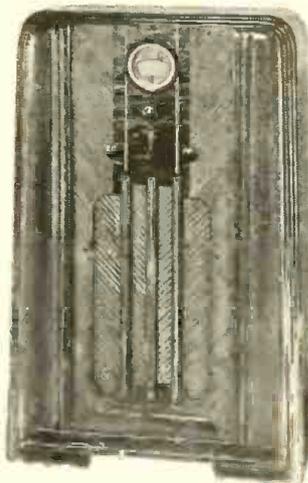
37-650	8T 3-band	100.00	79.95
37-660	9T 4-band	115.00	89.95
37-665	9T 4-band	125.00	99.50
37-670	11T 5-band	139.50	99.50

### AC-DC SETS

37-602	5T 1-band	29.95
37-604	5T 2-band	39.95
37-611	5T 3-band	65.00 59.95
37-611	5T 3-band	59.95 47.50
37-641	7T 3-band	89.95 69.95

### BATTERY SETS

37-33	5T 1-band	49.95	39.95
37-34	5T 1-band	65.00	49.95
37-38	6T 2-band	69.95	49.95
37-623	6T 3-band	79.95	65.00
37-624	6T 3-band	89.95	75.00
37-643	7T 4-band	115.00	98.95



Six-tube 3-band super with dual-ratio color dial—glowing beam range tuning indicator. Unit construction—17 tuned circuits—noise-excluding amplifier; 3-point tone control—pentode output tube. Console of walnut—37 3/4 inches high. Model 37-620J (illustrated)—\$89.95. Table model—\$52.50. Philco Radio & Television Corp., Philadelphia—RADIO TODAY

## Magnetic speakers

★ Improved type of magnetic speakers for sets and extension use—5, 6 1/2, 8 1/2 inch models. Pressed steel frames, balanced armature unit, extra-flexible diaphragms. Available in complete units with square or Gothic type cabinets. Volume control and switch optional with square cabinet style. Oxford-Tartak Radio Corp., 915 W. Van Buren St., Chicago, Ill.—RADIO TODAY

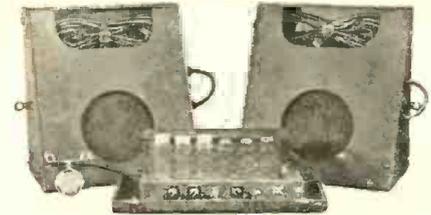
## New octal-base glass tubes

★ Announced by Philco are 14 "G" type tubes—no metal equivalents. AC and AC-DC types: 5X4G—heavy duty full-wave rectifier; 5Y4G—full wave rectifier; 6B4G—output triode; 6J5G—medium mu triode; 6K5G—high mu triode; 6K6G—output pentode.

Battery types (2 volt): 1C7G—

pentagrid converter; 1D5G—r.f. pentode; 1D7G—pentagrid converter; 1E7G—twin output pentode; 1H4G—low mu triode; 1E5G—pentode amplifier; 1H6G—duo-diode triode; 1J6G—class B amplifier. Philco Radio & Television Co., Philadelphia, Pa.—RADIO TODAY

## Portable P. A. system



★ Twenty-watt sound system for portable installations—class A amplifier. Microphone and phonograph inputs can be mixed. Tone control for "shading" highs and lows. Complete with dual speakers, crystal mike, carrying cases, and connecting cords. Model 110-R. Operadio Mfg. Co., St. Charles, Ill.—RADIO TODAY

## Cathode-ray tuning indicator

★ Kit for installing magic eye indicator in almost any set having AVC. Furnished with tube, socket with 24-inch cable, escutcheon and necessary hardware. No. 9688—list \$3. RCA Mfg. Co., Front St., Camden, N. J.—RADIO TODAY

## Condenser analyzer



★ Resistance bridge and condenser analyzer for servicing. Improved type has direct reading scale and 6E5 visual balance indicator. Measures capacity 0.00001 to 70 mfd.—resistance 50 to 2,000,000 ohms. Shows power factor of electrolytic condensers and insulation resistance up to 1,000 megohms. Built-in power supply—110 AC. Model CB-1-60—net \$19.20. Solar Mfg. Corp., 599 Broadway, New York City—RADIO TODAY

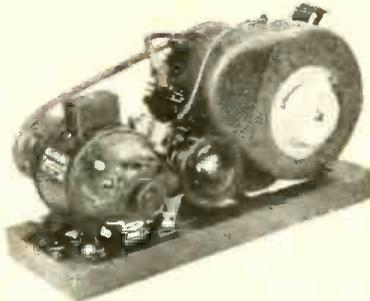
# NEW THINGS

(Continued from page 41)

## 6-tube auto radio

★ Auto radio employing six glass tubes and synchronous vibrator-rectifier. Iron-core coils in r-f. and i-f.—sensitivity of  $1\frac{1}{2}$  microvolts for 1 watt output. Undistorted output of  $2\frac{1}{2}$  watts—variable tone control. Adjustable antenna compensator—bracket mounting with 2 holes—instrument panel controls. Model HA-6—list \$44.95. Howard Radio Co., 1731 Belmont St., Chicago, Ill.—RADIO TODAY

## Low-price AC generator

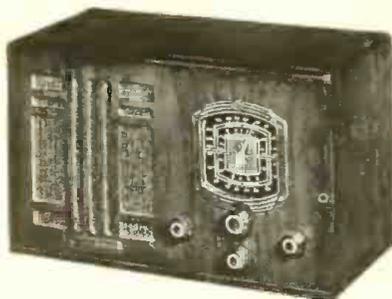


★ Gas engine type AC generator for mobile use and home lighting. Supplies 300 watts, 110-volts, 60 cycles and  $7\frac{1}{2}$  volts DC for battery charging. Size only 20 x 11 x 11 inches—weight 79 pounds. Gas engine can be coupled by pulley to various farm machines. List \$79.95. Pioneer Generator Corp., 466 W. Superior St., Chicago, Ill.—RADIO TODAY

## Dynamic mikes

★ Dynamic microphone designed for sound systems—weather-proof and rugged. Frequency response flat from 100-5000 cycles—output of -61 db normal speech at 3 feet. Impedance of 30 ohms allows use of long lines to amplifier. Bronze finish. Model 52-A—list \$29. High fidelity broadcast type (50-A)—\$60. Super-sensitive P.A. model (51-A)—\$45. Audio Research, Inc., 105 E. 16th St., New York City—RADIO TODAY

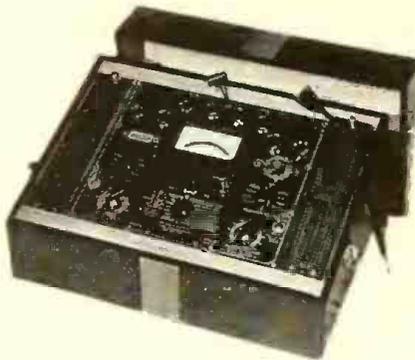
## AC 6-tube superhet



★ Three-band superheterodyne with 2 metal and 4 glass tubes—range, 540-1500, 1500-4000, 5500-15800 kc. Full-vision type dial with reversed figures—white on black. Dynamic speaker and full-range tone control. Walnut, maple, or mahogany

cabinets— $8\frac{1}{2}$  x  $13\frac{3}{4}$  x  $7\frac{1}{2}$  inches. Freed-Eisenman model FE-65—list \$39.95. Freed Mfg. Co., 44 W. 18th St., New York City—RADIO TODAY

## Power output tube tester



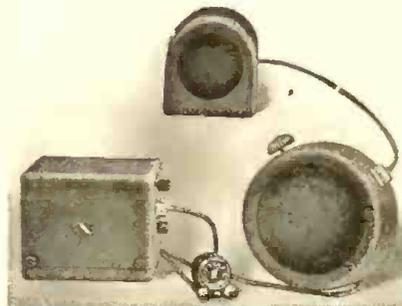
★ Latest Triplett tube tester checks tubes on basis of shorts and power output. Also tests electrolytic and paper condensers. Meter calibrated for AC-DC volts, DC milliamperes, decibels, and ohms. Furnished in either counter or portable models. Model 1501—list \$70. Triplett Electrical Instrument Co., 122 Main St., Bluffton, Ohio—RADIO TODAY

## "T" pad attenuator



★ Popularly priced 30 step "T" network for low level mixing. Extremely low noise level and low contact resistance due to multi-leaf switch. Available in 30 to 600 ohm impedances with attenuation of  $1\frac{1}{2}$  db. per step. Size— $2\frac{3}{4}$  diameter by  $2\frac{1}{16}$  deep. Model T-330. Daven Co., 158 Summit St., Newark, N. J.—RADIO TODAY

## Five 1936 auto radios



★ New Delco line consists of five basic models—custom controls available for all popular 1934-5-6 cars. Model 635 (illustrated) has 6 tubes—metal and glass. Dual speakers permit maximum fidelity—controllable bass compensation—class AB audio output. Synchronous vibrator power supply. Designed for ease in servicing and installation. List—\$69.95.

Other models: 631 5T single unit, \$39.95; 632 6T single unit, \$49.95; 633 6T 2-unit, \$52.95; 634 6T 2-unit, \$59.95. United Motors Service, 3044 Grand Blvd., Detroit, Mich.—RADIO TODAY

## Amplifier-communications system

★ AC-DC amplifier system for direct two-way intercommunicating systems. Easily installed by radio serviceman—small current consumption. Speaker used both as mike and reproducer—single switch changes from send to receive. Electro Call—list \$48 for two units. United Scientific Labs., Inc., 62 W. 14th St., New York City—RADIO TODAY

## A battery eliminator for auto radio demonstrations



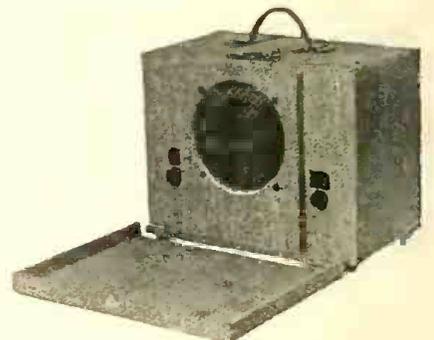
★ Power supply designed to take place of storage battery in demonstrating auto radios—delivers pure direct current for operation of any set. Employs full-wave dry-disc rectifier. Equipped with fuse and pilot light—operates from 105-125-volt AC line. ATR auto radio "A" battery eliminator—net \$12.95. American Television & Radio Corp., 128 E. 10th St., St. Paul, Minn.—RADIO TODAY

## Cathode-ray tuning kit

★ Kit comprised of cathode-ray tube, adapter and mounting, and series of post cards for sales promotional work. Utilizes either 6G5 or 6E5, former permits operation with AVC voltages up to 22 while 6E5 handles only 8 volts. National Union Radio Corp., 570 Lexington Ave., New York City—RADIO TODAY

## Portable battery radio

★ Four-tube battery superheterodyne for summer vacationing. Dual purpose tubes provide maximum sensitivity and power output. Six inch speaker. Size  $13 \times 10\frac{1}{2} \times 8$  inches—weight complete, 20 pounds. List complete with batteries—\$39.50. Ansley Radio Corp., 240 W. 23rd St., New York City—RADIO TODAY



### All-wave signal generator



★ Test oscillator using fundamentals on all bands covering 60 to 60,000 kc. Cast aluminum case with compartments for individual circuits—Faraday shield isolates instrument from AC lines. Has 6E5 tube for output indicator—modulated output at 400 cycles. Size 10 x 7 x 4½—weight 10 pounds. DayRad model 36-A—net \$36.75. Radio Products Co., 125 Sunrise Pl., Dayton, Ohio—RADIO TODAY

### Radio cabinets in color

★ Emerson model 108 5-tube dual-band table superheterodyne is now available in colors—black, ivory, walnut. Set is AC-DC type with full-vision dial, AVC, dust-proof dynamic speaker. Cabinet of bakelite—list \$24.95. Emerson Radio & Phonograph Corp., 111 Eighth Ave., New York City—RADIO TODAY

### Cathode-ray tuning indicator



★ Self-contained cathode-ray tuning indicator for all sets—with or without AVC using 2E5, 6E5, 6G5 tubes. Tube is mounted in a statuette of the Lion of Lucerne. "Magic Lion" is placed on top of set and no holes in cabinet are required. List \$8.75 complete. Magic Lion Mfg. Co., 56 Gold St., New York City—RADIO TODAY

### "G" series radio tubes

★ Announcement of "G" type tubes have been made by manufacturers listed below. Tubes are glass versions of the metal tubes bearing the same numbers—have octal bases wired identical to metal tubes. 5Y3 and 5Y3-G are interchangeable with 5Z4. 5V4-G is an 83V with octal base. "G" types introduced by:

Hygrade-Sylvania Corp., 500 Fifth Ave., New York City—5V4G, 5Y3, 6A8G, 6C5G, 6F5G, 6F6G, 6H6G, 6J7G, 6K7G, 6L7G, 6N6G, 6N7G, 6Q7G, 6X5G, 25A6G, 25Z6G.

By Philco Radio & Television Corp., Philadelphia, Pa.—6A8G, 6F6G, 6H6G, 6J7G, 6K7G, 6L7G, 6N7G, 6Q7G, 6R7G, 25A6G, 25Z6G.

Triad Mfg. Co., Inc., Blackstone St., Pawtucket, R. I.—5Y3-G, 6A8-G, 6B6-G, 6O5-G, 6F5-G, 6F6-G, 6H6-G, 6J7-G, 6K7-G, 6L7-G, 6N6-G, 6Q7-G, 6R7-G, 6X5-G, 25A6-G, 25Z6-G—RADIO TODAY

### Wire-wound insulated resistors

★ Line of ½ and 1 watt low ohm insulated resistors. Completely insulated against shorts and effects of humidity. Resistance element of wire wound on a small textile core. One watt type (1½ inches long) available from ½ to 2,000 ohms—½ watt (¾ inch) from ¼ to 500 ohms. Type B.W.—International Resistance Co., 401 N. Broad St., Philadelphia, Pa.—RADIO TODAY

### Crystal microphone

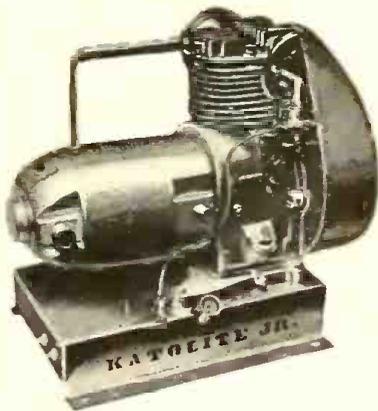


★ Crystal microphone having universal adaptability—desk, hand, floor, suspension mountings. Output of 6.5 millivolts with normal speech at distance of 15 inches. Impedance of 10,000 ohms at 500 cycles—operates into 100,000 ohm load. Shelf and working life practically unlimited. Size 3¼ x 1¾ inches. Model AG—list \$22.50. American Microphone Co., 27 Park Pl., New York City—RADIO TODAY

### Transmitting tubes

★ Transmitting tubes of the Gammatron 54 series now available in ratings of 150, 750, 1500 watts plate dissipation. Tubes are of air-cooled type—have tantalum plates and grids to eliminate gas difficulties—Nonex envelopes. Internal insulators have been eliminated by scientific design. Type 354, 150 watts—net \$24.50. Heintz & Kaufman, South San Francisco, Cal.—RADIO TODAY

### Light-weight generators



★ Portable power and light plant. Capacity of 300 watts at 110 volts 60 cycles AC. Generator is directly coupled to gas engine. Produces no radio interference—weighs 50 pounds. Katolite Jr.—list \$84. Other models (DC) available: 150 watts 6 volts—\$59.95; 200 watts 12 volts—\$62;

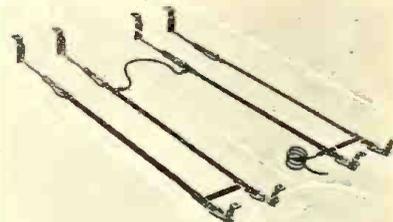
300 watts 32 volts—\$65; 300 watts 110 volts—\$69. Kato Engineering Co., Mankato, Minn.—RADIO TODAY

### 6-volt all-wave console



★ Three-band farm or summer cottage set for operation from storage battery. Seven tubes in superhet circuit—range, 540-1500, 1450-3500, 5600-18,000 kc. Full vision dial with dual-ratio vernier. Vibrator power unit—permo-dynamic speaker. Model 115. Stromberg-Carlson Telephone Mfg. Co., Rochester, N. Y.—RADIO TODAY

### Auto antenna



★ Under-car antenna (Insulantenna) for all cars. Rubberized construction—weather, abrasion, rust-proof. Fits under both running boards—adjustable brackets—no holes to drill. Non-directional—vibration and rattle-proof. Rubber coating impervious to all road compounds. Inland Mfg. Co., Dayton, Ohio—RADIO TODAY

### New tubes

★ Introduced to the trade in past month are the following tubes. 1F4 2-volt glass power output pentode. 1F6 2-volt glass duo-diode pentode. 5W4 full-wave filament type metal rectifier tube. 6L6 beam type power output metal amplifier. 6N7 metal class B twin amplifier. Introduced by:

Hygrade Sylvania Corp., 500 Fifth Ave., New York City—1F6, 5W4, 6L6, 6N7.

Ken-Rad Corp., Owensboro, Ky.—5W4.

Raytheon Production Corp., 420 Lexington Ave., New York City—1F6, 5W4, 6L6.

RCA Radiotron Div., RCA Mfg. Co., Camden, N. J.—1F4, 1F6, 6N7—RADIO TODAY

# Selling Records

## BRUNSWICK'S BUNNY

★ To make discs for Brunswick under the Vocalion label, a "hot" trumpeter with one of the swingiest bands in the country has been added to the company's artist list. Bunny Berigan is the name; he was formerly a popular tooter with the Paul Whiteman, Hal Kemp and Benny Goodman orchestras. The nation-sweeping hit, "Melody From The Sky" will be one of Berigan's first releases with Vocalion.

## DECCA'S NEW HOME

★ Decca Distributing Corp., New York City, has moved from 799 Seventh Ave. to an elaborate lay-out at 50 W. 57th St. New quarters were formerly occupied by the World Broadcasting System; Decca will fill one floor with executive offices and two with modern studios.

## BEST SELLERS AS WE GO TO PRESS

### BRUNSWICK

**The Touch of Your Lips**—Fox trot. VC by Skinny Ennis. **Lost**—Fox trot. VC by Bob Allen. Both with Hal Kemp and his orchestra—7626.

**On Your Toes**—Fox trot. **Quiet Night**—Fox trot. Both from the musical production, "On Your Toes," both with vocal refrain, both with Ruby Newman and his orchestra—7633.

**There's a Small Hotel**—Fox trot. VC by Maxine Grey. **It's Gotta Be Love**—Fox trot. VC by Skinny Ennis. Both from "On Your Toes," both with Hal Kemp and his orchestra—7634.

### DECCA

**The Touch of Your Lips and Twilight on the Trail**. Both with vocal by Bing Crosby with Victor Young and his orchestra. Both from Paramount's "Trail of the Lonesome Pine"—757.

**Lovely Lady**—from 20th Century-Fox's "King of Burlesque." **Would You?**—from MGM's "San Francisco." Both with vocal by Bing Crosby with Victor Young and his orchestra—756.

**Goody Goody**—Fox trot. **What's the Name of That Song**—Fox trot. Both with VC and both with Bob Crosby and his orchestra—727.

### VICTOR

**Moon Rose**—Fox trot. **Garbo Green**—Fox trot. Both by "Fats" Waller and his Rhythm—25281.

**It's Been So Long**—Fox trot. **Goody Goody**—Fox trot. Both with Benny Goodman and his orchestra—25245.

**You Started Me Dreaming**—Fox trot. **Robins and Roses**—Fox trot. Both with Tommy Dorsey and his orchestra—25284.

# LATEST LITERATURE ON RADIO LINES

## Free Information Service

COMPLETE information on any of the products listed below may be obtained promptly by mailing the postcard herewith. Put a circle around the numbers of the items that interest you, fill out the card and mail.

**23 International Resistance.** Catalog and technical bulletin on volume controls, potentiometers, fixed and adjustable resistances. For engineers and manufacturers only. Write on own letterhead.

**24 Radiobar.** Literature on 1937 line of radiobars equipped with 1937 Philco receivers. Pictures new, smartly styled, entertaining units.

**25 Weston.** Data and diagrams of tube bases; showing over 60 prong arrangements and connections; data on 300 types of tubes.

**26 Cornish.** Catalog of Noise-master all-wave antennas designed to eliminate "man-made" static and improve the signal-to-noise ratio.

**27 Cornell-Dubilier.** Catalog 131a and technical data on the most important sizes of electrolytic condensers for servicing field.

**28 Commercial Credit.** Details of financing plan for dealers; also merchandising advantages of a suitable time payment plan.

**29 Philco.** Literature announcing the complete line of 1937 Philco receivers for home and auto.

**30 Cinaudagraph.** New catalog on magic magnet type of speaker for home receivers, auto radio, public address and other fields.

**31 Arvin.** Literature announcing the complete line of 1937 Arvin receivers for home and auto.

**32 Ansley.** Details of dealer franchise for portable radio sets and phono-radio combinations, with suggestions on summer merchandising.

**33 Pioneer Gen-E-Motor.** Literature on new low-priced Blue Diamond 110-volt gas-electric plant with 300-watt output, suitable for sound systems, mobile radio units, farm lighting, etc.

**34 Zenith.** Literature announcing the complete line of 1937 Zenith receivers for home and auto.

**35 Baldwin.** Literature on controlled resonance speakers for replacement.

**36 Centralab.** Literature on the electrical and mechanical requirements of a good volume control; data on fixed resistors for numerous purposes.

**37 American Bosch.** Broadside describing a custom panel display showing 7 custom-styled panel



Use this postcard to  
get free information.  
No postage required.

mountings for Sky-lark car radio, matching all popular cars.

**38 Sprague.** Booklet "How to Eliminate Radio Interference" and clever post cards to promote service volume through interference-servicing.

**39 National Union.** Details of an offer to service men regarding steel storage cabinets for small parts.

**40 Solar.** Folder on principles of radio noise reduction, illustrations and data on products for noise elimination and suppression.

**41 RCA.** Leaflet on new cathode ray tuning indicator kit with diagram of typical connections to receivers.

**42 Raytheon.** Catalog and technical data on tubes for every replacement purpose, including 4-pillar glass with standard and octal bases, and all-metal types.

**43 General Electric.** Literature describing a window display using the GE radio bandmaster, a miniature character, to point out selling features of GE sets.

**44 Kadette.** Literature on line of receivers emphasizing original design, performance features and profit possibilities.

**45 Operadio.** Catalog listing complete line of public address equipment and replacement speakers.

**46 Taco.** Technical and merchandising details of noiseless, all-wave antenna systems.

**47 Onan.** Literature on AC electric plants, 110-volt or 220-volt, 60-cycle; single or 3-phase. Also 32-volt DC models. For radio, P.A., camps, cottages, farms, boats, etc.

**48 Utah.** Catalog giving comprehensive treatment of vibrators, with emphasis on improvements pioneered by Utah.

**49 Allied.** New 136-page catalog describing complete line of P.A. sets and parts, test equipment; ham equipment; general radio supplies.

**50 Na-ald.** General catalog on sockets, adaptors, analyzer plug kits, cathode ray indicator kits, etc.

# TODAY'S TRADE TOPICS

★ Jerome Kalin, president of the Standard Transformer Corp., Chicago, announces that the company is in position to triple its production, as a result of the installation of elaborate new impregnating equipment and an increase floor space.

★ Atwater Kent's southern territory, which includes Arkansas, Mississippi, Louisiana and Texas, has a new divisional sales manager, E. H. (Ernie) Severson. Appointment is the sixth one to be made by AK since the first of the year, in its divisional representation. Severson has been with the company periodically since 1927.

★ Radio Sales, Inc., CBS subsidiary, has a new staff member, Stephen S. Fuld.

★ California and the Northwest now contain two new representatives for the Atlas Sound Corp., manufacturers of sound reproducing equipment, Brooklyn, N. Y. Arnold A. Sinal, 26 Ninth St., San Francisco, is the California man; Northwestern Agencies, 2603 Third Ave., Seattle, will cover the Northwest. Latter area includes Washington, Oregon, Idaho, and Vancouver in British Columbia.

★ Broadcast Radio Co., dealers of Hackensack, N. J., have moved to new and enlarged quarters at 155 Main St. Company is in the midst of a two-month celebration of the event, and as usual is billed as "The Home of Radio Insurance," accenting the store's service policies.

★ Crosley Radio Corp., while enlarging its plant facilities in Cincinnati, recently sold its radio factory at Kokona, Ind., to General Motors. Latter firm will continue to depend upon Crosley for considerable part of its auto sets, and Crosley will continue to make car receivers for other auto makers also.

★ New assistant director of program service at Columbia Broadcasting System is Harry G. Ommerle, formerly assistant director of N. W. Ayer & Son's radio department.

★ American Microphone Co., 1915 S. Western Ave., Los Angeles, Cal., has been granted a license by the Brush Development Co., permitting them to manufacture crystal microphones under Brush patents.

★ Crosley Radio Corp., Cincinnati, has new general sales manager, Thomas W. Berger, recently named for the position by Powell Crosley, Jr., president. Berger has had a wide experience in various branches of the electrical appliance field; prior to joining Crosley he was president of the Prima Mfg. Co., Sidney, Ohio.

★ R. L. Munger has become sales manager for Taylor Tubes, Inc., tube makers of 2341 Wabansia Ave., Chi-

cago. For the last 5 years, Munger has been manager of the Lew Bonn Co., Minnesota radio parts jobbers.

★ News of the formation of Case-Hallicrafters, Inc., reported in the last issue of RADIO TODAY as the important merger of the Case Radio Corp., Marion, Ind., and the Hallicrafters, Chicago, is followed this month by spirited announcements concerning manufacturing activity. Hallicrafters factory will be moved to Marion, where the name, "Case-Hallicrafters" will go up on a top-rank radio plant. Firm will have a separate division to build Hallicrafter communication receivers, and in addition the company will offer a complete line of home sets.

★ Servicemen from all sections of New England, some 750 of them, flocked to Boston late last month to attend the first annual Equipment and Parts Exposition sponsored by the Radio Technicians Guild of Massachusetts. Unusual success of the show prompted the Guild and its associated chapters of Providence, New Bedford and Fall River to begin plans for next year's event. Program for 1936 included lectures on "Radio Noise Elimination," "Solving Condenser Problems," "Customer Relationship," and "Pick-Up Attachments to Radio Receivers and Methods of Matching."

★ Mirror Record Corp., New York City, is now ready with its new "Mirror Coated Disc," according to Paul K. Trautwein, company chief. Mirror Corp. has tripled its space for production of the new item, which will be presented in conjunction with the "Mirror Aluminum Disc."

★ First annual sales institute for Universal Microphone Co., Inglewood, Cal., is set for June 4 to 7, designed to acquaint all sales representatives with what goes on at Universal's factories. Series of demonstrations and lectures has been scheduled; Universal execs on the program include James R. Fouch,

president and general manager; E. E. Griffin, chief engineer; and E. K. Barnes, sound expert.

★ New York offices of Raytheon Production Corp. have been moved to 420 Lexington Ave.

★ Jerome Jacoby and David L. Williams have been added to the sales staff of Anchor Lite Appliance Co., Crosley distributors of Pittsburgh, Pa. Anchor Lite Co. has been curiously pursued by fires and floods since January. First, neighbors had a fire and Anchor Lite was generously sprinkled; later the damaged buildings collapsed, and Anchor had to move. Then came the Pennsylvania floods.

★ New distributor for Troy radios in Northern California is C. C. Brown Co., 26 Ninth St., San Francisco. Brown Co. also handles Hygrade Sylvania tubes and Dayrad test equipment.

★ Hatry & Young, Inc., radio specialists with headquarters at Hartford, Conn., have announced the opening of a third store in Bridgeport, Conn. Other branch is at New Haven.

★ Radiobar has added two new district managers to its sales organization: W. R. McAllister, with headquarters in Chicago and the Middle Western assignment; and L. A. Coons, to cover the East and South. Company recently held a 3-day sales meeting in New York with the new district managers present, as well as C. T. Hillman, Eastern sales manager, and Roger Thompson, division manager. Radiobar has enlarged its sales scope because the product is specially adapted to summer selling.

★ Bayshore Radio Service, formerly located at 9 Fifth Ave., Bayshore, Long Island, N. Y., has moved to a new shop at 176 W. Main, same city. According to William Exter, Jr., one of the company heads, the firm will continue to offer 24-hour service.

★ Cinaudagraph Corp., Stamford, Conn., has a new district sales manager for the Midwest, Roy W. Augustine, whose offices will be in Chicago. Augustine is a radio vet formerly with the Utah Products Co.

(Continued on page 52)

NATHANIEL  
BALDWIN  
CONTROLLED RESONANCE  
REPLACERS

This ad pinned to your letterhead will bring you complete data on the great Baldwin line of Replacement Speakers.

CONSOLIDATED RADIO PRODUCTS CO., 381 W. SUPERIOR ST., CHICAGO  
60 E. 42nd STREET, NEW YORK, N. Y.

# TOO MANY PARTS JOBBERS!

- manufacturers can correct situation; trade requirements
- widespread abuses result from indiscriminate appointments

★ WHO is to blame for the present condition where some 2,500 concerns now claim to be radio-parts wholesalers and parts jobbers?

Who is to blame for the resulting demoralization, when concerns buy as wholesalers and sell as retailers, passing along the unearned retail margin to the public as a price-cut?

And this situation in which the replacement parts business finds itself is not getting any better. Instead it is rapidly getting worse.

"Growing pains" can be assigned as one underlying reason for present conditions. Stabilization is still far off. Manufacturers' representatives appoint unnecessarily numerous "distributors." Other manufacturers in the parts-replacement field have not made up their minds as to what lines they are going to produce or to feature.

Manufacturers of one type of product note with envy the success of other manufacturers in separate but related fields. "The grass always looks greener in the field across the way." And so each year manufacturers add items, such as resistors, condensers, volume controls, where formerly the same concern made only one of these lines. At once the sales manager of such a factory is called upon to produce results for the new lines. And if he cannot get results in a territory, it is only natural to open up new distributing houses, even at the expense of the present jobbers' set-up.

## Hits legitimate jobber

In turn this activity on the part of the replacement maker has affected the legitimate radio jobber. Not knowing what new lines the parts manufacturer is going to add, the jobber has been forced to hold off from majoring on any particular line of parts. Naturally, self-preservation has been the keynote; key jobbers have tried to starve their competitors by gobbling up all available lines.

When a jobber tries to starve a new competitor in this manner, the newcomer then goes out to see what type of new merchandise he can obtain. Usually he falls into the hands of a manufacturer who has no policy.

Such a product may be of questionable quality, and sold chiefly on a price basis. In turn this upsets the market, and forces the legitimate jobber to take on questionable items to meet such competition.

And from there the contagion spreads to the dealer and serviceman. The serviceman who might have been taught a lesson of quality in replacement products is instead shown that "any kind" of replacement merchandise will do the job for him.

Then large dealers or service organizations, seeing this lack of jobbers' interest in any one line, have themselves gone into the jobbing business. Some of these dealer-jobbers have rendered a real service, because they have pushed quality lines. On the other hand, in regions where real jobbers have gotten behind good lines, carried adequate stocks and given real service, such conditions do not exist.

## "Mail order" wholesalers

"Mail-order jobbers," operating nationally and issuing bulky catalogs, introduce another complexity into the parts-distribution picture. Many such mail-order houses send out catalogs to vast mailing lists, which include besides servicemen and dealers, thousands of amateurs and the very laymen who make up the customers of the retail trade. To these members of the public are offered not only replacement parts, but also radio receivers, tubes and other equipment at prices well down into the wholesale bracket.

Many legitimate wholesalers declare that these mail-order firms add confusion to the wholesale distribution of parts, by "selling to anybody" without identification, at dealer prices or lower. Such mail order outlets take business away from the retailers themselves, their own customers—for as their wholesale-by-mail business decreases, they set up retail stores of their own, and thus chains of radio shops are established, in competition with individual retailers.

Others feel that these mail-order houses have a proper place in the radio business, in handling parts that are technical in character and are not purchased by the public, and that their competition cannot injure the

legitimate jobber who carries a complete stock of parts, has competent technical help at the counter and serves the local radio trade adequately. It is pointed out that there are still many sections of the country which are not really served adequately by local jobbers, and that eventually the field of the mail-order jobbers will be concentrated in these sections.

## The "truck jobber"

The "wagon jobber" or wholesaler selling by truck has lately come to have an important place in the parts-distribution picture. Such a wholesaler, making spot deliveries to servicemen and dealers, right from his truck, represents a modern trend that has some distinct merits of practicality and usefulness. Such "wagon-jobbers" get the goods to their customers in the trade when they need it. Consequently some of the liveliest jobbers in the country have added truck selling to their store selling, with marked advantages to their customers and themselves.

But all hands agree that the problem of the parts jobber who demands and obtains discounts for which he performs no service, is not alone a problem of his competitors, the established distributors in radio.

The new horde of parts distributors bring confusion to manufacturers who are seeking sound distribution; they bring also unfair competition to retailers and servicemen whom they fight on price-levels where the legitimate retailer, observing ethical standards, finds himself helpless.

## Every group involved

The manufacturer has a right to expect certain things of his distributor, and should see that these obligations are carried out. It is the responsibility of the distributor to push the manufacturer's lines—but *not* "hog" the territory, set up competition, nor divide his effort among competitive products. Also it is the distributor's responsibility to cover his territory adequately, either with salesmen or with a catalog. Further, it is desirable that there be a physical separation of the wholesale and retail ends of the business. The distributor must do his part of the job completely and competently.

The radio-parts manufacturer has a part to perform in protecting his jobbers against other distributors in the same territory. On both sides the distribution contract must be carried out conscientiously and fully.

# Coming!

## A marvelous new line of **MONEY-MAKING MAGIC!**

The new RCA Victor line about to be revealed covers every price class with merchandise that is strikingly superior in appearance, performance, features. Bigger values than ever before! It offers:

### **28 MODELS**

including 6 Consoles under \$100 that will go to town in a big way!

In June you will see the greatest line in all RCA Victor history! Every number is made and priced to conquer a market. Tube for tube, cabinet for cabinet, dollar for dollar, here is a line that will break all records. High-lighting the better sets is a magical new feature, Camden's greatest achievement since the Ortho-

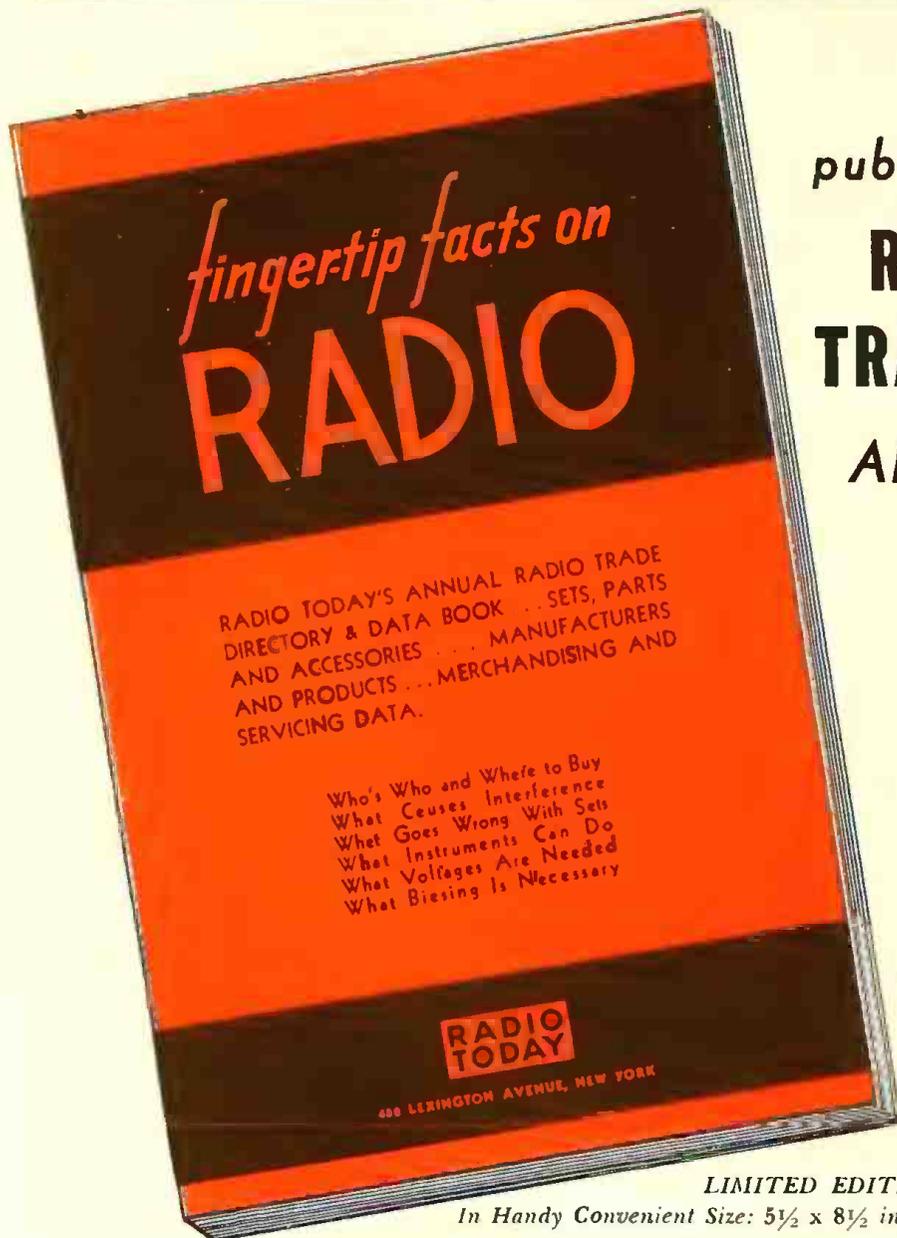


RCA MANUFACTURING CO., INC.  
Camden, N. J.  
A service of the Radio Corporation of America

phonic Victrola, joining the "Magic Brain" and the "Magic Eye" to create sensationally new standards in reception—and in sales. . . This line is so hot it sizzles! Wait until you see it, and get the details of the high-power advertising and promotional plans. Full details will be available to the trade shortly.

# *RCA Victor Means Business*

**COMING! OFF THE PRESS MAY 28!**



*An all-time publishing achievement!*

**RADIO'S ONLY  
TRADE DIRECTORY  
AND HANDBOOK**

*Complete  
Authoritative  
Up-to-date*

• **CONTENTS:** Names and Addresses of Manufacturers of Receiving Sets, coded to guide you in selecting amateur, commercial, farm and battery, home, radio-phonograph combinations and auto sets.

Names and Addresses of Manufacturers of Parts, Equipment and Instruments, segregated by lines to cover antennas, batteries, coils, condensers, generators, converters, line filters, microphones, public address equipment, resistors, speakers, etc.

Servicing and Merchandising—**CHARTS! TABLES!**—just the kind of information every dealer and service man needs daily. It tells you what goes wrong with radio sets—and why; it gives you data on radio set analyzers; sources of radio noise—helps you look for interference—aids you in eliminating the trouble; it gives you tube ratings and bias resistor tables.

*LIMITED EDITION  
In Handy Convenient Size: 5½ x 8½ inches*

• **RADIO TODAY** now fills the long-felt need for a radio directory that is complete, authoritative, up-to-the-minute! Charts and tables have been included to fill the demand for this type of information in handy, permanent form. Every progressive distributor, dealer and service man will find innumerable ways to put this directory and handbook to work.

**FILL IT IN—TEAR IT OFF—MAIL IT TODAY**

RADIO TODAY, 480 Lexington Ave., New York City  
Enter 1 Year's subscription to RADIO TODAY. Send the Directory FREE. Full payment of \$1.00 enclosed  Bill me for \$1.00

Name \_\_\_\_\_ Title \_\_\_\_\_

Company \_\_\_\_\_ Address \_\_\_\_\_

If mailings are to be made to your home give home address here: \_\_\_\_\_

**What is your Main Line of Business? Please Check:**

<input type="checkbox"/> Radio Dealer	<input type="checkbox"/> Radio Distributor	<input type="checkbox"/> Furniture Dealer	<input type="checkbox"/> Engineer
<input type="checkbox"/> Radio Service	<input type="checkbox"/> Broadcast Sta. Mgr.	<input type="checkbox"/> Musical Instrument	<input type="checkbox"/> Misc. ....
<input type="checkbox"/> Electrical Dealer	<input type="checkbox"/> Automotive Dealer	<input type="checkbox"/> Radio Manufacturer	Please write in what business

**WORTH MANY TIMES THE  
SUBSCRIPTION PRICE OF  
"Radio Today"—\$1.00 —  
YET IT IS YOURS**

**FREE**

**WITH 1-YR. SUBSCRIPTION**

# 102 Refrigerator Sales in 9 months ... NO SERVICE EXPENSE! ALL PROFIT!

JESS McLARRY, Secy.-Treasurer

Mr. H. SWIDMORE, President

**Electrical Appliance Company**  
OF WICHITA FALLS  
920 SCOTT STREET PHONE 5707  
Wichita Falls, Texas

General Electric Company  
Hotpoint Refrigerator Division  
Dallas, Texas

Attention: L. S. McLeod, Dist. Mgr.

Gentlemen:

On March 15, 1935, we opened our Electrical Appliance Company here. During the balance of the year we sold one-hundred and two (102) Hotpoint Refrigerators. We have not had a service complaint on any one of them. Every one of these owners is a booster.

Your rugged compressor, just made for this climate, enables us to whip competition with the greatest ease. Our success has brought us flattering offers to handle several other well-known lines, but we are so well satisfied that we intend to remain an exclusive Hotpoint Refrigerator outlet.

We have set a minimum performance for ourselves in 1936 of two-hundred and fifty (250) Hotpoint Refrigerators in Wichita Falls, a city of 43,600 population.

To indicate our confidence in your line, we have just spent \$250 for a Hotpoint sign in 14-inch Neon letters.

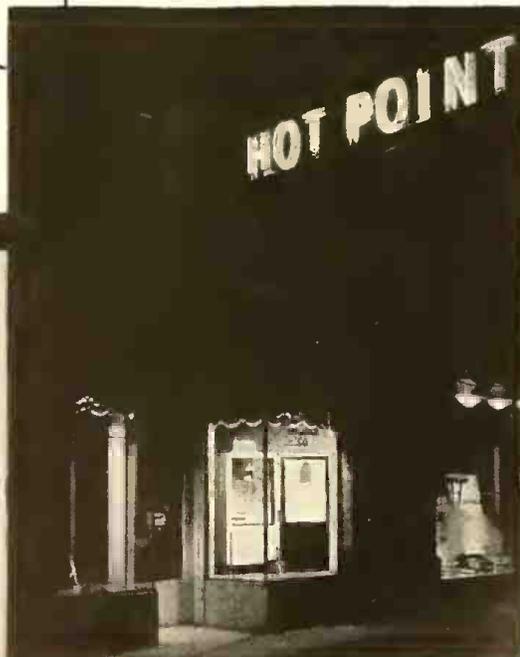
Very truly yours,

ELECTRICAL APPLIANCE CO.

By *M. H. Swidmore*  
Manager

**H**OTPOINT Refrigerator retailers everywhere report increased sales... and increased profits. Hotpoint's super-service mechanism reduces service complaints to a minimum. Satisfied, enthusiastic owners become boosters and help sell other prospects. One sale leads directly to another. Hotpoint's twelve models... deluxe, standard and Thriftype... with new styling and advanced convenience features... gives you a line that meets the needs of every family. Write today for franchise details. Hotpoint Refrigerator Div., Sec. RT5, Nela Park, Cleveland, Ohio.

**Hotpoint**  
MANUFACTURED BY GENERAL ELECTRIC



# FOR RADIO-REFRIGERATOR DEALERS

★ UNWRITTEN pledge by the industry to sell 2,000,000 refrigerators in 1936 will demand spirited, intensive, well-directed promotion on the part of the manufacturer, jobber and dealer. Within the next 10 weeks, many a housewife will have to receive the final reasons why she positively should own a "box."

Researches on how costs of electrical current will be, or have already been, reduced to figures within reach of additional groups of householders will be used in national promotional schemes. Also, the features of the 1936 models will be presented sensationally from the economical point of view. Sales activity for the season will run less to the matter of the appearance of the refrigerators, though some be "the most beautiful in the world," and more to the matter of how they are actually a money-saving proposition for the consumer, particularly with their late improvements in operating costs.

## "BOXES" FOR IGLOOS

★ Paul Palfy, Fairbanks-Morse dealer at Fairbanks, Alaska, insists that "although outdoor temperatures up here are always extremely low, the temperatures in homes are no different than those in other parts of the world."



Laughable refrigeration adventures of Grace and Eddie, NBC "Newlyweds" team, have been transcribed on 13 records, available to Westinghouse dealers.

Promoter Palfy, therefore, goes after the refrigerator biz in his frozen land with the conviction that the need for adequate storage is as great there as elsewhere, and he looks forward to a thriving response to his 1936 line.

★ Lincoln Sales Corp., Baltimore distributor for Crosley, cooperated with the Hecht Bros. store in staging a glittering electrical exposition in that city, April 24 to May 2. Feature was Station WEE, described as the world's tiniest broadcasting station, the 175-lb. 4/100 watter built by John R. Boyle of Philadelphia.

★ Home Appliance Division of Fairbanks, Morse & Co., Indianapolis, Ind., reports the appointment of Mrs. Faith M. Richards as Home Economics Supervisor of the company's Home Laundry Laboratory. Mrs. Richards will serve as consultant to FM dealers and distributors on both technical and selling problems.

★ Electrical, Radio, and Refrigerator Dealers' Club at Richmond, Va., has indicated its dissatisfaction with current advertising methods. Action was taken at a recent meeting to check inaccurate statements made in ads, a committee was appointed to look into the matter, and the organization goes on record as being interested in having out-of-production or obsolete models clearly described as such in all advertising.

★ Norge refrigerators will now be sold by the Rice Furniture Co., Jackson, Miss., in a new department headed by Roy Weinberg.

★ Wheless Gambill, Jr., president of the Gambill Distributing Co., Crosley jobber of Nashville, Tenn., plans to open a branch office at Chattanooga. Gambill says the move follows an increased demand for "boxes" in the area. This distributor saw to it that the Tennessee dealers who had sold their quota had a trip to the Crosley factory, Cincinnati. Gambill men in the trek were J. F. Blackford, J. R. Burnett, and J. R. Koonce. Guest dealers were Joe Susman, Lookout Furniture Co.; C. S. Green and wife, Lawrence Furniture Co.; George W. Neff, W. C. Teas Co.; Charles R. Reddick, Storage Battery and Elec. Shop; Arthur Davis, Smith Furniture Co.; and Roy Newsom, Hoover & Newsom Co.

★ Series of 12 sectional meetings for Grunow refrigerator dealers in Washington and Oregon was recently wound up by F. B. Connelly Co., Seattle distributors. More than 400 dealers were involved in the meetings and others will see the Grunow line via the F. B. Connelly Display Coach.

## 175,000 NEW BUYERS

★ Leading item of home equipment to be purchased by war veterans when they receive their bonus checks. June 15, appears in the estimates as "to purchase electric or gas refrigerator." The much-quoted survey made by the *American Legion Monthly*, as to where a representative 42,500 vets planned to spend their money, shows that out of the total payment, approximately \$21,234,000 will be invested in new refrigerators.

Other facts are that nearly 5 per cent of all certificate holders will be definitely interested in a new "box." This means that the refrigeration biz may expect some 175,000 new customers after the middle of June. Some of these have been approached already by enterprising dealers who went after the new set of prospects soon after it was known that they would be paid.

Refrigerator dealers are jubilant that this extra buying power appears at a seasonal period, and at a time when manufacturers are offering dozens of new features with their lines.

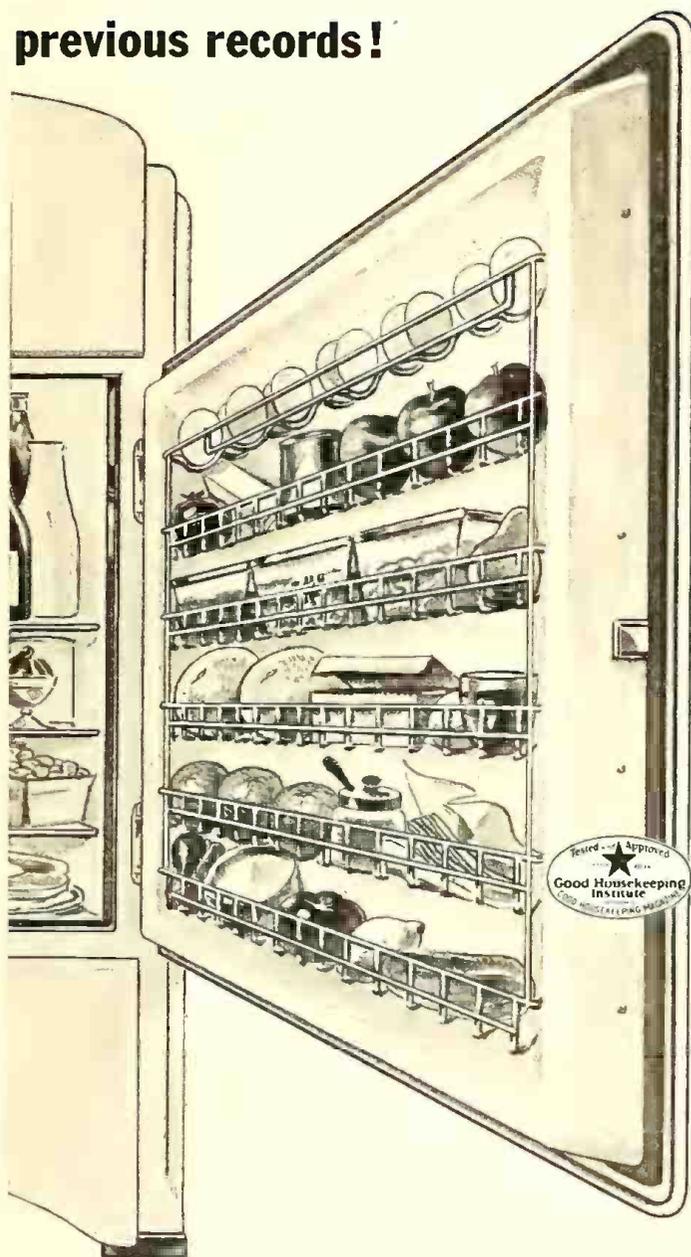
## IS HE THE OLDEST RADIO JOBBER?

★ Frank H. Clay, "wholesale only," Kalamazoo, Mich., began traveling and selling merchandise in Southwest Michigan in 1882, and is now selling sons and grandsons of his former customers. He has been in radio, and a Crosley distributor "since the radio business started."

RADIO TODAY would like to hear about any distributor with a longer record than this!

# 33 $\frac{1}{3}$ % INCREASE IN CROSLEY DOLLAR VOLUME SINCE JANUARY 1, 1936

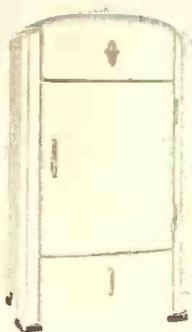
. . . over same period last year . . . and last year broke all previous records!



**HOUSEWIVES** proclaim Shelvador the greatest household success of the generation. They rush to buy this—the only truly modern refrigerator.

And dealers everywhere are snapping up the Crosley franchise—the greatest money-maker of the times.

*this much more in*  
**a SHELVADOR**



**THE WORLD'S  
MOST BEAUTIFUL  
REFRIGERATOR**

**TO DEALERS**, this brief suggestion—backed by **PROOF**: “The sooner you handle Crosley, the more you profit!”

Priced from \$99.50 to \$244.95, including delivery, installation. Five-Year Protection Plan.

*(All prices slightly higher in Florida, Texas, Rocky Mountain States and West.)*

**THE CROSLEY RADIO CORPORATION, CINCINNATI - POWEL CROSLEY, Jr., President**

# TODAY'S TRADE TOPICS

(Continued from page 45)

★ G. K. Throckmorton, exec vice-president of RCA Mfg. Co., has news of the company's unification of selling activities; 18 district control offices have recently been set up. Sales forces in these districts for radios, records, tubes, parts and other apparatus, which had been operating independently, will now be supervised by district managers. Managers, with their headquarters, are J. B. Elliot, Boston; Herbert C. Edgar, Syracuse; L. W. Teegarden, New York; John K. West, Philadelphia; E. W. Butler, Pittsburgh; Roy A. Forbes, Washington; M. F. Blakelee, Atlanta; Norman Bass, Cincinnati; H. A. Edwards, Cleveland; Robert E. Kane, Detroit; F. H. Larabee, Chicago; Fred D. Wilson, Minneapolis; H. T. Stockholm, St. Louis; F. Bewsher, New Orleans; James W. Cocke, Dallas; Dean A. Lewis, Denver; N. A. Woodford, Seattle; and James E. Francis, Los Angeles.

★ New representative for Consolidated Speaker Co., Chicago, is John J. Koppele, recently appointed to handle the company's sales in the East. Koppele's address is 60 E. 42nd St., New York City.

★ Two radio heroes of the tornado emergency at Gainesville, Ga., were Irving Miller, manager of the Atlanta branch of Wholesale Radio Service Co., and Howard W. Stephens, W4CDH. They rushed into the stricken town with a battery-operated receiver and transmitter, set up the outfit in one of the few buildings left standing, and handled nearly 200 relief messages during a 33-hour stretch.

★ R. M. Coburn has become assistant sales manager for the National Union Radio Corp., New York City.

★ General Jorge Ubico, president of Guatemala, has purchased a new Gar Wood cruiser, standard equipped with a Philco radio. Boat will be used for fishing in the Pacific, out of San Jose.

★ Manager of Davidson's Radio Repair Shop, Bayshore, Long Island, N. Y., is now a woman, Mrs. Harry Davidson, who confronts patrons with such an impressive knowledge of radio sets that they don't have time to ask for the man of the place.

★ Garod Radio Corp. has announced an all expense paid, Labor Day cruise to Nova Scotia, Sept. 4-8, to those of its dealers who qualify. Lou Silver, Garod sales manager, is in charge of the plans.

★ Dr. E. F. Lowry is the new director of research and development for Continental Elec. Co., St. Charles, Ill., makers of photo cells, electronic, and special vacuum devices. Lowry was formerly research engineer for Westinghouse.

★ Sales and factory headquarters of Grebe Radio and Television Corp. are now under one roof at 119 Fourth Ave., New York City, where the company also enjoys enlarged plant facilities. Operations will be carried on under the name of Grebe Mfg. Co., Inc.

★ S. H. Couch Co., Inc., North Quincy, Mass., has a new sales agent for Metropolitan New York. Wesley Block & Co., 15 E. 26th St., will handle the company's apartment house telephone and mail boxes, private telephones, amplifiers, centralized sound equipment, fire alarms and signaling specialties. W. J. Clifford Co., 39 Cortlandt St., continues as Couch agent for other items.

★ J. R. Brandenburg has joined the Zenith Radio Corp. as district sales manager covering the Philadelphia and Washington, D. C. territory. He was, for a number of years, a member of the RCA-Victor sales organization.

★ Miss Helen Stanilind, right bower and left bower to Jim Quam, head of Quam-Nichols, Chicago speaker manufacturers, spent about ten days in Gotham this month, making her headquarters at the New York office of the company, 1674 Broadway. Miss Stanilind was royally welcomed by Milt Schechter and Bob Breuer, Quam-Nichols representatives in the Eastern territory, and her only complaint was directed toward Daylight-Saving Time which, somehow or other, didn't seem to provide for a sufficient number of hours for sleeping purposes.

★ E. E. Brown has become general sales manager for Associated Cinema Studios, Hollywood transcription laboratory.

★ Herbert H. Frost, founder and for several years president of the RMA, has joined the Ferry-Hanly Co., 500 Fifth Ave., New York City. Frost will be radio and merchandising counsel to the agency's clients.

★ Art Director's Club, at this year's exhibition in New York City, gave the Columbia Broadcasting System three awards for excellence in advertising. CBS had the best photographic illustration, the best booklet, and the best trade paper photographic illustration. The first was a picture of an African drummer used in a CBS ad, the second an announcement of WJR's addition to the CBS net, and the third was Columbia's "Awards" advertisement.

★ GE has a new district radio specialist in the Buffalo territory, T. P. Begy.



● What radio manufacturer gave dealers the best Sales Promotion helps for 1935-1936 season? According to the results of a nation-wide survey among radio dealers conducted by an outside agency, General Electric leads the parade.

● The five Bandmasters in the new G-E Radio Window Display are leading the parade of passers-by right to dealers' windows and into their stores. These band leaders attract attention, arouse interest, and drive home the sales features of G-E Radio in a sales-compelling manner.

● More Winners — To J. L. Schricker of the General Electric Supply Corp., Salt Lake City, Utah, and P. D. Horan of Virginian Electric, Inc., Charleston, W. Va., congratulations! Each won a new automobile for doing the outstanding jobs in the President's Campaign sponsored by G-E Radio Distributors.

● Don Shattuck was appointed District Sales Representative of G-E Radio Division with headquarters in Omaha, Neb.

● The American Legion announces that \$8,000,000 of bonus money will be spent for radio receivers. G-E Radio Distributors have a plan to help dealers secure a good share of this plus business. Your G-E Radio Distributor will be glad to tell you about it.

● More than 3,675,800,000 G-E Monograms on electrical appliances purchased for use in American homes keep reminding millions of consumers of G-E quality. Good will builds sales.

● Spring + car + auto radio = a perfect combination. For those dealers who feature it now, the new G-E Metal-tube Auto Radio will furnish additional sales. Metal Tubes insure a clear, rich tone, free from tube noise resulting from vibration — a real sales feature.

● Research Keeps General Electric Years Ahead — The perfection of Metal Tubes, in the "House of Magic," was announced by General Electric just a little over a year ago. This latest G-E development made possible a new era in improved radio reception. The public's appreciation is reflected in the phenomenal increase in G-E Radio sales for the current season.

**WATCH**  
**G-E RADIO IN 1936**



# MEANS BUSINESS

The volume of General Electric Radio sales for the current season has made record-breaking advances. In fact, G-E Radio sales are the greatest in the history of the Company. G.E. has moved forward to a dominating position in the radio industry.

With a background of more than a quarter of a century of distinguished radio achievements, General Electric is expanding its research and development facilities . . . strengthening its field merchandising force . . . to make even greater contributions to radio engineering, manufacturing and

merchandising for this year and the years to come.

General Electric Radio dealers know that they can count on consumer acceptance, ease of handling, quick turnover and powerful sales promotion assistance when they feature General Electric Radio. The entire General Electric Radio factory program is built to help dealers make money.

Unquestionably, General Electric Radio is the right line upon which you can build a permanent business of volume sales and growing profits, for G.E. means business — and more business every year!

**Your nearest General Electric Radio Distributor  
will gladly give you complete information.**

**GENERAL**  **ELECTRIC**

**THE ORIGINAL METAL-TUBE RADIO**

**APPLIANCE AND MERCHANDISE DEPARTMENT, GENERAL ELECTRIC COMPANY, BRIDGEPORT, CONN.**

# "The Man Who Gets the Honey Never Fights the Bees"



Handling auto radio is like handling bees—they'll swarm to you if you don't "fight" them. You can get plenty of "honey" the easy way by selling Motorola—America's finest and best known auto radio. Through our powerful national Billboard and other Advertising a huge public demand for Motorola is already created for you. Motorists everywhere insist on having this outstanding trouble-free receiver. Sell the line that people want and make greater net NET profits. Get started NOW!

## Motorola America's Finest AUTO RADIO

### The Fastest Selling Line in the Country Today

Outstanding listening quality and unrivalled performance have made Motorola the quickest moving and most profitable line you can handle. Get on the band wagon—tie in with Motorola leadership—and enjoy easy sales and profits.

#### ★ ★ 4 STAR MODELS ★ ★

**Model "60"—6 Tubes**  
6" External Speaker  
Uses 6-B-5 "Booster" High Power Output Tube. Automatic Volume Control. Tone Control.  
Complete..... **\$49.95**  
With Optional 8-Inch Speaker, List \$54.95

**Model "80"—8 Tubes**  
8" External Speaker  
Metal and Double Sealed Metal-Clad Tubes. Perfected Automatic Volume Control. Full Variable Tone Control.  
Complete..... **\$67.50**

**"Golden Voice"**  
10 All-Metal Tubes  
10" "Golden Voice" Speaker  
The most remarkable auto radio ever built. Amplified delay (not squelch) Automatic Volume Control. Sensitivity Control.  
Complete..... **\$89.50**

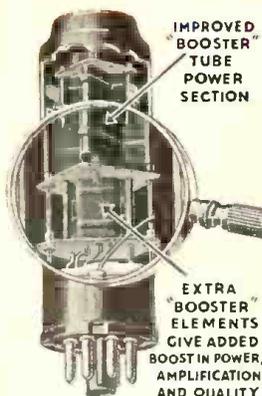


**MODEL "50"  
6 TUBES**

Big Value Single Unit. Full Dynamic Built-in Speaker. 3-gang Tuning Condenser. Automatic Volume Control.

Complete **\$39.95**

### These Features Help You Sell Motorola



IMPROVED "BOOSTER" TUBE POWER SECTION

EXTRA "BOOSTER" ELEMENTS GIVE ADDED BOOST IN POWER, AMPLIFICATION AND QUALITY

#### MATCHES THE DASH OF ALL CARS

Fits Perfectly and Harmoniously . . . Overhead Ear-Level Speakers Where Required for Models "60" and "80".

#### NEW "BOOSTER" TUBES GIVE SUPER POWER

A basic development embodying a new principle in circuit design that boosts power, amplification and quality . . . Plenty of volume to fill every car at highest speeds . . . Unmatchable radio reception with Studio Fidelity of Tone.

#### ADJUSTABLE ANTENNA SYSTEM

"Series-Fed" Antenna System—Adjustable for Peak Performance Using Under-Car or Roof Aerial.

#### ONLY MOTOROLA HAS THE "MAGIC ELIMINODE"

Newly improved . . . This Patented Feature Guarantees Motor-Noise-Free Reception . . . Positively NO SPARK PLUG SUPPRESSORS to harm engine performance.

#### MATCHED TWIN SPEAKERS

Give even distribution of sound to passengers in both rear and front seats. For combined Under-Cowl and Overhead Installation—or else Combined Under-Cowl and Rear Seat Installation. On Models "60" and "80".

#### INSTALLS ON "JIFFY" MOUNTING BRACKET

Compact . . . Installs Over Steering Post—Easier Than Ever Before . . . Plug-in Chassis.

ASK YOUR COMMUNITY MOTOROLA DISTRIBUTOR FOR DETAILS  
**GALVIN MFG. CORPORATION • CHICAGO**